Food and Nutrition Security and Data Gaps in Lebanon

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Achieving food and nutrition security remains a persistent challenge for Lebanon. According to the International Food Policy Research Institute (IFPRI), the country's macro-level food security is "alarming" and reflects limited ability to finance needed food imports with the exports of goods and services and net remittances (IFPRI, 2015). Human nutrition outcomes also reveal gaps in food and nutrition security in the country. According to the Food and Agriculture Organization, Lebanon successfully achieved the Millennium Development Goal 1c target of reducing the proportion of undernourished people by half between 1990 and 2015, but failed to achieve the World Food Summit target of reducing the absolute number of undernourished people by half over the same period (FAO, 2015). Diverse measures of malnutrition also point to worrisome trends.

Although the prevalence of stunting among Lebanese children under the age of five has fallen slightly since 1990, it remains elevated at more than 10%. Of note, the prevalence of anemia in children has also fallen since 1990, but this oftentimes nutrition-related condition still affected 24% of children under five years of age as of 2011. Meanwhile, the rate of obesity in Lebanese adults (individuals over the age of 15) has risen since 1990, to nearly 40% as of 2010. Moreover, the food and nutrition security situation in Lebanon has been compounded by the arrival of more than 1 million registered Syrian refugees since 2011 (UNHCR, 2016), who experience high rates of food insecurity (WFP, UNHCR, and UNICEF, 2015). These figures paint a precarious situation at the national level.

Though Lebanon is a relatively small country – covering only 10,452 square kilometers, tucked between the Mediterranean Sea and the Lebanon and Anti-Lebanon mountain ranges – the food and nutrition security situation is not uniform throughout the population or throughout the territory. Therefore, governmental policy responses and programming interventions are necessary to ensure equal food and nutrition security on a national level, and should take into account such variation. Accordingly, the question arises whether or not there is sufficient information available to policy makers and researchers to design and implement policies that can reach the most food and nutrition insecure.

A key obstacle in tackling food and nutrition security is accessing relevant, reliable, and detailed data to inform and target policies, strategies, and programs aimed at improving availability of, access to, utilization of, and stability of food. The multiplicity of disciplines informing the topic of food and nutrition security – including agriculture, environment, nutrition, public health, fiscal policy, trade policy, and more – means that relevant data must be drawn from governmental, international, donor, and non-governmental sources along this full range of topics. Sub-national data can help to illustrate important differences in food and nutrition security outcomes among different populations and different regions. The *Lebanon Spatial* project is one attempt to overcome significant gaps in data and thereby help improve the quality of evidence-based food and nutrition security programming for this country.

Description of the *Lebanon Spatial* Project

The *Lebanon Spatial* project is a bilingual, online data mapping atlas providing data around food and nutrition security, agriculture, and development indicators. *Lebanon Spatial* is a joint project of the International Food Policy Research Institute (IFPRI) and the Food Security Program at the American University of Beirut (FSP-AUB). The atlas can be accessed online at www.lebanonspatial.org.

The *Lebanon Spatial* data mapping atlas is a tool within the Spatial family developed by IFPRI. IFPRI developed and launched the Arab Spatial website and blog in February 2013 in response to concerns that data on food and nutrition security in the Middle East and North Africa region were not sufficiently accessible to inform researchers and policymakers; the website is www.arabspatial.org. The choice of the term "spatial" specifically refers to the fact that data is reported such that it is linked to geographical information – whether at the regional, national, or sub-national level. The Spatial family currently comprises the regional Arab Spatial data atlas as well as multiple country-level atlases[1].

Genesis of the *Lebanon Spatial* Project

The idea to build *Lebanon Spatial* was born in April 2015 at a regional conference of the Food and Agriculture Organization held in Amman, Jordan. IFPRI researchers Clemens Breisinger and Perrihan Al-Rifai spoke about their efforts building the Arab Spatial project – a functional, open-access, and bilingual tool that fills a major gap for researchers and policy makers in the Middle East and North Africa. They announced IFPRI's desire to identify local partners to establish national-level Spatial sites throughout the MENA region. Subsequently, the FSP-AUB proposed and was accepted to be that partner for IFPRI in Lebanon.

1 These include Iraq, Kyrgyzstan, Palestine, Tajikistan, and Yemen.

The development of the *Lebanon Spatial* project required a commitment of financial and human resources by multiple parties. IFPRI invested financial resources to develop the digital platform, and provided both hands-on and distance-based instruction and guidance for the development of the Lebanon-specific site.

FSP-AUB formed a core group of faculty and staff tasked to the development, review and editing, and loading of content into the digital platform, and provided financial resources to cover the cost of required data storage and hosting capabilities. Hundreds of Excel and ArcGIS files, APA-formatted citations, and Arabic- and English-language translations were thus prepared by the AUB FSP task force, to serve as the basis for the maps, graphs, and charts that populate the *Lebanon Spatial* website.

FSP-AUB also received support from partners and institutions that have helped to identify or granted permission to use their datasets and indicators in the *Lebanon Spatial* data atlas. The International Center for Agricultural Research in the Dry Areas (ICARDA), the Lebanese Ministry of Agriculture, and the participants of the Food Security Sector Working Group deserve particular thanks.

Following more than a year of development and joint effort, FSP-AUB and IFPRI held the formal launch and demonstration of the *Lebanon Spatial* project on the American University of Beirut campus in September 2016.

Objectives of *Lebanon Spatial*

The principal goal of the *Lebanon Spatial* project is to supply researchers and policy-makers working in the areas of agriculture and food and nutrition security with reliable data, thereby supporting evidence-based decision making. *Lebanon Spatial* does so by providing key evidence around food and nutrition security and related development indicators in a single, online location that can be accessed from any internet connection. In addition, the mapping and charting functions of the *Lebanon Spatial* platform allow for alternative forms of analysis that may not be possible by relying on tables of statistics, alone.

It is hoped that relevant institutions – including ministries, international and donor organizations, and non-governmental organizations – will make use of the tool when preparing assessments and strategies.

Lebanon Spatial is not intended to be used as a source of data for precision agriculture tools. At this time, data is available at the level of governorates (mohafazat) and districts (kada) only; while the site has the ability to display information at the municipality level (baladia), such data have not yet been identified for inclusion. In contrast, precision agriculture applications typically require data that are much more specific to a given location.

Types of Data Pooled under *Lebanon Spatial*

All data series shown on the *Lebanon Spatial* platform are third-party data: FSP-AUB has generated none of these data points from primary research[2]. Data series are fully attributed using complete citations, including website addresses for underlying sources.

Lebanon Spatial features more than 100 indicators, covering a range of topics around food security and development – from agricultural practices to livestock density, from rainfall levels to household access to improved water sources, from nutrition outcomes to employment figures. Thematic issues covered include:

- Economy and state – Indicators in this area cover the macroeconomy, employment, and key sectors including agriculture, natural resources and land, and transport and trade.

- Households and individuals – Indicators in this area concern access to services, household characteristics, human well-being, population, and poverty measures.

- Policies and interventions – Indicators in this area are related to public finances and development agency programming.

- Crises and shocks – Indicators in this section provide data linked to crisis and conflict, particularly measures linked to the Syrian refugee crisis.

- Summary indicators – These data points are drawn from national and household level indicators of food and nutrition security status.

Users of the *Lebanon Spatial* tool have the ability to select single or multiple indicators to consider interactions, review the maps, download the data, copy the charts, and identify key resources for their research. Notably, IFPRI and FSP-AUB offer this service to users free of charge, making all data publicly available without a registration requirement.

All data posted to the *Lebanon Spatial* platform are available in both English and Arabic. Descriptions, labels, and sources have been entered and verified in English and translated into Arabic, in keeping with the IFPRI protocols.

Future Directions for *Lebanon Spatial*

The *Lebanon Spatial* project will require a continued commitment of the current parties, in terms of financial and human resources. IFPRI and FSP-AUB have invested significant resources, and will have to continue to do so for the purposes of site maintenance and development, data updating, as well as expansion of features. For example, short online tutorials are in development and will be posted to the *Lebanon Spatial* site in coming months, to allow future users to optimize the site and its features. Tutorials will be available in both English and in Arabic, consistent with all other information on the website, to reach a maximum number of users.

Looking forward, the future success of the *Lebanon Spatial* project depends on the external parties who make available relevant data series or grant permission for their inclusion, to allow for the pooling of the most relevant and most up-to-date figures. Indeed, *Lebanon Spatial* and the entire family of Spatial tools rely on the continued availability of at least some agricultural, development, and food security "big data" published by public institutions and non-governmental organizations.

2 However, with the permission of the authors or other owners of the data, such data series could be included in the Lebanon Spatial project in the future.

As yet, it is unclear whether private sector entities will allow even selected series from their proprietary data to be made public in this way, but the *Lebanon Spatial* team is in communication with parties to consider the inclusion of privately-collected data in the platform.

Over the longer term, the *Lebanon Spatial* project hopes to support a change in attitudes about data throughout the MENA region. As technology makes data collection and dissemination more cost-effective and user-friendly, policymakers and researchers should be expected to put that data to its intended purpose. Stakeholders and the public should increasingly demand data that is transparently collected, disaggregated, and published in a timely manner.

Conclusion

The *Lebanon Spatial* project is one example of innovative efforts to make data available through digital platforms, at the service of researchers, policymakers, and the public. The ability to visualize data helps users to transform it into information that can be used for analysis, and eventually applied to improve the food and nutrition security status of every individual, in every region, throughout the country. Moreover, the Spatial project serves as an example of collaborative work across multiple institutions working together to share information, consolidate it for users, and achieve common goals around food and nutrition security.