

AMERICAN UNIVERSITY OF BEIRUT

ENHANCING LOCAL FOOD SECURITY IN LEBANON
THROUGH ORGANIC AGRICULTURE: THE PROSPECTS
OF A PARTICIPATORY GUARANTEE SYSTEM FOR
SMALLHOLDERS

by
RANIA SAMIR TOUMA

A project
submitted in partial fulfillment of the requirements
for the degree of Master of Science
to the Food Security Program
of the Faculty of Agricultural and Food Sciences
at the American University of Beirut

Beirut, Lebanon
September 2021

AMERICAN UNIVERSITY OF BEIRUT

ENHANCING LOCAL FOOD SECURITY IN LEBANON
THROUGH ORGANIC AGRICULTURE: THE PROSPECTS
OF A PARTICIPATORY GUARANTEE SYSTEM FOR
SMALLHOLDERS

by
RANIA SAMIR TOUMA

Approved by:



[Signature]

Dr. Mirella Aoun, Assistant Research Professor
Department of Agriculture

First Reader



[Signature]

Dr. Shady Hamadeh, Professor
Department of Agriculture

Second Reader

Date of project presentation: September 15, 2021

ACKNOWLEDGEMENTS

I dedicate this work for my children Yara, Ghadi and Kevin. I insisted on finishing this project despite all the bad circumstances over the past two years, I wanted to be a role model for you that education can go for lifetime and that when there is a will, there will definitely be a way. I apologize for all the stress and anxiety I made you endure from this commitment.

To my husband Kamil, thank you for all the support and encouragement throughout this journey. I cannot be more grateful.

To all my friends and family, thank you for the moral support and help with the children.

I would like to thank Dr. Mirella Aoun for her support and guidance throughout this project. I hope the content of this project becomes a reality.

Finally, I would like to express my gratitude to the Food Security Program department for the continuous support: Dr. Rami Zurayk, Dr. Shady Hamadeh, Ms. Rachel Bahn, Abed, Nivine, and Tharwat from the Dean's office.

ABSTRACT OF THE PROJECT OF

Rania Samir Touma

for

Master of Science

Major: Food Security

Title: Enhancing Local Food Security in Lebanon Through Organic Agriculture: The Prospects of a Participatory Guarantee System for Smallholders

In Lebanon, like in most developing countries, small and marginal farmers are among the most vulnerable and food insecure. In such contexts, investing in smallholders becomes essential. Therefore, enabling smallholders to adopt more productive and sustainable farming practices contributes to their household food security which returns positively on the national food security. Organic agriculture (OA) is one of the many sustainable production systems that can uphold all dimensions of food security. OA has gained recognition in Lebanon after two decades of advocacy for this movement, however, the sector's potential in improving smallholders' livelihoods remains untapped and its progress hindered by many bottlenecks, most importantly: a) the non-cooperative attitude among smallholders, b) the lack of technical assistance, and c) the high cost of third-party certification (TPC). This project investigates an alternative to TPC, the Participatory Guarantee System (PGS), that is better adapted to specific local contexts by answering three questions: 1) Is there a need for an alternative guarantee system in Lebanon? 2) If yes, would a PGS be a viable for Lebanon? 3) If yes, what are key elements to establish a PGS in Lebanon and ensure its sustainability? The analysis of the Lebanese OA sector revealed that PGS can be alternative for Lebanese organic smallholders to stay in business at the local market. However, it should be established as a parallel guarantee system that complements TPC which remains a requirement for bigger producers and traders who are targeting export markets. The advantages and limitations of a PGS are discussed and recommendations for successful implementation are provided. Further investigations are still needed to assess the needs and means of PGS implementation in depth.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	1
ABSTRACT	2
ILLUSTRATIONS.....	5
TABLES.....	6
ABBREVIATIONS	7
INTRODUCTION	8
A. Global food security and the need for food systems transformation	10
B. Organic agriculture and food security	15
C. Organic Agriculture in Lebanon.....	16
1. Previous experiences in organizational bodies in Lebanon	18
a. Healthy Basket: AUB’s community supported agriculture initiative.....	18
b. LibanCert (Local certification body)	24
c. Association for Lebanese Organic Agriculture (ALOA).....	25
PARTICIPATORY GUARANTEE SYSTEMS.....	28
A. General overview on PGS.....	28
B. PGS around the world.....	30
C. Key elements and features of a PGS.....	32
D. Implementation and organizational structure of a PGS	37

E.	The impact of PGS on communities in eight selected countries	39
F.	PGS and food security	44
PGS FOR LEBANON		46
A.	Case study from Brazil: the long-lasting success of ECOVIDA	47
B.	The case of Lebanon	49
1.	Is there a need for an alternative organic guarantee system in Lebanon?	49
2.	2. If yes, would a PGS be viable for Lebanon?	51
3.	If yes, what are key elements to establish a PGS in Lebanon and ensure its sustainability?	58
CONCLUSION		64
BIBLIOGRAPHY		67

ILLUSTRATIONS

Figure

1. Sustainable food system framework.....	12
2. Six dimensions identified in the current definition of food security	13
3. Comparison of non-certification, Participatory Guarantee Systems (PGS) and third-party certification in terms of income and market access.....	29
4. Development of PGS-certified producers worldwide.....	31
5. Key elements and features of a PGS.....	33
6. PGS implementation process	38
7. PGS impact on the six dimensions of food security	45
8. Swot Analysis for the establishment of a PGS in Lebanon	57

TABLES

Table

1. Number of PGS involved producers worldwide.....	32
2. Basic details of the selected PGS initiatives.....	40

ABBREVIATIONS

ALOA	Association for Lebanese Organic Agriculture
AUB	American University of Beirut
COLIBAC	Lebanese Accreditation Council (Conseil Libanais d'Accreditation)
CSA	Community supported agriculture
Du	Dunum = 0,1 ha
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FiBL	Research Institute of Organic Agriculture
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
HLPE	High Level Panel of Experts
ICS	Internal Control System
IFAD	International Fund for Agricultural Development
IFOAM	International Federation of Organic Agriculture Movements
IOAS	International Organic Accreditation Services
LIBNOR	Lebanese Standards Institution
LLC	Limited Liability Company
MAELA	Latin American Agroecology Movement
MoA	Ministry of Agriculture
OA	Organic agriculture
PGS	Participatory Guarantee System
SECO	Swiss State Secretariat for Economic Affairs
SFS	Sustainable food system
SH	Smallholder
SMEs	Small and Medium Enterprises
SOFI	The State of Food and Nutrition Security in the World (FAO yearly report)
SWOT	Strengths, Weaknesses, Opportunities, Threats
TPC	Third party certification
USAID	United States Agency for International Development
USDA	United States Department of Agriculture

CHAPTER I

INTRODUCTION

In Lebanon, like in many developing countries, agriculture is the main source of livelihoods for a majority of the rural population; however, making it sustainable is still a challenge. This is mainly due to lack of access to adequate farming inputs, information, training, credit and markets, in addition to policy failures as well as infrastructural and institutional shortcomings. This often leads to increased poverty, dropouts from farming and fosters migration from rural areas making them more vulnerable to food insecurity. Owing to these constraints, poverty and food insecurity are considered a “rural phenomenon” in this part of the world (FAO and IFAD 2007).

The rural population in Lebanon constitutes 12% of the total and is quite poorer than the rest (FAO 2020). Agriculture-related activities account for around 80% of the local GDP in the poorest regions of the country like Akkar, Dannieh, Northern Bekaa and the South. Just before the current financial and economic crisis of Lebanon and prior to the October 17 revolution of 2019, the poverty rate was estimated at around 30% with 300,000 people living in extreme poverty (less than 2\$/day). More than 20% of the extreme poor belong to farming households, the highest among other sectors (ESCWA 2020). This situation is reported to have become even worse in light of the economic, financial, and political turmoil the country is still facing.

Small and marginal farmers are among the most vulnerable and food insecure (The World Bank 2012) in such contexts where investing in smallholders becomes essential. Therefore, enabling smallholders to adopt more productive and sustainable

farming practices contributes to their household food security which returns positively on the national food security.

Organic agriculture (OA) is a concrete production model that promotes the sustainability of the food system, despite all the controversy around its productivity potentials. Moreover, a well-managed organic system offers many benefits that uphold all dimensions of food security (N. E.-H. Scialabba 2007).

OA in Lebanon emerged in the mid-1990s through private initiatives driven by environmental concern. In the late 1990s and early 2000s, OA was adopted by different institutions as a component of development projects aiming at improving farmers' livelihoods. Two decades later, the sector is dominated by well-off landowners and entrepreneurs who act as middlemen reaping the benefits that smallholders sowed, emphasizing a socially and financially inequitable system. In spite of the many comparative advantages Lebanon has in the region, its organic sector's role in improving local food security remains untapped with a cultivated area representing 0.2% of the total agricultural land in Lebanon (MoA, 2019). The barriers hindering the development of the sector are many; however, the main obstacles that are keeping smallholders marginalized are a) the non-cooperative attitude among smallholders in their communities, b) the lack of technical assistance, and c) the monopoly on third-party organic certification which imposes high costs ranging between \$500 and \$1,000 per operator (prices of 2020).

This project proposes to explore an alternative to third-party certification (TPC), the Participatory Guarantee System (PGS), that is better adapted to specific local contexts. According to IFOAM, "PGS is a low-cost, locally based system of quality assurance with a strong emphasis on social control and knowledge building". This

system is based on the active participation of farmers, consumers, rural advisors, and local authorities: they come together in order to make decisions, visit farms, support each other and check that farmers are producing according to an Organic Standard.

The project aims to assess the viability of a PGS for Lebanon and to recommend an approach for its implementation based on experiences from previous initiatives in the organic sector in Lebanon. Three questions will be investigated: 1) Is there a need for an alternative guarantee system in Lebanon? 2) If yes, would a PGS be a viable for Lebanon? 3) If yes, what are key elements to establish a PGS in Lebanon and ensure its sustainability? The rationale behind choosing organic agriculture as a sustainable production system is that OA is already established and recognized in Lebanon after 20 years of advocacy. The above questions will be answered using the following methodology:

- Desktop review on PGS literature
- Compilations of lessons learned from previous organizational bodies in the Organic sector in Lebanon (grey literature and personal experience)
- Informal discussions with key stakeholders to investigate the objectives, operation modalities and expected impacts of the PGS.
- SWOT analysis for implementing a PGS in Lebanon

A. Global food security and the need for food systems transformation

More than five years into the launch of Agenda 2030 and the world is still off-track towards achieving SDG 2 (Zero hunger), a challenge that is now exacerbated by the COVID-19 pandemic (FAO, IFAD, UNICEF, WFP and WHO 2021). The most

recently published State of Food Security and Nutrition report (SOFI 2021) revealed that world hunger increased remarkably as a result of the pandemic.

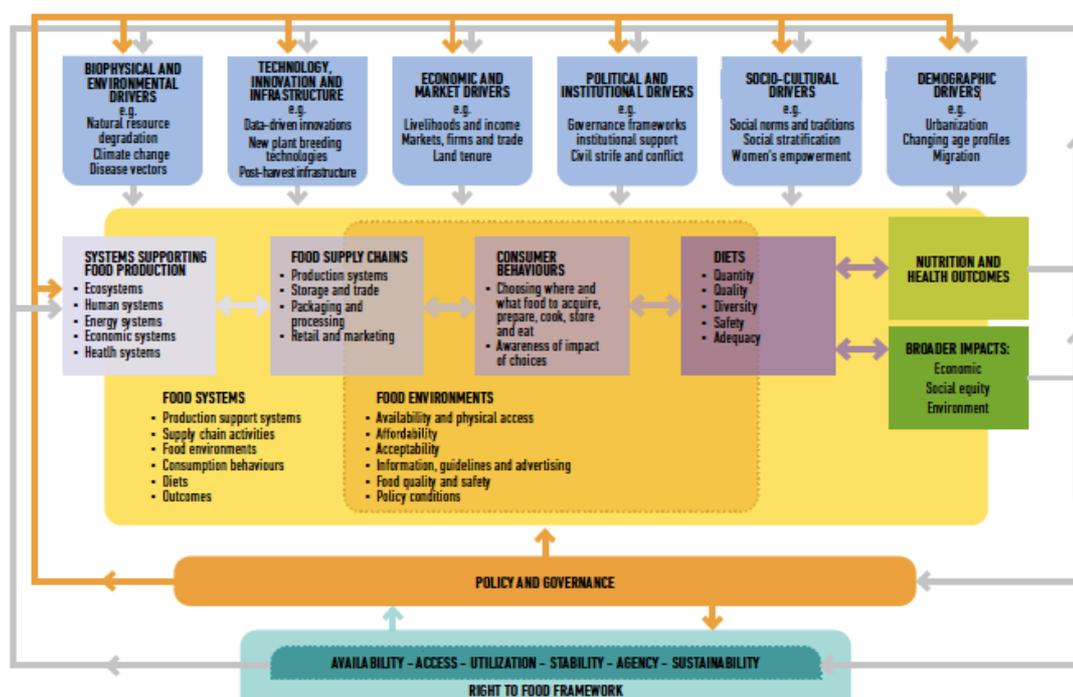
According to the SOFI 2021 report, the prevalence of undernourishment reached a five-year high of 9.9% while 720 to 811 million people faced hunger which means that an average of 118 million more people faced hunger compared to 2019 as a result of the pandemic. Another worrisome indicator is the prevalence of moderate to severe food insecurity with an increase equivalent to that of the previous five years combined reaching 2.37 billion (one in three people). Moreover, 148 million more people faced severe food insecurity rising the prevalence of global prevalence of severe food insecurity to 12% (928 million people). As for the global burden of malnutrition, the report states that prevalence of wasting, stunting and obesity among children under five remains a challenge (not fully assessed due to data limitations). It is also estimated that more than 3 billion people do not have access to healthy diets due to their high cost and income inequalities.

In summary, the world will not be achieving Agenda 2030 targets for food security and nutrition unless bold actions are taken to transform the current food systems to become more resilient to major drivers including conflicts, climate change, weather extremes, economic slowdowns and downturns, and lately the COVID-19 pandemic.

On the same note, the High-Level Panel of Experts (HLPE) on Food and Nutrition Security, in its latest report issued in June 2020, stresses the importance of rethinking and reforming the currently challenged food system in order to meet the Agenda 2030 targets on which the world is still lagging behind. The report calls for policy shifts and stronger enabling environments to achieve more sustainable food

systems, (HLPE 2020). According to FAO, a sustainable food system (SFS) is “a food system that ensures food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition of future generations are not compromised” (FAO 2018). The sustainable food system framework adopted by HLPE (fig.1) illustrates how external (e.g., conflicts, climate change, economic downturns) and internal (e.g., low productivity, inefficient supply chain) drivers interact and impact the six dimensions (availability, access, utilization, stability, agency, and sustainability) of food and nutrition security which is a major outcome of the food system.

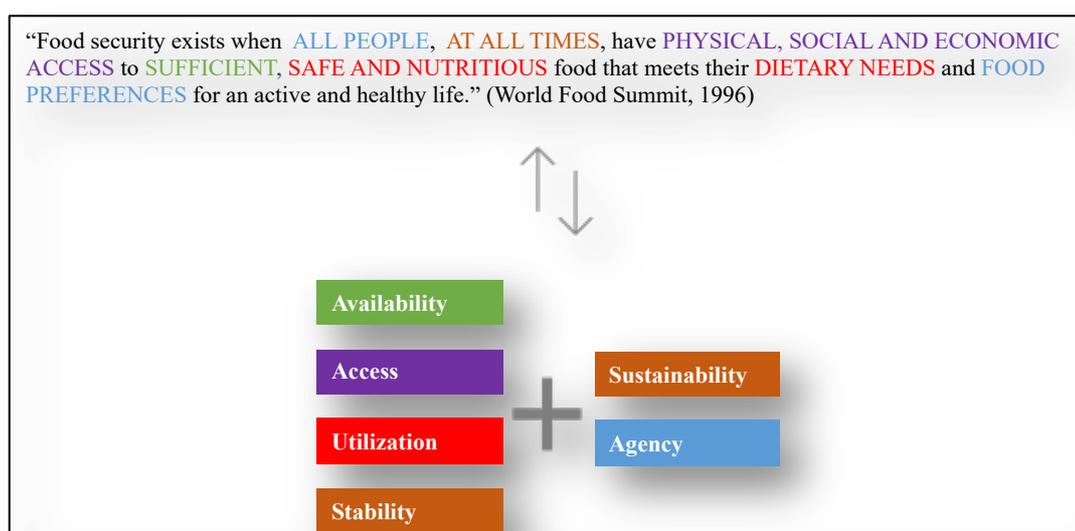
Figure 1- Sustainable food system framework



Source: HLPE report#15, 2020

In addition to the four officially agreed upon (by FAO and other bodies) dimensions of food security (availability, access, utilization and stability), the HLPE proposes two new dimensions (agency and stability),stemming from the principle of right to food, as ones vital for transforming food systems into more sustainable ones (FAO, IFAD, UNICEF 2021; HLPE 2020). According to HLPE, “agency” and “sustainability”, although not yet officially adopted, are indirectly mentioned in the globally adopted definition of food security as depicted in Fig. 2

Figure 2- Six dimensions identified in the current definition of food security



Source: Adapted from HLPE report#15, 2020

As recommended by SOFI 2021 and in order to be back on track towards reaching SDG 2 targets, a food system lens is essential to better understand the impacts of the different drivers undermining food and nutrition security and to identify targeted entry points for intervention (policies and governance) to address them. Moreover, a shift in food policies is essential to mitigate undesirable trade-offs in the current food

system (HLPE 2020) and these shall be formulated depending on context and shall target all phases of the system from production to consumption.

The HLPE calls for, among other policies, stronger measures to promote agency and equity among participants in the food system as well as for more sustainable production systems and distribution networks that are more equitable, especially for smallholders, vulnerable and marginalized actors in the food system. This can be done by encouraging producers and other actors to make free choices about what and how to produce their food, and by including women and youth as main actors in the system. Moreover, food system transformation requires resource efficiency along the whole supply chain by promoting sustainable and ecologically sound production systems such as agroecology, regenerative, and organic agriculture. Downstream the supply chain, the HLPE proposes policies pertaining to the promotion of more diverse distribution networks whereby small-scale producers ensure better livelihoods and food access. Fostering a territorial market approach (Kay, S. *et al.*, 2014) helps to promote stability and enhance food system equity and agency.

Based on the above, this project investigates a Participatory Guarantee System for smallholder organic producers of Lebanon as a tool for improving their food security. Organic agriculture was deliberately chosen as an ecologically sound production system that is already established in Lebanon, but the proposed Participatory Guarantee System scope can further embrace agroecology, digital farming, climate smart agriculture and other alternative production systems than contribute to more sustainable food systems.

B. Organic agriculture and food security

According to IFOAM (2018), organic agriculture is defined as a production system that sustains the health of soils, ecosystems, and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic Agriculture combines tradition, innovation, and science to benefit the shared environment and promote fair relationships and good quality of life for all involved.

The latest available data on organic agriculture in the world (Willer, H., Trávníček, J., Meier, C., & Schlatter 2021) was reported in 2021 and published by IFOAM international and the Research Institute of Organic Agriculture (FiBL). Data showed that OA is currently practiced in 187 countries, 108 of which have organic regulations. The total area under organic reached 72.3 million ha exploited by 3.1 million producers and constituting 1.5 % of the total agricultural land while the organic market is estimated at more than 100 billion US dollars. Analyzing two decades of data revealed that the sector has been rapidly growing over the past 20 years and the total area under organic has increased more than 6 folds (from 11 million ha in 1999 constituting a 0.3% share of agricultural land).

While OA is seen as a farming system that promotes the sustainability of the food system, there remains controversy around its productivity potentials (Ciccccarese and Silli 2016). A well-managed organic system offers many benefits that uphold all dimensions of food security with a strong potential for building a resilient system through diversification and enhanced soil fertility and organic matter (N. E. H. Scialabba and Mller-Lindenlauf 2010). OA can play a central role in the food environments by promoting ecologically-sound farming practices as well as healthier

consumption patterns, therefore it provides the basic requirements of sustainable diets (Strassner et al. 2015).

C. Organic Agriculture in Lebanon

OA in Lebanon emerged in the mid-1990s through private initiatives driven by environmental concern. In the late 1990s and early 2000s, OA was adopted by different institutions as a component of development projects aiming at improving farmers' livelihoods. Two decades later, the sector is dominated by well-off landowners and entrepreneurs who act as middlemen reaping the benefits that smallholders sowed, emphasizing a socially and financially inequitable system. In spite of the many comparative advantages Lebanon has in the region, its organic sector's role in improving local food security remains untapped with a cultivated area representing 0.2% of the total agricultural land in Lebanon (MoA, 2019). The latest available data (unpublished officially) provided to the MoA by CCPB (the only TPC body operating in Lebanon) reveals that the total area under organic in Lebanon is 1,777.37 ha and that there are 152 operators involved.

From the absence of an enabling policy environment to the consumer mistrust, the organic sector in Lebanon is facing many barriers along the value chain hindering its development and keeping it at an infancy stage. Reliable and official data on the organic agriculture in Lebanon, as well as evidence based scientific research, remain scarce, especially upstream the value chain. The dynamics are still ill understood which curbs all the effort to develop a common strategy for the development of the sector.

Gray literature on the organic sector in Lebanon refers to the pragmatic challenges it faced since its inception back in the late nineties leaving its potential role

as a viable alternative to improve smallholders' livelihoods untapped. Lebanese producers often state three main obstacles they are facing: the costly and demanding certification process, the high investment costs (labor, inputs, technical advice), and the lack of technical know-how (Jeanmougin 2017). In addition to that, producers lack the bargaining and lobbying powers as they always fail to get organized due to the prevailing communitarian fragmentation of the country. Not to forget two more important factors keeping organic agriculture in Lebanon lagging behind, these are the absence of encouraging policies and incentives and the weak legal framework.

In spite of all upstream barriers and the low organic production, the Lebanese organic market is strong and demand for organic produce is growing (Tleis, Callieris, and Roma 2017). The aforementioned authors performed a study to understand the Lebanese organic consumers' profile. The study revealed that organic consumers in Lebanon are pretty knowledgeable about the organic concept and they range from mature groups willing and able to pay higher prices to younger groups willing to buy but do not have the purchasing power. Two major clusters were identified while looking for the determinants of organic consumption: "the localists" and "the health cautious" in addition to the "irregular" and "rational" buyers. Still, the evolution of the organic market in Lebanon is facing obstacles. The study highlights three major challenges: confusion between organic and "traditional" or "baladi" (exacerbated by the weak monitoring on the use of labels by the involved authorities), the high prices, and the lack of consumer credibility and confidence in the organic certification system.

The most recent analysis of the main challenges faced in Lebanon was done within the framework of an EU funded project under the ENI-CBC Mediterranean Sea Basin programme. The Organic Ecosystem project aims at improving the organic sector

competitiveness through the creation of a cross-border Organic Ecosystem supporting the development of businesses and SME's in cooperation with public institutions. Six countries are taking part in this project: Jordan, Lebanon, Italy, Tunisia, Greece and Spain.

The ad hoc analysis was performed in June 2020 by the Chamber of Commerce, Industry and Agriculture of Zahle and the Bekaa (CCIAZB) and aimed at identifying stakeholder's challenges in Lebanon. The analysis report was posted on the MoA website in February 2021

Participants in the survey represented different stakeholders in the sector (30 producers, 14 processors, 19 consumers, 17 farm advisors, 18 researchers/academics, and 5 input providers). The top three priority obstacles identified were: the high certification costs, the lack of extension services, and the high prices of organic produce. Other identified challenges included: the mistrust in the local organic products due to the lack of official control and monitoring, lack of cooperatives and professional organizations, and the fluctuation in product availability.

1. Previous experiences in organizational bodies in Lebanon

a. Healthy Basket: AUB's community supported agriculture initiative

One of the pioneers in the sector, Healthy Basket (HB) started as an activity within a technology transfer program at the Faculty of Agricultural and Food Sciences at the American University of Beirut (AUB). The program aimed at improving rural livelihoods, and organic agriculture was one of the tools. Organic pilot plots were established and attracted a pool of producers who started joining the program. After the technical success of the project, the challenge of selling the organically grown produce

emerged. That was back in 2001 when the “organic” concept in Lebanon was still nascent. HB was then initiated as a Community Supported Agriculture (CSA) program to bridge the gap between the organic producers and the consumers. Another challenge was the verification of the organic guarantee. The affiliation with AUB helped a lot in gaining customers’ trust, but it was not enough. In absence of any certification bodies in the country, HB resorted to group certification by a Dutch certification body, SKAL. An internal control system (ICS) was established, and the HB team was trained on certification requirements and processes. This knowledge was transferred to producers who started to keep records and were regularly inspected by the designated HB staff. SKAL used to send an external inspector who evaluated the ICS based on the internal inspections done by the HB team in addition to sample checks on the farms and the records kept by the producers. In 2002, HB was the first in Lebanon to obtain EU recognized certification. However, the cost incurred by this set up was very high and its sustainability was jeopardized by the inability of producers to pay their shares of the fees. The need to create a local certification body emerged.

i. Milestones in HB’s operation (Zurayk and Touma 2006)

1999. Organic farming is identified as a potential agricultural development option in the marginalized areas of Lebanon.

2000. The first on-farm demonstration site is established in Shlifa (Northern Bekaa), as a part of a Ministry of Agriculture (MoA) project in technology transfer and extension implemented by AUB.

2001. The project is technically successful but economically not viable: a market needs to be found. Public awareness on OA was minimal and market penetration was very difficult, hence a need for an alternative marketing channel.

2001. The first CSA Program initiated in July 2001, with financial support from MoA and Mercy Corps/ USDA agricultural development projects implemented by AUB. The program started with 20 sharers receiving weekly assortments of organic products collected from two main farms.

2002. The CSA program expands to 80 sharers. To ensure diversified supply throughout the year, more farms were identified all over Lebanon.

2002. EU organic certification for the 40 HB producers is obtained, for the first time in Lebanon. A co-certification program was implemented in collaboration with the Dutch Skal International one of the foremost and globally recognized certification bodies.

2003. HB obtains a subcontract from an AUB/Mercy Corps/USAID project to support the marketing of the produce of small holders in South Lebanon. The subcontract allows HB to become an economically viable business.

2003. HB is part of the Libnor technical committee drafting the national organic standards.

2004. HB evolves from an activity in a development project to a Limited liability Company (LLC) owned by AUB and operates an organic shop in Beirut. The rationale behind this was to ensure the sustainability of HB once the funding ends. Modeling and managing HB as a socially responsible business were key to its success.

2004. HB contributes to the evolution of the sector: it becomes a founder of Souk al Tayeb, the only farmer's market in Lebanon, and of ALOA (association for Lebanese Organic Agriculture) which is the organic trade association of Lebanon.

2005. Project funding ends and HB is a socially responsible, self-sustainable business. It breaks even, it is the first to export fresh and organic produce to Dubai. It has built a clientele; it accounts for 50% of the total organic sales in Lebanon.

2005. HB shifts to local certification with the newly established "LibanCert"

2012. HB is represented in the national committee for organic agriculture at MoA whose mission was to promote the national framework and formulate policies for the sector development in Lebanon.

2014. HB is still operational but started facing financial problems due to instabilities in the country and fierce penetration of well-financed competitors in the market.

2015. HB's ownership by a private entrepreneur and detachment from AUB.

ii. HB's ingredients of success

- Adopting a participatory supply chain management approach

Healthy Basket's operation was quite complicated as it involved dealing with daily distribution of 20 to 30 kinds of fresh fruits and vegetables to hundreds of subscribers and walk-in customers. Around 40 farms located in different regions of Lebanon used to supply HB with produce all year round. At the beginning, it was very complex to allocate product types and quantities among producers, to organize transport from the different locations, and to

forecast market needs. However, by linking farmers and involving them in the planning process, HB was able to build and manage an efficient supply chain that was further enhanced by having to abide to international production standards (EU organic standards) as required by the ICS that was established and verified by SKAL.

Moreover, HB involved its customers in appraising its performance by creating a committee of regular customers who voiced their concerns and suggestions for improvement.

- **Investing in producers**

HB treated its affiliated producers as partners in the business model it adopted and always sought a win-win relationship to ensure a sustained growth of the enterprise. The vast majority of those producers were poorly educated and ill-informed about organic production standards and techniques. They were also poor record keepers and not always keen on doing their financials, they were not organized and never cooperated. To empower the producers, HB committed to build their capacities by providing technical trainings on farm planning and management, production, postharvest handling, packaging and labelling, etc. Producers were also encouraged and assisted in setting up new cooperatives or in joining existing ones.

- **Creating economic safety nets**

By adopting the CSA scheme and facilitating access to finance, HB created economic safety nets and provided incentives for producers to stay in production. Eighty percent of HB sales were channeled through the CSA program: a minimum volume of sales was ensured for the season, subscribers

paid in advance and HB was able to disburse advance payments to producers in need. Moreover, HB encouraged and assisted the producers in accessing microcredit facilities to improve their enterprises.

- **Supporting value-adding activities and empowering women**

HB encouraged women in the rural communities to start-up value-adding activities through agro-processing. Women were provided with the needed technical, financial, and marketing support to obtain high quality, safe and certified organic produce.

- **Building identity and brand recognition**

HB ran many awareness campaigns on the social, economic, and environmental importance of organic agriculture using many channels such as Advertising and sponsoring major events, distributing flyers, write-ups in newspapers and appearance in TV programs. HB was also one of the founders of Souk el Tayeb, the farmer's market of Lebanon and of ALOA, the Organic Trade Association of Lebanon. Thus, HB was identified as a business with a human face.

- **Adopting the business model**

Producers who were recruited in the beginning and those who joined later always perceived HB (and any other development project) as a charitable aid project that has to subsidize their activities indefinitely. So, there was a need to make a clear exit from the conventional aid model to ensure the sustainability of the project: the business model. HB then adopted the “good business practices” approach and was turned into a LLC with social responsibility. In a business model, the decision-making process is simplified, and the management

and accountability lines are clear. Moreover, the partners in a business focus more on setting their own priorities rather than worrying about donors' requirements and political agendas.

b. LibanCert (Local certification body)

“LibanCert” was a lebanese agency initiated in 2005 under the umbrella of AUB to provide organic certification services. It was created with a financial support from the Swiss State Secretariat for Economic Affairs (SECO) under the “Organic Certification and Market Development in Lebanon” project that was executed by FiBL in partnership with the Lebanese Ministry of Economy and Trade and AUB in 2005-2008.

The set-up of an independent Lebanese certification agency aimed at offering a cost-efficient and credible inspection and certification for organic operators to facilitate their access to export and domestic markets and to provide the organic guarantee to consumers. Libancert started operating in 2006, at that time the Italian certification body IMC (now retitled CCPB) had been in the Lebanese market for two years.

Setting-up local certification body in contexts similar to that of Lebanon then was expected to face by many challenges pertaining mainly to two factors: the limited business potential as well as the local and international accreditation (Huber 2006). Libancert had to compete with an internationally accredited certification body (IMC) in an already small market for organic certification. In absence of any local accreditation body (the Lebanese Accreditation Council, COLIBAC, still not functional to date), it was necessary to get foreign accreditation to ensure the credibility of Libancert. The process was lengthy and tremendously costly as it required paperwork, trainings, legal

advice and high fees. Meanwhile, Libancert had to be re-certified by another accredited certification body, the Swiss Biocerta. In 2010, Libancert was granted IOAS (International Organic Accreditation Service) accreditation, an internationally recognized body founded by IFOAM.

The financial sustainability of Libancert could not be ensured due to the high operational costs and the feeble business potential in a market where demand for organic certification was low and competition was fierce with the already established and accredited IMC. The legal form of Libancert as a limited liability company did not permit further funding when the SECO/FiBL project was concluded and the decision to dissolve it was taken in 2013, as was the case with Healthy Basket. The operators were transferred to IMC and since then, it is the only TPC provider in Lebanon.

c. Association for Lebanese Organic Agriculture (ALOA)

The Association for Lebanese Organic Agriculture (ALOA) was also established in 2005 under the same SECO/FiBL project in order to create an umbrella organization that brings together the various initiatives and stakeholders in the organic sector with the aim to promote organic agriculture, create awareness and develop marketing opportunities. The objectives of the association as stated in its constitution were:

- i. Work to raise the level of general awareness on organic agriculture and production in Lebanon.
- ii. Extension and services for the members of the association and development of their skills in regard to organic / biologic agriculture and production.

- iii. Work and coordination with the public sector to participate in the promotion and development and protection of organic / biologic agriculture in Lebanon.
- iv. Guidance and extension to stakeholders in the sector of organic agriculture in Lebanon on the requirements for organic certifications and on the international and local agencies granting such certifications.
- v. Work to maintain confidence in organic certifications.
- vi. Work to promote local and international markets for products of Lebanese organic agriculture.
- vii. Work and cooperate and coordinate with all parties and scientific, environmental and consumer institutions related to organic agriculture in Lebanon and abroad.

Under the guidance of SECO/FiBL, the association started working on its set mission and had one paid staff, a coordinator performing administrative tasks while all other members of the board were volunteering. The association managed to be perceived as a unifying platform for organic agriculture in Lebanon and worked on raising awareness through the organization of workshops, participation in fairs, media communication and coordination among different stakeholders. At some point, ALOA had 33 members, held general assemblies and elections. However, challenges existed in ensuring the continuous participation and commitment of volunteering members in the activities of the association. Members struggled to maintain and grow the

organization while attending to the demands of their own businesses and projects. There was also a need for additional technical assistance in proper governance.

After the project ended in 2008, the lack of funds and a dedicated paid staff and the loss of interest among members have resulted in limited achievements of ALOA's original objectives and eventually it was idled.

In conclusion, the development of the Lebanese organic sector is faced by barriers upstream and downstream the value chain. Responsibilities must be collectively shared among all stakeholders whether in the public or the private sectors. The cost of production should be reduced in order to reflect lower prices on the market, certification should be affordable trust should be built in the organic guarantee, producers should be organized, technical know-how fostered, and awareness raised on the benefits of organic agriculture at the social, economic, and environmental levels.

This project assesses one potential solution to overcome the aforementioned bottlenecks to the development of the organic sector in Lebanon: Participatory Guarantee System (PGS) which is an alternative certification scheme that can complement third-party certification (TPC).

CHAPTER II

PARTICIPATORY GUARANTEE SYSTEMS

A. General overview on PGS

"Participatory Guarantee Systems (PGS) are locally focused quality assurance systems based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange." This definition was officially endorsed by The International Federation of Organic Agriculture Movements (IFOAM) in 2008.

PGS is a tool that can help in the transition towards sustainable agriculture, empowering farmers and local communities, enhancing smallholder farmers' access to markets and making organic food available and accessible (Castro et al. 2019). PGS shares common features with other organic certification systems, such as following specific organic standards and the use of logos to prove the guarantee process to consumers; however, differences largely lay in the verification system. TPC will always be perceived as an effective and legitimate mechanism to ensuring the quality and safety of organic foods as they are traded regionally and internationally (Golan et al., 2001; Tanner, 2000). PGS can take smallholders one step further towards TPC and international market access for better income (Fig. 3).

Figure 3- Comparison of non-certification, Participatory Guarantee Systems (PGS) and third-party certification in terms of income and market access



Source: *Why invest in Participatory Guarantee Systems? Opportunities for organic agriculture and PGS for sustainable food systems*, FAO 2019

The terminology was first developed during the International Alternative Certification Workshop held by IFOAM and MAELA (the Latin American Agroecology Movement) in Brazil in 2004. During this event, participants from 20 countries shared the dynamics of the different alternative organic certification systems they were applying and identified key characteristics and elements that constituted the foundations of what is currently known as PGS (IFOAM 2019). This system is based on the active participation of producers, consumers, local authorities, technical advisors, and other stakeholders whose involvement in the process ensures the success and the credibility of the system.

The need for creating an alternative to TPC , especially for smallholders, emerges from the complexity of its norms and paperwork as well the costs it involves (Bouagnimbeck 2014). Moreover, TPC is criticized for being politicized and for privileging large scale and corporate producers and market actors following their own interests (Montefrio and Johnson 2019). In other words, when TPC is the only organic

guarantee system adopted in a country it fosters exclusion and inequalities and puts smallholders and economically deprived organic producers at a disadvantage and eventually leads to their withdrawal from the system and poses a barrier to the entry of potential smallholders.

PGS emerges here as an alternative warranting transparency and integrity adapted to local contexts and short supply chains. Through a PGS, consumers and producers participate in shaping their local food systems (IFOAM, 2018). Within such a participatory verification system, stakeholders get directly involved in choosing and defining the standards, designing and implementing the verification procedures, and in the review and decision process of organic recognition.

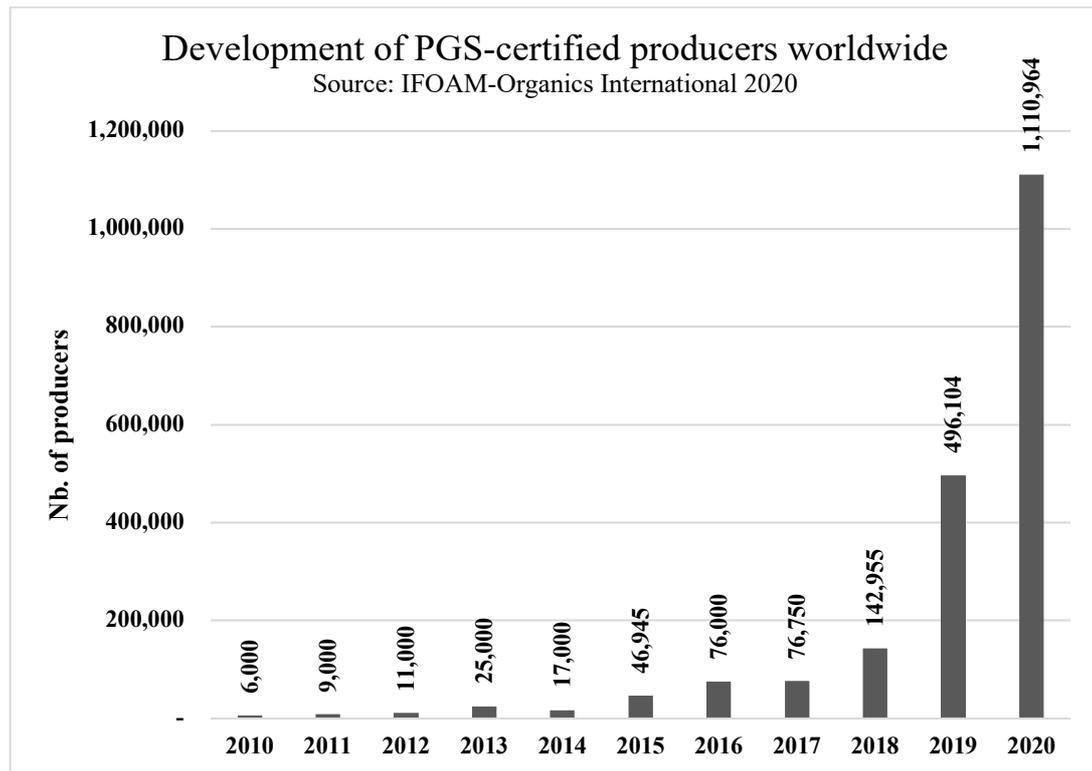
Additional characteristics of such systems are open access to information, transparent and systemized decision-making processes, capacity building and encouraging farmer's organization. PGSs also foster direct marketing approaches such as local farmers' markets, home deliveries, and Community Supported Agriculture (CSA) that contribute to the social, economic and environmental well-being of the community (Warsaw et al. 2021).

B. PGS around the world

Since the official inception of the PGS concept in 2005 and the creation of the international task force on PGS, now known as the IFOAM PGS Committee, the number of PGS initiatives and PGS-certified producers has been on the rise in all continents (Fig 4.), though not at the same pace (Willer H. *et al.*, 2021). This certification scheme is gaining more recognition in developed and developing countries alike. As per IFOAM's 2021 report, PGS is currently adopted in the legal framework

for organic agriculture in 15 countries: Bolivia, Brazil, Chile, Costa Rica, Ecuador, India, Madagascar, Mexico, Mongolia, Paraguay, Peru, Philippines, Uruguay, French Polynesia, and New Caledonia.

Figure 4- Development of PGS-certified producers worldwide



IFOAM- Organics International is the only organization collecting global data about PGS through a survey carried out every two years. According to the latest PGS survey in 2020, IFOAM estimates that there are at least 235 PGS initiatives established in 77 countries with at least 1,153,220 producers involved of which 1,110,964 are already certified organic (Willer, H. *et al.*, 2021). The number of PGS involved producers are mostly concentrated in Asia followed by Latin and Central America then Africa, Oceania, Europe, North America and Europe while none have been reported in the MENA region (Table 1). Globally, there are eight leading countries with more than

1,000 PGS-certified producers: India (1,088,432) followed by Brazil (7,821), Uganda (2,044), Thailand (2,029), Peru (1,790), Bolivia (1,287), Vanuatu (1,269), and France (1,144).

Table 1- Number of PGS involved producers worldwide

2020	Nb of PGS-certified producers	Nb of producers involved	Operational PGS	Developing PGS	PGS certified land (ha)
Asia	1,088,432	1,102,198	35	24	727,530
Latin and Central America	12,609	23,584	88	8	9,142
Africa	5,345	20,161	21	11	1,314
Oceania	2,256	3,447	12	3	4,531
Europe	1,667	2,070	17	14	4,590
North America	655	1,760	1	1	8,440
Total	1,110,964	1,153,220	174	61	755,547

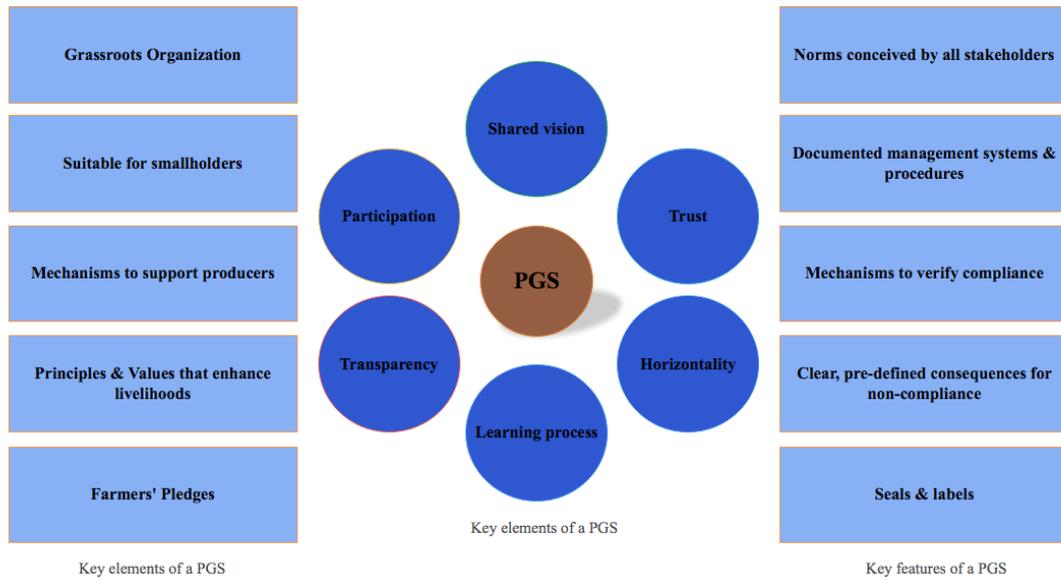
Source: IFOAM-Organics International 2020

C. Key elements and features of a PGS

PGS is not just a certification system. It is rather a collective commitment to a set of principles that guide the design, implementation and routine operations of any initiative. The common elements and features that distinguish PGSs from other verification systems are highlighted in the guidelines elaborated by the PGS Task Force and published by IFOAM in 2008 and last updated in 2019.

The six basic elements and ten features that characterize a participatory guarantee system and are summarized in figure 5.

Figure 5- Key elements and features of a PGS



Source: elaborated from PGS Guidelines- IFOAM (2019)

The six key elements that distinguish PGSs from other quality assurance systems are described in the “PGS guidelines”, first published by IFOAM in 2008:

Participation

Participation is a basic condition for building a PGS. The strength of a PGS depends on the involvement of its stakeholders. Producers, consumers, local authorities, traders, retailers, and other stakeholders in the organic sector should be involved in the design, implementation and management of the PGS. Active participation in the PGS ensures the credibility of the certification and fosters the sense of shared ownership of the system.

Shared vision

Stakeholders need to develop a shared vision by collectively developing and supporting the core principles and guiding practices to achieve the goals and objectives of the PGS. The shared vision can entail production goals and standards, social justice,

fair trade, autonomy and other principles that serve as a reference for the production standards to be adopted as well as for the functioning of PGS.

Transparency

Stakeholders should thoroughly understand how the PGS functions specially the adopted production standards, organic guarantee procedures and the decision-making process. The transparency of the system is usually enhanced by a clearly defined and documented management system, and public access to information and records (list of certified producers, sanctions, non-compliance measures, etc.). At the producers' level, transparency is fostered by promoting their active participation in the organic guarantee process through peer reviews, information sharing workshops, and their involvement in the decision-making process.

Trust

Trust is built when stakeholders develop, reinforce and review the shared vision and the management system of the PGS. Producers' pledges are considered as a trustworthy expression of commitment to the agreed upon vision to produce in compliance with the adopted standards. Other stakeholders play also an important role in transferring this trust to the consumers and involved community.

Horizontality

PGS initiatives are non-hierarchical and follow a democratic structure. This is reflected though the collective responsibility taken by all stakeholders. Roles are equally shared and rotated, producers are directly engaged in reviewing each other's farms, and all stakeholders have equal voting rights while paying great attention to gender equality.

Learning

Learning is a key element of PGS. It is an ongoing process of exchange of ideas and experiences at the technical and social levels. In addition to building capacities, learning plays an important role in developing mutual trust among stakeholders.

The key features (structural and operational) that underpin the guarantee process of all PGSs, regardless of the country-specific context, are also delineated in the above-mentioned guidelines:

Norms conceived by all the stakeholders

Through a democratic and participatory process, but always in accordance with the commonly accepted criteria to define the organic product.

Grassroots organization

Participatory certification must be seen as the result of a social dynamic, based on the organization of all the stakeholders; however, external bodies (NGOs, academic institutions, etc.) can be involved and take the lead in the initiation steps.

Suitable for smallholder agriculture

The participatory nature and the horizontal structure of the PGSs allow the certification mechanisms to be better adapted in terms of paperwork and management and reduces the costs incurred making it suitable for smallholders.

Principles and values that enhance livelihoods

The principles and values of a PGS are well defined, documented and expressed through a charter. These are reflected in the standards, operation manuals, and in the farmers' pledges. They emphasize environmental protection by promoting ecologically sound farming, social justice, fair relations with consumers and more importantly they aim at enhancing rural livelihoods and the well-being of smallholders.

Documented management systems and procedures

Although the documentation is minimal, the system requires producers to demonstrate their integrity and commitment to the agreed upon standards.

Documentation includes production standards, list of members and their status (certified or sanctioned), farm records, training records, pledges, roles and responsibility of involved stakeholders, sanctions for noncompliance, operations manual, peer review reports and others.

Mechanisms to verify compliance

A peer review mechanism of mutual inspections is usually adopted to verify compliance with the established standards, this system is also likely to stimulate the participation, organization and knowledge exchange and learning among involved stakeholders.

Mechanisms to support farmers

Support is provided through newsletters, farms visits by technical advisors, websites and other context appropriate forms. In addition to the technical support at the production level, a PGS facilitates market access and provides important market information (pricing, demand, labelling, etc.).

Farmers' pledges

Serving as a declaration of adherence to established standards. Pledges are ideally witnessed by other members of the PGS and can be either written or recorded depending the literacy context.

Seals and labels

They serve as a guarantee to consumers that the product is certified. The use of the label is controlled and managed by a designated committee within the PGS.

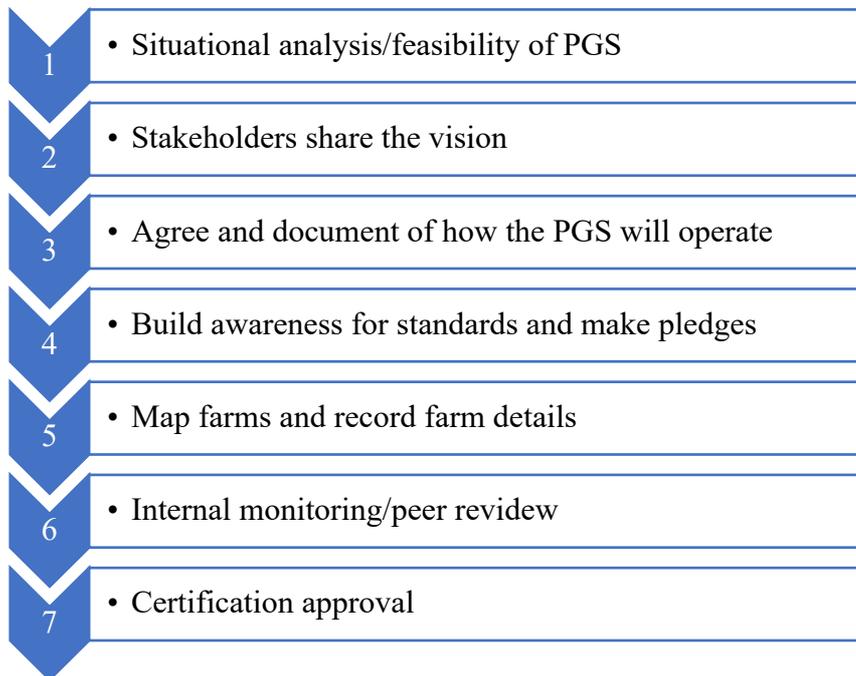
Clear, predefined consequences for noncompliance

Consequences shall be graded according to the seriousness of the noncompliance and they should be agreed upon by all PGS members, documented and accessible to public, and appealable. Sanctions should be context appropriate (i.e. fines should be set according to socio-economic conditions) and applicable.

D. Implementation and organizational structure of a PGS

The initiation of a PGS starts with a “situational analysis” to identify stakeholders’ needs, legal and regulatory frameworks related to organic agriculture, market opportunities, consumers’ awareness and willingness to purchase PGS-certified products, bottlenecks preventing smallholders’ access to markets and the level of knowledge of the principles and practices of OA. This situational analysis serves to assess the feasibility of starting the PGS. The implementation then starts according to the process described in figure 6.

Figure 6- PGS implementation process



Source: elaborated from PGS Guidelines- IFOAM (2019)

While there is not a standard structure to operate a PGS, a typical one consists of:

- 1- A peer review group that consists of producers and other stakeholders, such as consumers, extension workers, or external organization representatives. This group carries out annual farm visits and decides on the renewal of certificates for reviewed farms.
- 2- An administrative staff responsible of managing routine paperwork, peer review scheduling, documentation, database update, reporting to the certification committee and other administrative tasks. It consists of managerial and technical members that can be volunteer or paid.
- 3- A certification committee responsible for reviewing peer review reports, validating certification decisions and enforcing sanctions for noncompliance.

- 4- A national council that manages external relations (with the government, donors, IFOAM, etc.), and endorses certification decisions and the use of logos. This council also decides on the standards to be followed, maintains central documentation and organizes trainings.

In practice, the structure and functions of a PGS components are not fixed and roles allocation is highly flexible depending on the local context (IFOAM 2019; Rikolto 2018).

E. The impact of PGS on communities in eight selected countries

In 2014, IFOAM carried out a study¹ on eight long term PGS initiatives from seven countries (table 2) to investigate the impacts of PGS and its role in improving the livelihoods of the involved rural communities and identify the main factors that favor the sustainability of an established PGS (Bouagnimbeck 2014). The study was done through desktop and field research using a participatory rapid appraisal with 84 farmers involved in the selected PGSs during the period between January-October 2012 and in consultation with key stakeholders and organizations involved in the development of the PGS and with members of the IFOAM PGS Committee.

¹ The study was commissioned by Universidad Nacional Agraria La Molina, Peru to IFOAM, under the AGROECO project (Ecological and socioeconomic intensification of smallholder agriculture in the Andes), funded by the Canadian International Food Security Research Fund. The complete report has been published by IFOAM in 2014.

Table 2- Basic details of the selected PGS initiatives

Initiative	Location	Yr of initiation	Nb of producers involved *	Nb of certified producers *	Key stakeholders involved
ANPE/IDMA	Huánuco, Peru	2005	320	260	Producers, consumers, regional government, university, college, institutes and regional agrarian directorate
BONM	Johannesburg, South Africa	2006	35	35	Producers, consumers, Market management and stallholders
Green Foundation	Bangalore, India	2006	631	32	Producers, Green Foundation, OFAI, Janadhanya, consumers
Keystone Foundation	Nilgiri, India	2004	92	92	Producers, Keystone Foundation, OFAI, IIRD
MASIPAG (ASAPP)	Palimbang, Mindanao, Philippines	2007	33	33	Producers, consumers, MASIPAG
N&P (COMAC Lozère)	Lozère, France	1983	36	36	Producers, SIMPLE, consumers, Federation N&P
REDAC	Various regions of Mexico	2004	1030	1030	Producers, Universities,
Ecovida (Planalto & Alto Uruguai)	Rio Grande do Sul, Brazil	2006 & 2001	98	98	Producers, CETAP, cooperatives, small--scale

*Numbers at the time of the study

The producers involved in the study were all smallholders or subsistence farmers depending on agriculture for their food and livelihoods and all had difficulties in accessing markets. The study found that being involved in a PGS offered farmers and their families a range of economic, environmental and social benefits, and eventually improved their livelihoods. The benefits were observed at different levels:

a- Farmer empowerment

A remarkable outcome of participating in a PGS is farmer empowerment in terms of personal growth, self-confidence, and improved knowledge and skills. Farmers involved in a PGS experience a continuous process of learning through trainings on organic farming practices, PGS tools and procedures, collective marketing, and management of small funds (Castro *et al.*, 2019). Moreover, they become part of a social process whereby they make joint decisions about the development of their organizations and the system along with all involved stakeholders, which leads to a better self-confidence. PGS also contributes to women empowerment and inclusion in the system by giving them responsibilities in collective activities and equitable access to training.

b- Cost reduction

The study revealed that 67% of the farmers admitted a reduction in their production cost after joining a PGS and converting to organic agriculture which relies less on external synthetic inputs. The remaining farmers mainly in France, Mexico and South Africa did not see a change in their production cost since they were already practicing organic agriculture prior to joining the PGS.

As for the certification costs, TPC turned out to be five times more expensive than PGS certification in the Peruvian case and almost three times more expensive in the Nature et Progrès case in France.

c- Enhanced market access and income

The impact of PGS on market access and income differed between the regions. Farmers involved in PGS in developed countries, mainly France, reported no change in their income and were contented from joining the PGS for ideological reasons.

On the other hand, 82% of the interviewed farmers, all based in developing countries, recorded an increase in their income after joining the PGS and they attribute this to the improved access to market and regularity of sales. PGS facilitates the establishment of collective marketing initiatives that enable farmers to offer increased volumes and diversity of products and have a better access to direct and regular markets which eliminates intermediaries and increases their profit margins (Castro *et al.*, 2019).

Most of the PGSs that participated in the research, had successful experiences in selling their produce and generating better incomes. In India for instance, the Green Foundation PGS farmers, through a collective marketing initiative, were able to eliminate the middlemen and sell their produce directly to consumers with price premiums that allowed them to generate better income. The same impact was reported by Ecovida's PGS farmers in Brazil who were able to participate in local farmers' market and benefit from direct sales and stable weekly cash.

d- Enhanced food security

To assess the impact of PGS on involved farmers food security, questions were addressed to farmers on the performance of their farms after joining PGS, access to sufficient food throughout the year, and the family dietary score.

The study revealed that PGS enhanced food security in the communities. 78% of the respondents stated that their farms performed better after joining the PGS, 92% had access to sufficient food during the whole year, and 84% believed that their families had more diverse meals than prior to joining the PGS. Some of farmers attributed this improvement in their food security directly to PGS while others related this to the benefits of organic agriculture in general. For instance, in the Brazil and Philippines cases, farmers shifted from monocultures or livestock production to diversified integrated crop and livestock farming which increased their productivity and food availability in the local communities.

In conclusion, the implementation of successful PGSs was faced by many challenges that need to be resolved to ensure the success and sustainability of any PGS initiative. Main challenges confronted in the case studies include:

- a) Involving consumers in PGS
- b) Gaining recognition and support from authorities
- c) Poor documentation and record-keeping
- d) Poor infrastructure and logistics to access markets
- e) Poor knowledge in PGS among many farmers
- f) Poor farmers' literacy
- g) Reliance on voluntary work.

F. PGS and food security

PGSs offer a solution for smallholders who are unable to obtain cost prohibitive TPC for their organic operations. These systems allow access to alternative, fair and transparent markets and grant smallholders a direct stake holding in the supply chain. Beyond that, PGSs foster social processes that allow inclusion, producers' empowerment and mutual support among producers themselves and between producers and consumers. Being members of a PGS, smallholders have better market access with price premiums associated with the organic label (Home and Nelson 2015), leading most often to better income which contributes to a better household food security for smallholders a majority of whom relies on food purchases to meet their needs. Home and Nelson highlight the importance of capacity building that is offered to PGS members in that it enables them to increase the scale, diversity and quality of their production. In addition to that, the social processes resulting from the *modus operandi* of a PGS foster producer empowerment resulting in better access to credit, collective buying of inputs and material, joint marketing efforts, knowledge sharing and stake holding in the certification process. These benefits of taking part in a PGS, result in an enhanced self-sufficiency, strengthened local markets and fair prices, better access to healthy and nutritious foods, better food availability to the community, thus a significant contribution to household and local community food security (Nelson et al. 2016).

PGSs should be advocated as models to improve local food security. PGSs, if properly implemented can uphold the six dimensions of food security, especially at smallholders' level (Fig 7).

Figure 7- PGS impact on the six dimensions of food security

AVAILABILITY	ACCESS	UTILIZATION
<ul style="list-style-type: none"> - Subsistence farming/ smallholders' self-sufficiency/ local availability enhanced - Producers trained on low-input organic production practices - Inclusion of women in the value chain - Enhanced production efficiency, and post-harvest handling as well as reduced food losses through capacity building on best practices - Producers are encouraged by peer success stories, an incentive to stay in the system - Organic and agroecological practices improve soil fertility - PGSSs foster alternative food networks (such as CSA) and knowledge sharing contributing to the reduction of food losses 	<ul style="list-style-type: none"> • Better livelihoods and increased smallholders' income allow better household access to food • Local community gets better physical access to food through local markets and other direct selling mechanisms • Fair prices at the local market and through direct selling mechanisms • Better quality of food environments 	<ul style="list-style-type: none"> • Healthier, pesticide free organic food • Improved household nutrition due to diverse food intake • Changing dietary patterns towards healthier and more sustainable diets as influenced by the adoption of agroecology and organic principles • PGS foster alternative food networks that encourage women to cook and diversify food on the household plates • Better access to information on good nutrition through knowledge sharing and trainings • Better quality of food environments
STABILITY	SUSTAINABILITY	AGENCY
<ul style="list-style-type: none"> • OA and agroecological practices promote resilience to climate change and man-made disruption of the ecosystem • Household self-sufficiency in times of crisis • Creation of jobs, hence better livelihoods and more resilience to economic crises • PGS fosters social cohesion and community strengthening which builds a more resilient community 	<ul style="list-style-type: none"> • Organic and agroecological practices contribute to the mitigation of climate change effect and the degradation of the environment, natural resources and biodiversity • Improves soil fertility and water-use efficiency • Restores ecosystem services and biodiversity • Improves the efficiency of the value chain • Reduces pollution resulting from the production and overuse of synthetic agrochemicals • Reduces production costs incurred from the use of external inputs • Promotes sustainable diets • Ensures better livelihoods • Encourages youth inclusion and interest in agriculture • Reduces rural exodus 	<ul style="list-style-type: none"> • Local stakeholders own the system • They shape their own system policies and governance • PGS fosters exchange of knowledge, innovation and cooperation • Gender equity is nurtured • Participatory approach in the decision making on the local food system with equal votes • Relationship of mutual benefit between Local producers and consumers leading to a fair-trade setting • Capacity building and knowledge exchange leading to informed decisions on own diets and food choices • Stronger governance of the local food systems • Collective use of resources (land, inputs, credits, equipment, etc.) • Better access to information and technology • PGSSs promote food sovereignty

CHAPTER III

PGS FOR LEBANON

PGSs present an opportunity to disseminate organic and agroecological production practices, to facilitate access to locally produced healthy food, to improve livelihoods of smallholders and to uphold local food security. PGS initiatives have been on the rise over the past years benefiting thousands of small-scale organic farmers and consumers all over the world, especially in developing countries where organic regulations and legal frameworks are weakly governed.

Lebanon's agricultural sector is characterized by its smallholdings averaging 1.4 ha while 70% of the farmers operate lands less than 1 ha, 26% between 1-6 ha and 4% greater than 6 ha (Ministry of Agriculture and Food and Agriculture Organization 2010). Smallholders in Lebanon are the most disadvantaged in an agriculture sector that is already deteriorating. Agriculture in Lebanon accounts for only 2.5 % of the GDP (World Bank, 2020) and employs 11.3 % of the work force while the rural population in Lebanon is estimated to be 11 % of the total population. Organic agriculture is one of the potential alternatives that can satisfy the growing demand for niche products that address the environmental, social and economic concerns of an already existing segment in the market (Ministry of Agriculture 2020). The ministry hopes to realize a 30% increase in the number of certified organic operators (152 operators as per 2019 data) by 2025. However, the organic sector is facing many challenges (previously highlighted in this study) that will be further exacerbated in the aftermaths of the economic, financial and political crises the country is facing.

A. Case study from Brazil: the long-lasting success of ECOVIDA

Ecovida Agroecology Network, that was established in 1998, is one of the first and biggest participatory certification networks, consisting of producers, consumers, traders and other stakeholders involved in the production, processing, marketing and consumption of organic products. The network is decentralized and currently has 27 regional centers in Brazil and brings together 340 groups of farmers, 20 NGOs, and more than 120 ecological open-air markets (<http://ecovida.org.br>).

Two studies from the literature are used here to provide useful insights to learn from both on the role of PGS as a credible guarantee system as well as its ability to improve organic smallholders' livelihoods. Both studies (Zanasi et al. 2009; Zanasi and Venturi 2008) are based on a survey carried out with ECOVIDA farmers in addition to some interviews with key stakeholders. The survey examines the motivations leading to the adoption of organic farming and participatory certification and it evaluates the impact of joining a PGS on access to markets.

Economic considerations were found to be the most important reasons for producers to join a PGS initiative: lower certification costs, lower cost of inputs (when shifting to organic), as well as better access to the local market. 52.9 % of the participating farmers were encouraged to join the PGS because of easier access to local markets (Zanasi and Venturi 2008). The study reveals the important influence of peer farmers in the community on the decision of others to adopt agroecological principles in general and organic agriculture as well as on the decision to join a PGS. An analysis of the marketing channels of ECOVIDA members (Zanasi et al. 2009) showed that the biggest share of their products is sold in the local weekly farmers' market where producers interact directly with their customers and receive cash payments. This direct

relationship between producers and consumers in the same community strengthened trust and credibility in ECOVIDA's products and contributed to its sustainability over the years.

The study identifies the benefits of joining the PGS for the different stakeholders as follows:

- For the producers: they enjoy better market access, stronger contractual power, lower costs of production, and increased on-farm social, economic and environmental welfare.
- For the traders: they benefit from better market access thanks to the ECOVIDA Seal reputation and better logistics in their relationship with producers.
- For the consumers: they are granted better quality products at relatively lower Prices.
- For the rural community: better living conditions fostered by the improved environmental, social and economic sustainability leading to an increase in the community self-reliance, social cohesion and trust.

In their study, Zanasi & Venturi (2008) uncovered the role of the ECOVIDA in promoting trust in PGS certified products beyond the boundaries of the local communities. The network's decentralized and horizontal structure and the close coordination between its centers, allowed to expand the market of its PGS certified products to reach other regions and states thanks to the good reputation granted by the ECOVIDA label.

The success of ECOVIDA confirms the positive role a PGS can play in promoting local sustainable development for the rural communities and suggests that this experience should be considered in contexts where nascent organic/agroecology movements exist but need an uplift for their potential role to be tapped. This applies to

the Lebanese context where the organic movement is already established but is facing many bottlenecks that can be overcome through the establishment of a PGS initiative.

B. The case of Lebanon

Before proposing PGS as a solution to uplift the organic sector and as a tool to improve smallholders' livelihoods and food security in Lebanon, three questions will be addressed based on lessons learned from previous interventions to promote the sector in Lebanon (see Previous chapter on Organic Agriculture in Lebanon); in addition to feedbacks received from different stakeholders (5 farmers, 2 organic activists, 2 processors, 2 traders, 1 public sector representative, and 1 technical advisor) involved in the sector. Further analysis will definitely be needed to include more stakeholders' statements, but due to many limitations during this project, it was not possible to expand the analysis.

1. Is there a need for an alternative organic guarantee system in Lebanon?
2. If yes, would a PGS be viable for Lebanon?
3. If yes, what are key elements to establish a PGS in Lebanon and ensure its sustainability?

1. Is there a need for an alternative organic guarantee system in Lebanon?

As shown previously, many bottlenecks hindering the organic sector in Lebanon are downstream the value chain with a prevailing confusion between “organic” and “traditional” or “baladi”, high prices, and lack of consumer credibility and confidence in the organic certification system in light of weak monitoring on the use of labels by the involved authorities.

Currently and after Libancert went out of the Lebanese organic certification market, one certification body is monopolizing this market, the Italian CCPB which has been operating a regional office for the middle east from Lebanon since 2004. As in 2020, the certification fees that an operator (farmer, processor, trader) is paying to certify his production range from 500 to 1,000 USD per activity per year half of which is to be paid in US dollars. This is considered a very high cost that smallholders, who do not benefit from the economies of scale, cannot afford in light of the current financial and economic crisis and will cause a lot of dropouts from the organic sector or in the best scenario producers will opt for non-certified organic production which will create more confusion.

Many organic initiatives in Lebanon, especially small-scale ones, are targeted at the domestic market and products are sold on few weekly farmers' markets, in small health shops, or through box schemes and home deliveries. Bigger initiatives led by a few entrepreneurs found their way to big supermarkets and to some export markets mainly in the GCC. Bigger operators are engaging in reselling products that they outsource from small "organic" farmers (sometimes not certified ones); however, such procurements often lack clear criteria and standards and constitute a risk to building and maintaining consumer trust.

Just before the current economic crisis of Lebanon emerged, the already established very niche market for organic in Lebanon had a potential to grow especially that the demand for organic food was on the rise. The advocacy efforts put in the organic sector in the past two decades have started to pay off in raising awareness on organic agriculture. Consumers were becoming increasingly aware of the problems posed by the misuse of pesticides to the environment and human health. These efforts

should be furthered leveraged to develop the sector and ensure that producers stay in their businesses.

On the basis of these observations, establishing trust in organic guarantee schemes in Lebanon is expected to help in overcoming some of the constraints and in uplifting the sector. The mainstream TPC model, though widely accepted, is criticized for promoting organic agriculture as an “input substitution” model, for being imposed on local producers in a top-down fashion and for being inaccessible (complexity and cost) to small scale producers (Nelson et al. 2010). As it has grown in scale, third party organic certification contributed to the “conventionalization” of the organic sector that turned into a full-fledged industry disconnected from the holistic principles of the organic movement pioneers. In fact, this is what the organic sector in Lebanon has become: an industry for well-off entrepreneurs who can afford TPC. Therefore, there is a need for an alternative organic guarantee system that breaks the barrier of smallholders’ entry and that promotes a holistic vision of organic agriculture as a sustainable food system.

2. If yes, would a PGS be viable for Lebanon?

Third party organic certification cannot be ruled out for big producers (farmers and processors) nor for traders who are targeting export markets, for groups that also supply export markets, and for large independent. However, it should be complemented by an alternative guarantee system targeted more towards the local market and smallholders who want to stay in the sector and potential ones who wish to shift to organic.

The rapid growth of PGS (see chapter 2), especially in developing countries such as Brazil and India, reflects its ability to motivate smallholders to convert to certified organic agriculture and to reap substantial livelihood benefits (Castro et al. 2019). Moreover, the aforementioned case studies suggest that it is worth exploring the potentials of PGS in specific context where organic agriculture is underdeveloped. The benefits of PGSs lie in its accessibility, transparency and legitimacy since they are internationally recognized by IFOAM – Organics International and supported by many development and international donors such as FAO and IFAD.

In the Lebanese context, there are many opportunities to leverage for the establishment of a PGS as an organic guarantee system that can contribute to the revival of the organic value chain and the improvement of smallholders' livelihoods and food security. Theoretically, a PGS has many advantages in our local context but its implementation will be very challenging in light of the prevailing risks and threats. To answer the viability question of a PGS for Lebanon, the below SWOT analysis (Fig.8) was performed in addition to feedback provided during informal discussions with some of the stakeholders representing farmers (5), organic activists (2), processors (2), traders (2), public sector (1), and technical advisors (1).

The prevailing majority of organic operators in Lebanon are smallholder exploiting less than 5 du. The small-scale operation is making the affordability of TPC a major challenge for those producers to stay in the organic business, a situation much exacerbated by the current economic and financial crisis the country is facing. To overcome this challenge, there is a need to provide alternatives: either break the current monopoly of certification or offer subsidies. Both alternatives are not feasible in the near future due to the economic and financial crisis that swiped the country since the

end of 2019. In this case, establishing a PGS is seen as a solution for producers to stay in business; nevertheless, this would be an option for the producers selling on the local market and not engaged in contracts with traders who export and need an accredited certificate.

Another bottleneck in the sector lies downstream in the market access, consumer trust and producers' income. A major concern raised by the producers and the traders is that in light of the current crisis, and contrary to the trend before it, the demand in the local market is declining due to the unprecedented emigration of Lebanese loyal customers and the return of foreign residents from one side and the decreased purchasing power of those who stayed as affected by the devaluation of the local currency. As a result, more emphasis will be put towards the export market to sell out the production and get remittances in foreign currency. In this case, operators will be discouraged from adopting PGS certification which is still not recognized in international organic trade.

Another challenge PGS certification will face is gaining local recognition and consumer trust. This will require efforts to raise awareness and build trust through the creation of a unified label to brand the PGS certified products. According to the experience of Healthy Basket, consumers tend to trust a label when the guarantee is provided by a trustworthy entity (at the time, it was AUB's guarantee). This should be regarded carefully when setting-up the PGS and deciding upon its affiliations. The current marketing channels through which small producers are selling are not cost-effective. The vast majority of small producers are selling their produce through intermediaries, either through traders who distribute to local supermarkets and to export markets or through health shops and other enterprises with home delivery schemes.

Very few producers sell directly to consumers through weekly farmer markets, on-farm sales and door to door deliveries. In this respect, PGS facilitates the establishment of alternative marketing networks, usually collective, that enable organized producers to offer bigger volumes and diversity of products and hence allow better access to direct and regular markets. Alternative networks such as CSA, regular farmer markets, on-farm sales, and local fairs eliminate intermediaries and increase profit margins.

Upstream the organic value chain, there is a major need for technical guidance on organic practices expressed by the farmers and detected by technical advisors. A vast majority of farmers, especially smallholders and less educated ones, perceive organic agriculture as an input substitution mode of production rather than a wholistic one.

According to technical engineers, the productivity of many producers can be increased if better practices are applied. For many smallholders, hiring an advisor is not a priority when it comes to budget. This lack of access to knowledge is exacerbated by the absence of cooperatives and association. This gap can be filled in a PGS model where producers share their experience and exchange knowledge especially during peer review. In a PGS setting, producers shall have access to the expertise of technical advisors who are also members in the initiative and can benefit from the capacity building programs offered.

On the other hand, the current legal framework of the organic sector in Lebanon represents an opportunity and a weakness to the establishment of a PGS. One opportunity lies in the fact that the national law #158 to regulate the organic sector was finally ratified in 2020, 15 years after its submission and that there is a national register for organic producers at the MoA. However, the weakness lies in enforcing this law which is creating confusion in the local market. Another opportunity is the presence of

voluntary norms for organic agriculture that were developed by LIBNOR in 2003.

These (outdated) norms should be built on and adapted better to the local context. One important limitation in law #158 that should be resolved is that it restricts the use of “organic” designation and its equivalents to products that are certified by a third party.

The limitations of expertise on PGS in Lebanon is a fact, but in the same time expertise in certification requirements and implementation is well established and can be enhanced through external training and follow-up. The experience of Healthy Basket in implementing an ICS was successful at earlier stages of the development of the sector. The experience of Libancert in availing trained certification personnel was another success.

The lack of cooperation among producers is another weakness that is undermining the Lebanese agricultural sector in general and the organic sector in specific. Previous experiences in organizing organic producers have failed and this was primarily due to the lack of a shared vision, lack of commitment, poor governance skills, poor access to funding (beyond the scope of grant aid schemes) and dependence on volunteerism. Organizing producers under a PGS model could be an alternative to cooperatives and associations. However, it should be established and managed in a participatory, democratic and horizontal way and should involve a diversity of stakeholders with a shared vision.

The establishment of a PGS for Lebanon might be subject to opposition from the existing TPC stakeholders who might try to denounce its relevance to the sector. That’s why awareness should be raised about the role a PGS can play in complementing TPC and in recruiting more producers to the sector and preparing them for TPC in case they wish to advance beyond the local market.

In conclusion, the establishment of a PGS appears to have many prospects to uplift the organic sector; however, it would be best implemented as a complementary to the TPC scheme. A PGS should be initiated particularly for smallholder producers (whether organic or transitioning to organic) in order to empower them, improve their livelihoods, reduce their migration from rural areas and enhance their food security.

Figure 8- Swot Analysis for the establishment of a PGS in Lebanon

STRENGTHS

- PGS suitability for smallholders
- Cheaper alternative to TPC that will reduce dropouts from the organic sector
- Enhancing small holders FSEC (better access to local/domestic market leads to better returns)
- Promoting consumer access to organic/healthy products
- Supporting the transformation of the current food system to a more sustainable one
- Enhancing food sovereignty (ownership of production standards by PGS members)
- Fostering knowledge exchange and improving current practices
- Contributing to social cohesion by fostering community values and development

OPPORTUNITIES

- Existing organic agriculture initiatives
- Existing technical expertise on organic agriculture (engineers, producers)
- Existing local market initiatives
- Presence of national standards to build on
- Existing experience with certification
- Prevalence of small holdings
- Producers need an alternative to the monopolized TPC
- Governmental positive attitude to alternative certification to break the current monopoly
- Donors and NGOs interest in providing support to the organic agriculture sector
- Increasing demand for organic products in the local/domestic market
- A strong need for a national label

WEAKNESSES

- Legal requirements restrict the use of the word organic to TPC
- Lack of expertise on PGS
- Lack of cooperatives/agencies of organic producers
- Lack of cooperation among stakeholders
- Lack of data on the organic sector
- Lack of awareness on alternative certification systems

THREATS

- Opposition from TPC stakeholders
- Tensions among different stakeholders
- Consumers mistrust in alternative certifications
- Lobby of input suppliers against organic agriculture
- Unstable political, economic and security situation

3. *If yes, what are key elements to establish a PGS in Lebanon and ensure its sustainability?*

A main disadvantage of setting up a PGS is the initial investment required in terms of funding, institutional strengthening and the extensive capacity building required which can spread out over many years before the certification process and marketing activities take place and for the PGS initiative to become self-financing.

Based on the previous analysis and on lessons learned from previous interventions in the Lebanese organic sector, the following is recommended for the establishment of a successful PGS:

a. At the institutional and organizational level

i. Enhance public-private collaboration:

The main stakeholders to be involved in building the PGS should include producers, producer organizations, concerned NGOs, public institutions (MoA, local authorities) consumers, technical experts, small and medium enterprises (SMEs) and processors. While public institutions facilitate the enabling environment for a PGS, the private sector and local authorities can facilitate the linkages between PGS producers and the markets. Local authorities in particular can provide considerable in-kind contribution such as providing public areas for establishing a local farmer's market. NGOs, SMEs, consumers and technical experts can help in mobilizing resources, providing trainings and linking producers to markets. Such a participatory approach in setting-up PGSs has proven effective in ensuring the smooth operation and sustainability of such initiatives (Castro et al. 2019).

ii. Seek proper regulatory framework:

For a PGS to be accepted legally recognized as a guarantee system for organic production in Lebanon, it is necessary to adapt the current law#158 or release specific decrees in such a way to specifically mention PGS as a valid verification system for the national and local markets, rather than restricting it to TPC.

iii. Governance:

Choosing the governing body of the PGS is certainly going to be the most complex task while developing the system. Learning from the experience of ALOA and Healthy Basket, it is recommended to avoid full volunteerism. There should be at least one or two paid staff to coordinate and fulfill the administrative tasks needed to run the PGS. Feedback from activists in the sector, during the discussions held, emphasize that there should be a central PGS for the whole country with subcommittees covering the different governorates. All stakeholders in Lebanon would be following the same standards and regulation agreed upon during the initiation phase. This will allow for unbiased peer reviews and better exchange of knowledge and experiences. It is of utmost importance that at the initiation phase the PGS be affiliated with a trustworthy entity to gain stakeholder's trust, especially at the consumers' level. This entity shall lead the project until stakeholders are well-trained and ready to run it sustainably. This was the case with case with Healthy Basket that was affiliated with AUB. Once the system is

functioning properly, PGS member can agree upon the organizational structure which should be democratic and horizontal.

iv. Production standards and need for accreditation:

The currently adopted production standards under TPC are the EU organic standards. The National standards elaborated by LIBNOR were originally adapted from the EU standards back in 2003 but they haven't been updated since then. During discussions with producers and technical advisors, the concern of the suitability of the EU standards in the local context was raised. In some instances, such as the use of organic seeds free from GMOs which are not locally available and very costly to import, TPC issues some derogations and requires producers to fill special forms every time they use local seeds.

In this case, PGS stakeholders can agree on setting-up their own production standards in accordance with the local context. Ideally, the standards should be fitting organic production practices, since this is a requirement by IFOAM (as the primary promoter of PGS in the world and the only organization collecting, compiling and publishing global data about PGS initiatives). However, PGS stakeholders can choose to integrate principles of agroecology and other sustainable farming systems fit for the local context. International accreditation for PGS does not exist since a key characteristic of such initiatives is that they are locally focused and non-hierarchical. However, IFOAM has a developed quality review system for PGS initiatives and can offer an official IFOAM recognition in the international database.

b. At the operational level

i. Awareness-raising:

The success of the initiative will highly depend on stakeholders' education, especially consumers, on the benefits as well as the limitations of PGS as an organic guarantee system targeted towards smallholders and the local market as opposed to TPC. This can be done through different channels such as segments in appropriate TV programs, social media platforms, flyer distribution, billboard campaigns and should involve the promotion of the unified logo of the PGS

ii. Capacity building:

Initiation, implementation and management of a PG is a knowledge-intensive mission (Castro et al. 2019). Responsibilities should be distributed and shared among stakeholders in a participatory way. Potential stakeholders of the PGS should be well trained ahead of time to make sure they have a good understanding of the key elements and features and the *modus operandi* of a PGS. All manuals PGS manuals and training materials should be translated into Arabic and adapted to the Lebanese context.

iii. Alternative marketing networks:

PGS members should find marketing alternative marketing channels than the current ones. To ensure better profits, they should resort to direct sales and avoid intermediaries. Alternative networks can be local farmers' markets, on-farm sales, Community Supported Agriculture, door-to-door deliveries, box schemes, and community kitchens. They

can also engage with organic processors and encourage women involvement in the value adding process. Collective sales to small and medium enterprises is another network they can engage in to sell out the surplus production.

iv. Financial sustainability of the PGS:

The establishment of a PGS is not possible without initial funding much needed mainly for institutional capacity building and training of the stakeholders as well as for raising awareness and promoting the unified logo. External funding from donor agencies should be sought; however, the PGS should have a clear business plan from the start. The business plan should allow the PGS to become self-sustainable once the funding stops. Self-sustainability can be ensured faster if donors funding is dispensed on a decreasing scheme over the project life. This scheme has proven successful in the case of Healthy Basket. The PGS can always seek external grants, but it should as well be generating income to ensure its continuity. Income can come from fixed memberships, contributions from stakeholders, fundraising events, profits from collective sales, etc.

It is essential that from the initiation phase, a realistic assessment of the needs and available resources be done with clear objectives put by the PGS stakeholders. Lessons learned from previous PGSs shows that such initiatives are prone to fail if they do not realize significant benefits to its stakeholders, especially the producers (Castro et al. 2019). That's why it is very important to design the operational plan in a cost-effective

manner based on the local context of resource availability and market demand and not just on external grants or aids.

CHAPTER IV

CONCLUSION

Smallholders in Lebanon, like in most developing countries, are the most vulnerable to food insecurity due to instabilities and non-sustainability of their farming livelihoods. This situation will be further exacerbated in light of the ongoing financial, economic and political turmoil in the country. Action should be taken to overturn the prevailing *status quo*. This can be done by fostering more sustainable food systems that can uphold all dimensions of food security at the household, local and national levels.

Organic agriculture is one of many sustainable production systems that is already established in Lebanon and that has gained recognition among many stakeholders after two decades of advocacy efforts in this sector. However, the potentials of OA in improving smallholders' livelihoods remain untapped due to many reasons discussed in this manuscript. Major bottlenecks lie in the high cost of TPC certification, market access and consumer trust. Participatory Guarantee Systems are gaining more support by international organization such as IFOAM, FAO, and IFAD that have been explicitly recognizing its need as an alternative for smallholders to enter organic production systems and for consumers to access trusted organic foods. According to IFOAM, PGSs have entered in the international debate on food security and sustainable development. Review from the literature suggests that in contexts similar to Lebanon, PGS can offer many benefits for the development of the organic sector: suitability for smallholders, gaining market access, job creation, making fresh and healthy food more available and accessible in the local market, bridging technical gaps in organic knowledge, empowering smallholder, and women inclusion in the food

system. On the other hand, PGSs have many limitations that should be surmounted or mitigated depending on the local context: PGS certified products are not recognized for international trade and have to be marketed locally, PGS success depends on the participation of all stakeholders who should be committed enough, the systems is built on trust among different stakeholders who have to avoid tensions and competition, a lot of awareness-raising is needed to explain the functionality of PGS, and finally initial funding is needed to start-up the PGS and a solid business vision to ensure its sustainability.

As for Lebanon, there is definitely a need for an alternative option for the organic guarantee system to keep smallholders of the organic system in business and to encourage others to enter especially in light of the dire economic situation where TPC is becoming less and less affordable. Among the many advantages of establishing a PGS, is that it requires less bureaucratic and paperwork, a concern raised by many producers. Moreover, the PGS offers better marketing alternatives where intermediaries are avoided, and better incomes are secured. In addition to its ability to bridge the technical gap in organic farming practices, the PGS would also allow producers to set their own production standards suitable for the Lebanese context.

However, the PGS in Lebanon should be introduced and implemented as complementary system to TPC. Bigger producers and organic traders have to get TPC since they engaged in export ventures, especially in the current situation where fresh foreign currency is much needed and demand on the local market is declining as a result of the Lebanese currency devaluation and the reduced purchasing power. Smallholders who sell through traders and bigger producers will be required to have TPC and this

might discourage them from participating in the PGS. However, a successful PGS system can empower smallholders and increase their numbers.

As for the legal framework for organic agriculture in Lebanon, “organic” designation and is restricted to third party certified products. The ministry of agriculture should be involved in PGS establishment process and advocacy activities should be carried out to push towards the recognition of PGS organic certification in the Lebanese legal framework.

Further investigation is needed to assess the means of establishing a PGS system in Lebanon and to study its feasibility in depth. A focus group discussion should be held with all stakeholders in addition to a workshop where experts in PGS can explain the concept and its application in theory and practice. This will help to create a solid understanding of PGS and will lead to the creation of a core group of stakeholders who might take-up the initiative and get involved in its initiation.

BIBLIOGRAPHY

- Bouagnimbeck, H. 2014. "Global Comparative Study on Interaction between Social Processes and Participatory Guarantee Systems. A Best Practice Study for Learning and Development with Case Studies from Africa, Asia, Europe and Latin America." *Ifoam*: 1–87.
- Castro, Flávia, Joelle Katto-Andrighetto, Cornelia Kirchner, and Mayling Flores Rojas. 2019. "Why Invest in Participatory Guarantee Systems? Opportunities for Organic Agriculture and PGS for Sustainable Food Systems." *FAO & IFOAM-Organics International*.
- Ciccccarese, Lorenzo, and Valerio Silli. 2016. "The Role of Organic Farming for Food Security: Local Nexus with a Global View." *Future of Food: Journal on Food, Agriculture and Society* 4(1): 56–57.
- ESCWA. 2020. "Regional Initiative for Promoting Small-Scale Renewable Energy Applications in Rural Areas of the Arab Region (REGEND) - Report on the Baseline Study for Tunisia."
- FAO, IFAD, UNICEF, WFP and WHO. 2021. *FAO The State of Food Security and Nutrition in the World 2021. Transforming Food Systems for Food Security, Improved Nutrition and Affordable Healthy Diets for All*. Rome.
- FAO. 2018. *Sustainable Food Systems Concept and Framework*. Rome.
- FAO. 2020. Special Report – FAO Mission to Assess the Impact of the Financial Crisis on Agriculture in the Republic of Lebanon *Special Report – FAO Mission to Assess the Impact of the Financial Crisis on Agriculture in the Republic of Lebanon*. Rome.
- FAO, and IFAD. 2007. "The Status of Rural Poverty in the Near East and North Africa."
- FAO. 2020. Special Report - FAO Mission to Assess the Impact of the Financial Crisis on Agriculture in the Republic of Lebanon. Rome. <https://doi.org/10.4060/cb1164en>
- HLPE. 2020. "Food Security and Nutrition: Building a Global Narrative towards 2030." *FAO*: 112.
- Home, R, and Erin Nelson. 2015. "The Role of Participatory Guarantee Systems for Food Security." : 26–29.
- Huber, Beate (2006) Establishing Local Certification Bodies In Developing and Transition Economies. Paper at: First IFOAM Conference on Organic Certification, Rome, Italy, 17 November, 2006. Available from: <http://orgprints.org/12780>, accessed on July 15, 2021
- IFOAM. 2018. "IFOAM Policy Brief on How Governments Can Recognize and Support Participatory Guarantee Systems (PGS)." *IFOAM-International Federation of Organic Agriculture*.
- IFOAM. 2019. "PGS Guidelines. How to Develop and Manage Participatory Guarantee Systems for Organic Agriculture." *Ifoam Organic International*.
- Jeanmougin, Cécile. 2017. Middle East Heinrich Böll Foundation *You Reap What You Sow*.
- Kay, S. et al. 2014. "Connecting Smallholders to Markets - an Analytical Guide." *Civil Society Mechanism (CSM)* (64605): 1–45.
- Källander, I. (2008). Participatory guarantee systems–PGS. *Swedish Society for Nature Conservation*, 25.

- Ministry of Agriculture. 2020. *Lebanon National Agriculture Strategy 2020-2025*.
- Ministry of Agriculture, and Food and Agriculture Organization. 2010. "Agriculture in Lebanon Facts and Figures.Pdf."
- Montefrio, Marvin Joseph Fonacier, and Alaine Taylor Johnson. 2019. "Politics in Participatory Guarantee Systems for Organic Food Production." *Journal of Rural Studies* 65(October 2018): 1–11.
- Nelson, Erin et al. 2016. "Participatory Guarantee Systems and the Re-Imagining of Mexico's Organic Sector." *Agriculture and Human Values* 33(2): 373–88.
- Nelson, Erin, Laura Gómez Tovar, Rita Schwentesius Rindermann, and Manuel Ángel Gómez Cruz. 2010. "Participatory Organic Certification in Mexico: An Alternative Approach to Maintaining the Integrity of the Organic Label." *Agriculture and Human Values* 27(2): 227–37.
- Rikolto. 2018. *Participatory Guarantee Systems Guidelines*.
- Scialabba, Nadia El-Hage. 2007. "Organic Agriculture and Food Security." *Agriculture* (May 2007): 121–35.
- Scialabba, Nadia El Hage, and Maria Mller-Lindenlauf. 2010. "Organic Agriculture and Climate Change." *Renewable Agriculture and Food Systems* 25(2): 158–69.
- Strassner, Carola et al. 2015. "How the Organic Food System Supports Sustainable Diets and Translates These into Practice." *Frontiers in Nutrition* 2(June).
- The World Bank. 2012. "Improving Food Security in Arab Countries." : 78.
- Tleis, Malak, Roberta Callieris, and Rocco Roma. 2017. "Segmenting the Organic Food Market in Lebanon: An Application of k-Means Cluster Analysis." *British Food Journal* 119(7): 1423–41.
- Warsaw, Phillip, Steven Archambault, Arden He, and Stacy Miller. 2021. "The Economic, Social, and Environmental Impacts of Farmers Markets: Recent Evidence from the US." *Sustainability (Switzerland)* 13(6): 1–18.
- Willer, H., Trávníček, J., Meier, C., & Schlatter, B. 2021. *The World of Organic Agriculture The World of Organic Agriculture. Statistics & emerging trends 2021* Research Institute of Organic Agriculture (FiBL) & IFOAM - Organic International
- World bank, 2020. World development indicators.
<https://databank.worldbank.org/source/world-development-indicators>, accessed on August 20, 2021
- Zanasi, C. & Venturi, P. (2008). Impact of the Adoption of Participatory Guarantee Systems (PGS) for Organic Certification for Small Farmers in Developing Countries: the Case of Rede Ecovida in Brazil. 16th IFOAM Organic World Conference, Modena, Italy, June 16-20, 2008. Available from: <http://orgprints.org/11618>, accessed on August 1, 2021
- Zanasi, C, P Venturi, M Setti, and C Rota. 2009. "Participative Organic Certification, Trust and Local Rural Communities Development: The Case of Rede Ecovida." *New Medit* 8(2): 56–64.
- Zurayk, Rami, and Rania Touma. 2006. "Business for the Poor: Healthy Basket, a Socially Responsible Company Trading in Organic Produce in Lebanon and the Middle East." In Cairo: Regional Consultation on Linking Producers to Markets, 11.

