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EXPLORING ALTERNATIVE FOOD INITIATIVES IN LEBANON

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Acronyms

IMF - International Monetary Fund CSA - Community supported agriculture ILO - International Labor Organization AFN - Alternative Food Network CAS - Central Administration of Statistics MOA - Ministry of Agriculture CFS - Conventional Food System ICA - International Cooperative Alliance LAU - Lebanese American University USAID - United States Agency for International Development PPP - Public Private Partnership UMJ - Union of Municipalities of Jezzine SBR - Shouf Biosphere Reserve FAO - Food and Agriculture Organization



1. The Lebanese Context

1.1. A Food System in Crisis

Lebanon's food system relies heavily on imports for production (i.e. imported agricultural inputs) and consumption (i.e. imported food items). 65 to 80 percent of Lebanon's national food supply comes from abroad-including traditional Lebanese staple foods such as sesame seeds and fish from Sudan, fava beans from Britain or Australia, and chickpeas from Mexico to name a few. Locally, wheat production could potentially supply 25% of the demand, and the dairy only 30%¹. As the financial and economic crises continue to worsen and make access to foreign currency and fuel severely limited, Lebanon's food system cannot afford to continue business-as-usual (i.e. importbased for consumption and export-based to support farmer livelihoods). On one hand, low to middle income households are facing the pressures from skyrocketing food prices, and on the other, Lebanese farmers continue to fall further into poverty. It is worth noting that the ongoing COVID-19 pandemic and the August 4 Beirut Port blast have exacerbated the situation. While scholars & analysts had warned that this heavy import reliance was a large threat to the country's food security, the deep flaws of this system have festered only recently due to the concurrent crises facing the country.

The two primary methods that have been put forward to solve the crisis include more privatization or foreign aid, neither of which prioritize people and environment. For example, the Lebanese ruling class-viewed largely unfavorably among citizenry²-were involved in a brief stint of negotiations with international stakeholders in hopes of reaching an IMF bailout deal to pull the country from its economic and financial mire. IMF-led measures have traditionally introduced regressive taxation and heavy privatization- often critiqued to benefit only privileged classes³. While attempts to reach a deal ultimately fell apart, propositions which tout more privatization are not off the table as described in a recently published AUB report⁴. The author details how continued trends of privatization in Lebanon could do more harm than good, arguing that the distributional effects (i.e. income distribution, employment levels, labor restructuring) of such efforts are often ignored. On the other hand, food aid has also poured into the country since the Beirut Port blast and more recently, the World Food Programme (WFP) has tripled the aid sent⁵. WFP activities include emergency response, cash assistance, school feeding, food assistance for assets, improvement of livelihoods, and national response capacity building⁶. While food aid successfully stymies food insecurity in the short term and is needed given the gravity of the situation, it is often critiqued to stifle local production and autonomy, instead creating dependency in the long term⁷.

^{1 .}الشوفي, ف. (٢٠٢٠ .)لبنان والسيادة الغذائية؛ القمح والفاصولياء أبقى من اللحم والدوالر. األخبار 2 Popular uprisings against the government have occurred across Lebanon throughout 2019-2021. 3 Kalim Siddqui. "Developing countries' experience with neoliberalism and globalisation." Research in Applied Economics 4, no. 4 (2012); Christina Laura Dickinson. "Argentina and the IMF: Over a Decade after Default." HPS: The Journal of History and Political Science 4 (2015) 4 Albert Kostinian. "PRIVATIZATION OF LEBANON'S PUBLIC ASSETS," American University of Beirut, 2021, https://www.aub.edu.lb/ifi/news/Pages/20210125privatization-of-lebanon-public-assets.aspx, (accessed July 20, 2021).

⁵ Naharnet Newsdeck, "WFP Triples Aid To Lebanon as Country Faces Unprecedented Crisis," Naharnet, online, 2021, http://www.naharnet.com/stories/en/281728wfp-triples-aid-to-lebanon-as-country-faces-unprecedented -crisis, (accessessed July 10, 2021). 6 World Food Programme, United Nations, Lebanon, 2021, https://www.wfp.org/countries/lebanon, (accessed July 10, 2021). 7 William D. Schanbacher. The politics of food: the global conflict between food security and food sovereignty. ABC-CLIO, 2010.

1.2 Fragmentation and Informality of The Agricultural Sector

In a context where the Lebanese state has intentionally refrained from enacting much needed agricultural and rural development policies since the Chehabist period, the fragmentation and informality of the agriculture sector acts as a key barrier to the establishment of a more sustainable, cooperative food system. The policies instituted under the presidency of Fouad Chehab (1958-1964) established the institutional structure of the agriculture sector. In addition to the creation of the Ministry of Agriculture (MOA) it established the:

- ii) The Litani River Authority (under the Ministry of Energy and Water)⁸
- iii) The Green Plan Directorate (established 1959 to support agricultural land reclamation projects and
- investment in farm-level infrastructures)
- iv) The Office of Wheat and Sugar Beets (under the Ministry of Economy and Trade),
- v) the nationalization of the tobacco monopoly (under the "Régie Libanaise des Tabacs et Tombacs")

However, these reforms failed to significantly alter the system or work to alleviate inequalities, as export-oriented agriculture and politically-affiliated agroindustry crippled the ability of local economic development⁹.

Today, Lebanese agriculture is heterogeneous and fragmented. On one hand, there exist a few highly capitalized agricultural holdings- often linked to prominent political figures- with access to swaths of land and capital as well as the potential for high capital accumulation both upstream (i.e. input supply) and downstream (i.e. agro-industry and trade) the value chain. According to Hamade (2015)¹⁰, the top one percent of wealthy farmers control around a quarter of agricultural land and the top decile control 61% of agricultural land. Some regional differences show a slightly more equitable distribution of land in Akkar and to a certain extent, in Baalbek El-Hermel. On the other hand, many smaller fragmented agricultural plots have low capacity for investment or access to credit. Though the national average farm size is 1.36 ha, nearly 70% of agricultural plots are smaller than 1 ha¹¹. Fragmentation of agricultural land as well as the lack of farmers' capacity to organize (only 4.5% of farmers are members of a cooperative)¹² is associated with low productivity and low return for farmers.

1.3 Characterizing Farmers & Agricultural Workers in Lebanon

In general, farmers in Lebanon tend to be relatively old, with the average age standing at around 52 years and with only 2% of farmers being youth (24 years and younger)¹³. Women (both migrant workers and Lebanese) represent up to 43% of the agriculture workforce yet are often disadvantaged in terms of land ownership and access to financing, inputs, markets, and extension services¹⁴. In assessing the labor force, the informality of the agricultural sector leads to disadvantages for both farmers and workers and often enables extreme exploitation¹⁵. 88% of agricultural workers (both foreign and Lebanese) are informal and are not protected under the labor law and receive no access

9 Kanj Hamade, "Lebanon's Food Insecurity and the Path Toward Agricultural Reform," Carnegie Middle East Center, 2020, https://carnegie-mec.org/2020/11/13/ lebanon-s-food-insecurity-and-path-toward-agricultural-reform-pub-83224, (accessed July 10, 2021)

to health benefits. ¹⁶CAS and ILO recent labor force survey data shows that only 3.6% of the Lebanese workforce work in agriculture as a primary source of income¹⁷. This may be because three quarters of agricultural holdings exploit informal seasonal laborers for a total amount of about 10 million working days (or the equivalent of 91,000 part-time jobs for 110 days per year). The vast majority of these laborers are Syrian migrants- often womenworking in difficult conditions without any access to social security benefits or decent work protection. Only 12% of agricultural holdings hire a full-time labor force which is estimated to be around 50,000 workers¹⁸.

1.4 The Wholesale Market & Middlemen

In Lebanon, the primary way for farmers to sell fresh produce is to go through the wholesale market system. Currently, there are seven large and two small wholesale markets, covering production regions from North to South. These markets often function through consignment (for both local and export markets) and are managed as private enterprises. Intransparent price-setting mechanisms and the lack of quality regulation on fresh produce are common here. This is mostly due to the unregulated role of middlemen traders or intermediaries whom farmers often rely on to connect them to the consumer. This reliance leaves farmers in a weak bargaining position and often leads to the acceptance of whatever price is set by the intermediary. ¹⁹Allam (2011) explains some ways middlemen take advantage of their power over farmers, which is especially easy to do in the absence of state regulation or protection for farmers. For example, traders often own cold storage units which they largely profit from in off-seasons, yet still fail to pay farmers a fair share. Middlemen have also been known to underreport to farmers profit made on their produce.²⁰In addition, there are informal agreements between farmers and these traders that the latter receives 10% of all revenues in exchange for selling products in the wholesale market. Another study confirms this by assessing the changes in the value of fresh produce in a simplified domestic value chain (from farmer to wholesale trader to consumer) in Lebanon, showing average price of each product at each stage of the supply chain, concluding that farmers often have poor value capture²¹. This is often a symptom of a lack of power and organization among food producers.

- 18 Kanj Hamade. Lebanese Agriculture: recessive dynamics in a context of lack of policy. In ANND (eds), Arab Social-Economic Watch Report on right to food. Arab
- 21 Roland Riachi. "Agriculture et système alimentaire sous la mission hydraulique libanaise." Méditerranée. Revue géographique des pays méditerranéens/Journal of

i) the general directorate for cooperatives,

⁸ This authority was created in 1954 and supervised the construction of large irrigation projects including the dam on the Litani River (1959) and the connected irrigation canals, which are still not all operational today

¹⁰ Kanj Hamade. Transforming the historical link between agriculture policy and inequality in Lebanon. In Banfield, J., and Stamadianou, V. (Eds). Towards a peace economy in Lebanon. International Alert: London. 2015.

¹¹ Marc Ruijs. "Value chain analysis of (greenhouse) vegetables in Lebanon." Wageningen Economic Research, Wageningen (2017).

¹² The Cooperative Sector in Lebanon: What Role? What Future? / International Labour Organization, Regional Office for Arab States. - Beirut: ILO, 2018. 13 Sami Halabi., and Nizar Ghanem. "Strategic Review of Food and Nutrition Security in Lebanon." Short Version. The United Nations Economic and Social Commission for West Asia (ESCWA), Beirut-Lebanon, p. 21pp (2016).

¹⁴ Food and Agriculture Organization of the United Nations, Briefing Note on Role of Women in Agriculture in Lebanon (2021), https://lebanon.un.org/en/115290briefing-note-role-women-agriculture-lebanon, (accessed July 10, 2021)

^{15 15}Kanj Hamade, "Lebanon's Food Insecurity and the Path Toward Agricultural Reform," Carnegie Middle East Center, 2020, https://carnegie-mec.org/2020/11/13/ lebanon-s-food-insecurity-and-path-toward-agricultural-reform-pub-83224, (accessed July 10, 2021)

¹⁶ CAS and ILO. Labor Force and Household Living Conditions Survey 2018-2019. CAS: Beirut. 17 ibid

NGOs Network for Development (ANND), (Beirut: 2020).

¹⁹ Marc Ruijs. "Value chain analysis of (greenhouse) vegetables in Lebanon." Wageningen Economic Research, Wageningen (2017). 20 Nathalie Allam. ""Farming is like Gambling"; An Examination of the Decline of Produce Farming in Lebanon's Central Bekaa Valley." PhD diss., The George Washington University, 2011.

Mediterranean geography 119 (2012): 35-43.

2. Research Objectives & Design

2.1 Aims & Objectives

While it has been established that the local wholesale market system is unfair to farmers, a dearth of research examines alternatives for agrofood system organization in the country- especially in the context of the parallel crises threatening both food security and farmer livelihoods. The aim of this study is to gain an understanding of how Lebanon may work towards achieving a more socially and environmentally sustainable, localized distribution system in the agrofood market by telling the stories of existing alternative food initiatives (AFIs) in the country. This study is not meant to be an in-depth review, but rather a broad assessment of existing potentials, challenges, and successes of AFIs. The research objectives of this study include:

(1) Identify struggles farmers are currently facing as a result of the current dominant distribution systems and assess perception of alternative food initiatives (AFIs).

(2) Provide an overview of the existing alternative food initiatives (AFIs) and alternative food networks (AFNs) which might achieve a fairer distribution of incomes, value creation, and more sovereignty from the wholesale market system for food producers.

(3) Identify optimal methods to shorten the supply chain between local farmers and local consumers which address the social sustainability aspects of food.

The report explores findings from interviews with farmers as well as a diversity of existing alternative models and initiatives in the country. After a brief introduction of the theoretical framework, methodologies used, and a presentation of findings, key recommendations will be presented for suggested ways forward.



2.2. Theoretical Framework

This report is concerned with exploring potentials for food system transformation in Lebanon, focusing particularly on AFIs which empower small-to-medium sized farmers. Agroecology, food sovereignty, and solidarity economy models are utilized as both guiding political frameworks & transformative paradigms in which to explore this issue. The complementary principles of these frameworks informed the design of this report and will be introduced briefly as follows. The term agroecology is multidimensional, describing a science, a movement, and/or a practice- all of which seek to deal with the challenges of agricultural production.

Agroecology can be understood as a science, a movement, and a practice²². This paper is not particularly concerned with agroecology as an agricultural science for more ecological farming techniques, but rather how it rethinks relationships in a food system. As a movement, it recognizes the conventional food system's systemic devaluation of food producers and peasant cultures around the world²³ and calls for more equitable and holistic food system organization²⁴. The conventional (or globalized) food system model is structured by large agroindustries who control both agricultural inputs (i.e. seeds, pesticides, herbicides) and end products (i.e. highly processed goods, distribution of fresh produce). This has led to the impoverishment of domestic farmers (due to inability to compete with prices of the global market), the depletion of natural resources and environmental degradation (due to increased intensity and scale of agriculture), as well as wasteful consumption practices (due to a phenomena called the 'cheaper food paradigm')²⁵. Of particular interest is how agroecological food systems challenge consumption patterns, distribution methods, and the general lack of equitability in dominant food system organization. Given the agroecology movement's political and social dimension, there becomes an understood link to food sovereignty's quest to empower people- consumers and farmers- by placing key decisions and power within a local community²⁶. This also means a need to advocate for the establishment of territorial food systems²⁷ – systems where production, processing, distribution, consumption, and waste management of food occurs within a specific territory. A wellfunctioning territorial food system seeks to decentralize power and capital, most often in the hands of large agrofood industries, to the community. A territorialized food system works to promote production, distribution, and consumption practices which respect people and planet, reduce waste along the food chain, promote local products, and more fair value sharing within a given territory²⁸. In other words, the localized approach of the food sovereignty movement is more fit in maintaining social, planetary, and human health.

Coinciding with these two frameworks is the solidarity economy model. The ILO's working definition of a solidarity economy is a "concept designating enterprises and organizations, in particular cooperatives, mutual benefit societies, associations, foundations and social enterprises, which have the specific feature of producing goods, services and knowledge while pursuing both economic and social aims and fostering solidarity". More specifically, a food solidarity economy model seeks to divest from the current exploitative, extractive, and structurally inequitable food system, instead building a more sustainable, cooperative, and territorialized food system.

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22 Alexander Wezel, Stéphane Bellon, Thierry Doré, Charles Francis, Dominique Vallod, and Christophe David. "Agroecology as a science, a movement and a practice.

- 23 Barbara Benitez, Erin Nelson, María Isabel Romero Sarduy, Rodobaldo Ortíz Pérez, Anaisa Crespo Morales, Caridad Casanova Rodríguez, Maybe Campos Gómez et

A review." Agronomy for sustainable development 29, no. 4 (2009): 503-515.

al. "Empowering Women and Building Sustainable Food Systems: A Case Study of Cuba's Local Agricultural Innovation Project." Frontiers in Sustainable Food Systems 4 (2020): 219.

²⁴ Mette Vaarst, Arthur Getz Escudero, M. Jahi Chappell, Catherine Brinkley, Ravic Nijbroek, Nilson AM Arraes, Lise Andreasen et al. "Exploring the concept of agroecological food systems in a city-region context." Agroecology and Sustainable Food Systems 42, no. 6 (2018): 686-711. 25 See more about the 'cheaper food paradigm' in Tim G. Benton, Carling Bieg, Helen Harwatt, Roshan Pudasaini, and Laura Wellesley. "Food system impacts on biodiversity loss." Three levers for food system transformation in support of nature. Chatham House, London (2021). 26 National Farmers Union (NFU), Food Sovereignty, https://www.nfu.ca/campaigns/food-sovereignty/, (accessed July 10, 2021) 27 Steve Gliessman, Harriet Friedmann, and Philip H Howard. "Agroecology and food sovereignty." (2019). 28 See Antony Page, Audrey N'diaye, Isabelle Duvernoy, Michel Duru. 2018. Territorialised food system : Definition. Dictionnaire d'Agroecologie, https:// dicoagroecologie.fr/en/encyclopedia/territorialised-food-system/

These frameworks, among others, have contributed to the emergence of alternative food systems around the world (see text box). These paradigms are used in this research report as guiding theoretical frameworks to explore Lebanon's potential for food system change at a time when the concurrent crises increase farmers' livelihood insecurity and consumers' access to sufficient food.

AFNs consist of initiatives and practices that present different ways of food provisioning that re-link the ties between consumer and producer in opposition to the distance & anonymity created by the current dominant agro-food model. Although the CFS is often able to produce large amounts of food in the short term, it does so by compromising the health of people and the planet in the long term²⁹. There are some common criteria which define AFNs such as: (1) short physical length of the supply chain (i.e. 'food miles')³⁰, (2) little to no intermediaries between producers and consumers³¹, (3) food possesses local origin³². Some definitions of AFNs highlight principles such as environmental sustainability and social justice³³. More nuanced understandings of what constitutes an AFN highlight the 'quality' of the relationship between the consumer and producer in comparison to a CFS which is primarily transacional³⁴. This may or may not have anything to do with the number of intermediaries involved³⁵ AFNs can include a diverse range of initiatives such as community-supported agriculture (CSA), produce baskets, direct selling, small locally-owned shops, farmers markets, among others, and can differ in practice even within the same initiative category.³⁶



29 29Polly Ericksen, Beth Stewart, Jane Dixon, David Barling, Philip Loring, Molly Anderson, and John Ingram. "The value of a food system approach." In Food security and global environmental change, pp. 45-65. Routledge, 2012 30 Angela Paxton. "The Food Miles Report. London: Sustainable Agriculture." Food and Environment (SAFE) Alliance (1994). 31 Christine Aubry, and Yuna Chiffoleau. "Le développement des circuits courts et l'agriculture péri-urbaine: histoire, évolution

en cours et questions actuelles." Innovations agronomiques 5 (2009): 53-67. 32 Alessandro, Corsi, Filippo Barbera, Egidio Dansero, Giovanni Orlando, and Cristiana Peano. "Multidisciplinary Approaches to Alternative Food Networks." In Alternative Food Networks, pp. 9-46. Palgrave Macmillan, Cham, 2018.

33 Ferne Edwards. "Alternative food networks." Encyclopaedia of Food and Agricultural Ethics. 2nd edition. New York/Heidelberg/Dortrecht/London: Springer (2016). 34 ibid

35 See the Solidarity Purchasing Groups (SPGs) movement in Italy for an example of an ethical intermediary 36 Rebecca White, and Andrew Stirling. "Sustaining trajectories towards Sustainability: Dynamics and diversity in UK communal growing activities." Global environmental change 23, no. 5 (2013): 838-846.

2.3 Methodology

A rapid review of existing secondary data- including reports, research, news articles, and open-access interview recordings- was conducted in order to establish an understanding of the current Lebanese context and broader conversations on food system transformation. These findings informed the larger design of the study. Primary data was gathered through observational data (i.e. farmer's markets visits and Jibal's past project reports), focus groups (i.e. with farmers & with farmer's market organizers), semi-structured interviews with diverse AFI actors (i.e. farmers markets, consumer cooperatives, producer cooperatives, territorial food strategies, basket models). Four farmers' market visits occurred at Souk El Balad (Beirut), Souk El Tayeb (Beirut), Souk El Nabatieh (Nabatieh), Nohye El Ard (Saida). Observational visits assessed market space and set-up, the types of products being sold, as well as the interactions between clients and sellers. Seven focus groups with an overall total of 71 participating farmers occurred in villages in two regions- Bekaa (i.e. Saadnavel, Kfarzabad) and Mount Lebanon (i.e. Batloun, Serjel, Majd El Meouch, Karselwan, Bmohray). Farmers were recruited to the study via agricultural focal points (e.g. municipalities). These focal points shared relevant farmer contacts that fit the description as a smallholder farmer who relied on agriculture as their main or only source of livelihood. The 20 one-hour long semi-structured interviews with AFI actors investigated motivations, practices, and challenges broadly. AFI interview participants were recruited via convenience and snowball sampling due to time constraints. Interviews were conducted in French, English, or Arabic and recorded. Some direct quotes used in this report were translated from Arabic & French.

2.4 Limitations of The Study

Some potential limitations may include respondent sample sizes, time constraints, and the challenges of reporting initiatives undergoing rapidly changing circumstances in the country. Respondent sample sizes were not sufficient or representative of farmers across Lebanon. This study begins telling the story of a food system in crisis and the general challenges farmers face, but future research should conduct extensive cross-regional interviews in order to gather more representative data. This can also be said for AFIs. While a significant number of AFI actors were interviewed, time constraints did not permit an extensive exploration of all existing initiatives in Lebanon. Recruitment methods may indicate some sampling bias towards initiatives with more social capital or online presence. It's worth noting that some initiatives interviewed had only recently formed or expanded their work, specifically due to the unfolding crises in the country. This meant that some interview data described work that was projected for the future rather than currently in practice. This data was not included in this study unless specified otherwise Still, identifying the high presence of many nascent AFIs- which have begun as a result of the concurrent crises- may be considered a key finding in and of itself.

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3. Findings

3.1 Farmer Perspectives

Focus groups with individual farmers as well as interviews with farmers involved in AFIs illustrated frustrations with the wholesale market. On one hand, they are aware that selling here significantly reduces their profit margin, offering much less than what their product should be worth. One farmer from Chouf, Nasrallah mentions that to justify the low prices listed on the receipts given to farmers, "[middlemen] give excuses and lies such as their need to pay for packaging." On the other hand, the wholesale market offers the simplest way for farmers to sell all their products at once, providing the farmer with convenience. Nicolas, a farmer from Aley, echoes this point and says he remains with the wholesale market because he is "always worried about not selling all produce."

On a monthly or weekly basis, wholesale middlemen submit receipts to farmers showing the quantity of sales and revenues. Though many farmers voiced that they are aware that the numbers and profit margins are equivocal, they are forced to accept because they are more or less reliant on this system (see section 1.4 for further explanation). According to farmers interviewed, middlemen list prices for farmers' produce on the receipts for 20%, and in some cases up to 50%, less than the real value they sold the produce for. Nadim, a farmer from Chouf says that "[middlemen] tend to argue over the prices at the value they want which frustrates me because I feel like I am begging to sell." Enaam, a farmer in Aley says: "they made me hate agriculture," elaborating that he used to work full-time as a farmer until he couldn't stand getting cheated by the wholesale system any longer. Instead, he decided to downsize his production and reduce his source of income from agriculture.

Ghassan Saoud, a farmer and member of the cooperative Lebanese Farmers describes his experience as well. He went to several wholesale markets to try to sell squash, tomatoes, and cucumbers he had grown on family land at the onset of the financial crisis with no initial success, as none of the dealers wanted to buy at prices he set: "they would refuse without even negotiating prices". For Saoud, this was a strategy to pressure him into imposing prices and conditions: "I didn't know what to do with the products, so I came back and said ok 'let's go for 1000 LBP per kilo'. Here they would start the negotiation (...) After much back and forth, I didn't want to take the produce back home with me, so I sold them". Saoud also explains how for him the payment procedure felt unfair and questionable. Although unhappy with the current system, many farmers endure the drawbacks of the wholesale market because it often means ensuring a sale, with no logistical headache. The majority of farmer respondents expressed the sentiment that specialized people should take care of non-farming related work (i.e. marketing, distribution), as they prefer to focus only on farming. This is important to note for future projects working to support an alternative food system. This paper works to understand how these grievances and needs voiced by farmers can be met by an alternative food system organization in Lebanon. A number of existing AFIs³⁷ were explored in order to begin understanding other options that empower the farmer.

3.2 Farmers' Markets

Farmers' markets (FMs) differ from context to context. Still, there is general consensus on common characteristics which include: (1) the involvement of direct selling between the producer (i.e. farmer) and the consumer; (2) the presence and practice of other producers within the same space; (3) the selling of local produce³⁸. We note that what constitutes 'local' is relative³⁹. Notable differences exist between rural and urban FMs in regards to alternate social norms & ties, degrees of locality, consumer cultures, and quality standards⁴⁰. Its location, identity, and management are decided by the organizers which in some cases are a group of farmers themselves. FMs, especially those organized by farmers, are not very common in Lebanon.

Joanna Parker from Les Racines du Ciel, a sustainable farming project in Lebanon, elaborates on the power of FMsin this case Souk El Tayeb- who handle marketing high value products for small farmers: "it is a real support to us to be able to sell there. We're a small farm, we don't have the capacity to do outreach". Parker goes on explaining why it may only work for farmers who produce small amounts of produce: "Currently, Souk El Tayeb is enough for us to sell everything except our apples which we have a very, very large quantity of". They mentioned the two functioning farmers markets in Beirut: Souk El Tayeb & Badaro Urban Farmers Market. First, Souk El Tayeb-located in the Mar Mikhael neighborhood- is privately owned and charges producers a fee to rent a stand. It features fresh seasonal produce but also preserved foods and other goods. Second, Badaro Urban Farmers Market- located in the Badaro neighborhood- is volunteer-run, emerging through the initiative of a small group of residents living in the neighborhood. Producers similarly pay a fee to rent a stand here. Also like Souk El Tayeb, the Badaro market features other types of goods such as mouneh and handicrafts- though they made a point to ensure that the stands of fresh and seasonal produce were more than other non-produce stands.

FM organizers interviewed mentioned it is often difficult to find farmers who are willing to sell. Farmers interviewed explained their fear that they would not sell enough in a FM and they would end up with all the leftover produce which is no longer fresh (as fresh produce can be priced much higher). Many also expressed apprehensions with the time needed to sell this way, as farmers markets were all-day events. Others who had experienced selling in Beirut mention that while produce may be more easily sold there, the heat caused their veggies to wilt quickly, making them aesthetically undesirable by the end of the day. These factors contrast with the ease of selling in the wholesale market. We add that farmers markets may also consist of extra costs for the farmer. For example, the cost of renting a stand.

Beyond the economic considerations of farmers markets, a number of interviews revealed key social components. For example in Saida, Ismael Sheikh Hassan from a community urban agriculture initiative called Nohye El Ard explains how they started: "We were interested in environmental agriculture as well as cooperation". The initiative includes a community agriculture project on land that is cultivated in small plots of 50 to 100m2, a nursery, and other activities that happen on the land such as a market, workshops and education activities. Cooperation is at the heart of the initiative: "Six people out of the 25 who are planting are taking care of organizing the market. The group includes people with different skills such as graphic design and carpentry. We never paid anyone to do something." This may be possible because farming is not a primary source of income for those involved in the initiative and is instead aninstance of food justice activism. What is of more interest is the social aspects that this initiative fosters: "the land is productive but it is also a public space. People come and buy their food, spend time, ask about planting techniques, go to the nursery and buy seeds". This social dimension that creates encounters and exchanges is also at the heart of a solidarity economy: "There is a dimension that is related to public space and it shows that people can take care of a community space without the need to be policed by the local authority".

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38 Morven G. McEachern, Gary Warnaby, Marylyn Carrigan, and Isabelle Szmigin. "Thinking locally, acting locally? Conscious consumers and farmers' markets."

39 Lewis Holloway, and Moya Kneafsey. "Reading the space of the farmers' market: a preliminary investigation from the UK." Sociologia ruralis 40, no. 3 (2000): 285-299.

³⁷ Many of AFIs interviewed fall into more than one of the categories presented in this paper.

Journal of marketing management 26, no. 5-6 (2010): 395-412.

⁴⁰ Henk Renting, Terry K. Marsden, and Jo Banks. "Understanding alternative food networks: exploring the role of short food supply chains in rural development." Environment and planning A 35, no. 3 (2003): 393-411.

Similar trends were exhibited by the Badaro Urban Farmer's Market. They shared that "the market also functions as a place to meet, have a coffee, for children to play together. It creates social interactions, kind of like a public space." In this sense, farmers' markets function more than just a direct selling mechanism and can be a space where social ties are built. This builds alternative ways of exchanging than a purely transactional and monetary relationship, which is at the heart of building a solidarity economy. The Badaro Urban Farmers Market also elaborates on how they attempt to foster collective decision-making and a more collaborative model among the farmers who sell there. For example, the relationship between price setting and the different capacities of farmers is something they try to account for via organizing collective meetings to discuss what a fair resolution for all of those involved can be.



In general, direct selling in farmers' markets appears to support the work of small and diversified farms, at least those who have social access to farmers' market spaces. There is untapped potential in Lebanon for this kind of direct selling, especially if the concerns voiced by farmers can be accounted for and more farmer-led markets can be organized. As they exist currently, the most useful element of farmers' markets tend to be their ability to re-connect farmers with consumers as well as foster exchange between farmers themselves. There still remains a lack of clarity on the economic feasibility of farmers' markets for farmers, as well as consumers which should be explored in future research. Future research must also understand who are the farmers in Lebanon who have knowledge of and access to selling in farmers markets and what makes them successful.

3.3 The Basket System

and are generally sold at a fixed price. The basket model often adopts one of two forms: (1) either as a identified the different basket models that exist in Lebanon, all of which fall within the latter category.

Examples of the Basket Model in Lebanon

Some of the basket models in Lebanon take place weekly via single point pick-ups, others include delivery, and one only employs the basket system periodically at certain points in the season. Finally, one case of the basket model will describe a system where a small market- run by farmers who grow produce to sell- also purchase from external farmers and assemble them into baskets.

Ghassan Saoud is a member of the Lebanese Farmers cooperative in Akkar who organizes weekly basket deliveries, sold directly to the consumer. Their basket includes the produce of sixteen other cooperative members. Cooperation is at the heart of this initiative: "I was looking for farmers who are planting different items so we can complement each other for the basket [...] We have a clear calendar with who is planting what all over the year so we can plan ahead of time." It offers a diversity of products and is planned "to feed around 6 people over a period of two weeks" with 16 items (12 vegetables & four fruit) weighing around 15 kilograms. They also provide a delivery service four days per week, all coordinated via weekly Whatsapp broadcast messages. Saoud describes the basket system to be a successful model for their cooperative, mentioning that it is the primary way they sell their produce: "we deliver around 400 baskets a week". Despite high sales, Saoud explains that they must always think of ways to impress the consumer: "in order for us to be able to sell the basket, we need uncommon produce like lychee or passion fruit that makes it more attractive."

Nohve Al Ard, the community agriculture initiative in Saida, also sells produce via the basket model, though they differ from others interviewed in that they employ it only in certain points of the season. Ismael Sheikh Hassan explains: "We don't do [baskets] on a regular basis. We do it as a special offer if we have too many vegetables, we would then be able to sell those. We do it in the middle of the season and at the end." The vegetables sold through the baskets are less expensive.

41 See Case Study on Riverford veg box 42 ibid

www.jibal.org



Les Racines du Ciel⁴³ and Buzuruna Juzuruna farms have an experience in selling their seasonal produce via baskets. They only offer single-point pick-up and sell primarily vegetables from their own farms, though Buzuruna Juzuruna is a collaboration between many farmers on one piece of land. Les Racines du Ciel mentioned that this single-point pick up was important for them as it was a moment to share and exchange with the consumer. In this sense the single-point pick-up created social links between the farmer and the consumer, similar to a farmers' market experience. Still, they explain that achieving this culture was not simple: "it was complicated for us to make sure that people stayed after picking their basket so there could be a moment of sharing. We couldn't ensure this friendly exchange at the time of delivery. The place did not lend itself much to this. Also, some people did not come themselves [for pick-up], but sent a driver".

As mentioned, les Racines du Ciel and Buzuruna Juzuruna rely primarily on the products coming from their own initiatives to sell in baskets, while other products such as preserved foods (i.e. mouneh) or processed items (i.e. bread, cheese) are included from other networks when possible. Serge Harfouche from Buzuruna Juzuruna says that while they "believe in having a large network, the basket system with too many farmers is difficult as it needs a lot of logistics." Still, he discusses how despite the challenges of logistics, this is sometimes done to maintain a diversity of products and by extension, the consumer's interest in the basket. Les Racines du Ciel mentions a similar challenge in providing the consumer with diversity, noting the extra work it sometimes required: "for baskets, you have to have variety. We were trying to have seven different products and that requires some organization. Selling in [farmers'] markets and making the baskets at the same time is a lot of work." The difficulty of maintaining diversity of products for the consumer, and the logistics required to network with external farms seems to be the largest challenge to individual farmers selling baskets. This may be why the Lebanese Farmers cooperative method, which joins the resources and products of many farmers together, is useful.

Healthy Basket, a small company that includes a farm, a shop, and a delivery system, may also offer another solution to the logistics problem. By combining their produce with other organic seasonal producers' and assembling readymade baskets themselves, they (1) achieve diversity for the consumer (their basket offers 10-13 pre-selected fruits & vegetables) (2) simplify logistics for the farmer and (3) ensure their vegetables get sold while also offering a lower price to the consumer. Ezzedine Jannoun, Operations Manager, mentions that "the basket is cheaper for the customer then buying the items separately." Healthy Basket customers can select whether they prefer a small, medium, or large one. All sales are coordinated by sending a broadcast message to the consumer two days before orders are due and distributed two times per week via a free delivery service (to Beirut, Baabda, and the North).

While the basket model has its challenges (i.e. logistics, meeting the consumer's demands), it possesses a few strategic strengths. First, it provides the farmer with the option to sell all the produce of their choice at once without worrying what the consumer will or won't purchase. It also creates the ability for the consumer to purchase produce at a lower price. Second, in terms of efficiency and economy, it provides an alternative to challenges faced in farmers and wholesale markets, where excessive amounts of vegetables that may or may not be sold are transported long distances. On transportation, Imad Ghadban, interviewed for his initiative in the Chouf which seeks to sell local production, says: "I sometimes see the pick-ups of local products leaving the Chouf and going to the wholesale market of Beirut. I have to then go myself to Beirut to buy this same merchandise and bring it back here." Other times, produce is thrown away. The directness of the basket system makes it where only the exact amount of produce needed to fill the baskets ordered by consumers is transported. Finally, the basket system demonstrated how it can facilitate the principles of solidarity and the development of social ties.

43 Les Racines du Ciel does not currently sell baskets and all information gathered reflects their experiences before the onset of the COVID-19.

This occurred in two ways: (1) between various farmers linking up to sell a common basket (2) between the farmer and the consumer. In the case of Lebanese Farmers, the basket model facilitated a network of solidarity between farmers in Akkar which stands in opposition to the competition normally present in dominant systems. On the other hand, the basket system may be an entry point for building a different relation between farmers and the people who buy from them. The farmer is no longer an unknown person, as in the case of supermarket purchases. This becomes especially true when consumers purchase throughout the year and begin to understand the seasonality of produce as well as the work of a farmer. These linkages which develop in social spheres, rather than just economic ones, are important to the proliferation and sustainability of a solidarity-based economy⁴⁴.

Exploring Basket Models Elsewhere

Interviews were conducted with actors who were involved in organizing baskets in Europe. This was done in order to assess how the basket system functions in other contexts. Rana Hassan, for example, was previously involved with agroecological cooperative Bajo el Asfalto está La Huerta, mentions that in their case the basket model functioned as a community-supported agriculture system. The FAO describes community-supported agriculture as a model where consumers agree to provide to their local farmer an up-front monetary support for an entire season and farmers in return provide them with a sufficient quality and quantity of weekly produce⁴⁵. Rana discusses how in this model food producers feel truly supported, unlike the occasional basket purchase, in that consumers provide an upfront commitment to support and bear the responsibility of a season alongside the farmer. She describes how in order for this to work, there needs to be trust, accountability, and commitment, adding that consumers who have chosen to adopt this model are doing so as a political choice, not out of practicality.

Ronan Calard, a member of a regional food alliance Groupement Régional Alimentaire de Proximité (GRAP) in France compares the different interests between the consumers and producers: "A customer wants good quality vegetables, a big variety of products, with cheap costs, and aesthetically beautiful. While the producer wants to sell their products at higher prices, with as little variety as possible to ensure efficiency, and the availability of a product is always uncertain [for the farmer] because availability depends on the weather." For Calard, this is why community-supported agriculture is an interesting system for the farmer, as consumers are in direct contact with the person responsible for their food and begin to "understand the farmer's work and its challenges."

To our knowledge, full-fledged community-supported agriculture does not exist yet in Lebanon. Basket models in the Lebanese context do offer some benefits described above, but still rely on the willingness of the consumer to purchase on a week-to-week basis as opposed to an entire season.

⁴⁴ Ethan Miller. "Solidarity economy: Key concepts and issues." Solidarity economy I: Building alternatives for people and planet (2010): 25-41. 45 5Peter Volz, Philipp Weckenbrock, Cressot Nicolas, Parot Jocelyn, and Zoltán Dezsény. "Overview of community supported agriculture in Europe." (2016): 1-136.

3.4. Cooperatives

According to the International Cooperative Alliance (ICA), a cooperative is an "autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically-controlled enterprise"⁴⁶. For May Traboulsi, the chairperson of Rural Delights Cooperative, the work conducted by a cooperative goes beyond a pure profit-based business model: "I call the cooperative 'the good business', it is an economic project, a service. The cooperative has been formed to support a group of people who have the same objective but cannot work on their own." There are many different types of cooperative organizations- though this section is focused particularly on cooperatives which produce, market, or export food items, with some exhibiting hybrid characteristics.

Within an agriculture or food cooperative structure, services and tools can be shared, reducing costs and increasing the profit margin for small producers. In addition, collectively-organized bodies can benefit from the combined contacts and social capital of the other members. Coming together as a group of farmers or food producers also enables stronger negotiation power with buyers. The combined skill sets and access to resources of producer cooperatives often better ensures members' resilience to shocks and changes. Agricultural cooperatives can be vital tools in facilitating better integration of farmers into local or international value chains⁴⁷.

Until today real forms of cooperative organizing have remained extremely limited in Lebanon. Only a few cooperatives are managed as collaborative and democratic endeavors. An ILO (2018) publication explored why this may be the case. For example, donor dependency is an important source of investment, but it has created a reliance on incoming funds rather than the internal resources or business development of organizations, leading to the phenomena of "fake cooperatives" in the country⁴⁸.

In other words, many organizations have previously registered as cooperatives with the understanding that this would enable them to receive donor funding, rather than for the purpose of developing a self-sustainable cooperative with proper governance structures. These challenges are policy and regulatory framework weaknesses, self-reported in the Ministry of Agriculture Strategy (2015-2018)⁴⁹.

Farmers Cooperatives

Compared to those working on preserved foods (Mouneh), there exists a small number of cooperatives working specifically on selling fresh produce locally. This may be because less funding is available for this structure and business model, with most donor agencies funding cooperatives with an export orientation. Nonetheless, several formal and informal cooperative initiatives have been established such as Lebanese Farmers which gathers seventeen farmers from the Akkar region. When explaining the reason behind starting the cooperative, Ghassan Saoud, a member of the cooperative, describes the difficulties faced with the wholesale market and the importance of organising in an alternative system. He explained that he coincidentally had a discussion with the Director of Cooperatives where he spoke of his frustrations: "She told me to start a cooperative, to find five or six others to start an alternative selling system." For Saoud, finding other farmers interested was not initially simple: "I finally found some small farmers, great ones, some who started recently with small land between 4000 to 5000 m2". He

describes how collaboration is at the heart of their business model as they needed to have a diversity of products at different seasons for their basket to be sold "For example, on May 5th, Samir will have tomatoes and Dany will have cucumber and Ghassan parsley. And we know who has some items when we don't".

Another example is a cooperative of grape producers- the Heliopolis Cooperative in Deir Al-Ahmar- which was founded in 2000 when a growing Lebanese wine sector presented an opportunity for its formation. It gathers produce from a number of wine grape farmers and constitutes a strong example of a cooperative that has been able to provide a wide range of extension services to farmers. The cooperative revolves around a common procurement scheme, technical support during harvest, the mutualization of tools and machinery, as well as the marketing of wine grapes to local wineries. One of the cooperative members is also the co-owner of a local winery, 'Couvent Rouge', which is committed to buy a certain part production along with other wineries in the country. The close link between Couvent Rouge winery and the Heliopolis Cooperative makes access to the market more stable.

Heliopolis keeps a 5% margin on wine grape sales to cover operation costs. While wine grape farmers are not directly involved in the sale and marketing process- which is under the responsibility of cooperative management- the initiative implements monthly board meetings and yearly member meetings in which the cooperative actions and financial statements are discussed with farmers. In addition, board elections are organized on a regular basis every three years in which wine grape farmers participate. According to Walid Habshy, a member of the cooperative and founder of the Couvent Rouge winery, the success of the Heliopolis Cooperative is due to (1) the strong cooperation (2) the trust between farmers and board of directors, and (3) the presence of the local winery Couvent Rouge which supported the sales and marketing activities. Habshy's analysis of the success of the cooperative should also be complemented by acknowledging the nature of the production: the grapes cultivated are for wine production, a high value-added product that can be easily exported.

Food Processing and Mouneh Production

Since 2006 to date, the most successful cooperatives in the food sector have focused on processed food goods which are able to achieve more added value than fresh produce cooperatives. These products gain value via (1) perceived authenticity and rurality (e.g. mouneh⁵⁰), (2) social value (e.g. rural women empowerment), or (3) from the product itself (e.g. wine). However, these cooperatives can be a part of a system where farmers have alternative access to markets.

Rural Delights (Atayeb El Rif) works as a production & marketing cooperative for 45 food producers and agricultural cooperatives. They primarily work to support members of women's cooperatives involved in making 'mouneh' by providing logistical & technical assistance. This includes ensuring quality standards, good production and packaging techniques are in place, internal management is set, and access to improved kitchen equipment is facilitated. All products are centralized under the 'Atayeb El Rif' brand and marketed through direct sales at fairs or markets, specialized shops, as well as mainstream distribution channels such as supermarkets.

According to May Traboulsi, the chairperson of Rural Delights, their main objective as a producer cooperative is "to break monopolies and work on food security through Lebanese production." While the cooperative "wants to support agriculture in Lebanon," Traboulsi discusses why buying the raw material directly from the farmers can be challenging: "the farmers feel anxious about this. They fear that the wholesale market wouldn't accept the

⁴⁶ International Cooperative Alliance, "Cooperative Identity, Value, & Principles," https://www.ica.coop/en/cooperatives/cooperative -identity, (accessed July 10, 2021)

⁴⁷ Jiacheng Zhang, Jianli Luo, and Jia Li. "Agricultural co-operatives participating in supply chain integration in China: A qualitative comparative analysis." Plos one 16, no. 4 (2021): e0250018. 48 The Cooperative Sector in Lebanon: What Role? What Future? / International Labour Organization, Regional Office for Arab States. - Beirut: ILO, 2018

⁴⁹ ibid

^{50 &#}x27;Mouneh' is the colloquial Arabic word for food products that are preserved for long term safe storage (usually a year). These include jams, molasses, pickled products, among others

remaining [produce]." This is because wholesale market buyers have records of farmers' production from past years and would become aware that the farmer has opted to sell elsewhere, a form of coercion. Traboulsi explains that the cooperative even told the farmers they would pay a higher price for their product but they didn't accept: "this is the monopoly I was talking about. So the farmers feel an insecurity and think that even if the wholesale market is not transparent and is taking a commission, at least they have a guaranteed option to sell."



She mentions how it is possible to create an alternative "working in a closed chain, a farmer working within a cooperative, this cooperative gives part of its production for food transformation to another cooperative" and this type of collaboration can give "more power when negotiating with the wholesale market or even get out of the wholesale system completely." Still, she discusses that a level of efficient coordination with agricultural cooperatives has not been achieved yet: "Say you want to make apricot jam, we buy from agricultural cooperatives but this requires more effort, we need prior coordination with the cooperative to ensure they are growing varieties we can turn into jam". The collaboration between cooperatives is also sought by the coordination of cooperatives of the Chouf as its president Mazen Halwani explains "we should push for a more localized circular economy, where a local cooperative buys from the local farmer, and the restaurants buy from the cooperative, etc". He explains how their cooperative coordination started: "the cooperatives in the area would initially work separately, with competition among them. Some would work on the same products. The idea was to link them and to collaborate". Enhancing more collaboration between cooperatives can also include the consumer's cooperatives. Later sections elaborate more on this aspect.

important that you have someone working on packaging, marketing, supporting the farmers to produce a good calendar of production, to produce some transformed products that would be sold at a higher price than fresh produce." Another cooperative interviewed, Khayrat, was started by the Safady Foundation. By building a large network and ties with local farmers, the cooperative purchases all produce directly from those in order to undergo transformation into mouneh. Tarek Allam, director of the cooperative explains their work through an example, "if we want to make ten tons of cherry jam. We check who are the farmers who have cherries, from whom we can buy from. Then we ask procurement to prepare to buy jars and sugar. Meanwhile we closely coordinate the harvest with the farmers". In some cases, the cooperative coordinates with the farmers ahead of time on what they need to plant and even offers them the adequate seeds that are fit for the final processed product. However, such models can offer very little agency to the farmers, moving away from the cooperative system's initial democratic objective. Still, farmers' cooperatives can also be involved in food transformation directly. The cooperative Lebanese Farmers also produce and sell 'mouneh' mainly from the members' fresh products. Saoud explains that the unsold are processed for example into sundried tomatoes sold to pizzerias and dried apricots. Ghassan Saoud explains how the cooperative was also to build a collaboration "with LAU Jbeil who have a kitchen where we produce transformed food, like 7 different types of Pesto Sauce which are mainly sold in Kuwait". In this last example, the farmers are better able to gain more value capture and have more agency when it comes to the marketing of their product.

One study explores the potential of food transformation and processing cooperatives as a way to mitigate the current crisis in Lebanon, specifically by supporting rural livelihoods and maintaining food security through shelf-life extension of fresh produce⁵¹. Still, interviews with cooperatives involved in food transformation generally revealed a reliance on an export-orientation. This is due to lower purchasing power in the Lebanese market, making high value goods producers eager to export as much as possible. While this may work to support farmer livelihoods, it does not address food insecurity in the country. In addition, an ILO (2018) study found that although direct selling of transformed foods between cooperatives and markets revealed positive trends, market saturation became a challenge⁵². Two cooperatives interviewed discussed their limitations on expansion, whether in the number of producers they could absorb or the buyers they could supply to. Polat (2010) suggests that this is a common trend among cooperatives in Lebanon.



51 Rita Jalkh, Marc Dedeire, and Melanie Requier Desjardins. "An Introduction to Food Cooperatives in the Bekaa Valley, Lebanon: Territorial Actors and Potential Levers to Local Development Through Culinary Heritage." Food Ethics 5, no. 1 (2020): 1-18.

Cooperatives Governance and Farmers' Agency

The report mentioned previously broadly points fingers at "poor management and poor regulations. On this topic, Mazen Halwani, head of a coordination of cooperatives in the Chouf area, says "many farmers relate to their cooperative as a service provider and are not involved in the governance, although they are members themselves". Halwani explains how they started training for the cooperatives on proper governance in order to avoid such dynamics. According to Walid Habshy, a member of the Heliopolis cooperative, the growth of the cooperative has also led the members to be less involved in the decision making: "Today, the farmers relate to the cooperative as an external body, the one that sells their production. When the cooperative fails to properly sell their products, the farmers complain. But they are cooperative" For Habshy, this is the responsibility of the board who was not conscious of this dynamic "The cooperative's responsibilities should be shared collectively between the [management] board and farmers, everyone should be aware of difficulties and challenges. Even if there is a president, the board should not bear the responsibility alone. If there is an issue, members should meet, discuss the issue and decide collectively on the way forward". He also points out the importance of having a qualified executive director and team "to follow-up on the implementation of the members' decision."

However in other examples such as the Khayrat cooperative, the farmers or the workers involved in the food processing are not necessarily involved in the decision making. When asked about the structure of their cooperative, Allam mentions "we work with a lot of farmers, but they are not necessarily members." In other words, farmers here act more as suppliers than as active cooperative members. Although the report at hand did not explore in-depth governance practices of those interviewed, future research should explore more in depth comparisons between initiatives that exhibit varying levels of agency among farmers and workers involved in food transformation.

3.5. Farmers Selling to Other Types of Short Supply Chains

This section will explore additional ways of selling available to farmers, all of which facilitate a shorter supply chain. For example, direct selling can occur between one farmer (or a group of farmers) directly to entities in their social network, such as restaurants, small markets, or even individuals. Field to Fork is a farm that directly sells its produce to restaurants, acting as its own distributor. Hussein Kazoun, who runs this farm, mentions that "although it's more fair, it's more work," due to additional logistics and initiative needed to identify buyers. One example of a farmer in Aley shows how individual farmers can sell their products within a shorter supply chain without having to go through complicated systems, often by utilizing their social networks. Enaam mentions: "I take the products to some shops in Beirut that I know. Once a restaurant took all my eggplant harvest in one season. For the tomatoes, I used to take them to markets and any extra I would make tomato paste and sell to people here through word of mouth." In the above cases, farmers explained that they relied primarily on their social networks, where an intermediary is not needed to ensure selling, though this requires more coordination on the part of the farmer. The feasibility of this method may only be fit for small to medium size farms or farmers who have the time for coordinating logistics.

In a small market in Hammana, Baabda, the owner buys fruits and vegetables directly from farmers in the vicinity during every harvest season except winter. He takes 10% of the profit from everything sold, which he admits is too low to cover his employee costs, rent, and other expenses. He had the intention to increase his profit margin to 20 or 25% but was encouraged by the local political party to keep the percentage low to support local farmers, though it was unclear if anything was presented by said party in return. In another example in Kfar Nabrakh, Chouf, Imad Ghadban started a more localized wholesale market. Unlike other wholesalers who pay the farmers when

the products are sold, he buys the products directly from the farmers and takes 5-10% of the profit, similarly a percentage too low to profit as he explains. They open from 5 AM to 12 PM as a wholesaler and afterwards open up to individual buyers to take what is left. The produce purchased from local farmers is a small percentage of the market's supply, with the majority still coming from the wholesale market in Beirut. Ghadban explains that his local wholesale market is a challenging model because in his experience small producers in his area tend to sell directly to local markets and larger farms sell to the wholesale market in Beirut. He wanted to open this market as a service to the local community, but said that "you have to be patient with the income. The margin you make as a wholesaler is very small." In other words, it remains ambiguous whether these initiatives are viable without additional funding or support.



In a more advanced version of a solidarity-based food system, farmers cooperatives or even individual farmers could sell to consumer cooperatives. Consumer cooperatives are organizations that are owned, managed, and controlled by consumers themselves. They often provide services to the communities they operate in which are not available in for-profit enterprises. By eliminating middlemen, the organization is able to achieve cheaper prices of goods without adulteration or other malpractices. They utilize the cooperative principle of democratic member control, where the decision making structure gives power to members on a range of strategic needs of the organization. In more advanced cases, consumer cooperatives form federations or unions with other cooperatives selling a variety of goods as a means of reaching independence from dominant market systems. Nadine Moawad, who is working on a consumer cooperative initiative in Ras El Nabeh, explains how "food [consumer] co-ops have always had a history in Lebanon...10% of greater Beirut was part of a cooperative prior to and during the civil war," though she explains that this changed due to the role of heavy privatization in the reconstruction period, where media misinformation campaigns were organized to demean the quality of food items sold in cooperatives. Today, few examples of consumer cooperatives exist in the country. The group involved in the consumer cooperative in Ras El Nabeh is working to revive this culture. Starting in 2020, they opened their doors and now have around 150 participating members from both the local neighborhood and supporting activists from around Beirut. They explain that when they purchase produce, it often comes from the wholesale market in Beirut. This is mostly due to the convenience and simplified logistics of purchasing produce from the wholesale market. The need for simplified logistics echoes the sentiments shared by many of other initiatives interviewed as well as farmers. Karim Hakim,

one of the cooperative's employees, explains that before connecting with a variety of producers, they "need to focus now on the systems and operations of the grocery" as a priority. Moawad adds that connecting with a number of small producers requires a lot of pre-planning, and it's not always certain that they can source all produce they need when working with small farmers. She continues that in order for them to be a successful grocery, consumers need to see that they are able to maintain a constant supply of goods. When asked what would facilitate their work, she mentions that collaboration with other cooperatives, producer cooperatives, as well as a system for simplified logistics may enable direct purchases from farmers or farmer-led organizations.

Ronan Calard, a member of the French regional food alliance GRAP, echoes that the logistics of sourcing products from many different producers is often the main challenge for a grocery: "typically a grocery buys everything from the wholesaler, it is easy and quick." He shares an example of one model in France which encourages groceries to purchase from small producers. Here, a delivery truck conducts a delivery circuit that moves from one area to another, connecting a network of small producers and interested groceries: "The truck comes to each grocery once every two weeks and delivers the products that were ordered on our online platform" explains Calard, "each grocery in its own area knows about local small local producers. They are the ones who introduced us to this network [of producers]." He reiterates that the delivery truck is consistently stopping on its route to pick up from small producers on its way, dropping off to nearby grocery stores. This possesses potential for success in Lebanon given it helps simplify logistics for both farmers and small markets and remains more cost-effective.

3.6 More Territorialized Approaches?

Territorialized (or decentralized) approaches to food & agricultural development are growing as an alternative to the globalized food system. The aim of territorialized food systems is to relocate food production and consumption to be at the scale of a given territory, which takes into account sustainable development approaches. These systems represent partnership between actors in a territory including private, public and civil society members, and encompass production, processing, distribution, consumption and waste management organizations. Because territorialized food systems shorten value chains and consolidate them within a territory, product value often increases, allowing farmers to manage and enter the agrifood business market by establishing small-to-medium sized enterprises⁵³.

In other cases, territorial food networks take on a form which is described in the literature as 'culture economy'⁵⁴. Here, typical food products which carry cultural identity within a constructed social territory are commodified to increase the value of local production. This 'culture economy' is primarily concerned with the territory, its resources, and its networks of actors. It aims at reorganizing economic activities, even if partially, into the geographical scale of local territories and is concerned with resources and the network of actors which fall within this defined space. Some scholars explain that this gives more opportunity to small and medium enterprises to create and retail value locally, strengthen regional identity, improve associational cooperation and localized learning⁵⁵. In Lebanon, this approach is mostly used, though it was primarily export-oriented or reliant on rural tourism rather than the local communities. Some examples of this include the strategies and work of: (1) the Ehmej Municipality, (2) Jezzine's Union of Municipalities, and (3) the Shouf Biosphere Reserve⁵⁶.

In the case of Ehmej, municipality leadership played a key role in attracting funds– specifically from USAID– to support the development of rural tourism activities, irrigation networks, as well as the establishment of sorting and

54 Christopher Ray. "Culture, intellectual property and territorial rural development." Sociologia ruralis 38, no. 1 (1998): 3-20.

storage units (primarily for apples). These facilities are owned by the municipality and managed by a Public-Private Partnership (PPP) where a private company stores, sorts, and grades apples for export purposes. The municipality ensures access to cold storage services for farmers in the area, and works to guarantee that farmers receive a fair price if they wish to sell their apples to an exporting company. Successes in Ehmej are partly due to Ehmej municipality members' ability to pool their resources and social capital in order to, on one hand, attract donor funds and on the other, set-up PPP agreements with the private sector. It must be noted that the municipality's support possesses an export-orientation given Lebanon's weaker market opportunities. Still, the system presented could be shared to cater to domestic needs and replicated as a possible successful model for local food security and livelihoods support as it demonstrates how municipalities play a large role in creating linkages between farmers and supporting their practice.

Another example is presented by the Union of Municipalities of Jezzine (UMJ). UMJ has developed and implemented a rural development strategy based on the marketing of their territorial capital. This means that their development strategies focus on the valorization of rural tourism and local production as well as the upscaling of Jezzine as a sort of high value 'brand'. The union has created two social enterprises through PPPs: (1) La maison de la Forêt, an organizer of rural tourism and (2) J Grove, a marketer of agriculture production. J Grove aims to improve local production by selling high value products in Lebanon and abroad. The objective of the company is to make Jezzine itself a brand name synonymous with quality in both Lebanon and in the diaspora market. The enterprise handles promotion, packaging, laboratory tests, and distribution logistics. They also have organized a system to gather feedback from the clients which is reported back to local producers in order to help them better the quality. J-Grove started dealing primarily with pine nuts as its main product but now includes honey, olive oil, zaatar, kishek, pomegranate molasses, carob molasses, and labneh in oil. The last stage of production happens at J Grove in order to ensure high quality. For example, in the case of olive oil, the enterprise supervises the harvests, pressing process, and storage. For honey, beekeepers harvest directly in the J Grove workshop using stainless steel equipment, where the product is tested for its quality and purity. If it meets standards, J Grove purchases, packages, and stores it. Similar oversight occurs for other J Grove products.

J Grove has earned the trust of the local farmer and producer community by providing year-round technical assistance, upfront cash payments for products, and support during bad harvests. For example, farmers only pay a small fee for the services and facilities they use if the products are not purchased by the company. Issam Abi Rached, manager at J-Grove, explains "often if [farmers'] financial situation does not allow or if they had a bad season, fees are waived..." He mentions a key point which may point to their model's ability to preserve small producers' dignity and livelihoods: "the fact that J Grove doesn't buy low-quality products increases the competition between producers over quality not price." They explain that one of their goals is "to make sure tourists leave wanting to return to Jezzine," because oftentimes "the mentality of local businesses was that it was okay to 'cheat' tourists, as they visit once and never return, so they don't worry about whether there is or isn't a repeat purchase.....we want to

change this mentality." Similar to the Ehmej example, the Union of Jezzine Municipalities does support farmer livelihoods but still possesses an orientation to sell food products to consumers who can afford high value products. The municipalities' important role of providing such joint services and facilities could be restructured to create a parallel locally-oriented food system, where farmers and small producers still receive needed support when working to supply domestic needs.

In the case of the Shouf Biosphere Reserve (SBR), their Rural Development Department is responsible for the economic development and empowerment of the local community. This department is concerned with the area of

⁵³ Antony Page, Audrey N'diaye, Isabelle Duvernoy, Michel Duru. 2018. Territorialised food system : Definition. Dictionnaire d'Agroecologie, https://dicoagroecologie. fr/en/encyclopedia/territorialised-food-system/

⁵⁵ Damian Maye, and Brian Ilbery. "Regional economies of local food production: tracing food chain links between 'specialist' producers and intermediaries in the Scottish-English borders." European Urban and Regional Studies 13, no. 4 (2006): 337-354.

⁵⁶ The Shouf Biosphere reserve acts as a de facto umbrella organization for inter-municipal cooperation in the areas within and surrounding the biosphere.

the reserve itself, the Ammig Wetland, and 22 surrounding villages from eastern and western sides of the Barouk and Niha mountains. An extensive roadmap plan was developed to enhance sustainable agriculture and provide a holistic approach to farming that conserves resources, supports farmers, increases resilience, and enhances ecotourism⁵⁷. 57 This sustainable agriculture roadmap targets small and medium size farmers as well as food processing institutions via a voluntary membership program which in return provides capacity building workshops, access to agricultural engineers, discounts on laboratory tests (to assess soil quality, pest control, produce quality), access to farmers markets, and other forms of marketing support.



The capacity building program includes workshops on how to compost, use organic pesticides (homemade and commercial), grow rain-fed crops, establish alternative cropping systems, engage in water management, organize local farmers' markets, for example. In 2019, the SBR established a farmers market in Barouk which sold produce which used sustainable agriculture techniques as well as mouneh and handicrafts. They also assess local producers' capacities and product quality in order to link them to corporate agencies, for example. They have also previously supplied free seedlings in order to encourage farmers to grow more biodiverse products in their lands and help build their resilience to climate change. Finally, they have worked on the reclamation of several agricultural lands and transformation into sustainable agriculture plots. This example exhibited the most holistic approach and may be the closest model to achieving a more localized food system made to support both local farmers and local consumers.

More advanced localized food system approaches can be powerful in that they work to link the available resources and capacity of an entire territory together. This can mean more fair natural resource distribution, strengthened support to farmers, and maintained value for local businesses. While the initiatives interviewed in Lebanon present promising structures to build on in order to achieve more local food systems, there still remains an exportorientation as the primary driver for collective organization. This is understandable given the limited market size, especially that most produce and food item needs have been filled via imports. Only recently has local produce become more 'desirable' price-wise to consumers in Lebanon. SBR provides a more locally-oriented example of what can be done to support local farmers and local consumers at the same time, focusing on the facilitation of local market access via farmers markets for example. SBR also considers people and planet, working to mitigate ecological and climate concerns in the Chouf region.

4. Conclusion & Recommendations

This study worked to establish an understanding of the Lebanese food system, a system in crisis, and address potential growth for alternatives. This was done by beginning to understand current challenges faced by farmers in regards to product distribution and value capture as well as the existing alternative food initiatives which have the potential to mitigate such challenges. It should be made clear that fragmented approaches and initiatives which work on food and agricultural development are not enough for longstanding change which achieves sustained farmer livelihoods and more stable food security in Lebanon. In general, this work revealed that more attention should be placed on holistic territorial food development approaches via building linkages, collection of data, and mapping. In order to do this, an assessment of specific current challenges and needs must be conducted as well as realistic assessments of existing resources, whether physical or intellectual, in a given region. The recommendations presented below suggest other key actions, organized by actor groups, needed to support more robust alternative food networks.

4.1 Donors

Current strategies implemented by donor-funded programmes tend to focus only on bolstering high value production and niche market segments such as 'mouneh' which possess export potential. Little effort has been placed on bolstering fresh produce production meant for the local market. While these strategies have in several instances successfully helped small producers to improve production quality and receive increased income, they fail to respond to local food security needs or sustainably support the most vulnerable farmers in the long term. Donor programming should:

governance, and not only those which target mouneh producers. cooperatives, particularly those which ensure small farmers possess agency. (*i.e.* product aggregation, marketing, distribution) build more localized food safety nets.

57 See http://shoufcedar.org/



- Shift strategy to include a local-market orientation in projects targeting farmers and food security. • Support the implementation of more active farmers cooperatives with proper democratic
- Place greater focus on the establishment of proper governance structures within AFIs and
- Support projects which build or support via partnerships the logistical capacities of food producers
- Support projects which work to establish food networks and linkages between relevant actors-
- such as AFIs, farmers, private sector, municipality, among others- within a specific region, in order to

4.2 National Policy Makers

The Ministry of Agriculture, which is the umbrella organization for the General Directorate of Coop capacity-building activities from civil society organizations (CSOs) in order to support smallholder farmers. While the GDC's national legislation on cooperatives is generally adequate, it lacks proper enforcement and monitoring mechanisms. Fragmentation in the cooperative sector, and generally among alternative food initiatives, may be the result of lack of support from relevant policies. Policy should:

- Incentivize intra-cooperative cooperation and/or the development of multi stakeholder cooperatives
- Incorporate monitoring mechanisms into the policy framework in collaboration with donor programmes to ensure transparency and accountability in the cooperative management process.
- Establish regional offices for the GDCs which can increase monitoring practices, support in capacity-building, and engage in network building across cooperatives in a given region.

4.3 Municipalities & Local Institutions

Municipalities, unions of municipalities and chambers of commerce, industry and agriculture can play a vital role in supporting an alternative food system in their regions. There is currently much differentiation in strategy, resources, and capabilities from one region to another though in general these recommendations could work to bolster the development of AFIs. These local actors should:

- Support the development of local economic development plans in collaboration with farmers, relevant AFI, and local private sector.
- Form or engage with existing actors in order to foster collaborative strategic planning on local economic development.
- Actively collect relevant data related to the food and agriculture sector that can support baseline assessments of local development projects and facilitate local strategic planning.
- Facilitate the implementation of local public-private partnerships, specifically through cooperative structures, to support quality improvement and marketing of local food production, including both high value and standard processed and fresh products.

4.4 Civil Society Organizations (CSOs) & Research

CSOs in Lebanon can play a significant role in bolstering an alternative food system and changes in food system governance by offering capacity building training, facilitating networks of collaborations, and pushing for a more active cooperative movement in Lebanon. CSOs and research institutions should:

- Conduct research or assessments which address levels of farmer agency.
- Identify, map and evaluate local initiatives and civil society food movements in order to transform best practices into relevant programmes and policies, with the support of local research or academic institutions.
- Support development of territorial food policy frameworks which consider urban-rural linkages. • Support in the set-up of open-access data collection systems for local municipalities in order to enhance the availability, quality, quantity, coverage and management and exchange of data on the food and
- agriculture sector.
- Build awareness campaign to inform the public about the unfairness of the food system and push for more active cooperative movements and farmers agency in Lebanon. • Advocate for a shift and renewal in the wholesale market system.



Advocate for the planification and implementation of participative food system strategies at regional level.



Bibliography

Allam, Nathalie. ""Farming is like Gambling"; An Examination of the Decline of Produce Farming in Lebanon's Central Bekaa Valley." PhD diss., The George Washington University, 2011.

Aubry, Christine, and Yuna Chiffoleau. "Le développement des circuits courts et l'agriculture péri-urbaine: histoire, évolution en cours et questions actuelles." Innovations agronomiques 5 (2009): 53-67.

Benitez, Barbara, Erin Nelson, María Isabel Romero Sarduy, Rodobaldo Ortíz Pérez, Anaisa Crespo Morales, Caridad Casanova Rodríguez, Maybe Campos Gómez et al. "Empowering Women and Building Sustainable Food Systems: A Case Study of Cuba's Local Agricultural Innovation Project." Frontiers in Sustainable Food Systems 4 (2020): 219.

Benton, Tim G., Carling Bieg, Helen Harwatt, Roshan Pudasaini, and Laura Wellesley. "Food system impacts on biodiversity loss." Three levers for food system transformation in support of nature. Chatham House, London (2021).

CAS and ILO. Labor Force and Household Living Conditions Survey 2018-2019. CAS: Beirut.

Corsi, A., Filippo Barbera, Egidio Dansero, Giovanni Orlando, and Cristiana Peano. "Multidisciplinary Approaches to Alternative Food Networks." In Alternative Food Networks, pp. 9-46. Palgrave Macmillan, Cham, 2018.

Dickinson, C L. "Argentina and the IMF: Over a Decade after Default." HPS: The Journal of History and Political Science 4 (2015).

Edwards, Ferne. "Alternative food networks." Encyclopaedia of Food and Agricultural Ethics. 2nd edition. New York/Heidelberg/ Dortrecht/London: Springer (2016).

Ericksen, P., Beth Stewart, Jane Dixon, David Barling, Philip Loring, Molly Anderson, and John Ingram. "The value of a food system approach." In Food security and global environmental change, pp. 45-65. Routledge, 2012.

Food and Agriculture Organization of the United Nations, Briefing Note on Role of Women in Agriculture in Lebanon (2021), https://lebanon.un.org/en/115290-briefing-note-role-women-agriculture-lebanon, (accessed July 10, 2021)

Gliessman, Steve, Harriet Friedmann, and Philip H Howard. "Agroecology and food sovereignty." (2019).

Halabi, S., and N. Ghanem. "Strategic Review of Food and Nutrition Security in Lebanon." Short Version. The United Nations Economic and Social Commission for West Asia (ESCWA), Beirut-Lebanon, p. 21pp (2016).

Hamade, K. Lebanese Agriculture: recessive dynamics in a context of lack of policy. In ANND (eds), Arab Social-Economic Watch Report on right to food. Arab NGOs Network for Development (ANND), (Beirut: 2020).

Hamade, K, "Lebanon's Food Insecurity and the Path Toward Agricultural Reform," Carnegie Middle East Center, 2020, https:// carnegie-mec.org/2020/11/13/lebanon-s-food-insecurity-and-path-toward-agricultural-reform-pub-83224, (accessed July 10, 2021)

Hamade, K. Transforming the historical link between agriculture policy and inequality in Lebanon. In Banfield, J., and Stamadianou, V. (Eds). Towards a peace economy in Lebanon. International Alert: London. 2015.

Holloway, Lewis, and Moya Kneafsey. "Reading the space of the farmers' market: a preliminary investigation from the UK." Sociologia ruralis 40, no. 3 (2000): 285-299.

International Cooperative Alliance, "Cooperative Identity, Value, & Principles," https://www.ica.coop/en/cooperatives/ cooperative-identity, (accessed July 10, 2021)

Jalkh, Rita, Marc Dedeire, and Melanie Requier Desjardins. "An Introduction to Food Cooperatives in the Bekaa Valley, Lebanon: Territorial Actors and Potential Levers to Local Development Through Culinary Heritage." Food Ethics 5, no. 1 (2020): 1-18.

Kostanian, A. "PRIVATIZATION OF LEBANON'S PUBLIC ASSETS," American University of Beirut, 2021, https://www.aub.edu.lb/ifi/ news Pages/20210125-privatization-of-lebanon-public-assets. aspx, (accessed July 20, 2021).

and intermediaries in the Scottish-English borders." European Urban and Regional Studies 13, no. 4 (2006): 337-354.

and farmers' markets." Journal of marketing management 26, no. 5-6 (2010): 395-412.

25-41.

naharnet.com/stories/en/281728-wfp-triples-aid-to-lebanon-as-country-faces- unprecedented -crisis, (accessessed July 10, 2021)

National Farmers Union (NFU), Food Sovereignty, https://www.nfu.ca/campaigns/food-sovereignty/, (accessed July 10, 2021)

Page, A., Audrey N'diaye, Isabelle Duvernoy, Michel Duru. 2018. Territorialised food system : Definition. Dictionnaire d'Agroecologie

https://dicoagroecologie.fr/en/encyclopedia/territorialised-food-system/

des pays méditerranéens/Journal of Mediterranean geography 119 (2012): 35-43.

Paxton, Angela. "The Food Miles Report. London: Sustainable Agriculture." Food and Environment (SAFE) Alliance (1994).

Ray, C. "Culture, intellectual property and territorial rural development." Sociologia ruralis 38, no. 1 (1998): 3-20.

Renting, H., Terry K. Marsden, and Jo Banks. "Understanding alternative food networks: exploring the role of short food supply chains in rural development." Environment and planning A 35, no. 3 (2003): 393-411.

Ruijs, M. "Value chain analysis of (greenhouse) vegetables in Lebanon." Wageningen Economic Research, Wageningen (2017).

Schanbacher, W. D. The politics of food: the global conflict between food security and food sovereignty. ABC-CLIO, 2010.

Siddiqui, K. "Developing countries' experience with neoliberalism and globalisation." Research in Applied Economics 4, no. 4 (2012).

- Beirut: ILO. 2018.

movement and a practice. A review." Agronomy for sustainable development 29, no. 4 (2009): 503-515.

White, Rebecca, and Andrew Stirling. "Sustaining trajectories towards Sustainability: Dynamics and diversity in UK communal growing activities." Global environmental change 23, no. 5 (2013): 838-846.

World Food Programme, United Nations, Lebanon, 2021, https://www.wfp.org/countries/lebanon, (accessed July 10, 2021)

Vaarst, M., Arthur Getz Escudero, Jahi Chappell, Catherine Brinkley, Ravic Nijbroek, Nilson AM Arraes, Lise Andreasen et al. "Exploring the concept of agroecological food systems in a city-region context." Agroecology and Sustainable Food Systems 42, no. 6 (2018): 686-711.

Volz, P., Philipp Weckenbrock, Cressot Nicolas, Parot Jocelyn, and Zoltán Dezsény. "Overview of community supported agriculture in Europe." (2016): 1-136.

Zhang, J., Jianli Luo, and Jia Li. "Agricultural co-operatives participating in supply chain integration in China: A qualitative comparative analysis." Plos one 16, no. 4 (2021): e0250018.

- Maye, D., and Brian Ilbery. "Regional economies of local food production: tracing food chain links between 'specialist' producers
- McEachern, MG., Gary Warnaby, Marylyn Carrigan, and Isabelle Szmigin. "Thinking locally, acting locally? Conscious consumers
- Miller, E.. "Solidarity economy: Key concepts and issues." Solidarity economy I: Building alternatives for people and planet (2010):
- Naharnet Newsdeck, "WFP Triples Aid To Lebanon as Country Faces Unprecedented Crisis," Naharnet, online, 2021, http://www.
- Riachi, Roland. "Agriculture et système alimentaire sous la mission hydraulique libanaise." Méditerranée. Revue géographique
- The Cooperative Sector in Lebanon: What Role? What Future? / International Labour Organization, Regional Office for Arab States.
- Wezel, A., Stéphane Bellon, Thierry Doré, Charles Francis, Dominique Vallod, and Christophe David. "Agroecology as a science, a







