

## Assessing food systems sustainability issues: a methodology combining complementary data and scales

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**Abstract.** This paper presents a new methodological approach to assess food systems which takes stock of strengths and limitations and tries to fill some of the gaps identified by recent publications. Its specificity is twofold: (i) to consider both national scale (where key policy decisions are made) and sub-national scale (which provides a more comprehensive understanding of food systems), (ii) to articulate international quantitative indicators (providing comparativeness and long-term perspective), literature review and local stakeholders consultations to frame the sustainability issues and unravel the causal mechanisms within the system. After presenting the method, the paper draws lessons from its implementation in eight countries in Africa, Asia and Latino America. It proved to renew the existing methodologies regarding the consideration of subnational specificities and articulation of scales, highlighting the interactions between the different components of the system, and in terms of identifying main long-term trends. Yet, certain methodological challenges are remaining and deserve even greater attention in the future, notably regarding data availability, the differentiation of types of actors and their practices, and the involvement of the diversity stakeholders, including the less voiced one, in the analytical process.

**Key words:** food systems, sustainability, assessment, methodology, participatory approaches

**Classification JEL:** Q01, Q18, G28, R11

## 1. Introduction

Food systems are one of the six entry points identified by the United Nations to achieve the Sustainable Development Goals (SDGs) (Independent Group of Scientists appointed by the Secretary-General, 2019). However, how to improve the functioning of food systems in order for them to contribute to improve SDGs is still uneven and varies according to local contexts, since sustainability is deeply context-specific (citer). To contribute to this, food system assessments are on the rise. The food system research supports the idea that long-term food and nutritional security and other SDGs are rooted in the dynamics and inter-relationships between agriculture, health, nature, the socio-economy and politics (Allen and Prosperi, 2016; Dury et al., 2019) that should be considered together. More systemic and multi-dimensional, these food systems assessments are aimed at feeding into decision-making and designing more systemic transformative actions likely to generate positive longterm impacts in terms of sustainability and resilience (Allen and Prosperi, 2016; Caron et al., 2018; Ruben et al., 2019; Tefft et al., 2017; van Berkum et al., 2018; Van Criekinge and Calenbuhr, 2017; Westhoek et al., 2016), in a context of strong resistance to change (Conti et al., 2021).

Methodologies to assess food systems flood the scientific and institutional literature, particularly in the context of the UNFSS, with a diversity of approaches in terms of scales, purposes and analytical tools. Sirdey et al. (2023) identified four types of methods aiming at assessing the sustainability or resilience of food systems, schematically grouped into two poles. The first pole analyses food systems at national scale, using quantitative international indicators to provide evidence-based assessment and run international and diachronic comparisons. One of the weaknesses of these methods is the lack of a systemic approach and the grey areas left by the absence of indicators regarding some issues. On the other extreme side, some methods mostly focused at city-region or territories use both quantitative and qualitative data and participatory approach to provide a place-based assessment of sustainability to feed into local decision-making. However, one of the weaknesses of these methods is the difficulty to provide neither synthetic insights nor statistical evidence, besides the huge quantity of data produced.

Based on these reported gaps and limitations hampering the scope of the existing methods, further methodological exploration has been suggested in recent papers. First, the territorial and national scales could be articulated since they bring complementary added-value (territorial scale being suitable to engage stakeholders and imagine tangible policy action, consistent with the specificities of the context, while national scale being the scale of most policies which are major drivers of changes) (Sirdey et al., 2023). In addition, combining the two scales has the advantage of not being blind to major sub-national disparities and of considering sustainability issues specifically in local contexts (Dury et al., 2019). Second, the targeted audience might be clearer and the involvement of stakeholders of the different functions of the food systems improved - not only as informants but as key actors (Sirdey et al., 2023; Zou et al., 2022) notably to build awareness among stakeholders which are in the best position to move towards the implementation of systemic and transformative actions. Third, some existing methodologies focus on a single type of data (quantitative or qualitative) and knowledge (scientific or operational); it appears clear that they should be combined to provide more consistent understanding of the sustainability performance but also the processes and complex interactions that prevail within food systems (Sirdey et al., 2023). Fourth, the wide range of actors should be considered in a full life-cycle approach, notably because few considerations are given to mid-stream segments, waste and inputs activities (Zou et al., 2022) and the relative contribution of each type of actors/models of production or consumption are often overlooked (Sirdey et al., 2023). Fifth, while most methodologies seek to incorporate multiple sustainability dimensions,

many still focus on only two to three sustainability dimensions, ignoring key issues such as political/governance or health (Brouwer 2020; Zou et al., 2022).

This paper presents a new methodological approach that takes stock of the strengths of each type of method and tries to fill some of the gaps identified by previous publications. The methodological design as well as its implementation was part of the project "Food system Assessments" (a collaborative project between DG-INTPA, FAO, CIRAD and national partners, funded by the DG-INTPA). Its main specificity is to hybrid the two main categories of existing methodologies considering both national scale (which is the scale of main policy decisions) and sub-national scale (which is more relevant for a consistent view of food systems with more homogeneity), while articulating international indicators at national-scale, existing literature, expert knowledge and local stakeholders' consultation. After presenting the method, lessons learned from its implementation in eight countries in Africa, Asia and Latino America are discussed, drawing attention to the strengths, limitations and perspectives.

## **2. Food systems assesment methodology**

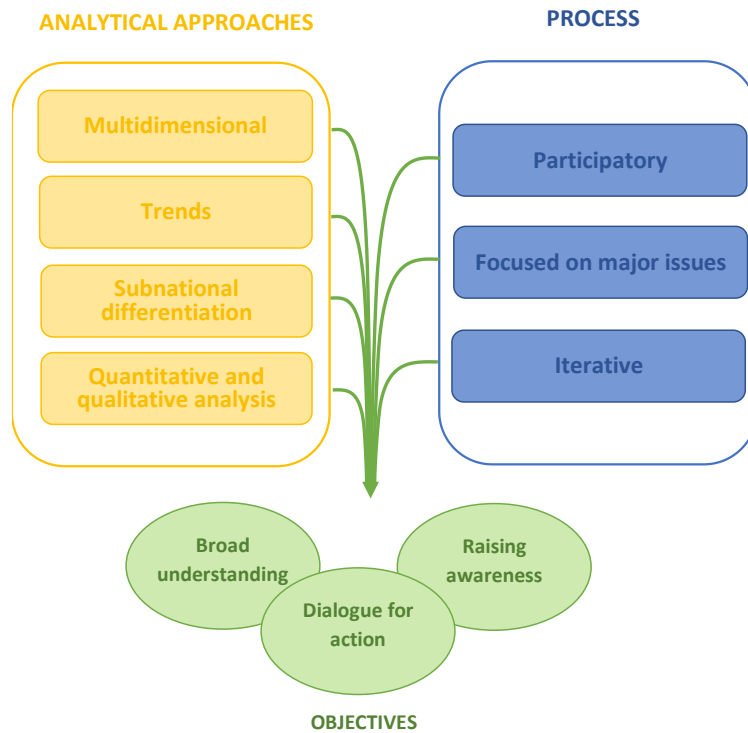
### **2.1. Objectives, principles and conceptual framework**

Building on the existing methodologies, and in order to fill some of the gaps identified in the recent literature, this method is designed to meet the following objectives:

- provide a broad understanding of national food systems, highlighting challenges and trends, including subnational specificities within countries,
- raise awareness among public and private stakeholders about the relevance of food systems approach to unravel their complex interrelations.
- facilitate dialogue among food systems actors, policymakers and civil society to co-construct a multi-dimensional vision of food systems and identify levers for action

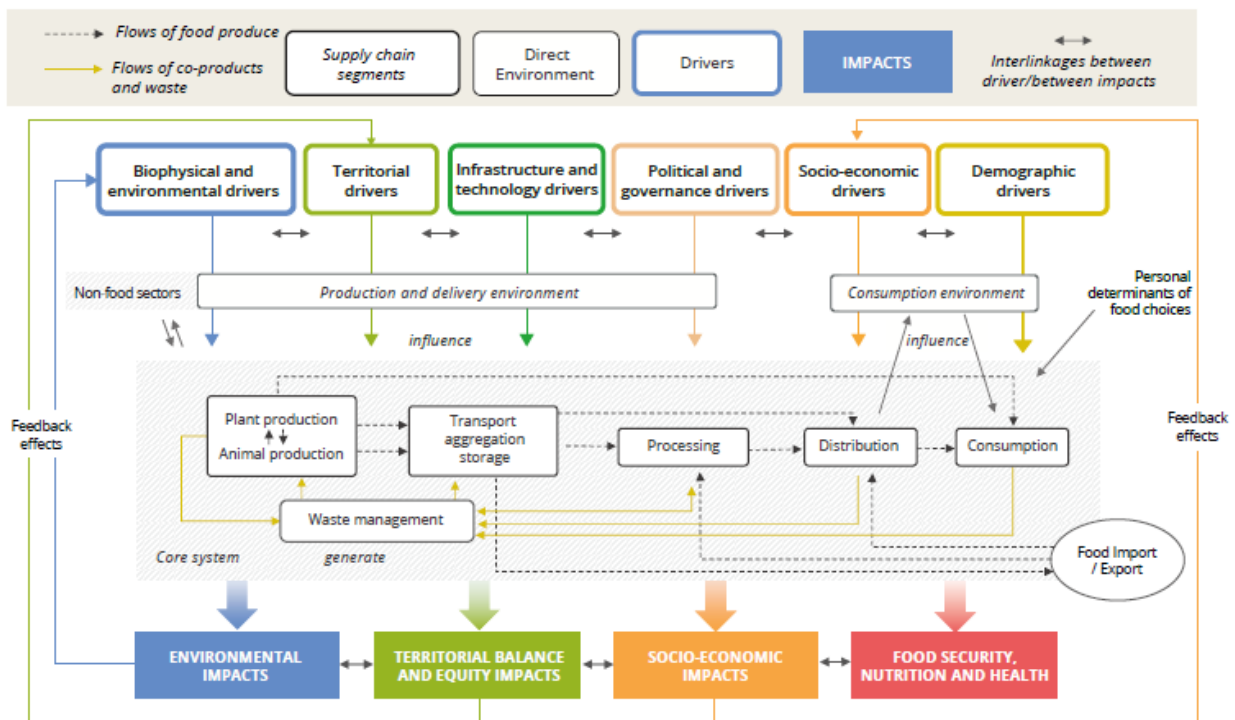
The method is based on several principles (Figure 1). It is multidimensional, in the sense that it considers the impacts of FS 4 main dimensions: (i) the environment, (ii) territorial balance and equity between FS actors, (iii) socio-economics and (iv) food security, nutrition and health. It adopts a dynamic perspective, seeking to assess the major trends of the country's key issues, and relies on existing qualitative and quantitative data to reach a broad understanding in a limited time. In order to understand subnational specificities, it considers the geographical distribution of FS actors, activities, drivers and impacts across the country. Stakeholders are mobilised to frame major issues, to complement existing information, to initiate the identification of context-specific levers, and to foster further engagement of stakeholders in transformative interventions in food systems. These complementary principles are mobilised iteratively, along the several stages of the process.

**Figure 1: Principles of the methodology (source: authors)**



We define food systems as the range of actors and their activities involved in food supply chain functions, their direct environment and the drivers that influence them, as well as their long-term impacts on the main sustainability dimensions, which in turn, affect the other elements via feedback loops (David-Benz et al., 2022)(See Figure 2). This holistic and systemic view of food systems includes all their components and highlights the interactions between them. The conceptual framework distinguishes between on the one hand the core system (i.e. the actors and activities), and on the other hand the drivers (as conceptualised in Béné et al., 2019) that influence them and the resulting impacts. We identify a broad range of drivers influencing food systems (the biophysical environment, territorial specificities, infrastructure and technologies, policy and governance, socio-economics, demography) and the direct environment in which the food systems actors evolve (e.g. financial and technical services, the consumer environment). Impacts refer to the effects produced by food systems (either in the short or long term) on food and nutrition security, socio-economics, the biophysical environment, which are the outcomes considered by almost all food systems conceptual frameworks. Additionally, we also consider outcomes related to balance and equity between food systems actors and between territories. Finally, our methodological proposal includes non-food (agricultural or non-agricultural) sectors to highlight the critical inter-relationships between food and non-food activities (such as industrial plantations of non-food products, energy, mining, and tourism), at both national and subnational levels.

**Figure 2: Food system conceptual framework (Source: David-Benz et al., 2022)**



## 2.2. Main steps

The methodology is organised in six main steps.

### 2.2.1. Step 0 : Preparing the assessment

This preparatory step includes meetings with the main ministries involved in the agrifood sector, in order to initiate discussion regarding the most pressing issues in the food systems and their goals and priorities. It also ensures their commitment in the process. The preparatory phase also consists in mobilising a multidisciplinary team of experts.

### 2.2.2. Step A : Frame the issues

To avoid being overwhelmed by the complexity of food systems, step A aims at focusing the analysis on the main issues of each country's case study. It also aims to engage stakeholders in the assessment. After an initial literature review and interviews with a few key informants (mostly from Ministries, to grasp the political vision and the priorities), a first multi-stakeholder workshop helps to identify key issues of the food system and structure the analyse around the four dimensions of sustainability considered in the conceptual framework, with an attempt of having a systemic view, relating drivers, actors and activities and impacts in these four dimensions. This launch workshop can gather between 25 and 50 participants, selected among stakeholders and organisations from the agri-food sector and public institutions related to it.

Involving a wide variety of stakeholders, with diverse interests and knowledge, and encouraging the active participation of everyone is a major challenge at this stage.

The main result expected from this step is a collaboratively-produced draft shortlist of the major impacts of food systems at the national level and a draft identification of major causes with their respective impact pathways linking those causes to major impacts. Based on this result, a limited number of multi-dimensional key sustainability issues are collectively formulated, to be confronted with the data and further developed in subsequent steps.

### **2.2.3. Step B: Analyse available data to build systemic and dynamic narratives**

To build systemic and dynamic narratives, step B takes stock of existing data and knowledge to provide documentary support for the key sustainability issues identified in step A. After a trend analysis of the key statistics of the agri-food sector (food production, exports/imports and food balance), step B is based on both quantitative and qualitative data. Seventy-nine international quantitative indicators, covering the four impact dimensions and the different types of drivers, have been gathered and collected for all countries. Comparison with countries in the same income level group (LIC/LMIC/UMIC/UIC) and with all countries is recommended because the absolute value of a single indicator is often meaningless, especially for non-specialists in the dimension. A ranking of each indicator by quintile enables a preliminary identification of the drivers or impacts that raise questions regarding the FS sustainability. As a complement or substitute, national data are used for more in-depth analysis (i.e. at subnational level or by categories of actors) or because they are more updated or more suited to local contexts. In addition, qualitative data (expert knowledge, technical reports, scientific publications) helps to understand the mechanisms at work and to document some sustainability dimensions and/or drivers not well covered by quantitative indicators. At this stage, the national scale is favoured as the main level of policy and budget decisions, although the processes are different according to the sub-regions.

The expected result is a consistent and systemic narrative for each of the key sustainability issues, that will link a variety of observations and arguments together, including key figures of the situation, descriptions of mechanisms at work (causal links between drivers, system activities, sustainability impacts) and insights about past and future (anticipated) trends.

### **2.2.4. Step C: Consult experts and spatialize**

To refine the analysis and to consider subnational heterogeneity, step C encompasses subnational analysis and deepens knowledge on key issues through interviews. Based on existing thematic maps (e.g. livelihood zones, deforestation, food insecurity, etc.) uploaded in a mapping online tool, major subnational food systems are delineated, reflecting the diversity of actors and activities, and the combinations of drivers and impacts. A systemic narrative is built and possible levers to increase the sustainability of the food system in each zone are outlined. Interviews with key informants help refine this zoning and if necessary, clarify the mechanisms at work between drivers, activities and their impacts.

### **2.2.5. Step D: Share, discuss and reach a common understanding of spatially differentiated food systems**

To discuss, enrich and validate the assessment, a consultation workshop gathering a variety of food systems stakeholders is organised in step D. This second workshop also aims to identify the entry point and the levers to improve the sustainability of the food systems at both national and subnational scales.

### **2.2.6. Step E: Summarise the food system analysis at the national and subnational levels**

To deliver the results of this iterative process in a suitable format for public decision-makers and food systems actors, they are synthesised in a food systems brief in Step E. Named Food Systems Profile, they provide an overview of the sustainability of the food systems at national level with regard to the four dimensions of the conceptual framework, highlighting key sustainability issues and their main drivers and connections to actors and their practices. They also identify and characterise subnational food systems in terms of their actors and activities and their combinations of key challenges with respect to meeting sustainable food system goals. Finally, through a collective process involving a broad range of stakeholders and on the basis of the systemic representation, bottlenecks and levers are identified if we are to transition towards more sustainable food systems. The Food Systems Profile consists of 20 to 30 pages of narratives, accompanied by graphs, tables, pictures and maps.

### **2.3. Implementation**

This methodology has already been applied in 52 countries since early 2021, as part of the initiative “Catalysing the Sustainable and Inclusive Transformation of Food Systems” (collaboration between DG-INTPA, FAO, CIRAD and national partners). In the first batch, composed of eight countries<sup>1</sup>, all the steps described in the previous section were implemented; in the following countries, a more condensed methodology was applied to speed up the process. Due to Covid 19 pandemic, almost all the workshops and working sessions were held remotely. For each country, the process was implemented by a pluridisciplinary team of three to four national and international consultants, with the methodological support of a team composed with FAO and Cirad experts, and the contribution of at least one major public institution directly involved in food systems issues (a Ministry or a national agency), as well as FAO Representations and EU Delegation to ensure an institutional anchoring at national level. In several countries, the consultative workshops and Food Systems Profiles contributed to feed or complement the national dialogues held at the United Nations Food Systems Summit.

## **3. Learnings**

In all countries, the implementation of the methodology had a strong time constraint, in the context of the preparation of the UNFSS 2022 and then follow-up of the resolutions adopted by countries pressing for delivering rapid results. The case studies lasted actually between 4 and 6 months between the preparation phase and the final workshop and several additional months to finalise the Countries Profiles (not considering editing and formatting).

Learnings can be drawn from the implementation of the methodology, referring to the initial guiding principles of its design.

### **3.1. About the purposes of the assessments**

#### **3.1.1. Providing a broad understanding of the food systems, with a multidimensional perspective**

The method does not aim at generating genuine new information. Indeed, the results are essentially based on preexisting data, reports, and views. Its added-value is to go beyond

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<sup>1</sup> Bhutan, Burkina-Faso, Colombia, Dominican Republic, Madagascar, Malawi, Nepal and Senegal

sectoral approaches, adopting a systemic and multidimensional perspective. This has enabled us to address questions differently, considering the interactions between different dimensions. In the case of Madagascar, for example, the central highlands are considered as the diversified food basket. However, the multidimensional approach highlighted the alarming food security and nutritional situation in this area (notably stunting of young children), related to a strong market orientation of family farms, to the expense of a diversified self-consumption, as well as sanitary issues.

### **3.1.2. Raising awareness among public sector and food system actors on the food system transformation approach**

The food system approach is relatively new and it to be to shift from sectoral and value chain approaches to a systemic and multidimensional approach. This implies to consider the learning process needed both for the implementing team (which is composed of a mix of researchers / experts and public institutions representatives) and the stakeholders mobilised along the analytical process. It requires time, and specific learning tools for each of them. The time invested makes sense in a longer-term perspective: not only for a “one shot” assessment, but in view of long-term policy dialogue involving decision-makers and actors, to transform food systems. In the context of UNFSS preparation, the whole process also facilitated the food system literacy and engagement of stakeholders. This assessment has helped countries’ representatives to structure their contributions to the summit within a food system framework. In addition, several of the national consultants that were part of the assessment teams were then mobilised to prepare these dialogues, in preparation of the UNFSS.

### **3.1.3. Facilitating dialogue among food systems actors and policy makers**

During the multi-stakeholder workshops, rich discussions arose about the multiple impacts of food systems, between actors of different categories that seldom have the opportunity to share their ideas. Interdependencies between drivers, activities and FS impacts, for each subnational food system, have been highlighted, which turned into rich and novel discussions. Many participants acknowledged that the workshops had enabled them to better understand the interaction within the food systems.

### **3.1.4. Facilitating action-oriented decision-making**

The method enables to address the diversity of FS challenges, risks and opportunities, at national and sub-national scales, paving the way to the identification of entry points to transformation de systems. But it is only the very first step towards identifying relevant intervention priorities, which go beyond standard sectoral “solutions”. In the context of UNFSS, the expectations at country level, led us to extend the process to the identification of levers of action. However, considering the time constraint, it appeared rather challenging in most countries to avoid “ready to use” solutions, deriving from the routine of sectoral approaches. Reaching a programming stage will indeed require further reflections and discussions, with a more specific approach to identify desirable transition pathways and the steps of transition, considering the many resistance to change that may occur (e.g. persistence of dominant technologies, misaligned institutional settings, concentrated corporate power that skew the direction of change etc.) (Bene, 2022; Clapp, 2021; Conti et al., 2021).

## **3.2. About analytical approaches**



### **3.2.1. Combining quantitative and qualitative analysis**

Building the analysis on different types of data and knowledge was confirmed to be paramount to have bought a comparable base and a more refined country specific view, as well as to enter progressively into the complexity of food systems. The selection of international indicators (each of them compared with the quintiles of the LIC and LMIC, and with the quintiles of all the countries), as well as the figures of the main trends, helped national teams to draw a first outline of food systems and to identify the main issues. Comparing with other countries could also ease the relativisation of the appraisal arising from the first workshop or from the national team. For e.g., in Burkina Faso, considering the important international pressure on this issue, national experts urged to put a focus on GHG emissions. The indicators showing, although agriculture GHG per capita is relatively high - due notably to the importance of cattle - total GHG per capita is much lower than in most countries (fourth highest quintile at world scale and third à LIC and LMIC scale), whereas other indicators were much more alarming (such as deforestation, underemployment in rural areas, political instability and violence, food security indicators...).

Moreover, the implementation of the assessments demonstrate the importance to complement international indicators with: (i) national statistics, often more updated and desegregated at regional or district level, providing the elementary material to analyse diversity of situations within each country (for e.g. for Bhutan, most standard food security indicators are lacking in international databases, but national sources provide detailed statistics, including at district level, on which the national team could build its analysis at national and territorial scales) ; (ii) qualitative information and empirical knowledge, from reports, articles and interviews with specialists of the key issues that emerged. Rather than baring solely on international indicators, much more refined, consistent and systematic assessment, including territorial differentiation, can be achieved thanks to these complementary types of information.

### **3.2.2. Assessing key trends**

Using a set of selected indicators from international databases and examples of figures provided in the toolbox, made it possible to analyse trends on production, trade, food balances, selected drivers and outcomes, over several decades, and to identify major shifts of main issues. Cross-analysis of historical trends for diverse drivers and impacts contributed to highlight FS sustainability issues in renewed and systemic ways, while trends are often individually analysed. Whereas initially planned, future trends were not explored. Projections are lacking for many major drivers (e.g. conflicts and related displacement, food prices, public policies) ; and when available, they are complex to use and combine for non-specialists of each dimension. Embracing a foresight approach would imply a specific focus on it, to mobilise other methodologies and much additional time and resources.

### **3.2.3. Incorporating territorial heterogeneities**

Delineate and characterise subnational food systems appeared very relevant to reach scales where food systems are homogeneous enough to be described consistently. This allowed to identify major mechanisms and crucial issues and to start identifying entry points for action. However, in some countries, delineating areas without considering administrative boundaries faced initially reluctance, governance issues taking over the need of consistency between informing policy making and the specificities of the area considered. But ultimately, in all the countries, the zoning has added significant value to the assessments because context and issues are very contrasted within most countries. In Senegal for example, 80% of the workshop participants found that the subnational zoning provided a good understanding of the situations

and their dynamics. This also contributed to improving the appropriation of food systems approaches by participants, as the systemic approach is more tangible at subnational rather than national scales.

### **3.3. About the process**

#### **3.3.1. Using a participatory approach together with getting institutional support at high level**

To bring-in high level public institutions representatives, the recognition of the interest of the process at high policy level is paramount. In this sense, the assessment was supported in each country by a sectoral ministry and/or when possible a transectorial public body (e.g. the *Conseil national de sécurité alimentaire* in Senegal; the National Planning Commission in Nepal). Even when not participating actively in the analytical process, it gave legitimacy to the national team to implement the assessment. The direct involvement of FAO Representations and EU Delegations also facilitated official contacts and participation. However, the involvement of direct actors of the food systems remained low: most participants of the workshops belong to public institutions, donors, NGOs etc. The effective participation of small scale actors, little organised, less trained to participate in such workshops (mostly when held online) was marginal in most countries, notably for midstream and downstream actors of food value chains. One of the reasons for this, may be related to the pandemic and the organisation of remote consultations, but not only. Modular spaces of debate and deliberation, with less heterogeneity between participants, would need to be further designed. In the case of Madagascar for eg., no farmer organisation attended the first workshop (despite invitations). A specific focus group with the leaders of the three main apex organisations was organised by the national team; different views about food systems and critical issues emerged from it, which were incorporated into the analysis.

#### **3.3.2. Framing the assessment around key issues.**

The problematization of the assessment during step A, and further along the process, proved to be essential to avoid getting lost in the multitude of issues related to food systems, which can make the analysis very cumbersome (in terms of workload for the experts), confusing (for the participants of the workshops) and too broad and general (in terms of final results). For example, issues of inequity of land distribution appeared to be one of the major issues in the case of Columbia, being associated with rapid deforestation, cultivation of coca and poppy, insecurity and consecutive loss of attractiveness of small-scale farming. Conversely, although present in most countries, these land equity issues were put in the background elsewhere.

#### **3.3.3. Implementing an iterative process.**

By nature, the analytical process is not linear. Several iterations were made between the initial features grasped by the national team, the first analysis derived from the first workshop, the different phases of refinement of the analysis (that required to go back to data or documentary exploration), the debate on the draft results during the second workshop, up to the final country profiles.

#### 4. Conclusion and perspectives

This methodology appeared relevant to fill some of the gaps identified in food system approaches (Sirdey et al., 2023); regarding the consideration of subnational specificities and articulation of scales, highlighting the interactions between the different components of the system, and in terms of identifying main long-term trends. However, several methodological challenges are remaining.

First, the different case studies shed light on the contrasts in the availability and quality of data, both between countries and between components of food systems. This could only be partially compensated by the qualitative analysis. Whereas production and consumption are relatively well documented, data on all the mid-stream segments are poor. In particular, information is lacking about the informal sector, nevertheless occupying a major place, both in terms of job creation and of diversity, quality and accessibility of food products. Data on some environmental issues like soil degradation and fertility are missing at aggregate levels (region or country), or available as maps but not as quantitative indicators. Data on subnational flows of goods are also missing.

Second, like the pitfall identified in other methodologies and approaches, these assessments would require more in-depth analysis of the diversity of FS actors. The challenge is not only to consider different actors' practices and modes of organisation but also to understand how each of them contributes to the observed impacts. More in depth consideration of the different production, processing, marketing, consumption and disposal models, which often coexist in the same country, would help identify effective areas of action to improve sustainability. Notably, as already reported in Sirdey et al. (2023) for other methodologies, the controversies between different models of development (i.e. conventional intensification vs. agroecology; family farming vs. large scale investment) hardly arose from the assessments. Likely because these debates are politically sensitive to address, and also because data and evidence are missing. Similarly, the socio-technical systems for supplying key inputs and recycling/reusing waste and co-products, with a view to the circular economy and preserving resources, were little addressed, as also underlined by Zou et al. (2022). Nor does the proposed methodology allow us to unravel the governance processes within national food systems. No indicators are available on these issues and a genuine political economy approach would have been needed. This was outside the ambitions of the methodology, especially given the time constraints imposed by its implementation. However, the assessments showed how multi-scale and multi-sector governance is key to improving the sustainability of food systems at national and subnational levels, which opens up new perspectives.

Third, while involving as many food systems stakeholders as possible at key stages of the analysis, the method remains relatively limited in terms of participation. Beyond the constraints of a fully online process, more tailored approaches need to be implemented to better involve the least represented actors and ensure their steady involvement. More emphasis should be put on power relations in the whole process. It includes political economy and justice consideration regarding both the "what" (winners/losers in different sustainability dimensions, distribution of harms and benefits of envisaged actions in FS) and the "how" (respect and value different group of people and their specific needs during the process and ensure fairness in deliberative processes) (Huttunen et al., 2022; Whitfield et al., 2021).

Fourth, the approach puts in light the multiple interrelations between the different components of food systems, but going further in terms of interactions and causal relation remains

challenging. On the one hand, it is not straightforward how far such a qualitative approach could feed quantitative analysis, to measure the causal effects of different components and pave the way for quantitative scenarios. Notably, the complexity of the food system concept, building on a high number of drivers and sustainability dimensions prevent from a direct quantitative application and calls for an even more specific framing on a single specific sustainability issue. On the other hand, based on this experience, the subnational scale appears to be a more operational scale than the national one, both in terms of developing a systemic understanding of the FS issues and in terms of co-producing pathways of change.

Finally, in the same way as we need to work further on how the stakeholders are involved in the participatory process (as informants, endorsers, co-creators...)(Bandola-Gill et al., 2023; Sirdey et al., 2023), we need to reconsider the position of scientists. In food systems' approaches, scientists are no longer involved as providers of highly specific and in-depth knowledge, but rather as brokers of knowledge of different nature and catalysts of a more open way to understand what's going on and what the future may be (Pohl et al., 2010). Research process plays a role (deliberately or not) in redressing or exacerbating representational or distributional injustices in the food system transformation processes (Whitfield et al., 2021), either through an intermediary role (i.e. to make different thought styles visible) or facilitator role (i.e. to enhance communicative processes between contrasted stakeholders, based on openness and fair deliberation) (Pohl et al., 2010).

Therefore, this new methodological proposal has both advantages and limitations, leading to recommendations. In particular, it seems difficult (and perhaps irrelevant) to implement a systemic approach on a national scale and to seek to work on all the sustainability issues posed by national food systems. With a view to co-constructing new multi-sectoral policies on the basis of shared diagnoses, new perspectives would benefit from (i) prioritising the sustainability issues to be addressed (not to take an interest in the whole of the national FS) and (ii) working on a territorial scale where the stakeholders share common issues and objectives facilitating collective action and the implementation of a systemic approach.

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