

**AESOP4FOOD 2023  
BEIRUT LIVING LAB  
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**Short introduction on the living lab:**

Creating a living lab can provide several benefits and opportunities for various stakeholders as it is proven many places in the world. Unfortunately, Beirut living lab does not exist yet on the ground, but this exercise showed the importance and opportunity of creation such in this region.

Beirut living lab is a theoretical living lab created with NGO called Lebanese League for Women in Business (LLWB). LLWB, founded in 2006, is a socio-economic, a-political, non-religious association bringing together professional women and providing them different platforms to improve their livings. In 2015 LLWB has launched a new project in partnership with UN Women called QEWA- Qualifying and Empowering Women in Agriculture and in 2022 they announced the launching of the Urban Farming Project on its renovated rooftop. The aim of the their project is to promote education on urban agriculture and food security especially for the local schools and associations. The NGO is located in one of Beirut peri-urban neighborhood called Sin El Fin, with around 80.000 citizens and 16 public and private schools.

**Research aim of the living lab: Promote local food production through educational activities.**

*Literature review to support the initiative:*

According to Springmann, Marco, et al. (2018) the food system is a major driver of climate change and changes in land use, and to mitigate its effect a synergistic combination of measures need to be implemented to decrease its effect on environment. They indicated that one of the measure is to improving socioeconomic development in developing countries especially including investments in education toward dietary habits.

As an opportunity Farm-to-school initiatives emphasize instructional activities in the classroom and the purchase of locally grown food by schools for the cafeteria. In addition to educational possibilities like agricultural field excursions, garden-based learning, cooking workshops, and recycling programs, students have access to wholesome, nutritional meals. The farm-to-school movement educates kids and families about where their food comes from and how what they eat can affect their community, the environment, and their health. Despite the lack of peer-reviewed studies on such farm to school programs, the literature that is currently available points to a positive correlation between farm to school activities and understanding of food and nutrition as well as the choice of healthy foods served at school lunches. (Prescott et al, 2020)

As for the local context on food systems in Lebanon: according to the report published by FAO the food system in Lebanon has many challenges derived from the countries historic, economic, political and social context and needs mayor improvements in every level (small scale to large-scale production). The document propose a plan including short, medium and long-term approaches to create a transition to sustainable food systems. One of their short term or emergency measure is to stabilize and improve food production monitoring and access for vulnerable groups such as children and therefore they are proposing to implement a large emergency school feeding program targeting vulnerable and lower-

middle-class children. Studies of any school feeding program among local, Lebanese children are absent even though there are many reports are published on refugee communities, such as Syrian or Palestinian children( Jamaluddine, Zeina, et al, 2020) This gap highlights the lack of coordination among public and non-public actors, government and NGOs and its creating larger gaps between local and refugee communities.

However Habib-Mourad, Carla, et al (2014) indicated already 10 years ago that school-based programmes promoting healthy lifestyles are lacking in Lebanon and interventions are needed to promote healthy eating habits and physical activity in Lebanese school children with a potential to be scaled up, replicated and sustained.

As for the knowledge on local food system , El Zmeter (2019) indicated that Lebanese school students grow up learning that Lebanon has a strong agriculture sector but once out of school they realize that the reality is not quite so simple. They have to learn that agriculture in Lebanon contributes to only 5 percent of growth, and that Lebanon actually imports up to 80 percent of its food needs. Therefore, she indicated that early education at schools and through social awareness is extremely import, to elevation the interest of youth in agriculture and their eating habit towards healthier diets.

### **Result of the analysis and mapping (power map, stakeholder map, food system map),**

Part of the food system I am studying is an urban rooftop vegetable production greenhouse prototype, which can be repeated on any given rooftops of Beirut. The aim of the organization is to introduce this system for local schools with the aim to promote education on the importance of local food systems, and in longer terms to subsidize the school cafeterias with healthy food options.

### **Who are the stakeholders?**

<b>Stakeholder</b>	<b>Power</b>	<b>Impact</b>
Lebanese League for Women in Business- NGO	Ownership and knowledge of the system	Technology transfer- knowledge sharing Networking with other NGOs Finding funding opportunity
Private schools and its management *	Ownership of school properties such as roof tops Decision makers	Allocation of space Networking with other schools and organizations Finding funding opportunity Being part of future policy making
Teachers of the schools	Educating of the important of local food systems Integrating the topic into the curriculum	Project acceptance by students and parents ( negative or positive) Enhanced academic achievement for student
Students of the schools	Acceptance or rejection of the program Sharing the information they learn among friends and parents	
Parents of the children	Encouraging children to participate Fundraising	Spreading the information Collaboration among parents to enhance or enlarge the projects
School staff	Management and monitoring of the space Knowledge- how the system works	Project success
Neighborhood communities		Knowledge sharing, spreading the idea among other communities

- Private schools were chosen to this exercise as they have more freedom in decision making than public schools, and they have more funds that are available for different curricular activities.

## Research approach and method (case study, reference study, interview, participation action,)

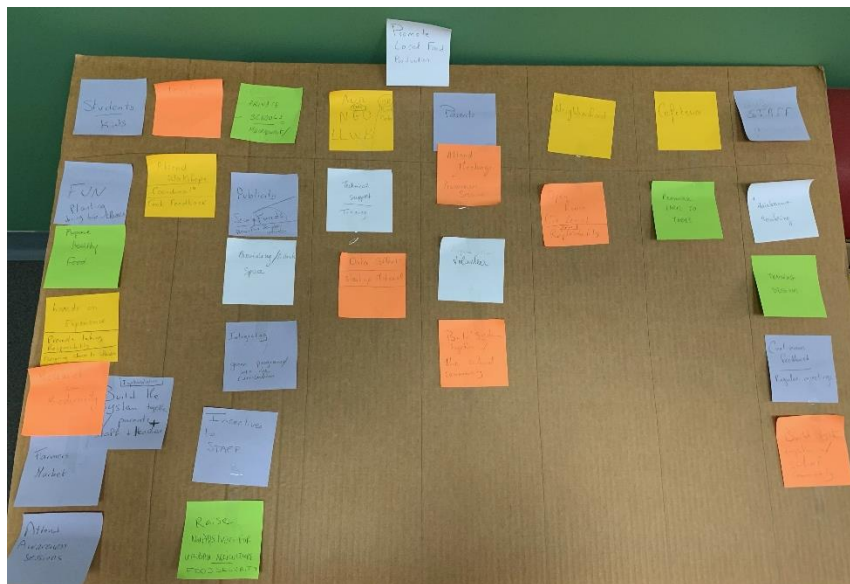
There are many successful organizations and even countries developed educational activates related to the importance of local food chains and healthy food. Just to mention some:

1. **The national Farm to Food network in the USA** : 67,300+ Schools Participate in Farm to School which are about 65% of US Schools, engaging more than 42 million children , but most importantly created 46 supportive policies for the program ( <https://www.farmtoschool.org/>)
2. **Food for Life**, England. Their strategy makes sure that lessons on nutrition and good eating are reinforced and reflected in the school's day-to-day operations. Students, educators, and organizers cultivate their own food, plan field visits to farms, purchase food from regional suppliers, organize community food fairs, set up school farmers' markets, and provide freshly prepared, all-natural meals during lunchtimes. ( <https://www.foodforlife.org.uk>)

Using these case studies, they give many useful ideas to start some similar but smaller programs in Lebanon.

In order to come up with the starting point, I conducted interviews with the above mentioned NGO ( Lebanese League for Women in Business ) as the technology transfer component, and with colleagues from the American University of Beirut to come up with goals, visions and activities and a strategic and monitoring plan for the future. Colleagues of the University were “representing” different stakeholders and giving their opinions and ideas from the stakeholder point of view.

I did not include policymakers yet into the stakeholders chart, as the political situation of the country is very fragile with uncertainty for the near future.



Picture 1: Stakeholders ideas, visions and action plants

### Results of our discussion:

Our goal is to promote local food production in educational institutes by implementing the roof top agricultural farm practices developed by LLWB

Our vision is, by encourage schools in the local neighborhood (Sin El Fil- around 16 schools), students of the schools will learn the following

- Importance of local food
- Importance of healthy diet and its component
- Familiarity to food production

At larger implementation of the rooftop farms, it will also provide larger quality of locally produced foods from which the school's cafeteria and the students will benefit.

### Activities

Stakeholder	Activities	Status
Lebanese League for Women in Business- NGO	Development of a sustainable rooftop agricultural farm which can be easily replicable	DONE
	Workshop activities showcasing the farm system	ONGOING
	Engaging local schools	ONGOING
	Providing continues technical support for the farming system	FUTURE
	Collect data for research and improvement of the system	FUTURE
Private schools and its management	Incorporate the program into the school strategic plan and budget	FUTURE
	Find funding for the program implementation	FUTURE
	Provide accurate space depending on the scope of the program ( small/ medium/ large scale)	FUTURE
	Include the program into curriculum	FUTURE
	Create incentives for teachers, staff and students to participate in the program	FUTURE
	Encourage other schools and the neighborhood to implement the same program	FUTURE
Teachers of the schools	Include the program into teaching activities in a fun and educational way.	FUTURE
	Create research options in the food garden	FUTURE
	Participate in continues training about the different educational approaches of the food system	FUTURE
Students of the schools	Advocate for healthier, culturally diverse school meals, partnerships with school garden	FUTURE

	Help with social media for promoting the school garden	FUTURE
Parents of the children	Build support at school attend parents meeting and joined workshops	FUTURE
	Ask how to help – fundraising, agricultural work, educational activities etc....	FUTURE
	Encourage the children at home	FUTURE
	Be part of the decision making process in the school	FUTURE
School staff	Management and monitoring of the school farm	FUTURE
	Participate in future trainings about food production	FUTURE
Neighborhood communities	Replicate the initiate on their private building for their own community	FUTURE
Cafeteria	Include the freshly produced and harvested food into the school menu in an attractive way	FUTURE
	Attend professional development training	FUTURE

### School strategies for 1-5 years

After schools agreeing the implementation of the farming setup on their roofs, the following strategy could be applied:

Strategy for the upcoming 5 years:

Year	Action
1	Create an awareness program of local food system for educators and school staff
	Secure funding for the setup
	Set up the space for the setup
2	Awareness program for students about the ongoing project and how they will be involved
	When funding arriving- implementing the roof farming including ALL stakeholders
3	Production start only 1 greenhouse
	Create publicity, invite other schools and the neighbor community
4	Enlarge production surface for cafeteria production
	Invite government for showcasing a good practice which can be replicable in other schools

**Conclusion,**

Creating a living lab is of great opportunity as it allows for real-world testing and validation of innovative ideas and technologies especially in country like Lebanon where there are many challenges due to its historic, economic, political and social context and needs mayor improvements in every level. Living labs foster collaboration between academia, industry, and the community, leading to the co-creation of knowledge and effective problem solving. Ultimately, living labs help ensure that solutions are user-centered, sustainable, and effectively address the needs and challenges of the target community.

**Reference:**

1. El Zmeter, Miriam. "Sustainability and Resilience Index of Agro-Food Systems; Country of Analysis: Lebanon", Università Cattolica del Sacro Cuore, XXXIII ciclo, a.a. 2019/20, Piacenza, [<http://hdl.handle.net/10280/93658>].
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3. Habib-Mourad, Carla, et al. "Promoting healthy eating and physical activity among school children: findings from Health-E-PALS, the first pilot intervention from Lebanon." BMC public health 14.1 (2014): 1-11.
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