



■ Jordan

Jordan's Food Security: Heavy reliance on food imports while civil society promotes food sovereignty

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1. Introduction

Food sovereignty is about empowering local communities and allowing them to decide what food to produce and to consume, in line with their cultural and traditional preferences. Therefore, the concept of food sovereignty has a political dimension, as “it emphasizes ecologically appropriate production, distribution and consumption, social-economic justice and local food systems as ways to tackle hunger and poverty and guarantee sustainable food security for all” (Nyéléni Newsletter, 2013). Thus, food sovereignty does not necessarily coincide with food self-sufficiency or food self-production. In a “food democratic world”, food sovereignty would be a pre-requisite to food security, as policies to ensure food security in a country would be informed by the preferences of local communities, who would determine what should be produced and consumed in their community and country, with considerations of ecology appropriateness and socio-economic justice.

In Jordan, the government and the Ministry of Agriculture are responsible for ensuring food security in the country and making decisions on national agricultural policies; the main solution has been to ensure food security through food import. In fact, Jordan has been heavily relying on food import, especially for staple cereals food products, in order to ensure food security in the country. “Over %97 of the domestic cereal food and feed requirements are satisfied through imports. [...] Wheat imports in 18/2017 are forecast at an average of 900,000 tonnes. Most of the wheat imports originate from Romania, the Russian Federation and Ukraine” (FAO 2018).

However, promoters of food sovereignty criticize the Jordanian decision of over-relying on food imports for its food security. In fact, the food import option is usually pursued by countries capable of generating financial resources able to meet the food import bill, which is not the case in Jordan. In addition, while this option may make sense from a water perspective, given the limited water resources of the country, making Jordan vulnerable to fluctuations in food prices and the international food supply on the global market, changes and fluctuations in prices or supply could result in crises similar to the ones in 2008/2007 and in 2011. Moreover, Jordan might be vulnerable to the global food supply, which may be impacted also by regional geopolitics, such as is currently the case since 2017 versus Qatar, which

is subject to a blockade (including food blockade) by its neighboring countries and main former exporters of food: Saudi Arabia and the United Arab Emirates (UAE). In addition, while the Jordanian budget relies on international aid, food for the population is also subsidized, as the government needs to ensure economic accessibility to food to its citizens. As noted by Martinez (2017), Jordan has one of the highest per capita subsidy schemes in the world. For instance, the price of bread remained static between 1974 and 2007, due to price controls and subsidy interventions, which ensured the population’s access to staple food (ibid.). However, the government has recently modified the subsidy program for bread, replacing the broad bread subsidy program with a targeted assistance system, which, since 2018, is delivered through an electronic benefit transfer card cash support of USD 241 million to over 6 million people in the country. This measure has been introduced aiming to reduce public spending and food waste (FAO 2018). In addition, food imports makes Jordan reliant on trade and global markets, undermining food sovereignty aspects of giving a choice to the local communities in Jordan to choose what to produce as well as what to consume. This paper discusses challenges and opportunities in relation to food sovereignty in Jordan. It does so by: first, providing general background information on Jordan; second, discussing the agricultural sector in the country; third, analyzing the options to ensure food security in Jordan; fourth, presenting cases of food sovereignty in practice in the country; and finally, providing some concluding remarks.

2. General background

Jordan is a heavily urbanized – over %80 of its population lives in urban areas –, lower- to middle-income country with scarce and limited water and natural resources. Services, industry, and foreign aid are the main sources of income for the national budget. This section provides general background information on neoliberal economic reforms; population; climate; and water resources and use.

2.1 Economic neo-liberalism

Generally, this section sheds light on the impact of economic neoliberal reforms on the agricultural sector in Jordan, showing how these reforms led to a process of dispossession and marginalization of small farmers and rural women. Economic neoliberal reforms in Jordan can be traced back

to the economic crisis in the 1980s, when the Jordanian government increased the amounts it was borrowing from foreign lenders, entering into a debt crisis (Yorke 2013). In 1989, late King Hussein agreed to a loan from the IMF, with a conditionality for “structural adjustment and the imposition of neo-liberal economic reforms” (Marie Baylouny 277 :2008). Further loans were received from the IMF, with the imposition of similar neo-liberal economic and structural reforms from 1989 until 2004 and since 2012 (interview with Western donor and IMF website¹).²

Consequently, several neoliberal reforms took place. According to Baylouny (2008), the government began by reducing public expenditure on social services, including cutting subsidies on consumer goods like gasoline, cigarettes, and cooking oil. But reforms had to be implemented gradually to avoid riots and protests by the poorest and most marginalized groups of society (Baylouny :2008 278). Following King Abdullah II’s accession in 1999, reforms towards privatization of public companies took place, benefiting the economic elites of the country. Further policies supported foreign direct investment through the abolition of rules and regulations and private sector development through reforms in line with the best practices of the World Bank’s Doing Business report³. Jordan then established the Aqaba Special Economic Zone, joined the World Trade Organization (WTO) in 2000, and signed several free trade agreements. Finally, privatization of state-owned companies took place, including in the following cases: Jordan Telecommunications Company, Royal Jordanian Airlines, Queen Alia International Airport, Hammamat Main Resort, and water-related services

1 <http://www.imf.org/external/np/fin/tad/extarr2.aspx?memberKey1=530&date1key=2014-11-30>

2 The main features of economic neo-liberalism are: deregulation for a free market meaning freeing the private sector from regulations imposed by the state; supporting freedom of movement for trade, capital, goods, and services and eliminating tariffs, subsidies, and state-imposed protections; reducing public expenditure for social services, including the abolition of subsidies or any form of or support safety-nets for the marginalized groups, including for health and educational sectors; and privatization of state-owned companies (Olssen and Peters 2005).

3 See “Doing Business in the Arab World 2013 Report”, IFC-World Bank Group, 2013

like the Samra wastewater plant. As suggested by the IMF, the Jordanian government has reduced the subsidies to electricity and increased their tariffs gradually between 2014 till 2017 (interview with Western donor).

Economic neoliberal reforms impacted farmers – especially small farmers – and the agricultural sector in Jordan. In fact, these reforms opened up the Jordanian market and facilitated the import and export of agricultural products, which meant more competition from abroad faced by Jordanian farmers. In particular, the Jordanian government reduced or eliminated import duties on agricultural products with its major trade partners, including the EU and the US. In fact, import duties and other trade barriers between Jordan and the US were phased out in 2010 as part as the Free Trade Agreement (FTA). Several reforms focused on reducing the number of physical inspections of traded goods and the introduction of online customs services, which aimed at facilitating import and export and reducing non-tariff barriers. Small farmers suffered the most of this increased competition from abroad, as they had less capability to adapt and to shift to new crops.

2.2 Population growth

The population of Jordan increased from 225,000 during the Emirate of Jordan in 1922 (Haddadin 2006) to over 10 million in 2018. This is mainly due to the several waves of refugees of Palestinian, Lebanese, Iraqi, and Syrian origins, who fled their home countries due to wars and occupations. Significant increases in the population occurred after the 1949-1948 war with Israel, the six days war in 1967, the second Gulf war in the early 1990s, the Iraq war in 2003, and currently due to the events in Syria.⁴ Jordan served as a host country because of its political stability and its location, bordering Syria in the north, Iraq in the east, Saudi Arabia in the south and east, and Israel and the occupied West Bank in the west.

Out of the over 10 million people living in Jordan,

4 The waves of Palestinians arriving in Jordan occurred after major Israeli-Arab wars in 1948, 1967, 1973, and 1982; following the second Gulf war in 1990-1991, the war in Iraq in 2003, and the unrest that started in 2011 in several Arab countries, including the still on-going events in Syria. Minor waves from Lebanon also occurred as a consequence of political instability there.

83% lives in urban areas,⁵ mainly in the northern part of the country in Amman, Irbid, Zarqa, and Zaatari camp. Thus, Jordan must consider that most of the water and food demand comes from the northern part of the country. The estimated population in the kingdom in 2030 according to the high level scenario is of 13 million and over 19 million in 2050. The question is how will Jordan ensure food security for about 20 million people in 2050?

2.3 Climatic conditions and rainfall

To understand how Jordan can satisfy water and food demand in the northern part of the country, it is also necessary to consider rainfall patterns in the different parts of the country and the various physiographic regions in relation to demographic distribution. Jordan is characterized by three⁶ physiographic regions: the Jordan Rift Valley along the western border of the country with a total area of 8,228 km², the Mountain Heights Plateau or Highlands with a total area of around 15,000 km², and the Badia desert region in the east, extending from north to south, with an area of almost 70,000 km² (Salameh and Bannayan 1993). Climate varies according to the three regions described: semitropical in the Jordan Valley, Mediterranean in the Highlands, and continental in the Badia (ibid.). Rainfall, which usually occurs between October and April, ranges between 50 mm in the Badia and 650 mm in the Highlands, with over 90% of the country receiving less than 200 mm per year and an overall average of 80 mm⁷, as shown in Map 2 below. Therefore, even if large amounts of rainfall occur in the most populated areas of the governorates of Irbid, Zarqa, Ajloun, and Amman in the north, the overall precipitation will remain low, with an average of 80 mm. In addition, studies have shown a trend of decreased rainfall over the past 75 years, suggested at about 25%, which has also negatively impacted surface water resources and recharge of

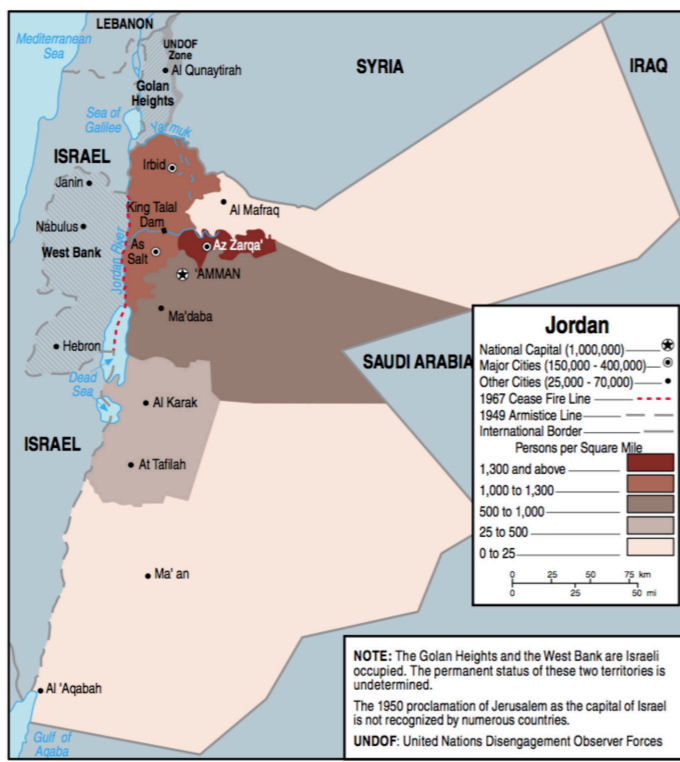
5 <http://esa.un.org/unpd/wup/Country-Profiles/Default.aspx>, last visited on the 16th of December, 2018

6 It is divided into either three or four regions, considering in the latter case the highlands and the plateau as two different regions. For the purpose of this study, which considers water uses, a division into three regions is more appropriate as the water use patterns and the climate in the highlands and the plateau are to some extent similar.

7 As of 2005, according to FAO. 2014. AQUASTAT database, Food and Agriculture Organization of the United Nations (FAO). Website accessed on [30/12/2014 13:40]

groundwater basins in Jordan (Jassim and Alraggad 356 :2009). This is key to understand the decrease in field crop production in Jordan, as field crop agriculture in Jordan historically relied on rainfall.

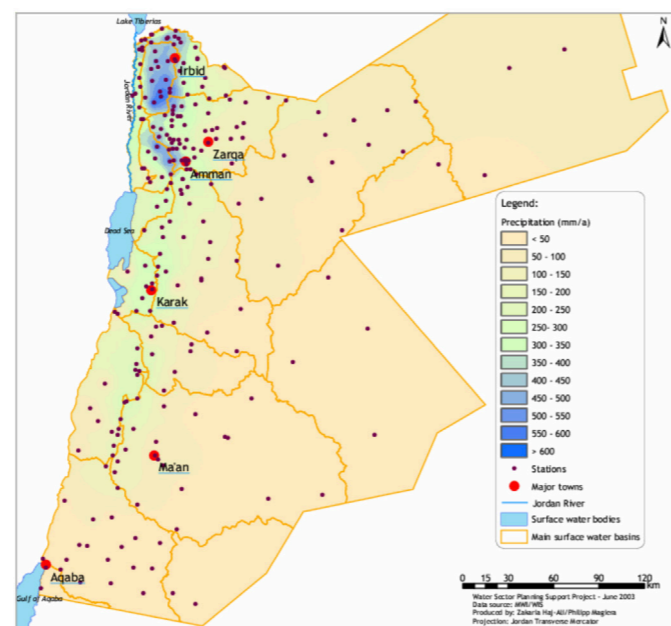
Map 1: Population density of Jordan as of 2009, before the Syrian crisis



Population Density

Source: University of Texas Libraries

Map 2: Spatial Distribution of Mean Annual Rainfall for the Period 2002-1963



According to the 2017 Jordan Water Sector Facts and Figures report of the Jordanian Ministry of Water and Irrigation (MWI), the total water resources in Jordan in 2017 were 1053.6 Million Cubic Meters (MCM) per year (MWI, 11 :2017). This is an increase from 852 MCM in 2008, mainly due to increased amount of treated wastewater and the increased over-exploitation of groundwater resources. In fact, for 288.1 ,2017 MCM come from surface water resources, 618.8 MCM from groundwater resources, and 146.7 MCM from treated wastewater (MWI, 13 :2017). Nevertheless, in %59 ,2017 of water resources in Jordan were surface waters, %27 groundwater, and %14 treated wastewater (but this is not reflected, as mentioned, in the water supply due to the transboundary nature of the major rivers in the country: the Yarmouk and Jordan Rivers) (ibid.)

2.4.1 Water Use: water-friendly agriculture in the Jordan Valley when compared with Highland's agriculture

Over %50 of water resources are being used for irrigation (MWI, 11 :2017). However, it is necessary to investigate which kind of agriculture uses which kind of water. Two-thirds of the water utilized in agriculture is used in the Highlands, which rely on over-exploited groundwater resources (FAO, 2009). The remaining one-third of water used in agriculture is used by farmers in the Jordan Valley, but from surface water. In addition, %91 of agriculture is irrigated, and, overall, %71 of cultivated land was in the Jordan Valley and %29 in the Highlands. Farmers in the Jordan Valley mainly use surface water from the King Abdullah Canal and, more recently, an increased amount of treated wastewater mixed with other surface fresh water, mainly from the King Talal Dam. In the Jordan Valley, water is being used more efficiently with the amount of water used decreasing while the area of irrigated and cultivated land remaining the same. The system introduced in the Jordan Valley by the Water Users Associations helped increase transparency of water use and reduce water losses and thefts, as it empowers local communities and farmers in managing, distributing, and monitoring the water resources (GIZ website⁸; interviews to the Jordan Valley Authority and to researchers, employees, and users of the WUA in the Jordan Valley). Overall, agriculture in the Jordan Valley can

8 www.giz.de/en/worldwide/17213.html visited on the 27th of December 2018

be seen as more water-friendly than the Highlands, due to the type of water they use and its impact on the sustainability of Jordanian water resources. Agriculture contributes around %3 of the national GDP, industry around %30, and services, including tourism, around %67.⁹ In addition, less than %4 are employed in agriculture, many of which are non-Jordanian workers, around %20 in industry, including construction, and %77 in services. However, according to employees of the Ministry of Agriculture (MoA), this data does not consider the whole agricultural chain, merely those working directly and the revenues of those directly employed in agriculture. Considering the whole agricultural chain, which includes preparation of the land, seed supplies, fertilizers, irrigation, production, processing, trading, transportation, this sector would employ around %25 of the labor force and amount to around %28 of GDP.

3. The Jordanian Agricultural Sector

Although the contribution of agriculture to the GDP declined from about %50 in the 1950s and 1960s to around %3 today,¹⁰ agriculture remains a critical form of sustenance and employment for Jordan's poorest and marginalized citizens. Farming is economically important, despite its small share of GDP, as food products are a major source of hard currency gained from exports; moreover, approximately %25 of Jordan's total poor and marginalized segments of society rely on agriculture.

In addition, large agri-businesses in the country, owned by influential landowners and large farmers, benefits from governmental support through subsidized water for irrigation to grow fruits and vegetables in the Jordan Valley and in the Highlands. Most of the Jordanian labor force in the agricultural sector has been gradually replaced by cheaper foreign labor, coming mainly from Egypt and now from Syria. In addition, many of non-Jordanian farmers work without health or social insurance, making them much cheaper than regularly hired local farmers.

9 See also <http://ec.europa.eu/trade/policy/countries-and-regions/countries/jordan/>

10 Nevertheless, the contribution in absolute terms of the sector has increased from 32 million Jordanian Dinars (JD) in 1964 to 560 million JD in 2010 (Sidahmed et al. 2012)

Agriculture is key for rural development and has cultural, social, and environmental relevance. An important contribution of this sector is also to food security: the gap in self-sufficiency for dairy products was reduced from %50 in 1974 to a third in 2010, poultry is almost covered today, vegetables demand is covered to a great extent from local production, and a high percentage of the fruits produced in the country are locally consumed (Sidahmed et al, 17 :2012). Nevertheless, Jordan still imports over %90 of its cereals needs and %80 of animal feed.

Today, most of the agricultural products cultivated in Jordan are vegetables and fruits, while the production of field crops has strongly decreased in the past decades. As field crops in Jordan were rain-fed, the decrease in production is also linked to the decreased precipitations due to climate change, as well as to the removal of subsidies supporting local production, smaller holdings, and to the approach of “comparative advantage” of cultivating fruits and vegetables for exporting them, especially to the GCC - ever since the economic neoliberal reforms which opened up and eased import and export of food products through the FTA (see also Hopma 2015 ;2012). Moreover, agricultural production has benefited from the expansion of irrigation, plastic houses, and hybrid varieties of crops. In particular, vegetable and fruit exports represented %38 and %15 of Jordan’s national production, respectively. The agricultural sector is made up of %55 livestock and %45 crops, with sheep and goats as the most important breeds, while the main agricultural products are wheat, barley, olives, grapes, and almonds (Sidahmed et al., 27 :2012). Historically, until the early 1990s, Jordan used to have extensive rain-fed cultivation of field crops (wheat and barley) in the north of the country (especially in the Houran Plains). However, these cultivations declined due to cheaper external competition, brought about by neoliberal economic reforms and FTAs; weak government support, which could have further protected local farmers from international competition; increased urbanization, as selling agricultural land for building homes became more profitable (in Irbid, for instance, regulations on buildings limit the number of floors in a building about 4-3 floors -, which meant that the city expanded horizontally rather than vertically, with negative implications on the surrounding agricultural land); and climate change.

As a consequence of the urban-rural transformation, the total arable land area decreased between 1975

and 2017, as urban areas expanded into rural areas. However, the number of farm holdings also increased, while holding size decreased, driving towards a fragmentation of arable land. The aspect of rural-urban transformation of land is linked to the question of political economy and of lack of serious policies supporting forestry and the agricultural sectors, which, so far, have been very liberal, often because local administrations benefited from transforming rural land into urban land, as the latter is economically more beneficial.

The Jordan Valley is the main agricultural region in the country. It can be divided into three parts. First, the northern Jordan Valley, which has a majority of citrus trees, as there is good amount and quality of water and warm weather. Second, the middle Jordan Valley, which used to grow citrus trees, but then lower quality water started coming from King Talal Dam and the area was transformed into green houses for vegetables for export. However, due to closed borders with Syria for most of the Syrian crisis, farmers went back to citrus tree cultivation. Third, the southern Jordan Valley has a majority of small farmers, mainly cultivating tomatoes. The southern part has the hottest temperatures and therefore the very first tomatoes to be on the market in the kingdom come from this area. Due to pollution from industries, the area witnessed land degradation and increased salinity. Industries in this area are a major obstacle to farming activities, as they are strongly polluting the environment and the land.

It is important to shed light on the farmers’ mentality to understand why they prefer certain cultivations to others. Vegetables are a short term investment: they provide a return in about two or three months, while citrus trees need about three years. Farmers would therefore prefer vegetables that make money easily every few months.

When it comes to policies and incentives to farmers and to the agricultural sector, it could be said that today Jordanian agricultural production does not receive incentives, except for the price of irrigation water and the cost of pumping, which are highly subsidized. In addition, there are no economic incentives to farmers to encourage them to switch to crops that use less water. Moreover, when it comes to agricultural management and marketing, Jordan only has one agricultural credit institution, weak marketing support services, and a weak infrastructure for post-harvest operations.

4. Food security in Jordan

In order to ensure food security, countries can opt for one or a mix of the following options: domestic production, imports, international food aid and assistance, and acquisition of overseas agricultural land. As seen in the introduction, Jordan is strongly reliant on food imports. Concerning acquisition of land abroad, in 2011, the Jordanian government thought about investing through individual business persons in Eastern Europe and Central Asia. But, given the need for strong economic investments, Jordan did not proceed on this path (Hopma 2012). International food aid and assistance, on the other hand, usually targets poorer and least developed countries, which is not the case in Jordan. Hence, it opted for a heavy reliance on imports and domestic food production.

Domestic or in-country production (food self-sufficiency) is one of the strategies followed by Jordan. Historically, until 1967, Jordan – which included the West Bank until 1967 – ensured food security through domestic production. In the 1970s, food self-sufficiency was still pursued, with limited and occasional food imports (Martínez 2017), while domestic production gradually decreased, due to limited water resources, population growth, and urbanization – which shrunk arable land. Today, over %90 of the food consumed in Jordan is imported (Kumaraswamy and Singh 2018). Nevertheless, the government still supports elements of food self-sufficiency and investing in the agricultural sector through economic incentives, particularly in the form of: allocating most of the water supply to agriculture, highly subsidizing the price of water and electricity for agriculture, increased food subsidy for domestic consumption, and subsidizing procurement prices for locally produced food.

Overall, the government sees food self-sufficiency as part of the solution. National production is important for historical reasons. The social pact during the British Mandate saw the government receiving support from small and medium wealthy landowners, through subsidizing water and electricity especially for agriculture, and by distributing fertile arable land to the various tribes in exchange of their political support. Reforming land distribution or agrarian reforms imposing or prioritizing certain crops would mean undermining the historical social pact and the political support of tribes and rich landowners in the country. While it could be argued economically that it would

be rational to focus on food imports, even if one shortcoming would be to link the country to market price volatility, politically, it would be very difficult overall for the government to reform the agrarian sector, challenging the underlying interests of landowners and tribes (Hussein 2018).

5. Food sovereignty and the Role of Civil Society and Social Movements

Issues of food sovereignty are generally not discussed and are not part of the general debates in the country. In 2012, the Arab Group for the Protection of Nature (APN) co-founded the Arab Network for Food Sovereignty (ANFS) to promote and advocate for issues related to the subject. It brought together 30 NGOs, farmers unions, fishermen, and consumers’ associations from 13 countries (Jordan, Palestine, Lebanon, Iraq, Egypt, Algeria, Tunisia, Yemen, Sudan, Somalia, Oman, Saudi Arabia, Qatar, Mauritania, and Morocco), including Jordan, where APN is based. The rationale behind ANFS is that the Arab region has the highest food import dependency rates, resulting in high vulnerability to the global food market’s supply and prices.

While there are environmental and natural challenges, such as limited water resources, climate change, and high population growth, there are also several issues related to governance and management, which should be improved in order to increase the region’s self-sufficiency and consequently food security. These challenges include: low investments in agricultural productivity, lack of governmental support for infrastructure and extension services, and high import dependency. Governments should promote policies and actions to: invest in agriculture, research and development, and technology at the national and regional levels; empower and incentivize farmers to reduce losses and waste; and harness a sustainable agricultural sector able to protect the limited water resources. In line with this rationale, ANFS’ goals are to:

- 1. Promote concepts, practices, and strategies for food and natural resource sovereignty in the Arab world;**
- 2. Improve institutional and community capacity to enhance the role and effectiveness of civil society organizations working in the fields of agriculture and food security;**

3. **Embrace, encourage, and mobilize innovative and creative initiatives, activities, and campaigns in the areas of food security and food sovereignty at the community and institutional levels;**
4. **Strengthen the cooperation and coordination of Arab, regional, and global networking to exchange expertise and to serve the vision and strategy of the Network;**
5. **Influence governmental and non-governmental policies and regulations on the local, national, and international levels to achieve food and natural resource sovereignty” (APN 2017b).**

APN has been emphasizing “the rights of peoples and nations to determine food and agricultural policies that are suitable for their unique social, economic, political, and climatic environments. This includes ensuring the right to food and to sources of production” (APN 2017a: 57). In fact, the most vital problem for food security is that the government needs to make sure grain keeps being supplied, and the 2008/2007 and 2011 crises showed that relying on international markets cannot always guarantee supply of foodstuffs at affordable prices. In addition, relying on imports – assuming market mechanisms function – the poorest groups in society would not be able to afford food; hence, it is necessary to support domestic agriculture, as the poorest often rely on this food production for their daily nutrition. APN advocates for food sovereignty and aims at influencing food policies through initiatives at the international, regional, and national levels. At the local level, APN supported small farmers, mainly in the Jordan Valley, calling for the re-introduction of trees and providing small farmers with trees for free. APN volunteers are planting guava and Mexican lemon trees as they give lemon every couple of months, while classical lemon gives lemons once a year but in larger amounts. However, Mexican lemons reduce some risks, as if it is only once a year it may not rain much or they can be negatively affected, and therefore this would negatively impact the whole economic year, while if bad conditions happen to the Mexican lemon trees, in a couple of months there may be better conditions.

APN planted already 15 thousand trees each year, and %90 of the trees planted are in the middle Jordan Valley. For instance, Karame village is famous for dates and is a poor area. It is mainly inhabited by big farmers who plant palm trees, which are appropriate to the local climate. In addition, %75 of small farmers in the middle Jordan Valley are

indebted, as the regional crisis prevented exports. In the northern Jordan Valley, farmers are selling land to foreigners, including Israelis, who use the water and exploit cheap labor, in addition to being closer to the crossing with Israel (interview with an APN employee). In addition, APN supports small farmers in south Jordan Valley with planting trees for free, as this provides them with increased food sovereignty and economic sustainability. Moreover, APN is also substituting normal trees in the villages with fruits trees, as the goal is to increase food sovereignty in the country. An important aspect is that APN allows farmers to choose the fruits trees received for free, as food sovereignty is also about giving farmers and local communities the right to choose what to plant and what to consume (interview with an APN employee). Elham Abadi, the head of the al-Bayoudeh Village Council Health department, has been working to promote food sovereignty and right of the local community to decide what to cultivate and consume. Among the different projects, Elham supported the distribution of trees to school children at al-Bayoudeh Secondary School for Girls. She let each student select their own tree, which will be the center of their home gardens. This project also aims at promoting the connection between children and their land, agricultural practices, and encouraging transfer of farming experiences from older generations to children.

Another successful practical experience in food sovereignty in Jordan is represented by Yanboot, a local company that produces organic agriculture, aiming at bringing healthy, local food to the Jordanian people. It offers an alternative to conventional agriculture and food production, preserving and building upon past traditions of the region. It adopts sustainable pesticides-free farming methods and traditional techniques, combined with modern irrigation and technology. This is an example of local families implementing the principles of food sovereignty in practice and, in particular, letting local communities decide what they want to produce, in this case leading towards organizing and sustainable agriculture.

Permaculture is another Jordanian experience that could be seen within the scope of food sovereignty. In fact, permaculture supports the development of agricultural ecosystems intended to be sustainable and self-sufficient. It aims at empowering local communities in deciding what to cultivate and how, in a sustainable manner. The Permaculture Research Institute has been promoting these approaches

and experimental permaculture plots in the village of Jawfa in Shouneh Janobieh in the Dead Sea area of the Jordan Valley. Permaculture in Jawfa village is about sustainable agriculture in line with the scarce natural resources and traditional contexts, using recycled grey water, chicken tractors, worm composting and foraging ducks, conserving water resources and nutrients, and working towards fertile soils. It was established in 2008, and it is also an environmental awareness center regularly visited by students.

Another interesting example comes from the ‘Healthy Villages Program’, implemented by the Ministry of Health, WHO, and UNICEF. This program seeks to empower local rural communities by adopting a holistic approach to ‘health’ and giving the local community members the skills and small loans with lenient terms to run their own small businesses - most of them agriculture-led - in a sustainable environmentally-friendly manner. The program also encourages local communities to promote healthy lifestyles and habits, starting with schools.

6. Concluding remarks

This paper illustrated the food security situation in Jordan, a country that imports over %90 of its food, is portrayed as water scarce, and had limited arable land and natural resources. This dependency on international food markets is believed to be due to limited water resources, climate change, and to the interests of influential landowners and large farmers. Most of the Jordanian labor force in the agricultural sector has been gradually replaced by cheaper foreign labor, coming mainly from Egypt and now from Syria. In addition, small farmers have been suffering from increased competition from cheaper agricultural imports and the closure of borders due to regional crises (Iraqi and now Syria). This paper has also shown that while NGOs are organizing and promoting alternative ideas on how to reach food security, emphasizing the necessity to place food sovereignty and self-sufficiency at the center of discussions and future policies. Civil society initiatives also began implementing food sovereignty actions, such as providing free fruits trees for small farmers in the Jordan Valley. At the same time, companies and researchers have also started to support and establish organic farming companies and permaculture research institutes. However, further research should investigate the impact of civil society on national policies, to what

extent are they able to inform and shape policies and national strategies in the Arab region, what are the political barriers and challenges to implement such policies.

Food sovereignty would be politically important, as it would support especially small farmers; nevertheless, it would need governmental support in the form of marketing mechanisms, production subsidies, and technology. Food sovereignty would also need to be supported by a broader strategy and policies towards planning the kinds of crops and crops patterns needed to ensure food security in Jordan, guiding and supporting farmers in these processes.

Further research should also further shed light on the role of rural women as key for implementing food sovereignty, for instance in rural manufacturing and dairy products. Moreover, future research should also examine how to best empower family farming with a view of addressing structural problems of access to resources and the need, therefore, to tackle issues of social inequality and how that inequality is reproduced.

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