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small farms  
small food businesses and  
sustainable food security

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# Report: Initial Conceptual framework

WP1 Transdisciplinary theory building and analytical framework

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## EXECUTIVE SUMMARY

In the SALSA project, transdisciplinarity means a process of integration of knowledge between researchers belonging to different disciplines (in our case, sociology, economics, anthropology, geography) and with non-academic actors such as NGOs members, innovation brokers, policy makers). The role of transdisciplinary theory building within SALSA is to link diverse areas of knowledge through a co-constructed conceptual framework in order to underpin effective action towards improved FNS. Developing a conceptual framework is, in our view, a collective endeavour useful to integrate different sources of knowledge so as to create a common understanding among all researchers, necessary for carrying out the project. The conceptual framework is the basis for the building of an analytical framework and consequently of a methodology for data collection and analysis.

As an ongoing exercise the CF will be tested against the issues emerging along with implementation. This continuous check, integrated with organized interaction among researchers of the consortium, will constitute the process of transdisciplinary theory building, by which conceptual assumptions and propositions will be refined by wp2 leaders.

### Definition of small farm

Although it is not easy to identify a common meaning of 'small' in the European context (let alone the African one) we identify small farms as those farms below 5 ha in size and below 8 ESU (which is equivalent to €9800) of Standard Gross Margin (SGM).

### Main concepts

The overall objective of SALSA is to develop "*a better understanding of the current and potential contribution of small farms and food businesses to Food and Nutrition Security (FNS) in an increasingly globalised and uncertain world*".

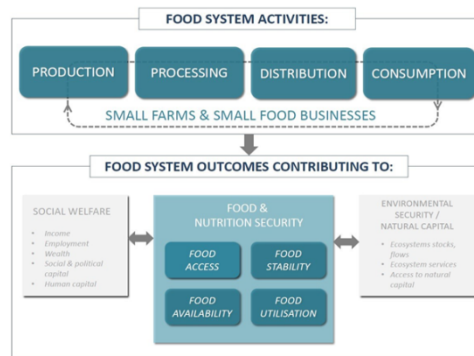
We depart from the assumption that FNS depends to a great extent on the capacity of the food system to ensure access to sufficient, nutrient and culturally acceptable food to people. Farms and food business are part of this food system. The concept of **food system** is thus the necessary link to connect small farming and FNS:



**Figure 1 - The link between small farms, food system and Food and Nutrition Security**

Our conceptualisation of the food system is adapted from Ericksen (2008) and Ingram (2011), wherein a food system is constituted of actors and activities interacting to produce outcomes. The

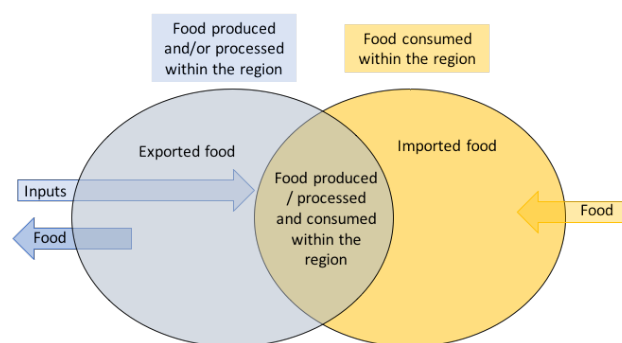




**Figure 2 Representation of a food system (Adapted from: Ericksen, 2008 and Ingram, 2011 )**

boundary setting of the system, in this approach, is guided by the observed outcomes. FNS is the outcome around which we select actors and activities to include into our system representation. In this representation, consumption has a key role, as it is the food system activity on which the FNS outcome is measured.

We have identified the **reference region (nuts3 level)** as the relevant scale on which the contribution of small farming can be studied. In an increasing globalized world, where household self-sufficiency is more the exception than the norm, availability at regional level depends on a) productive capacity of the region; b) efficiency effectiveness of trade activities. Adapting a model introduced by UNEP, we have represented a regional food system as an entity exchanging food with the outside, like in figure 3.



**Figure 3- Representation of a regional food system (Adapted from: UNEP, 2016)**

At the centre of the scheme there is food produced, processed and consumed within the region. This is also the area to which, in our hypothesis, small farming prevalently belongs. Small farming, in fact, is characterized by its interconnectedness with the farm household, and this implies that at least production and consumption coexist in the same organizational unit. In a model proposed by HPLE (2013) the flows between farm and household are represented (figure 4).



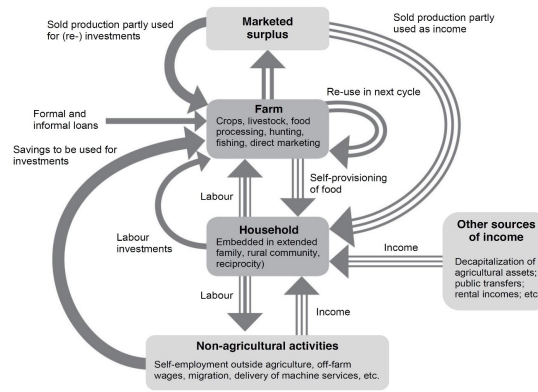


Figure 4 - A farm-household model (From: HPLE, 2013)

When a farm/household is connected to the food system, the farm gives and receives food to/from the system. Also for a farm/household, FNS does not depend only on internal production, but on access to the food system.

On this ground, we have formulated three hypotheses to address the general objective:

1. SF is a relevant source of sustainable food production (availability) for many regional food systems
2. SF and SFB provide food and incomes for rural households (access) in many regional food systems
3. SF and SFB increases food systems' diversity so contributing to its resilience (stability)

**Hypothesis 1: SF is a relevant source of sustainable food production (availability) for many regional food systems**

The first hypothesis is addressed at regional level, through a combination of WP2, that provides data to assess the incidence of small farming in a given region, the crop distribution in the plots within the small farm structure and its productive potential, and by wp3, that focus on the functioning of the food system, the characteristics of small farms and their households and how they are placed in the food system. The assessment of the potential level food availability in a given region implies the assessment of the quantities of food consumed and produced, and of the quantities of food that small farms in a given region produce. The questions that this hypothesis generates are then:

Research question	Method
Which are the most relevant food consumption patterns in the different regions, and their relationship with SF and SFB? (mainly pertinent to WP2 and WP3).	Focus groups, system mapping workshops, analysis of the food balance sheet in reference regions, analysis of remote sensing data (in combination with data from the SF interviews).
Which food system actors and activities are involved in the generation of the FNS outcome in the reference region? (mainly pertinent to WP3).	Interviews with key informants, focus groups, system mapping
What is the estimated production capacity of SF in each region (WP2)	Remote sensing analysis combined with SF interviews



What are the most significant differences between different regions in Europe regarding the role of SF and SFB in the food systems and specifically towards FNS (mainly pertinent to WP3)?	Comparative analysis
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### **Hypothesis 2. SF and SFB provide food and incomes for rural households (access) in many regional food systems**

The second hypothesis links small farms to FNS, as it can be achieved through self-provision or through monetary income spent in food. Here the farm/household model above illustrated is relevant. The questions to be addressed here are:

<b>Research question</b>	<b>Method</b>
How are SF and related SFB connected to the food system? (mainly pertinent to WP3).	Focus groups, system mapping, Interviews with farms and SFB
What are the system mechanisms involved in the generation of the outcome? (feedbacks, domino effects, niche maintenance, etc)? (mainly pertinent to WP3).	Interviews with key informants, system mapping workshops, revised conceptual framework
How do SF and related SFB contribute to FNS within the food system? (mainly pertinent to WP3).	Statistical data analysis for RR, Interviews with key informants, system mapping workshops, Interviews with SFs and SFB
How do gender relationships affect features, evolution and contribution to SFNS (mainly pertinent to WP5).	Interviews with SF and SFB, Focus groups and regional workshop
What are the barriers that prevent SFs from delivering better FNS outcomes? (mainly pertinent to WP6).	Interviews with key informants, system mapping workshops, interviews with farmers and SFB, focus groups and regional workshop

### **Hypothesis 3. SF and SFB increases food systems' diversity thereby contributing to its resilience (stability)**

The third hypothesis introduces the concept of diversity and links it to food system resilience, as largely shown in the literature. We have addressed the issue of resilience through the related concept of vulnerability. Vulnerability of a system depends on exposure, sensitiveness and capacity to adapt to external shocks. Diversity, in our hypothesis, plays a positive role in risk management, as diverse components may have different exposure and sensitiveness to external shocks. The research questions that this hypothesis generates are:

<b>Research question</b>	<b>Method</b>
Which types of SF are identifiable within each region regarding their livelihood strategies and contribution to SFNS? (mainly pertinent to WP3).	Interviews with key informants, system mapping workshops, Interviews with SF and SFB
What are the evolutionary patterns of SF/SFB and how they could be profiled in relation to their future perspective? (mainly pertinent to WP3/WP4).	Workshops





How sustainable are small farms and small food businesses? Consider social, environmental and economic sustainability, including resilience (mainly pertinent to WP3).	Interviews with key informants, system mapping workshops, Interviews with SF and SFB
What are the key regulations and governance arrangements influencing SFs activities? (mainly pertinent to WP5).	Interviews with key informants, system mapping workshops, Interviews with SF and SFB
What are the main trends of change in the food systems and the factors that are perceived as influencing the future role of SFs for SFNS? (mainly pertinent to WP4).	Workshops
What are the enabling conditions that would allow SFs to deliver better FNS outcomes? (mainly pertinent to WP6).	Interviews with key informants, system mapping workshops, Interviews with SF and SFB, revised Conceptual Framework
Which typology of SF can be used to frame the identification, systematization and communication of the enabling conditions? (mainly pertinent to WP6).	Workshops, revised conceptual framework

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## 1. Introduction

The SALSA project examines the contribution of small farms and small food business (SF/SFB) to sustainable food and nutrition security (FNS). The 2013 Report by the High Level Panel of Experts on Food Security and Nutrition provides a first indication of the potentially (in some regions) very significant role of small farms (HLPE 2013, pp.11-12):

*Smallholder agriculture is the foundation of food security in many countries and an important part of the socio/economic/ecological landscape in all countries. (...) The contribution that smallholder agriculture makes to world food security and nutrition is both direct, in as far as it links production and consumption for many rural households, and indirect because (a) it is provisioning domestic markets with the main food products, (b) it does so in a potentially resilient way, and (c) because in many countries smallholder agriculture functions as an important social safety net.*

SALSA aims at increasing our understanding of and actually assessing in quantitative terms the current and potential contribution of SF/SFB to sustainable FNS.

In particular, the specific objectives of SALSA are:

- (1) To thoroughly assess the current role of small farms and small food businesses in achieving sustainable Food and Nutrition Security (FNS) in Europe and in selected African regions.
- (2) To evaluate the means by which small farms can respond to the expected increase in demand for food, feed and fibre of an increasing population in an increasingly resource constrained world.
- (3) To assess the capacity of small farms and small food businesses to contribute to FNS under alternative future scenarios for 2030/50, and to identify the main determinants of the capacity to respond.
- (4) To help better tailor international cooperation (in particular EU-Africa) and research and to develop tools to guide decision makers in enhancing the role of small farms in FNS
- (5) To establish a Community of Practice.

The Initial Conceptual Framework (CF) presented in this document has three main roles:

- First, it provides **definitions of the key terms** and topics that will be used in SALSA
- Second, it defines **how the food system is conceptualized** in SALSA, establishing the groundwork for the empirical research and analysis.
- Third, it will provide the **starting point for the final empirically grounded CF** that will reflect the outcomes of all the WPs.

The development of the CF is based on a process of a transdisciplinary theory building.



## 2. Key research question

The basic rationale of the CF (and logical structure of this document), is derived from the overarching research question:

*What is the contribution of small farms and of the related food businesses to sustainable FNS in a wide range of food systems?*

The key terms: sustainable FNS, small farm, small food business and food system, will be defined in the following sections. Before elaborating these terms, it is worth underlining that we look at **food systems as territorially-based**, embedded in local areas (with their differing histories, cultures and geographies) on the one hand, and in the sectoral and systems perspective (with sub-systems and inter-scale relations and effects) on the other. The system-based vision of food-related actors and activities will be also considered with a dynamic perspective, **reflecting the capacity of small farms and small food businesses to adapt to changes in their economic, social, technological and natural environments.**

## 3. Food and Nutrition Security (FNS)

*What is the contribution of small farms and of the related food businesses to sustainable FNS in a wide range of food systems?*

Our analysis of FNS is based on the definition given in the 1996 World Food Summit (FAO 1996), reaffirmed in the 2009 Declaration of the World Summit on Food Security (FAO 2009). According to this definition, **food security exists when all people, at all times, have physical, social and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.**

In this definition, the role of nutrition is explicitly recognised. The concept of nutrition security focuses on food consumption by the household or the individual and on how that food is utilized by the body (CFS 2012) and lead to the concept of "malnutrition" as a high burden in the form of negative social and economic consequences to individuals, families, communities and States (FAO-WHO 2014)<sup>1</sup>.

FNS is widely recognised as having four components (or dimensions) (WFS 1996; FAO 2006, 2008)<sup>2</sup>:

<sup>1</sup> IFPRI proposed the following definition: "Nutrition security can be defined as adequate nutritional status in terms of protein, energy, vitamins, and minerals for all household members at all times" (Quisumbing *et al.* 1995). Besides, sanitation issues, such as food hygiene and access to clear water, as also considered elements of nutrition security (FAO-WHO 2014, Sahn 2016). The analysis of these components, however, goes beyond the scope of SALSA.

<sup>2</sup> The definitions of the four dimensions are taken from FAO (2006), and they integrated by some additional comments inspired by the definitions given in FAO (2008).



- **Food availability.** The availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports (including food aid).

This dimension addresses the “supply side” of FNS, and is determined by the level of food production, stock levels and net trade that make food physically present, and potentially accessible, in a certain territory.

- **Food access.** Access by individuals to adequate resources (entitlements) for acquiring appropriate foods for a nutritious diet. Entitlements are defined as the set of all commodity bundles over which a person can establish command given the legal, political, economic and social arrangements of the community in which they live (including traditional rights such as access to common resources).

Given a certain amount of potentially available food, the access dimension focuses on all the conditions that enable people to get economic and physical access to food. Food distribution within each country/region and socio-economic households' conditions are particularly relevant for this component, although they could also be regarded as conditions for food availability at local/regional level.

- **Food utilisation.** Utilization of food through adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being where all physiological needs are met. This brings out the importance of non-food inputs in food security.

Once food is available and accessible, its preparation, its use in the context of different diets and habits, its acceptance in the specific socio-cultural context and the intra-household distribution are key factors influencing the capability of food to provide energy and nutrient intake and to be healthy absorbed by the human body. Food utilisation also accounts for the biological processes related to food absorption and to the general physical conditions of the eater, which determine the nutritional status of individuals.

- **Food stability.** To be food secure, a population, household or individual must have access to adequate food at all times. They should not risk losing access to food as a consequence of sudden shocks (e.g. an economic or climatic crisis) or cyclical events (e.g. seasonal food insecurity). The concept of stability can therefore refer to both the availability and access dimensions of food security.

Even if all the previous conditions are respected, it may be the case that the occurrence of factors such as adverse weather conditions, political instability, unemployment or rising food prices have an impact on FNS status, so that adequate food availability, access and utilizations are not present on an ongoing basis.

Another important lens to look at FNS is the scale at which it is assessed:

- the individual and intra-household scale
- the household scale
- the local/communal/regional scale
- the national scale
- the global scale



FNS at a given scale depends on the specific characteristics of the food system at that scale, and on the links between food systems. For example, a drought can put FNS of a given region at risk as it reduces local food availability and affordability, but the possibility of sourcing food from other food systems may reduce the risk to a great extent, at least in the short term. **Particular scales will be most meaningful in specific parts of the analysis.** In particular, in WP3 "*In-depth assessment of food systems in 30 reference regions*" and WP4 "*Participatory foresight analysis*" the household and local/community/regional scale will be particularly relevant. In WP5, "*Analysis of the governance of small farmer organization and food chain*" the focus will be on the regional and national scales. In WP6 "*Enabling conditions for small farms and small food businesses*" the national and even global scale will be crucial, though the final outcomes and suggestions will have to consider the household/individual dimension of FNS within any given region or larger area.

## 4. Sustainable Food and Nutrition Security

*What is the contribution of small farms and of the related food businesses to sustainable FNS in a wide range of food systems?*

The particular attention paid to “sustainable” FNS in SALSA reflects the concern that emphasis on the availability component of FNS and on its global dimension may give strength to a neo-productivist approach, which prioritizes increasing production and downplays the issue of vulnerability of local and regional food systems, which often are related to problems of access and utilization, in particular at local or household level, rather than to availability.

In SALSA it is particularly relevant to address the links between the characters of a food system<sup>3</sup> and the three dimensions of sustainability: environmental, social and economic<sup>4</sup>.

With regard to **environmental sustainability**, UNEP (2016, p. 14) sees the food sector globally as the “*dominant user of a number of natural resources, particularly land, biodiversity, fresh water, nitrogen and phosphorus. Food systems, and food production in particular, are also a major driver of a number of environmental impacts, such as the loss of biodiversity, soil degradation, water depletion and greenhouse gas emissions*”. Agriculture and forestry (with related deforestation) are considered responsible for 25% of total greenhouse gases emissions (FAO 2014/a); In addition, most of the world’s major crops and animal breeds, resulting from human selection, have a very narrow genetic base (FAO 2014/a), which exposes them to high vulnerability to diseases and changing conditions. These impacts threaten food systems' capacity to ensure FNS, as the natural assets upon which agricultural production relies are at risk of being weakened or reduced. Hence, environmental sustainability addresses the capacity of the food systems to make the most efficient use of natural resources without compromising their long term balance.

**Social sustainability** in relation to FNS regards the capacity of food systems to provide equal access to resources and the fair distribution of benefits of the food system, for all groups in the society. It focuses on the unequal distribution of these resources, on vulnerable groups and regions and on the

<sup>3</sup> The concept of "food system" adopted in SALSA will be developed in the following sections.

<sup>4</sup> A short qualitative characterisation will be needed in WP3 to make this step operational.



instruments necessary to help them. It also includes the dimension of local control of food systems, and the agency of local people as actors in the food system (i.e. their capacity to make choices and act on them).

**Economic sustainability** in relation to FNS can be interpreted from two complementary perspectives. On the one side there is the capacity of food systems to grant stable access for all to sufficient and nutritious food; on the other the economic returns for those involved in the production, processing and distribution of food (with specific attention, in SALSA perspective, to SF/SFB) should permit their economic and financial viability. Discussions related to cost-effective measures for supporting food safety nets on the one side and small scale food chains on the other are examples of the possible issues related to this dimension.

Beyond the three dimensions, the vision of a sustainable FNS sustainability must include the utilization phase, and in particular the consumption choices and related diets. The importance of a shift towards more environmentally and economically sustainable diets is being increasingly recognised by researchers (Rutten et al. 2015, in the context of the SUSFAN research project), policy makers (COM 2010) and international organizations (FAO 2014/a). The contribution to SF/SFB to sustainable FNS must be analysed also with regard to their capacity to influence this shift.

## 5. Small farms

*What is the contribution of small farms and related food businesses to sustainable FNS in a wide range of food systems?*

SALSA aims to better understand, and quantify the contribution of small farms to sustainable FNS. We therefore need to define what we mean by "small" farm.

As stated in the Project proposal in SALSA, we explicitly recognise the tremendous heterogeneity in small farm situations and related concepts and discourses. SALSA aims to facilitate a more comprehensive analysis that crosses different discourses, and will be able to accommodate very different social, cultural, economic and historical situations. We therefore use "small farm" as a more generic term (Technical Annex, p. 8).

The strict connection between farm and household needs in farmers' decision making processes raises the issue of the difference between small farming and **family farming**. Most of small farms, but not all, are family farms, and also many large farms are family owned. In addition, family farms represent an extremely diverse group with different socio-economical and agro-ecological conditions (FAO 2014/b). In SALSA the focus is on small farms, and family farms will be considered only as long as they are also small farms. Moreover, we need to recognize that 'farm size' can have two expressions: **structural** size, related to resource endowment (land, capital, labour), and **economic** size, related to the level and efficiency of activities generated with given farm resources (Eastwood et al. 2010). However, structural and economic size can be different: farms with a rich endowment of land and capital can be managed extensively and yield limited turnover, and small plots of land can be intensively worked so to give relatively high economic performance. Access to markets may make a difference between farms of similar structural size.



At the kick off meeting, participants identified the following defining indicators of small farms, and argued in favour of the use of a combination of different criteria:

a) Family farms:

- percentage of family labour;
- land tenure (who controls the land);
- percentage of production consumed at home ;

b) Structural size:

- number of acreage/hectares (e.g. under 5 hectares); number of animals (for breeding or mixed farms)
- number of people employed/full-time equivalents (e.g. full-time or part-time farming);
- number of commodities produced / degree of specialisation;

c) Economic size:

- gross revenue or sales threshold;
- number of people fed by the farm directly or from its income;
- proportion of off-farm income;
- ratio of business size to household size<sup>5</sup>.

Many of these criteria require thresholds. In an EU economic briefing note (EU 2011) it is stated that for any given criterion for defining small farms, the fixation of a (maximum and/or minimum) threshold can be made in absolute (ex: below 5 ha of land) or relative (ex: below 20% on regional average size) terms (EU 2011) considering each region specificities (represented, for example, by the average income level, or the average farms' size) (EU 2011).

The two approaches have "pros" and "cons" to be considered for a final choice between common and region-specific thresholds:

- Common threshold 'pros':
  - ✓ simplicity and communicability: more straightforward and easier for farmers, policy-makers and a broader readership to relate to and understand;
  - ✓ easier translation of research outcomes in terms of policy measures;
  - ✓ easier comparability with other international contexts and research findings.
- Common threshold 'cons':
  - ✓ inaccurate representation of regional farm structures;
  - ✓ inaccurate representation of local inequalities;
  - ✓ inaccurate representation of differences and similarities between regions;
- Region-specific threshold 'pros':
  - ✓ small farms identification better tailored on regional specificities. Countries and regions differ for the farms size distribution on one side and for the characters (connections, weaknesses, objectives). This is particularly relevant when we consider that SALSA addresses African regions alongside European ones;

<sup>5</sup> Some of these suggestions were not agreed by all partners. For example the appropriateness of land tenure patterns have been questioned by those highlighting the role that communal land use plays in many African regions, whereas self-consumption has deemed an element not necessarily characterising small farms. The list above has been mentioned just in order to account for the richness and diversity of perceptions harvested within the partnership and for the complexity of the issues at stake.



- ✓ higher legitimacy at national level, because relative thresholds can reflect how small farms are defined in national policy in each SALSA country;
- ✓ different percentages could be tested in the various regions to choose the mapping that seems most meaningful. This could be an interesting exercise in itself, adding further elements for reflections.
- Region-specific threshold 'cons':
  - ✓ need of a greater amount of data;
  - ✓ more complex elaboration and cross-regional comparison.

Having considered all these 'pros' and 'cons', and acknowledging the need to adopt a straightforward definition which allows analytical operationalization, in SALSA we adopt the structural criteria as the general definition, with a common threshold: small farms are those **with less than 5 hectares of land** (EPRS 2014; EU 2011). The analytical approach may allow the identification of a particular size distribution within the group of the farms smaller than 5ha, in each region: we will then consider also, when possible and relevant, micro farms, of less than 2 hectares.

The criteria concerning labour (ex. > 2 Agricultural Working Units (AWU)) and economic size (ex. > 25 000 euros/year) (EPRS 2014; EU 2011) make it possible to produce a more detailed and accurate classification, by: a) excluding small commercial farms highly specialized and input-intensive; b) including other small farms, most often livestock farms with no land and using common land; here the number of livestock units is the threshold to be used.

These specific farms cannot be identified through available data sets, but might be identified in the detailed analytical work, and will therefore be excluded or added to the main group of small farms, when possible.

It is also important to consider the fixation of a minimum threshold. The aim of SALSA is to focus on farms where there is production. However, very small units, even those focused on self-consumption, can be highly relevant for sustainable FNS in many regions, both in Southern Europe and in Africa. There is nevertheless an issue of data availability for identifying the very small farms, even when combined methodological approaches are used. We therefore will operationalise the minimum threshold using a technical threshold, established by the existing remote sensing techniques. The minimum threshold for that we may consider a small farm is thus of **1000 square meters**. Below this threshold the differentiation of the farm is impossible. In the regional analysis, this threshold maybe higher, if more accurate in relation to the regional reality.

## 6. Small food businesses

*What is the contribution of small farms and related food businesses to sustainable FNS in a wide range of food systems?*

"Small food businesses" indicates those food **suppliers, processors, distributors and retailers** within a certain "size" defined with regard to specific variables and to the connection they have with small farms (see below), in relation to the characters of the food system identified in that region. They are particularly important for FNS as they can be an important partner of small farms. On-farm processing facilities, small farmer cooperatives, marketing cooperatives or artisanal processors sourcing locally are examples of these connections. Small food business can also source or sell globally and thus be





disconnected from regional systems of production, but they may still be of interest for their connections to local farmers.

Connections between small farms and small food business can take place both in the context of market transactions and of informal non-monetary exchanges based on reciprocity, barter, parental relations etc., so encompassing activities beyond what is meant *strictu sensu* by "business".

In the kick-off meeting, participants identified the following indicators useful to identify small-food businesses:

Structural size

- number of employees/full time equivalents

Economic size

- gross margins/turnover
- extent of reliance on family labour
- provision of credit
- resource level

Beyond these structural and economic indicators, partners suggested that small food businesses of interest for SALSA should be identified with regard to the type of relation they have with small farms and territories. Suggested characters were the following:

- supplying inputs to small farms
- processing or selling produce from small farms
- being located in small farms
- length of distribution chain (i.e. short supply chains)
- selling products locally
- participating to informal economic and financial circuits

Likewise for the small farms, also for small food business the opportunity to fix a minimum threshold for the selection has been debated.

In SALSA we will only consider food businesses (in the region) that matter for small farms in one way or another. The minimum and maximum thresholds will be defined at the reference region level, in consideration of the specificities of each region, and the influence they are likely or not to have on sustainable FNS in each region.

## 7. Food systems

*What contribution can small farms and related small food business make to sustainable FNS through their activities within the food system?*

### 7.1 Basic definition of a food system

The definition of the concept of **food system** is crucial for SALSA. The definition suggested by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, is a detailed and comprehensive starting point:

*" (...) all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption*

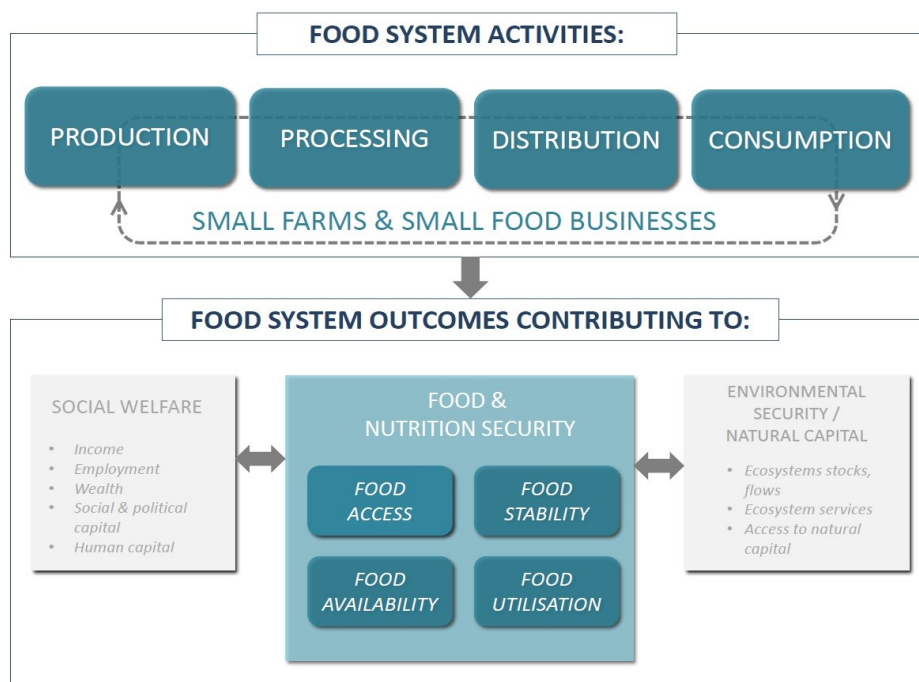


of food, and the outputs of these activities, including socio-economic and environmental outcomes” (HLPE, 2014).

This definition highlights the need to move beyond the mere focus on the production side. There are various reasons for this choice. Food system approaches consider opportunities within food system activities other than production to attain more resource efficiency; they can directly address both undernutrition and overconsumption; they enable to consider changes along the supply chain such as ‘supermarketization’ and their effects on food access and consumption patterns, leading to a more balanced consideration of food supply and demand within the context of actors, institutions and governance (UNEP 2016, p.24):

The link between food system and FNS, but also the broader socio-economic and environmental outcomes mentioned in the HLPE definition, are accounted for in Ericksen’s (2008) model, which shows that food system activities produce outcomes in the fields of social welfare, environmental security and food and nutrition security. Figure 1 presents an adaptation.

Figure 1. Food system conceptualisation (Modified from Ericksen (2008/a))



The text in the scheme highlights that food system activities and outcomes do contribute to food security, but at the same time do not determine it, as other drivers also influence the four food security dimensions.

## 7.2 The position of SF and SFB in food systems

The contribution of small farms to FNS can strongly depend on the way they are connected to food systems. A representation the flows affecting farming is made in Figure 2. Each of the represented flows is activated by specific connections with the food system. For example, marketed surplus can be





### 7.3 Food systems in the reference regions

HLPE definition of food system and Ericksen model, presented in section 7.1, account for relevant characters of food systems; however they do not make any reference to the specific territory in which those food systems can be identified. They are a-spatial descriptions in which distances and geography seem not play an explicit role. In this section a territorial-based conceptualisation and a visualisation of the food systems within a specific reference region is suggested.

According to OECD (2016) the regional and context-specific nature of FSN has been broadly overlooked. There is a need for a paradigm shift in addressing FSN policy that embraces multisectoral, bottom-up and place-based interventions. This can be achieved through a territorial approach to FSN. In this framework, aligning objectives and actions across levels of government is critical. Doing so improves the vertical and horizontal co-ordination of FSN policies and interventions. Similarly, a territorial approach allows the diversity of different territories to be taken into account, and leads to a better understanding of differences in development opportunities that are so often missed with one-dimensional or one-size-fits-all policies. A territorial approach also recognises and capitalises on the benefits of urban-rural linkages, instead of addressing urban and rural areas through different, often disconnected, policies.

According to UNEP (2016), *food systems differ regionally in terms of actors involved and characteristics of their relationships and activities*. In order to better understand the determinants of FNS, we need to move towards a more spatially-based understanding of food systems, as food insecurity is in most cases based in food system failures at local/regional levels. In addition, the governance of these systems has a strong spatial and regional dimension, as noted by Rastoin (2015) who defines "territorialised agro-food systems" as a "**set of agri-food sectors located in a regional geographic space and coordinated by territorial governance**". The spatial dimension is also required to describe the complex interactions between the different socially-shaped spaces across European and African countries.

In general terms we can look at territorialised food systems as those food systems identified in the reference region as a set of dynamic interactions between human (households, enterprises, institutions, etc), natural (ecological, spatial, biophysical) and technological elements which results in a the range of activities and outcomes highlighted in the HLPE definition in section 7.1.

SALSA will study food systems at the spatial level of reference regions, within which the contribution of SF/SFB to sustainable FNS can better be analysed. We will assess these food systems at the level of the reference regions selected for the following steps of the project.

The regional approach is useful in various regards:

- it represents a manageable scale at which to do empirical research, ensuring some standardisation in terms of scale of analysis between countries;
- there are many conditions and processes of the food systems, that depend on bio-physical characteristics and social characteristics which have a territorial variation pattern;
- it identifies administrative levels where statistics are available and policies are set;
- it sets boundaries within which food consumption can be considered;
- small-scale farmers and food business are more likely to be closely embedded in the regional food systems



- at the regional level it is possible to include rural as well as urban areas) with their interrelations.

It is important to underline that interactions within any food system identified at a regional level are not limited to region itself. Consumers can either rely on food produced locally, or on imported (from outside the region) food. They also may choose fresh or processed products, and products whose supply chains are complex and geographically extended. They can also rely on alternative sources of food, including self-production. On the other side, producers of a given region deliver food to internal consumers as well as to external ones. They also can import raw material to be processed, distributed locally and re-exported. This means that not all food produced within a territory (however defined) is consumed within those borders and, conversely, not all food consumed within a region comes (entirely) from within the same region.

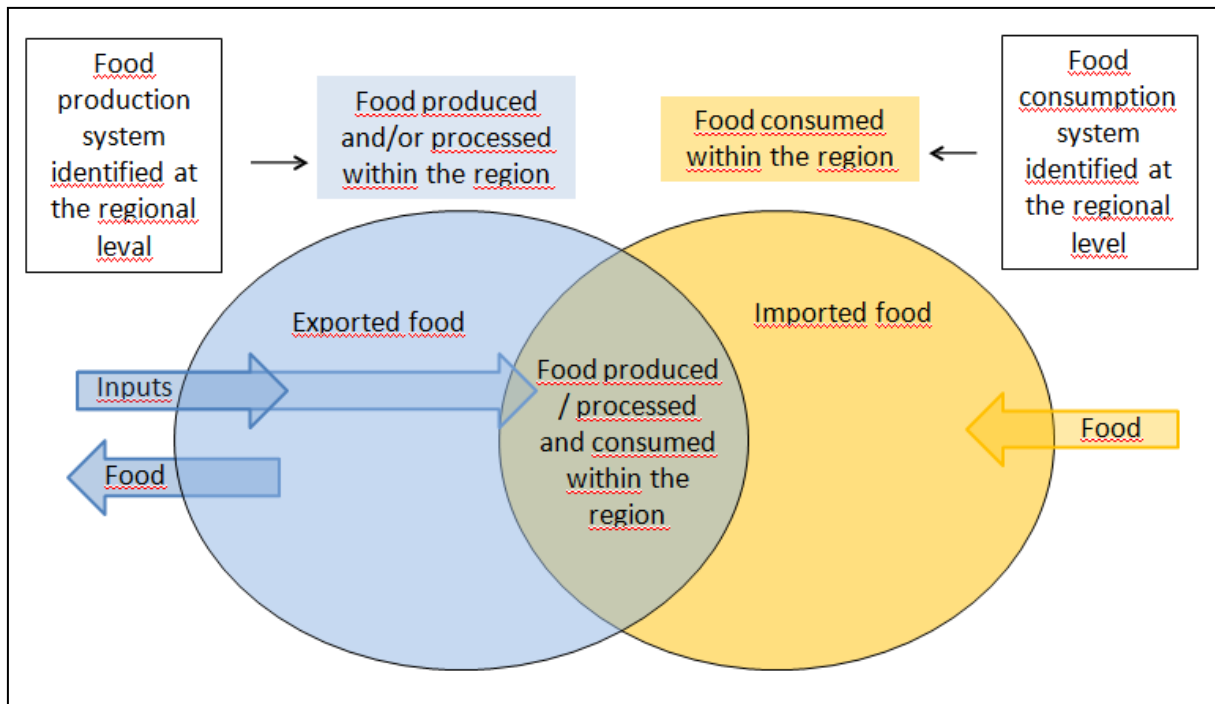
Since cross-borders flows connect regional with external actors, the identification of a food system within a given region highlights the intersection between a multiplicity of relational configurations with influences extending beyond borders. Some of external actors (for example, retailers or processors) may have a strong influence on local actors' behavior, influencing the shape and the performance of the territorialized food system. However, territory matters, as local regulation, consumers' demand, civil society and governance patterns can influence power relations and structures of the food system within the region. Territorialized production systems may range from a close relationship with local consumption to a total disconnection (e.g. in very specialized export-oriented territorial production systems).

This interplay of production and consumption activities can be read in the light of a distinction proposed by UNEP (2016) between food 'production systems' and food 'consumption systems'. "*The 'food production system' generally does not geographically coincide with the 'food consumption system' (...). Part of the regional production is usually exported to other regions, and part of the consumed food is imported*" (UNEP 2016, p.129). This distinction can be used as heuristics to investigate food systems at regional level. In the first case investigators start from local production to identify actors involved in its processing and distribution, whereas in the second case the point of departure is consumption to trace back where the food comes from.

Figure 3 presents the two subsystems represented through the visualisation of the food produced/processed and consumed within the region. The flows of food and inputs between the "regional" system identified at the regional level and the external environment are represented by the two ellipses and the related arrows, in the idea that a certain reliance on external inputs can be identified at least for the majority of the food produced within the regional production system. The overlapping area represents ideally those circuits which are completely contained within the region's borders.

*Figure 3. Food consumption and food production systems interacting. (Modified from UNEP, 2016)*





As anticipated above, the difference between regionally-produced food and imported food is relevant for its implications for governance. Actors influencing the food production system at the regional level may be not in positions to influence the conditions in which food is produced elsewhere. Being the focus at sustainable FNS *"it is worth underlying that both the production and the consumption systems have impacts both within the region and elsewhere"* (ibid. p.129).

The identification of the two subsystems can be useful in the regional analysis of the food system. Focussing on a specific reference region may lead to start from the consumption side and trace backwards the provenience of the food, to identify those elements of the food production within the regional borders, and the flows connecting the region with external areas.

However, within a region there are different consumption models, linked to various possible articulations between production and consumption systems. For example Fournier and Touzard (2014) distinguish between different food models (domestic, proximity, commodities, agro-industrial, origin, naturalist, ethic). Each of these models is based on different consumers' opinions and priorities about food qualities and characters, and is characterised by different distribution channels (or, in a broader sense, different linkages) between consumers and producers; from street markets to specialised shops, from supermarkets, to direct selling until the emergent field of online sales through the web. They also argue that unique and direct linkages between consumption and production are seldom; there are mainly combined linkages, resulting in hybrid models in which producers and consumers are engaged, which are the most frequent in reality. Hence, consumers mainly following a certain consumption model are not totally disconnected by distribution channels (and even producers) which can better be referred to other models. The result is a complex pattern of relations between different models in the same territory, ranging from total disconnectedness to tensions and conflicts, from synergies to integration. In the authors' view, these models have different and sometimes complementary potentialities that can be combined to strengthen a food system in relation to FNS.



This twofold analysis highlights the dynamic between production and consumption systems. Local small farmers may or may not be connected to consumption systems. In the first case they contribute directly to regional FNS, while in the second case they contribute to FNS indirectly through generation of income in the area. Sometimes between the two systems some tensions may arise. As local farmers can connect and disconnect from local consumption systems, they are an important component of their stability and resilience. Contributions of SF/SFB to FNS will be addressed in more detail in section 9.

So far we have discussed the definition of a food system in which different activities and outcomes can be identified and with which has an impact on sustainable FNS together with extra-food system factors. When we focus the analysis on food systems identifiable within a certain region, a consumption and a production system are distinguishable. In addition, different consumption models, linked to different production-consumption connection patterns are identified, connecting the food system identified in the region with the external world.

How this complexity can be conceptualised and visualised?

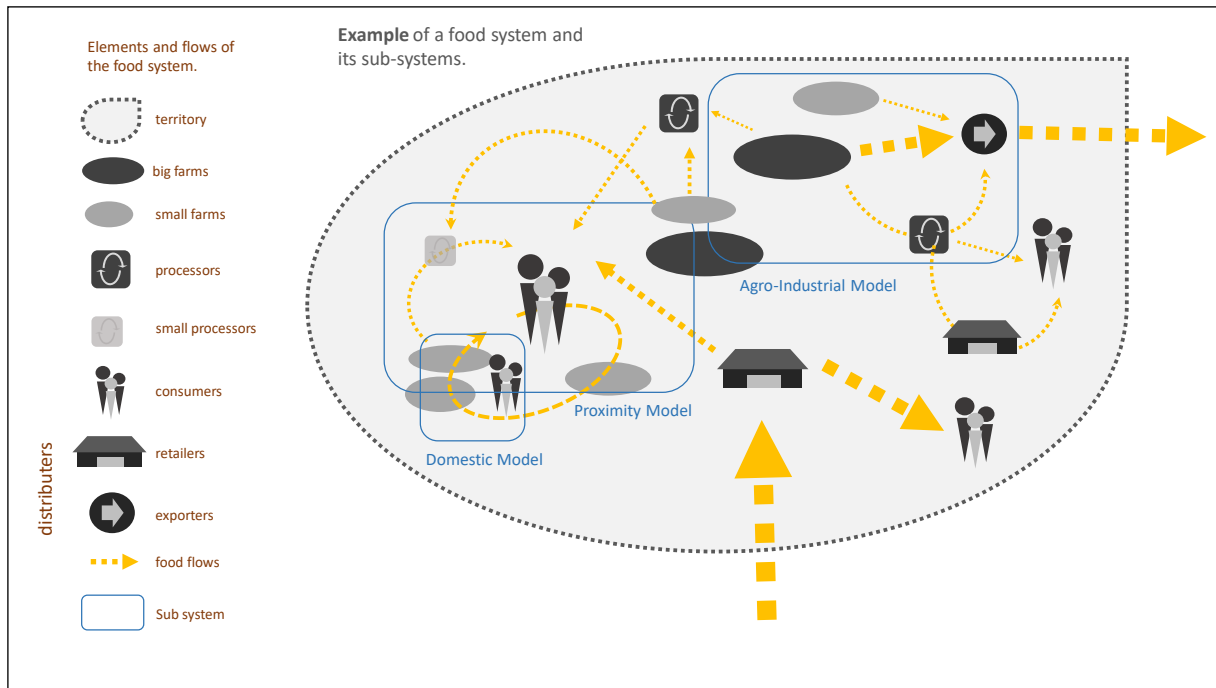
Figure 4 anticipates what the analysis should lead to, with the representation of the relative importance of the flows and with examples of subsystems which may be found within a given territorial unit through the aggregation of some of the actors and flows showed in the base scheme. Within a regional food system – associated to a territory – different actors are involved (producers/processors/distributors/consumers) creating different food flows (in and out of that territory) with different intensities and quality levels. The Figure shows those system actors food flows through arrows whose size represents the intensity of these relations. In this simplified model other flows (money, information) are not shown, as well as some governance elements which will be addressed in the next section.

The Figure can be read starting from the consumption side and tracing the flows backwards. Consumers living in the reference region (who are diverse in terms of wealth, values, tastes, and this influences their consumption choices) express a demand for food (that can be referred to the consumption models discussed above) through the various channels, which on their side are supplied by producers and processors).

*Figure 4. A specific example of a food system and its sub-systems. (Authors' own creation)*







As shown in the Figure, it is possible that large farms participate in local food systems ('proximity models'), whereas small farms (as well as small food business) can be engaged in export-oriented industrial food systems. Each SF/SFB can belong to more than one sub-system. The same farm can, for example, grow an orchard for self-consumption, dedicate a part of the farm to mixed farming for local food systems and allocate the remainder of the farm to specialized crops for global food chains through a cooperative. The same can be argued with regard to the inputs: the farm can rely upon local inputs purchased by local sellers for a part of its productions and to global seeds for the rest.

It is important to note that within a region there are many different food-related processes going on at once which do not necessarily work together well and are often competing with each other for resources, participants etc. In addition, actors (and SF/SFB in particular) have more than a simple choice between participating to a system or not. They can have multiple engagements, and participate in multiple configurations. In addition, the borders between small and big players (producers and processors) are obviously blurred, and the dichotomies are used only for the sake of simplicity.

Figure 4 gives a representation of a certain configuration of the food system within a region, which provides a basis for the representation of the different food sub-systems to be identified within a region through the field analysis. However, food systems can also be analysed in a dynamic perspective. Processes of change in complex multi-actor systems are often the outcome of a series of adjustments each actor carries out in reaction to unexpected changes, opportunities and perturbations. These adjustments are made according to the spaces, resources and assets the farmer can mobilise rather than the result of an agreed strategic plan of action. Hence, the structure of a regionalized food system can evolve in relation to processes of disconnection and reconnection of local actors - and namely of small farmers - from their respective original networks. In the field analysis it will be important to consider these elements to better understand the actors' decision-making processes as well as the development trends and potential further changes in the activities analysed.

### Box 1. Indications on food systems representation and adaptation

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In the analytical work to be developed in SALSA, we consider "reference regions" as the selected geographical regions in which in-depth analyses will be carried out. By food system we consider the activities related to food production, distribution and consumption which take place within each

## 8. Governance of food systems

Figure 6 describes the flows occurring between the various actors involved in the food production, processing, distribution and consumption. However, a full description of a food system includes also governance systems. By "governance"<sup>7</sup> we refer to those formal and informal rules, based on practical arrangements, routines and shared values, which coordinate and legitimate market and extra-market transactions. In general terms, the assessment of governance can be based on the analysis of the roles played by the various agent types, such as private sector (individual enterprises, farmers' and producers' organisations), civil society, public administrations, and of their patterns of interaction. Various market and non-market actors, both within the supply chains and external to them will be considered in the analysis of governance.

In this regard, a distinction to express the variety of governance patterns is suggested by Brunori et al (2016):

- *Internal governance*, as interpreted by Gereffi and colleagues (2005), which focuses on transactions between firms within the supply chain;
- *Extended governance*, as conceptualised by Sacconi (2006) which refers to the distribution of duties and rights between the firm and the stakeholders in a broader sense (i.e. including civil society and institutions).

Internal governance occurs within the chain, and relates to the organization patterns established between the various chain actors, with their power relations, their formal and informal networks and their wider or more narrow room for manoeuvre. Among the various value chain types it is worth

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<sup>7</sup> Governance is a complex concept, and there is no agreed consensus on which phenomena can be grouped under this term (Jordan 2005). As argued by Beer (2014) governance concept includes "a shift from the formal structures of government to the incorporation of a wider range of interests in decision making". Governance can be seen as a multi-actor and multi-level process of coordination and regulation through formal and informal networks, coalitions and arrangements involving both public and private actors (Geddes 2006).



recognising the presence of captive chains, where buyers impose product specifications and, especially in the presence of a low supplier capacity, exert strong control over the chain. In contrast, small farmers retain some degree of autonomy when they connect to less powerful players or diversify their connections.

The concept of extended governance expands the consideration to the whole food system. Keeping the focus on SF/SFB and FNS, this means analysing roles and duties these small players are given by the political sector and the related forms of support and limitations to their activity (e.g. regulations and subsidies). At the same time, extended governance can also include SF/SFB collective action aimed at influencing governance systems and policy measures. Contributing to FNS (and more generally, producing food) is one among others roles policy makers (and society) expect SF/SFB to play.

The two forms of governance cannot be seen in isolation from each other, as 'internal' transactions are always embedded into (several) extended governance frameworks. Transactions between companies or actors might observe health, contract, environmental governance frameworks that are shaped externally. In other contexts, social and cultural habits (elements of extended governance) define which internal transactions are allowed within a chain or a sector.

When considering food system within a certain region, regional governance patterns influence and are influenced by multiple sources of governance. As local actors are connected to different food systems, they need to respond to different sources of control. When local farmers are connected to global value chains, for example, they have to produce according to their standards, no matter if they are far from local processes of production and from local styles of consumption. The challenge for regional governance is to find ways to give local actors a stronger level of control over local resources and to keep locally a fair share of benefits. If a community has no control on those conditions and those forces, every unexpected change (for example in the objectives of the external actor who have the control) can be impossible to handle for the community.

## 9. Small farmers and small food businesses contributions to sustainable FNS and to food system vulnerability reduction

The overall thesis of SALSA is that small farms and small food businesses, when certain conditions are met, can give specific contribution to sustainable FNS and reduce the food system vulnerability in many contexts. A specific role of small farms in reducing malnutrition has been recently re-affirmed by FAO and WHO (FAO-WHO 2014).

With specific regard to small farmers, it is worth underlying that their contribution to sustainable FNS is also linked to their attitudes, defined by Ahnstrom et al. (2008), as mindsets that are used by an actor to act and judge in situations of decision making. These attitudes (related for example to the adoption of environmentally friendly practices or to business risk), are influenced by cultural dimensions like values, beliefs, pressures from the community, and influence farmers' priorities on land use and management. Farmers' objectives, range from material (e.g. in the form of financial gain or the provision of food) to immaterial ones (e.g. personal reputation or the preservation of family



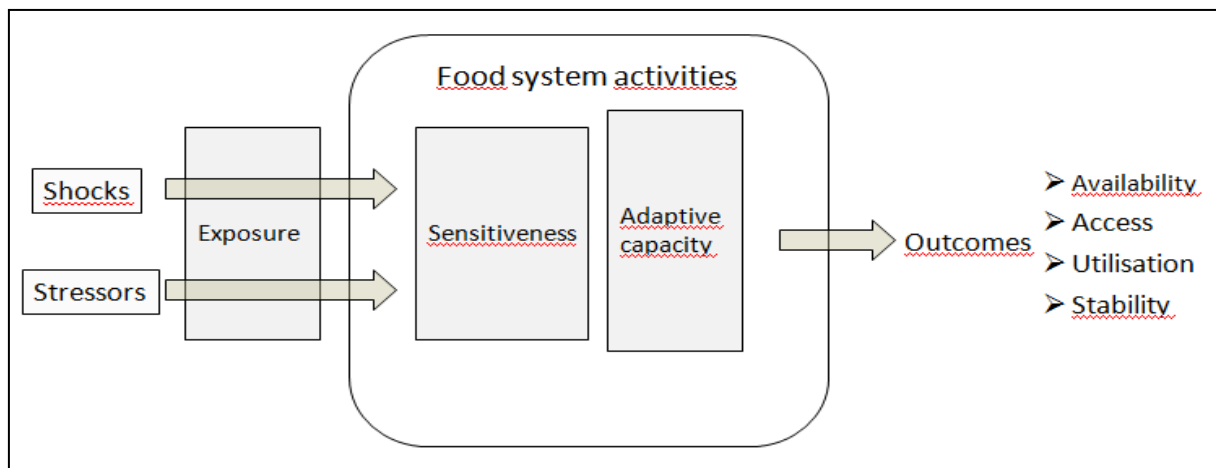
heritage). Hence, not all small farmers are necessarily motivated to fully contribute to the pursuit of sustainable FNS – and consequently will not respond to policy incentives encouraging them to do so<sup>8</sup>.

Gender is another cross cutting issue in this field of analysis. Men and women have often different roles in the management of a small farm (Brandth 2002, Driga et al. 2009), and in some regions their contribution to sustainable FNS and to the resilience of their farms is differentiated. Women's empowerment and their easier access to resources is deemed beneficial for FNS (FAO-WHO 2014), so that any FNS agenda has been said to be "pro-woman" (Hazell 2016). Field studies could in this regard assess assumptions like: (i) men contribute more to food security, women to nutrition security, or (ii) men contribute more to food availability, women more to food utilisation.

The reference to vulnerability given above is linked to a dynamic concept of "sustainability" we follow in SALSA: If we look at food systems as complex adaptive systems characterised by long-term trends of change, but also exposed to shocks and perturbances, the sustainability of FNS must be also read in terms of reduced vulnerability of FNS and increased resilience of the food systems<sup>9</sup>. Adger defines vulnerability as "the state of susceptibility to harm from exposure to stresses [...] and from the absence of capacity to adapt" (Adger, 2006).

Figure 5 shows a simple vulnerability model for the food system, with the indication of the three elements of vulnerability and the four FNS dimensions.

Figure 5. Vulnerability model for FNS (Modified from Brunori et al. 2015)).



When vulnerability factors (immediate shocks and gradually increasing stressors) impact on food systems activities (production, processing, distribution and consumption, as shown in Figure 1) they may weaken their capability to provide FNS, or to provide it in a sustainable way. This impact is mediated by three elements,

<sup>8</sup> This is an important consideration to be explored in WP6.

<sup>9</sup> We extend here to the food systems what argued by Darnhofer et al (2010) with regard to the "farming systems".

- (i) How much the system is exposed to the factors. For example the widespread adoption of a unique standardized crop variety increases system exposure to specific pests.
- (ii) How sensitive it is to those factors when the impact takes place. For example the introduction of a draught-resistant crop reduces sensitiveness to that factor.
- (iii) The system capacity to react adaptively in order to cope with the new situation preserving its capability to achieve its goals. For example, the presence of a dynamic learning environment and a flexible knowledge base strengthen the system adaptive capacity and hence its resilience.

Following what argued above, we can suggest a list of some key contributions that SF and SFB can potentially give to sustainable FNS that will be assessed and validated through the following steps of the project. These contributions can be given by SF/SFB both as individual players and through forms of coordination and cooperation.

1. Direct food provision for the farmers' households. Subsistence and semi-subsistence farming are important features of FNS in many regions, particularly in Africa but also in some European regions (e.g. new EU members from central and Eastern Europe - Davidova et al. 2012). Small farms produce food which can be used for self-consumption or sold to provide cash with which other food and non-food items can be bought. This means that when they are not able to sell their produce for any reason, they can at least rely to some extent on their own production. Relying upon self-consumption or domestic circuits creates also possible safety nets in times of economic crisis.
2. Producing food and selling food from economically marginal lands, or lands which are not suited to large-scale industrial farming. Small farmers are more likely to develop these lands and related resources, although large estates can also be found in marginal lands (e.g. Portugal, Scotland). The capability to produce on plots of land not suitable for large scale farming can also potentially reduce food system sensitiveness to soil degradation and land occupation for non-agricultural uses in less marginal areas. The capability to exploit economically marginal assets can be extended also to other resources beyond land (varieties, techniques, water etc.)
3. Diversification of food systems. The presence of a number of SF/SFB, different for size, production techniques and relational patterns, creates the conditions for the coexistence of different forms of food production and distribution, and of a more distributed and less centralised food production and delivery. It has been argued how diversification among small farms reduces the food system exposure to stressors like climate change and variability (Reidsma and Ewert 2008). The same could be suggested with regard to other uncertainties and shocks, like breakdowns of long centralised agro-food chains.
4. Safeguard of biological diversity. SF/SFB can represent, in certain contexts, environments in which traditional varieties and productions can be preserved and promoted and local food knowledge is updated and transmitted, with potential positive effects on diets diversification and on the food system vulnerability. The introduction or re-introduction of a new variety more resistant to a



certain disease, to draughts, etc., can reduce system sensitiveness to some specific vulnerability factors which can be particularly threatening for FNS in that region.<sup>5</sup> Provision of quality food at affordable prices to low income urban and rural consumers who are not food producers. High food nutritional content and freshness can be distinctive features of the food produced by SF/SFB; In addition, the price of that food is, in some contexts, low enough to grant low income households access to it.

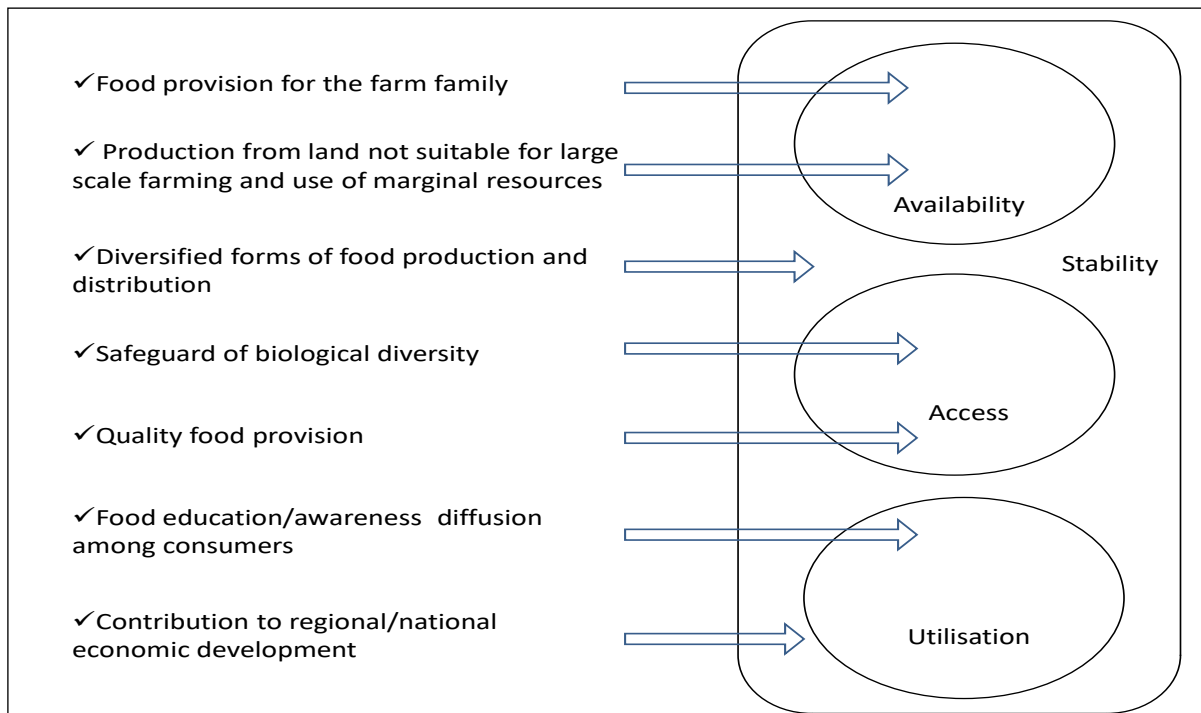
5. Food education and awareness. SF/SFB are often characterised by a deeper and more personal consumers' involvement, often based on informal social networks, with positive effects on food awareness and education which may lead for example to more healthy and/or sustainable diet choices.
6. Socio-economic development. Preserving agricultural skills, generating employment and incomes, contributing to social cohesion are potential contributions to sustainable FNS both for consumers and for SF/SFB players themselves. In particular, the cooperation among SF/SFB and the possibility to exchange experiences and techniques can create conditions for the development of the learning environment mentioned above as an asset for the food system resilience. This kind of contribution is probably very important in many regions and in some contexts it can also contribute to prevent socio-political struggles and violence.

Beyond this list, a general "indirect" contribution to FNS is given by small food business in relation to the role they play for the small farms economic sustainability, in particular in some (mainly poor) regions. Small traders, processors and vendors provide small farmers with a market, because of their proximity to the farms, their willingness to pay cash, their acceptance of small volumes, their willingness to buy all the harvest rather than just top quality, their lower requirements for compliance with grades and standards, their links to wholesale trade. This means that the contribution small farmers can give to FNS is permitted or strengthened by the presence of small food businesses in the region.

If we consider the four FNS dimensions described in Section 3, it is possible to trace a preliminary set of connections between these contributions and the most pertinent (not exclusive) dimension they could influence, as shown in Figure 6.



Figure 6. Examples of small farms' potential contribution to the four dimensions of FNS (Authors' own creation)



It is important to underline that these contributions are potential; the actual contribution of SF/SFB depends on how they are connected between themselves and with the other elements of the food system, to the shape the food systems itself and to the wider regional context.

It must also be noted that these contributions are not isolated from each other. Possible synergies or trade-offs can be hypothesized between them, and have to be explored in the field studies. For example, the availability of a more diversified range of varieties and products is an actual contribution to FNS as long as consumers are open to use them, and this openness can be enhanced by SF/SFB personal relations with their customers. On the contrary, the agricultural exploitation of economically marginal lands could be detrimental to some ecological assets (biodiversity, wildlife) of those areas.

Small farmers and small food business actors are not only players able contribute to FNS, but are also among the vulnerable groups that may suffer of food insecurity when factors like food price spikes, extreme weather events or big processors/retailers dominance weaken their position (Grando et al. 2016). This is even more true in cases of subsistence and semi-subsistence farming. When farm resources are scarce and not supplemented by additional household resources, external shocks (i.e. droughts, crop failures, low prices) can undermine households' food security.

As demonstrated in the TRANSMANGO project, there is an individual and a systemic dimension of FNS vulnerability, which are interconnected (Grando et al. 2016). Threats to FNS for individuals and households (e.g. due to impoverishment, or lack of knowledge on nutrition issues) are often linked to the vulnerability of food systems' capability to provide conditions for FNS (e.g. due to excessive reliance on food imports or to the promotion of cheap unhealthy food).



Exposure, sensitiveness and adaptive capacity of households and of the food system within a region are related to the specific shape that food systems take at territorial level. A strong dependence on specialized global food systems may expose their component to unexpected shocks, and lack of alternatives may be a symptom of poor adaptive capacity to them. To the contrary, a mix of localized systems and global value chains (different food models in Fournier and Touzard's conceptualisation) may create synergies at regional level and increase security and resilience. The contributions given by SF/SFB to sustainable FNS should be assessed in each reference region highlighting the pertinent food system activities and the sustainability dimensions, and in relation to the different models/chains to which they contribute.

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