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Thesis Prospectus

How can the Jordanian government use renewable energy to mitigate the refugee crisis?

Introduction

In recent years, the Hashemite Kingdom of Jordan's potential for and progress in developing renewable energy (RE) resources has grown substantially. This is crucial for the country's long-term stability, as Jordan imports an estimated 95-97% of all its energy sources from neighboring countries.[1] Jordan faces a variety of other domestic and international issues, including mass youth unemployment, market inflation and reduction of state subsidies, extreme water scarcity, energy shortages, and a heavy reliance on foreign aid. All of these issues, which are critical to Jordan's security and stability, have been exasperated by the Syrian refugee crisis.

Since the beginning of the conflict in 2011, Jordan has taken in the third-largest number of Syrian refugees in the world, following Turkey and Lebanon. Despite its already constrained resources, Jordan has now become home—whether temporarily or permanently—to 670,000 refugees officially registered with the UNHCR and an estimated 630,000 others living in host communities outside of the camps.[2] With no end in sight to the conflict and increased economic constraints on UNHCR, the pressure on the Jordanian government is increasing as they scramble to keep the peace and still provide adequate services for its citizens. Jordan recently signed the

[1] Julia Sahawneh, "Energy Policy: Country Report – Jordan," Ministry of Energy and Mineral Resources, 2 June 2015, 7, https://eneken.ieej.or.jp/data/6206.pdf.
[2] "Syria Regional Refugee Response," UNHCR, 24 September 2018, https://data2.unhcr.org/en/situations/syria/location/36.

Jordan Compact, an agreement with the EU to increase trade between the two entities and provide financial aid on the condition that Jordan allows Syrian refugees to obtain work permits. The Dead to Red project aims to carry potable water from Aqaba to the area surrounding the Dead Sea as well as to combat salination of the Dead Sea, which has caused an array of environmental and economic issues. Though these initiatives will aid in mitigating the crisis at hand, in no way do they solve the problem. Foreign aid is not sustainable; it tends to decrease with time and decline substantially when a conflict ends. The Dead to Red project, which has been discussed since 2005, has yet to begin construction and is estimated to cost over $10 billion USD.[3]

Renewable energy, however, has the potential to be a comprehensive and long-term solution. Though it requires large up-front investments, over time RE saves millions of dollars because it is self-sustaining and efficient. With its hilly regions and 300+ sunny days a year,[4] Jordan is an excellent candidate for renewable wind and solar power. In fact, Jordan has made some progress in this field—most notably, the Syrian refugee camp Za'atari is now the only refugee camp in the entire world to be run solely on renewable energy.[5]

In this thesis, I hope to answer the question *how can the Jordanian government use renewable energy to mitigate the refugee crisis?* by evaluating (1) how Jordan's domestic and international issues have been compounded by the Syrian refugee crisis, (2) the role renewable energy currently has in alleviating those issues, and (3) how improvements can be made.

[3] "Red Sea-Dead Sea Water Conveyance Study Program," World Bank, 13 December 2011, 1-2, http://siteresources.worldbank.org/INTREDSEADEADSEA/Resources/RDSQ&A13Dec2011_final.pdf.
[4] Issa Etier, Anas Al Tarabsheh, and Mohammad Ababne, "Analysis of Solar Radiation in Jordan," *Jordan Journal of Mechanical and Industrial Engineering* 4 no.6 (2010): 736, http://jjmie.hu.edu.jo/files/v4n6/8.pdf.
[5] "Jordan Fact Sheet," UNHCR, June 2018, 2, https://reliefweb.int/sites/reliefweb.int/files/resources/64114.pdf.

Framework

In the first part of my analysis, I will outline the current situation regarding the energy sector, including current usage, future goals, the internal push for more renewable energy projects, and problems in achieving energy-related goals. This framework will come from both publications from the Jordanian government and outside academic researchers. The Ministry of Energy and Mineral Resources' several strategies for the energy sector all describe the Kingdom's energy goals, such as pushing for RE to constitute 6% of the country's total energy usage by 2020. Academic articles from Abdulla et. al, Jaber et. al, Adam Smith International, and Flanders Investment & Trade describe the logistic and political difficulties that have impacted the current energy regime as well as renewable energy projects. Law no. 13 of 2012 for Renewable Energy and Energy Efficiency and the National Climate Change Policy of the Hashemite Kingdom of Jordan 2013-2020 emphasize the importance placed on renewable energy development by the Jordanian government.

Next, I will conduct a literature review of the impact of the Syrian refugee crisis on Jordan, focusing on issues like youth unemployment, water scarcity, energy shortages, and maintaining foreign aid. In addition to Jaber et. al and Adam Smith International, I will look at the dozens of reports published by UNHCR on the effects of the crisis on these variables—on both Jordanian citizens and the refugees themselves.

Finally, I will take a look at how Jordan has begun to implement RE projects and how they have affected the refugee crisis. The Jordan Response Plan for the Syria Crisis (JRP) is a supplementary financial policy constructed by the IMF that delineates funding agreed upon in the Jordan Compact. According to the 2017 Annual Report on the JRP, 200% of environmental funds and 97% of energy funds were met in 2017. It was with these funds (from the German

government, in this case) that Za'atari became the world's only refugee camp run on renewable energy. In November of 2017, the solar project finally launched, providing almost double the amount of electricity every day and saving the UNHCR an average of $6 million USD annually on energy generation costs for the camp.[6] I will take a close look at (1) how the funds provided via the Jordan Compact have led to increased RE projects, (2) how those RE projects have affected the livelihood of Syrian refugees and greater Jordan, and (3) how Jordan has upheld its part of the deal by allowing Syrians to obtain work permits, and the political implications of this promise.

Methodology

This thesis will primarily rely on existing data and case studies. As mentioned in the framework, the literature review of current energy usage, policy, and issues will constitute a significant portion of the thesis. To evaluate how renewable energy has or can mitigate the refugee crisis, I will use the Za'atari refugee camp in the Mufraq governorate as a case study. Because the project just launched 11 months ago, little quantitative data analysis is available regarding exact monetary savings, impacts on unemployment, and environmental degradation. However, by using previous quantitative data on Jordan's photovoltaic (PV) potential, what has been implemented in the camp, and the Master Strategy for [the] Energy Sector, I can estimate these savings. The same can be done for projects done outside of Za'atari in host communities like Jerash, Irbid, and Ajloun, which have received solar panels for schools and energy-efficient water heaters.

[6] "Jordan Fact Sheet," 2.

The other part of the research will be qualitative. This includes effects of RE implementation not described by numbers, like the increased ability to attend school and how education is a crucial aspect to rebuilding both the refugee and host communities.

Preliminary Findings

Thus far, I have found a positive effect of RE implementation and the alleviation of the refugee crisis by looking at Za'atari's progress. The UNHCR estimates that the solar project in Za'atari will save the agency $6 million USD alone on energy generation costs every year. This is especially important, as UNHCR will soon likely have to absorb the responsibilities of UNRWA, a relief agency set up specifically for Palestinian refugees in the Levant. This will substantially increase the costs of running UNHCR initiatives successfully. The initial report by the UNHCR also mentions that by increasing the amount of electricity generated every day in the camp, there is less food waste due to spoiling and children can safely play in the streets after sunset. In host communities where schools rely on double-shifting to combat overcrowding, more electricity means longer lecture times and therefore a more effectively (and evenly) educated community.

It is important to come to terms with the shortcomings of this thesis. Unfortunately, the effects of renewable energy on the Syrian refugee crisis are only observable to a certain extent. UNICEF determined through a general census in 2015 that approximately 1.3 million Syrian refugees live in the Kingdom of Jordan,[7] though only 670,000 are registered with the UNHCR. It is much more difficult to track the impacts of renewable energy on these refugees that have

[7] "General Population and Housing Census 2015," UNICEF, https://www.unicef.org/jordan/New-Graphs-LAST-UPDATE_Pro15Mar2016_-1A3.pdf.

integrated directly into the state without registering, and therefore the large-scale effects of RE on the overall crisis will remain unknown.

It is also important to evaluate the issue of permanence versus the temporary. These camps were never intended to become permanent fixtures and neighborhoods in Jordan; Za'atari is an extreme phenomenon which grew at record rates. The politics of this issue are dire. As the numbers of Syrian refugees in Jordan continue to rise with few ever leaving the country, the already distorted proportion of Jordanians to refugees becomes even more disparate. Struggling to maintain its own national identity after the massive influx of Palestinians in the 60s and 70s, Jordan continues to face an identity crisis with the compounding frustrations of the war in Syria. I will touch on this idea, but due to constraints of both time and resources, I will not be able to evaluate this issue in-depth.

Bibliography

Abdulla, F., M. Widyan, Z. al-Ghazawi, S. Kiwan, H. Abu-Qdais, M. Hayajneh, A. Harb, and M. al-Nimr. “Status of Jordan Renewable Energy Sector: Problems, Needs and Challenges.” *Proceedings of the Regional Collaboration Workshop on Energy Efficiency and Renewable Energy Technology*. 2004. https://bit.ly/2BZOG1E.

“Annual Operational Report 2016.” UNRWA. 2017. https://www.unrwa.org/sites/default/files/content/resources/2016_annual_operational_report_web.pdf.

Foran, Claire and Elise Labott. “US ends all funding to UN agency for Palestinian refugees.” 01 September 2018. https://www.cnn.com/2018/08/31/politics/trump-administration-ending-funding-palestinian-refugees/index.html.

“General Population and Housing Census 2015.” UNICEF. https://www.unicef.org/jordan/New-Graphs-LAST-UPDATE_Pro15Mar2016_-1A3.pdf.

Jaber, J.O., Fawwaz Elkarmi, Emil Alasis, and Anagnostopolous Kostas. “Employment of renewable energy in Jordan: Current status, SWOT and problem analysis.” *Renewable and Sustainable Energy Reviews* 49 (2015): 490-499.

“The Jordan Compact: A New Holistic Approach between the Hashemite Kingdom of Jordan and the International Community to deal with the Syrian Refugee Crisis.” Ministry of Planning and International Cooperation. 07 February 2016. http://www.mop.gov.jo/DetailsPage/NewsDetailsEN.aspx?NewsID=718.

"Jordan Fact Sheet." UNHCR. June 2018. https://reliefweb.int/sites/reliefweb.int/files/resources/64114.pdf.

"Jordan Response Plan for the Syria Crisis 2017 Annual Report," Ministry of Planning and International Cooperation. 2017. https://www.dropbox.com/s/wrpd1g9gpcikhzu/JRP2017Annual%20Report_Final.pdf?dl=0.

"Jordan Response Plan for the Syria Crisis 2018-2020." Ministry of Planning & International Cooperation. 2018. https://static1.squarespace.com/static/522c2552e4b0d3c39ccd1e00/t/5ab3565f8a922d5e4a011286/1521702505515/JRP+Final+Copy+21-3.pdf.

"Law No. (13) of 2012 Renewable Energy & Energy Efficiency Law." Ministry of Energy & Mineral Resources. Accessed 12 September 2018.

Ledwith, Alison. "Za'atari: The Instant City." Affordable Housing Institute. 2014. https://www.alnap.org/system/files/content/resource/files/main/ahi-publication-zaatari-the-instant-city-pdf-140829.pdf.

"The National Climate Change Policy of the Hashemite Kingdom of Jordan 2013-2020: Sector Strategic Guidance Framework." Ministry of Environment, Global Environment Facility, and United Nations Development Programme. 2013. http://www.moenv.gov.jo/AR/PDFs/Climate%20change%20policy_PDF.pdf

"Strategy of Energy Sector for the Period 2015-2020 [Arabic]." Ministry of Energy & Mineral Resources. Accessed 12 September 2018.

http://www.memr.gov.jo/EchoBusV3.0/SystemAssets/PDFs/AR/General/new%20strategy.pdf.

"Study of Mechanisms to Incentivize the Financial Sector to Scale up Financing of Green Investment in Jordan." Adam Smith International and Vivid Economics. May 2013. http://www.greengrowthknowledge.org/sites/default/files/downloads/resource/Mechanisms_Financing_Green_Investment_Jordan.pdf.

"Syria Regional Refugee Response." UNHCR. 24 September 2018. https://data2.unhcr.org/en/situations/syria/location/36.

"Updated Master Strategy of Energy Sector in Jordan for the Period (2007-2020)." Energy Information System of Jordan. 27 January 2016. Accessed 12 September 2018. http://eis.memr.gov.jo/publication/policy/law-policies/283-energy-strategy.

"We're Afraid for their Future: Barriers to Education for Syrian Refugee Children in Jordan." Human Rights Watch. 2016. https://www.hrw.org/sites/default/files/report_pdf/jordan0816web_0.pdf.