***Four Stories About Food Sovereignty: Jordan Briefing Paper***

 Understanding food systems, their resilience capacity to the climate crisis, and the ability of vulnerable populations to feed themselves is a complex task, and should be situated in an analysis of the surrounding socio-political and natural environments. Food systems and food-related policies in Jordan present a complex case study of how vulnerable populations are to feed themselves in the current political and environmental climate. Because Jordan is a water-scarce country with minimal arable land, and is home to millions of refugees, it is necessary to understand how both Jordanians and refugee populations are to feed themselves as the climate crisis intensifies.

 In Jordan, a mostly semi-arid to arid county, water is a key resource for the agriculture and food industries. Arable land available for farming purposes makes up a small portion of total land area in the country. According to the Food and Agricultural Organization (FAO) estimates for 2016, the agricultural area of Jordan makes up roughly 12% of total land area.[[1]](#endnote-1) The Jordan Valley is a primary site of agricultural production and agriculture in this area is dependent mainly on irrigation. Water for irrigation is sourced from both the Yarmouk River and reclaimed wastewater from the As-Samra Wastewater Treatment Plant.[[2]](#endnote-2) Other agricultural areas are dependent on rainfall, which fluctuates annually.[[3]](#endnote-3)

 In general, the Middle East and North Africa (MENA) region is considered to be one of the most food insecure regions.[[4]](#endnote-4) Although Jordan, as of 2019, is considered food secure by the World Food Programme, the country is vulnerable to increasing food insecurity due to high import dependence, water scarcity, and the prevalence of pockets of extreme food insecurity at the household and individual level.[[5]](#endnote-5) Additionally, Jordan’s quickly growing population, partially due to the influx of refugees, presents questions regarding the resilience of current food systems, policies, and their relationship to the climate crisis.

 The majority of food system literature focuses on this complex relationship between agricultural productivity, water scarcity, and population growth, all of which are factors compounding food insecurity and food dependence in the country. The adoption of an export and trade-based food security program coupled with the deregulation and privatization of the agricultural sector has played a significant role in weakening any prior self-sufficiency in the agricultural sector.[[6]](#endnote-6)

 The tendency of external actors to rely on neoliberal-driven food security strategies is exemplified in a technical note from the World Bank group. The importance of not just agriculture, but the food sector in Jordan is emphasized in the note for their role in contributing to the livelihoods of the population and in order to contribute further, the document notes that there is “large untapped export potential” in the fruit and vegetable sector.[[7]](#endnote-7) As a result of policies directed by such frameworks, Jordan has become increasingly reliant on imported food products, particularly cereals.[[8]](#endnote-8) Although arguments are made for increased reliance on imports through a focus on exporting low-water crops for profit[[9]](#endnote-9), competing strategies (such as those that work to establish food sovereignty) often point to import dependence as a key issue that must be addressed in efforts geared towards the overall reduction of food insecurity.[[10]](#endnote-10)

 Additionally, irrigation infrastructure is a key component in developing a system of food production that is resilient to changes in climate and can keep up with growing populations. Most models assessing climate change impacts on food systems in Jordan focus on the need to meet water requirements for food production purposes. Overuse of aquifers and decreasing rainfall appear most frequently in literature on the agricultural impacts of climate change. Rainfed agriculture, necessary for wheat and barley cultivation, is considered to be highly sensitive to climate change.[[11]](#endnote-11)

 Using predictive modeling based on air temperatures, precipitation, and crop yields, Al-Bakri, Suleiman, Abdulla, and Ayad have determined several potential impacts of climate change on agriculture in Jordan. The researchers identify negative impacts for barley in scenarios of increased air temperature and negative impacts for both wheat and barley in scenarios of decreased rainfall.[[12]](#endnote-12) Similar results were found in a study conducted on future wheat production in dry Mediterranean environments, though in situations of elevated CO2 levels, which can mitigate adverse impacts of climate change, wheat yields would have the potential to increase.[[13]](#endnote-13)

 A similar vein of research is focused on soil salinity and threats to irrigation agriculture in the Jordan Valley, as salinity limits the productivity of crop plants and can further impact water resources.[[14]](#endnote-14) Increasing soil salinity in the Jordan Valley is largely due to irrigation practices, though changes in flooding patterns and high evaporative conditions paired with insufficient rainfall contribute as well. The use of reclaimed wastewater for irrigation purposes introduces large amounts of nutrients, salts, heavy metals, and microbial contaminants, contributing to the process of soil salinization.[[15]](#endnote-15)

 The increasingly difficult environmental conditions shed light on the need for resilient food systems that fully meet the needs of communities in Jordan. The MENA region’s status as food insecure and its high import dependency, which is a significant characteristic of Jordan’s food systems, are two factors the Arab Network for Food Sovereignty points to in their push for food sovereignty, not just food security.[[16]](#endnote-16) Although policy recommendations have focused on using scarce water resources to grow fruits and vegetables for export, while importing necessary cereal products, this strategy of reliance on imports has the potential to be catastrophic in times of international market fluxes. The 2007-08 increase in global food prices serves as a prime example, as it increased poverty levels in the country and, subsequently, reduced the capacity of thousands to purchase adequate food supplies.[[17]](#endnote-17)

 Following the 2007-08 global food price crisis, the Jordanian government enhanced prior food security initiatives, sponsored by the FAO in 2004. The focus was to improve household food security through income generation, cash crop production, and initiatives to conserve water and soil quality, primarily through household gardens.[[18]](#endnote-18) In 2010, the Ministry of Agriculture and the United Nations Development Programme launched an initiative intended to develop a comprehensive national response to food security issues, enhance smallholder food production, ensure nutritional access, and enhance livelihoods of the poor and food insecure.[[19]](#endnote-19) According to Harrigan, food security strategies in the region have moved beyond the narrow, neoliberal economic approach traditionally applied to food security, “and are captured in the broader concept of ‘food sovereignty’ which accepts that policy making will be affected by issues that go beyond the purely economic and that, as a result, policies may legitimately diverge from the dictates of international market forces.”[[20]](#endnote-20)

 Efforts to move beyond neoliberal, economic approaches to establishing food security are taking place in neighboring occupied Palestinian territories. This serves as an important phenomenon in considering food sovereignty movements in the MENA Region. The recognition of the relationships between people and their land, as well as between the producers and consumers of food are necessary elements in promoting food sovereignty. In the occupied Palestinian territories, the Israeli practices of land confiscation, the building of new settlements, the separation wall, and the ongoing political conflict create a rupture between Palestinian people and their lands. Palestinians no longer have the land or water resources to operate the small farms that used to be common in the area. The use of pesticides, herbicides, fertilizers and monocropping techniques further distance Palestinians from the ability to achieve food sovereign practices.[[21]](#endnote-21)

 The question remains: how are communities with scarce resources and, in the case of Palestinians in occupied territories and refugee communities, with restricted access to and displacement from the land on which traditional farming was practiced, meant to achieve food sovereignty? In Jordan, for refugees, the struggle to simply access water illustrates the pressure felt on the already scarce resources in the country.[[22]](#endnote-22)

 In a country already vulnerable to water shortages, refugee communities are among the most vulnerable. Zaatari, home to 80,000 Syrian refugees, is located in one of the most water stressed areas of Jordan, with water being diverted from the wells of nearby villages for use within the camp.[[23]](#endnote-23) However, as of 2019, only 17% of Syrian refugees were living in camps, with the remaining 83% in urban areas. Through the UN Refugee Agency, many refugees in Jordan receive monthly cash assistance and energy needs in camps are met largely through solar power. In other words, refugee livelihoods are very much dependent on outside assistance, rendering these communities extremely vulnerable. Displacement, a phenomenon compounded by climate crisis, exacerbated internal and international conflict, and the liberalization and corporatization of agriculture pose significant challenges for communities seeking control over the production and consumption of food.

 Urbanization, which in Jordan has occurred in the most fertile part of the country with the highest amount of annual precipitation, is another factor contributing to changes in the country’s food systems.[[24]](#endnote-24) In Jordan’s urban areas, where the majority of the population (both refugee and non-refugee) resides, community-based programs and initiatives are taking place in an effort to reclaim food independence in light of both land and water scarcities. Though academic literature specifically citing food sovereignty in the urban spaces occupied by refugees in Jordan is limited, there are instances of community initiatives to reassert food sovereignty and offer a valuable contribution to an understanding of the overarching questions of the *Four Stories* project.

 Accounts of Syrian refugees in Jordan detail struggles to find affordable, culturally appropriate, and nutritious foods. In an article written by Luigi Achilli and Raymond Apthorpe, the complex methods refugees adopt to manage their livelihoods are documented: selling food vouchers to pay for rent, struggles to afford food for a balanced diet, poor quality of the World Food Programme’s relief rations, struggles with meat subject to cycles of thawing and re-freezing, and limited or expensive dairy products.[[25]](#endnote-25)

 Urban agriculture and rooftop farms, however, hold promise of placing food production in the hands of consumers at the community level as an alternative to the neoliberal narrative of import and export-oriented food security efforts. Projects include a rooftop farm on top of a cultural center in Amman, and a rooftop farm on a vocational school in a Palestinian refugee camp in Jerash. These projects “create a first possibility for self-supply which in turn enables the local camp communities to act autonomously.”[[26]](#endnote-26) The fruits and vegetables grown in these community-oriented settings help to diversify the diets of those living in conditions of scarcity, mitigating many of the food and nutrition issues described by refugees.

 The Resource Centers on Urban Agriculture and Food Security (RUAF) locates urban agriculture as a central element of developing a resilient, closed loop, regional food system. RUAF outlines several pilot projects that would promote the development of a community-based system of production, distribution, consumption, and disposal of waste. Among suggested projects are household level gardens, community-level gardens, and reclamation of wastewater for gardening and farming purposes.[[27]](#endnote-27) These projects would be implemented in both urban areas and in refugee camps and are highly dependent on community collaboration and interaction through “supporting clusters of households” and pooling of resources in order to “maximize social cohesion.”[[28]](#endnote-28) The pilot projects proposed by RUAF offer ways of reclaiming community-governed spaces in which food production can be managed in instances where traditional agricultural spaces are not available, as in the case of refugee communities.

 Further exploration of community-based initiatives in the agricultural and food sector is necessary in light of the deepening climate crisis and the continued support of high numbers of refugees in Jordan. Research regarding the production of wheat and barley as staples in Jordanian diets has yet to be directed away from import-based policy proposals and remains vulnerable to changes in climate. However, the MENA region’s historical status as part of the Fertile Crescent, suggests that there are viable solutions that do not include increasing import dependence.[[29]](#endnote-29) Rather, strategies involving land-use management and land and knowledge conservation[[30]](#endnote-30) are plausible alternatives that will promote food sovereign practices and, ultimately, increase community resilience.

1. FAO, 2016 [↑](#endnote-ref-1)
2. Al-Bakri, et al., “Potential impact of climate change,” 126. [↑](#endnote-ref-2)
3. FAO, 2008 [↑](#endnote-ref-3)
4. FAO, Resilience analysis 2013 [↑](#endnote-ref-4)
5. Babar, Mirgani, “An economic analysis.” [↑](#endnote-ref-5)
6. Fakhriddin, “Assessing USAID’s Implementation” [↑](#endnote-ref-6)
7. World Bank Group, “The role of food and agriculture,” 2. [↑](#endnote-ref-7)
8. FAO, 2015 [↑](#endnote-ref-8)
9. Kumaraswamy, Singh, “Food Security Challenges” [↑](#endnote-ref-9)
10. Kumaraswamy, Singh, “Food Security Challenges,” 75-76; Kamrava, Babar, “Middle East,” 1; Prieto, “Jordan’s dependence”; MOA, “The Agricultural Sector,” 2-3. [↑](#endnote-ref-10)
11. Al-Bakri, et al., “Potential impact of climate change,” 126. [↑](#endnote-ref-11)
12. Al-Bakri, et al., “Potential impact of climate change,” 133. [↑](#endnote-ref-12)
13. Dixit, et al., “Decadal analysis,” 230-231. [↑](#endnote-ref-13)
14. Shrivastava, Kumar, “Soil salinity: A serious environmental issue.” [↑](#endnote-ref-14)
15. Ammari, et al., “Soil Salinity Changes,” 377; Batarseh, “Sustainable management,” 1-2. [↑](#endnote-ref-15)
16. Arab Network for Food Sovereignty [↑](#endnote-ref-16)
17. Harrigan, “An economic analysis.” [↑](#endnote-ref-17)
18. Ibid [↑](#endnote-ref-18)
19. Ibid [↑](#endnote-ref-19)
20. Ibid [↑](#endnote-ref-20)
21. Massad, Hmidat, “Farming, Water, Food Sovereignty” [↑](#endnote-ref-21)
22. Ibid [↑](#endnote-ref-22)
23. Ibid [↑](#endnote-ref-23)
24. Koch, Wimmer, Schaldach, “Analyzing the relationship,” 1500-1501. [↑](#endnote-ref-24)
25. Achilli, Apthorpe, “The social life of nutrition”. [↑](#endnote-ref-25)
26. Binz, “Rooftop farms in Jordan” [↑](#endnote-ref-26)
27. RUAF, “Linking Urban Farming” [↑](#endnote-ref-27)
28. Ibid [↑](#endnote-ref-28)
29. Jaradat, “Biodiversity and Sustainable Agriculture” [↑](#endnote-ref-29)
30. Ibid

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