



Metrics, Models and Foresight for European Sustainable Food and Nutrition Security (SUSFANS)

Report of the 1st Stakeholder Core Group Workshop 30 October 2015 Prague, Czech Republic



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Table of Contents

About the SUSFANS Project.....	3
Purpose of the Workshop.....	7
Workshop Programme	9
Summary of the Workshop and Stakeholder Recommendations.....	13
Proceedings of the Workshop	17
Workshop Participants	29
SUSFANS Consortium.....	33



About the SUSFANS Project



About the SUSFANS Project

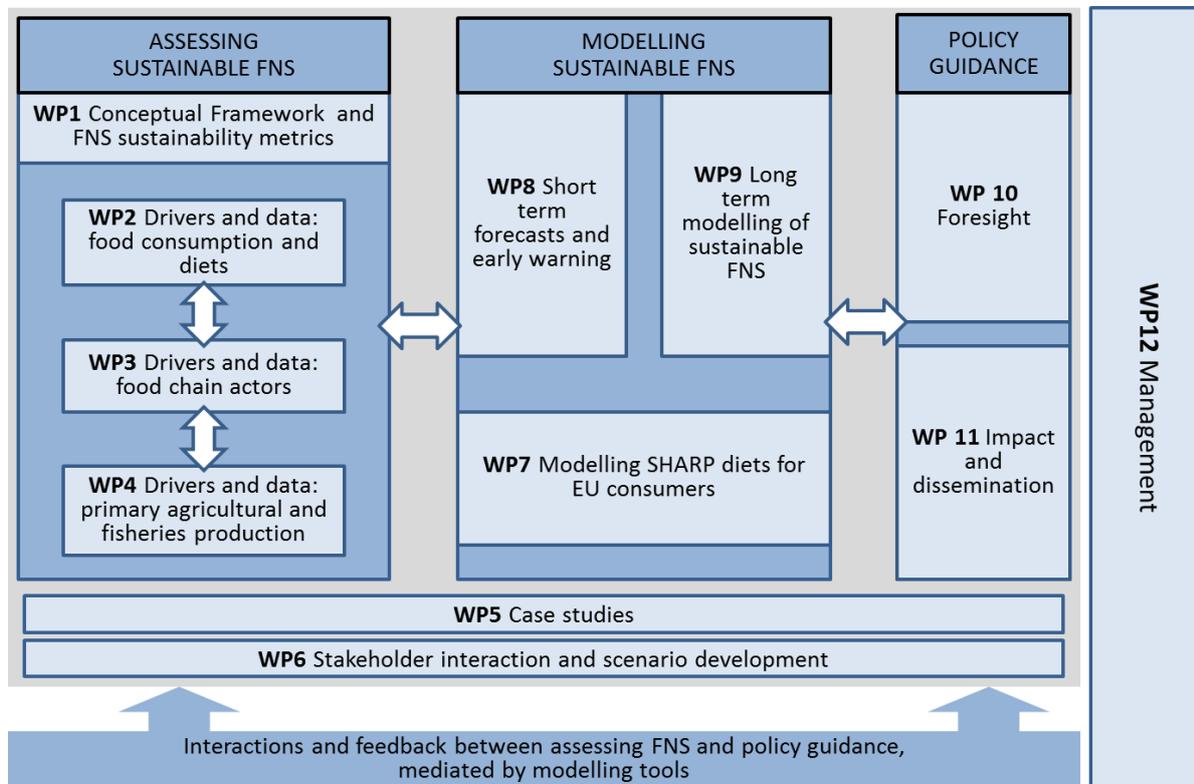
Strengthening EU food and nutrition security requires more sustainable food consumption and production. To gauge the policy reforms needed for this major societal challenge, the SUSFANS-consortium will identify how nutrition and food production in the EU can be better aligned within an EU food system that supports public health, a sustainable environment and thriving enterprise.

The research project SUSFANS addresses 'Metrics, Models and Foresight for European Sustainable Food and Nutrition Security'. Funded by the European Commission's Horizon 2020 programme for four years and starting in April 2015, SUSFANS involves 16 organisations for delivering and disseminating research. The project wants to make a leading scientific contribution to a balanced and encompassing view on improving food and nutrition security outcomes and making food in the European Union (EU) more sustainable. In short: to achieve sustainable food and nutrition security (FNS) in the EU. The research is led by the notion that improvements in the diets of the European consumer must come from, and be supportive of, food systems that contribute to public health, environmental protection and thriving enterprise in the long term.

SUSFANS will deliver high-quality research on metrics, modelling and foresight to improve the navigation on sustainable food in the public and private arena. The group of 16 organisations in SUSFANS will cross barriers between the social sciences and agricultural and other food-related disciplines, and will engage intensively with stakeholders in the European food system. In doing so, SUSFANS builds bridges between the worlds of agriculture and food on one hand, and public health and nutrition on the other.

The specific objective of SUSFANS is to build a conceptual framework, an evidence base and analytical tools for underpinning EU-wide food policies – with respect to their impact on consumers' diets, on nutrition and public health, on the environment, on the competitiveness of the EU agricultural-food sector, as well as on global food and nutrition security. The 4-year project is organised in three pillars, which jointly comprise 12 Work Packages (see Fig 1). With the integration of metrics, models and foresight, SUSFANS aims to set a scientific standard for assessing sustainable food and nutrition security in the EU. The project will inform policy reforms and innovations that contribute to better alignment of healthy consumption and food production in the EU. The exchange with stakeholders is considered essential for the research agenda and its impact towards a European food system.

Figure 1: SUSFANS project work packages





Purpose of the Workshop



Purpose of the workshop

An important part of the SUSFANS project is to collect input from stakeholders involved in food systems at all levels. Therefore, a Stakeholder Core Group (SCG) which consists of 30 selected experts and decision makers representing a wide range of stakeholder communities and hence 'worldviews' (e.g. primary producers, food industry, retail, consumer groups, investors, regulators, policymakers and academics) was created. This SCG will advise the SUSFANS consortium on key topics during 4 workshops (e.g. October 2015, end 2016, mid 2017 and mid 2018).

This first workshop introduced the SUSFANS project to the SCG with a special focus on the Work Package 1 'Conceptual framework and food and nutrition security (FNS) sustainability metrics' and the Work Package 6 'Stakeholder interaction and scenario review'. During parallel working groups, experts reviewed, helped refine and provided feedback on:

- i. the SUSFANS Conceptual Framework that serves as an overall project guide;
- ii. a set of metrics to assess the overall sustainability of the food system, balanced across the range of world views on the assessment of the environmental, social and economic dimensions of sustainable food;
- iii. case studies that will include
 - a) proteins from livestock-fish supply chains and
 - b) micronutrients from fruits and vegetables supply chains;
- iv. existing explorative scenarios, so as to identify their most salient features for exploring sustainable diets and food systems in the EU, within a global context of food security and climate change.



Workshop Programme



PROGRAMME

Overall Chair: Dr John Ingram (UOX, UK)

Overall Co-Chair: Prof. Diána Bánáti (ILSI Europe, BE)

Overall Rapporteur: Dr Monika Zurek (UOX, UK)

Session 1: Introduction of the Project

09.00 Introduction *Thom Achterbosch (LEI-WUR, NL)*

09.30 Presentation of WP1 and WP6
John Ingram (UOX, UK)

09.45 Presentation of the Stakeholder Core Group Roles
Pierre Dussort (ILSI Europe, BE)

09.55 Short Set of Stakeholder Views
*Karen Fabbri (DG RTD, BE)/ Sheila Wiseman (Unilever, NL)/
Jane Wallace-Jones (WWF, UK)*

10.20 Q & A

10.30 Refreshment Break

Session 2: Conceptual Framework and Sustainability Metrics

11.00 Plenary Session: Introduction to SUSFANS Conceptual Framework and Sustainability Metrics
Monika Zurek (UOX, UK)

11.15 Four Working Groups (1 to 4) each Discussing Conceptual Framework and Sustainability Metrics
*John Ingram (UOX, UK)/ Monika Zurek (UOX, UK)/
Joost Vervoort (UOX, UK)/ Louis-Georges Soler (INRA, FR)*

12.30 Lunch

13.30 Plenary Feedback Session

Friday, 30 October 2015



Session 3: Case Studies and Explorative Scenarios

- 14.00 Plenary Session: Introduction to Case Studies and Explorative Scenarios
*Joost Vervoort (UOX, UK)/
Inge Tetens (DTU, DK)*
- 14.15 Working Groups 5 and 6 each Discussing Case Studies
*Hannah Van Zanten (WUR, NL)/
Inge Tetens (DTU, DK)*
- 14.15 Working Groups 7 and 8 each Discussing Existing Explorative Scenarios
for Exploring Sustainable Diets
*Joost Vervoort (UOX, UK)/
Monika Zurek (UOX, UK)*
- 15.15 Plenary Feedback Session
John Ingram (UOX, UK)
- 15.55 Workshop Conclusion
Thom Achterbosch (LEI-WUR, NL)
- 16.00 Refreshment Break**
- 16.30 Closure





Summary of the Workshop and Stakeholder Recommendations



Summary of the Workshop and Stakeholder Recommendations

The first SUSFANS stakeholder workshop brought 42 participants together of which roughly 60% were representatives of different stakeholder groups and the rest researchers from the various research teams involved in the project (a complete list of participants can be found at the end of this Report). The stakeholder group was constituted of about a quarter of food system actors, such as primary producer and the food processing industry. The largest group of stakeholders present were so-called food system influencers such as civil society organization and advocacy groups working on food issues. In addition, a small number of EU policy makers (DG Research, DG Agri) joined the workshop.

After a set of introductory presentations to familiarize participants with the objectives and work packages of the SUSFANS project the meeting was set up to provide ample room for discussion, input and feedback. Stakeholders endorsed the basic ideas of the SUSFANS project of bringing together the agriculture with the nutrition community to think about how to achieve food and nutrition security in a coherent manner at an EU and country level. In addition they endorsed the need to add the notion of sustainability to FNS, taking into account achieving FNS and reducing health burdens related to food consumption with less environmental costs by a thriving agri-business sector and without neglecting the EU food system impacts on the globe. Stakeholders acknowledged that bringing together these various goals required a clear set of metrics and analytical tools to assess progress toward these goals. This would also allow to better unearth options and leverage points to deal with possible trade-offs, and to systematically monitor progress towards sustainable FNS.

Stakeholders saw factors currently blocking the EU food system in moving towards sustainable FNS in three areas: on the consumer side, within the food system and with respect to public policies.

Stakeholders approved the basic ideas, elements and layout of the SUSFANS conceptual framework (CF) and recommended a number of additions. They felt strongly that a recognition of the social outcomes of the food system (such as labour conditions or socio-cultural wellbeing) need to be added to the framework, maybe also as a policy goal for the EU. A number of specific additions were suggested to the different elements of the framework (drivers, food systems activities, linkages in the system/arrows) and the stakeholders also recommended considering how the dynamics of the food system could be captured while also showing a theory of change for where the food system should be heading.

Stakeholders also recommended keeping check of important upcoming policy milestones or cycles (e.g. reviews of policies), so become "policy watchers", in order to feed in impact at very timely moments and make sure that the project pro-actively seeks policy buy-in and channels for uptake of its scientific results in public or private information systems and monitoring cycles.

Stakeholders approved the proposed hierarchical approach to metrics to assess sustainable FNS and food system activity outcomes, and stressed the need for finding a set of metrics

that is technically sound but then also choosing a sub-set of metrics that are easy to communicate to decision-makers. They also suggested additions and changes to indicators proposed on the four policy goals and made recommendations regarding the (geographical) resolution of the indicators. Conducting country level modelling would allow to cover black spots while it might also be good to have some metrics at the household level where possible and appropriate. They also suggested producing a few, clear metrics at the EU, aggregating up from country level data, that can be easily communicated.

Stakeholders explored various issues specific to each value chain case studies that SUSFANS is currently preparing (innovations in fruit and vegetable chains and in livestock and fish supply towards sustainable protein intake), such as environmental impacts of livestock and crop production system or their health outcomes. They also discussed innovation pathways that each case study should explore, for example on bringing in consumer perceptions and behaviours for guiding the food chain actors' work and how to change consumer behaviours with respect to new sources of protein.

Stakeholders discussed a wide range of drivers for exploring scenarios of sustainable food systems for the EU that will be important in changing the EU food system and their importance in the next 30 years. They also formulated a number of policy questions that the scenarios could help answer. These questions varied in detail and level, some addressed the whole food system while others focus on a particular food system actor or activity, such as consumers or agricultural production. The majority of the questions though focused on policies that could move the EU food system towards achieving sustainable FNS.





Proceedings of the Workshop



Proceedings of the Workshop

Session 1: Introduction to the project

The first session of the workshop introduced participants to the details of the SUSFANS project and the objectives of the workshop. First Mr Thom Achterbosch, SUSFANS project coordinator, described the project, its objectives and work program in detail. He explained the rationale for the project and what it is aiming to achieve in addition to giving an overview of the project's objectives and planned work over the four years that the project will run.

Then Dr John Ingram, who is leading in Work Packages (WP) 1 and 6, explained the activities and expected outcomes of the work currently under way in these WPs. WP1 is designed to develop a conceptual framework for the SUSFANS project and elicit a set of metrics based on the framework. The metrics will be designed to assess the performance of the EU food system activities and their outcomes with respect to achieving the four main policy goals of the EU with respect to sustainable food and nutrition security (FNS). WP6 activities organize the involvement of stakeholders as active partners in the project's work in addition to developing an analysis of existing foresight work and scenarios on European food and nutrition security based on stakeholder priorities and input.

Dr Pierre Dussort, co-lead on WP6, described the roles envisaged for stakeholders who agreed to be part of the Stakeholder Core Group of the project (SCG). The SCG is expected to participate in four workshops over the course of the project to review the work of the research team and provide feedback and recommendations to shape the work so that it will provide insights important to the work of the various stakeholder groups. In addition the project team might solicit inputs from specific stakeholders in-between meetings on selected topics. The SCG will receive updates of the project developments, including the present report.

At the end of the session, three stakeholders were invited to present their views on food and nutrition security questions in the EU. Dr Karen Fabbri from the DG Research of the EU Commission presented the Commission's views on the urgency and complexity of building a 'resilient food system that provides sustainable, affordable and healthy food for all' and talked about the newly emerging Food Research Area of DG Research, which has the objectives to develop new research and innovation initiatives on sustainable FNS in the EU. Dr Sheila Wiseman from Unilever, one of the three industry parties closely associated with the project, presented their views on sustainable FNS on behalf of the group. She stressed that the food industry sees itself as an active partner in finding solutions and playing a key role in the provision of sustainable, high quality, safe, affordable and nutritious food – making sustainable and healthy choices easy and appealing for consumers. Ms Jane Wallace-Jones from WWF-UK then spoke about the WWF's LiveWell project and the UK's Eating Better Alliance on sustainable and healthy diets. She explained why WWF-UK and many of its European counterparts are pushing for more sustainable food systems which should be based on the wise use and conservation of biodiversity and natural resources.

Session 2: Conceptual Framework and Sustainability Metrics.

Session 2 was designed to introduce the work of the project up to now on developing a conceptual framework (CF) and a set of sustainability metrics to assess EU FNS outcomes and allow for discussion and feedback from the stakeholders on the chosen approach and ideas. Dr Monika Zurek, working in WP 1 and 6, gave a presentation on the CF and metrics ideas and introduced the questions to be discussed in four breakout groups to solicit feedback on the ideas up to date. Figure 2 shows the proposed SUSFANS conceptual framework.

Stakeholders were asked to deliberate on the following questions:

A general question:

- What do you see as the main blockages in moving towards a balanced diet and a sustainable food system?

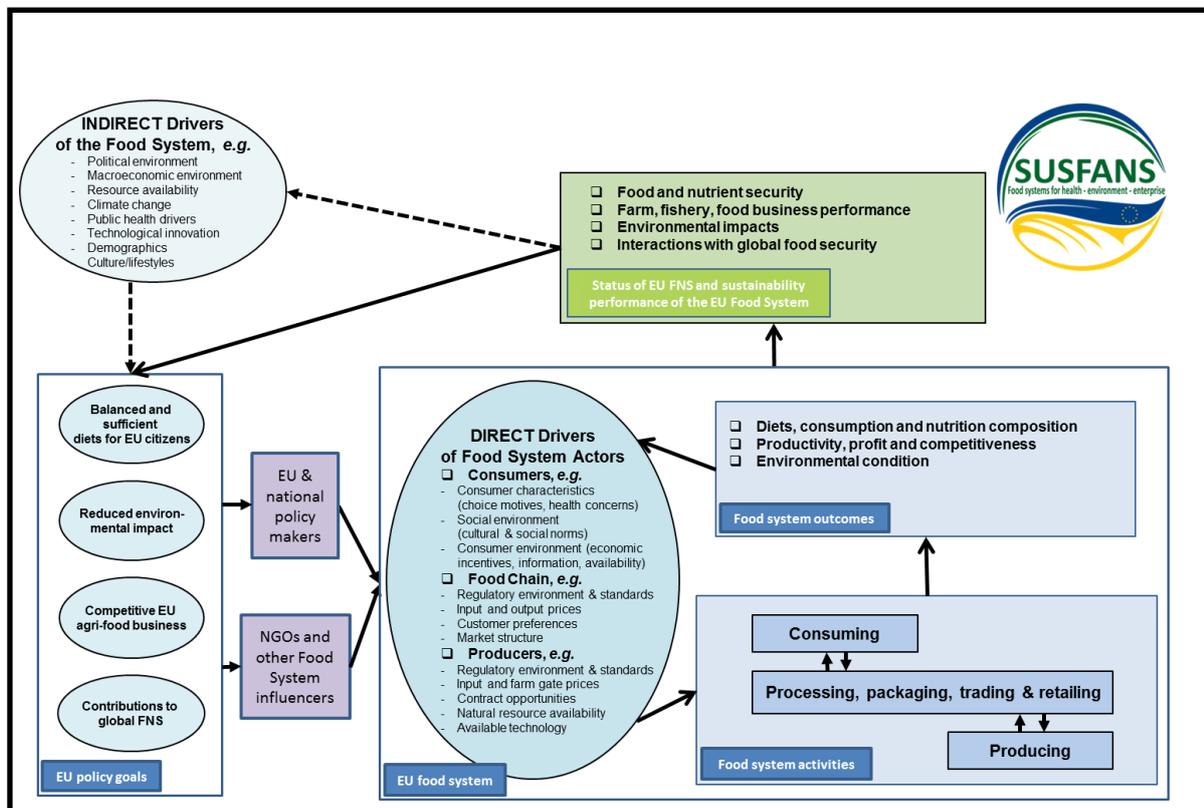
On the Conceptual Framework:

- Does the proposed CF capture all the key elements that you feel are needed to describe the EU food system and its outcomes?
- Does the CF allow you to map the blockages and solutions?
- What are we missing?

Given the hierarchy of metrics we are proposing,

- What additions and changes do you propose to the draft performance metrics?
- How detailed do you need information to help overcome the blockage?
- At which level of product, spatial and temporal resolution?
- At which level of integration?

Figure 2: SUSFANS conceptual framework, as discussed at the meeting



With respect to the factors currently blocking the EU food system in moving towards sustainable FNS stakeholders saw the blockages in three areas, on the consumer side, within the food system and with respect to public policies. Some identified bottlenecks were specific (e.g. it is hard to promote consumption of fresh fruit and veg as there is no 'brand'). Others are more general such as consumers having an insufficient perception of what is a healthy and sustainable diet, and the problems of over-nutrition are not clear to everyone in all sectors. One of the main blockages was identified as being a lack of demand and the willingness to pay for more healthy and/or sustainable products. Consumers often lack the knowledge on food systems processes and their consequences for health and the environment, the education on healthy eating habits and, particularly more vulnerable groups, the means to afford some of the more healthy products. There is also an unwillingness to accept new products (e.g. insects) and new technologies. In addition, lifestyle changes are currently pushing the demand for processed and pre-prepared foods. Also, it was stated that there is still not enough differentiation made between consumer groups and their specific choices. Overall, however, a change of the 'environment' is needed to reinforce consumer behavioural change; there is a lack of education of consumers but the question of education vs information was raised: what do they do with the information they have, who do they trust? The role of media and their representation of the food sector is thus very important. Within the food system also a number of barriers were identified. These included an often skewed distribution of power across food systems actors and in many countries a concentration of power in the hands of a few actors. This might also lead to a lack of communication across actors. Additionally stakeholder identified the need for new business models in the food system, particularly the ones that could also take the 'real cost' of food into account. Stakeholders mentioned here also that it is important to understand the political economy surrounding the food system in a particular country as it can act as a bottleneck in moving the food system towards a new direction. And with respect to public policies driving the EU food system stakeholders pointed to the missing coherence and integration across sectors (e.g. agriculture, health, environment, waste management) as one of the key bottlenecks in moving the system towards balanced diets and more sustainability.

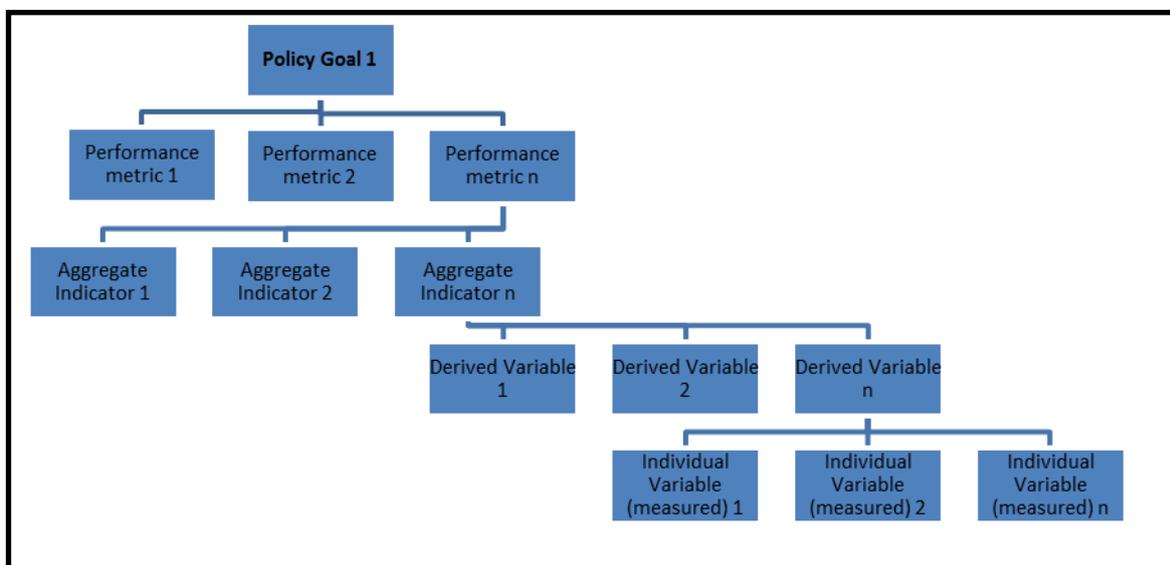
In the discussions of the CF draft, stakeholders approved of the basic ideas, elements and layout of the CF and recommended a number of additions. They felt strongly that a recognition of the social aspects and outcomes of the food system (such as labour conditions or socio-cultural wellbeing) needs to be added to the framework, maybe also as a policy goal for the EU. There is therefore a need to have greater emphasis on social aspects in the heart of the framework, e.g. worker conditions, in order to avoid optimizing for health and environment at the expense of social goals. In the discussions on the topic different options to include this aspect were made (either in the food systems outcome box, as a policy goal or in the box on the status of FNS). The stakeholders also recommended to include a number of additional indirect driving forces, such as the energy prices, the potential use of biomass for biofuels and urbanization trends. There was also a strong emphasis placed on consumer demand, while noting supply is a major determinant of what can be demanded and consumed. Furthermore they suggested to also include 'storing' and 'waste management' in food system activities box. Stakeholders also highlighted that a few more interactions, represented by arrows, should be included in the CF, such as a direct link between indirect drivers and the EU food system's box as these have impacts on the system that are not mediated via the EU policy goals and a direct link from the food systems influencers to the

EU and national policy makers. It was also noted that the framework describes a lot of elements. It does, however, not show the dynamics that would allow to describe a theory of change for the food system.

Stakeholders also recommended to keep check of important upcoming policy milestones or cycles (e.g. reviews of policies), so become “policy watchers”, in order to feed in impact at very timely moments and make sure that the project ends at an appropriate time for policy buy-in and demand. Aligning with the FAO and ICN2 Framework for Action as well as the SDG indicators could help. Furthermore then suggested that a review is needed to evaluate what policies (e.g. taxation and subsidies) work, not work, why they did not work and what was the result.

With respect to the proposed metrics to assess sustainable FNS and food system activity outcomes, the SUSFANS team proposed a hierarchical approach to selecting the metrics that should ultimately describe if and how well a particular policy goal is/can be achieved. The proposed approach to metrics is shown in Figure 4 and stakeholders were given a draft list of metrics for assessing each of the four policy goals described in the CF. Stakeholders approved the hierarchical approach that was proposed and stressed the need for finding a set of metrics that is technically sound but then also choosing a sub-set of metrics that are easy to communicate to decision-makers. They gave the following recommendations with respect to specific metrics:

Figure 4: Proposed hierarchical approach to select the SUSFANS metrics for sustainability FNS



Metrics are needed that reflect the healthiness of the dietary pattern, e.g. healthy diets indicator (population distribution needed), DASH diet score, score to reflect dietary diversity and food safety issues. In addition, the prevalence of obesity and mortality/morbidity rates of diet related chronic diseases should be added. ‘Total sugar’ should be re-worded as ‘free or added sugar’. On environmental variables stakeholders suggested to include metrics on waste, animal welfare, energy and the diversity and resilience of the farming system.

Furthermore they thought it was important to include better indicators on the competitiveness of the agri-food sector, such as revenue/turnover, rate of productivity growth or the number of people employed across a particular value chain. Here stakeholders also mentioned the need for indicators to show how the political economy surrounding the food system could be assessed if needed. They also suggested to think of a few parameters for important drivers of the food system and to think about how to include issues such as marketing or labelling into the set of metrics to describe the food system. Recommendations were also made regarding the (geographical) resolution of the indicators. Conducting country level modelling would allow to cover black spots while it might also be good to have some metrics at the household level where possible and appropriate. Stakeholders also suggested to produce a few, clear metrics at the EU, aggregating up from country level data, that can be easily communicated. Also, some specific parameters, such as water, might need a more locally aggregated perspective, e.g a watershed level information.

Session 3: Case Studies and Explorative Scenarios

Case Studies

In the afternoon Prof. Inge Tetens, leading the case study on the fruit and vegetables value chain in SUSFANS, introduced the case studies that SUSFANS is planning to do. The SUSFANS case studies will examine sets of innovations (in fruit and vegetables and livestock/fish value chains) in production, distribution, marketing and/or regulation that will improve European sustainable FNS within a medium and long term time-frame (5, 15 and 30 years ahead). A number of questions to the stakeholder group were discussed in two breakout sessions. One break out group was focusing on the fruit and vegetable chain taking a consumer perspective, while the other group discussed the livestock value chain from a producer perspective.

The groups were asked to discuss the following questions:

- Which FNS issues are of interest in relation to the two case studies?
- Which environmental issues are of interest in relation to the production of livestock-fish?
- Which environmental issues are of interest in relation to the consumption of fruit-vegetables?
- Which innovative pathways could you suggest to reduce/increase consumption and to overcome the issues?
- Which time lines and other barriers do you envisage in the innovative pathways suggested?
- How would you prioritize the innovative pathways in a long-term sustainable perspective or can we make smart packages of potential innovations?

Outcomes of the discussion on the fruit and vegetable case study included:

- Issues of interest:
 - Fruit and vegetables to be considered separately.
 - Vegetables more often sourced within country while fruits are more often imported.
 - Possibly also consider raw and processed fruit and vegetables separately.
- Environmental Issues:
 - National vs local sourcing.
 - Pesticide issues, including integrated pest management.
 - Organics driving in the direction of environmental impact.
- Innovative pathways:
 - Innovation that aims at taking consumer preferences, desires and needs into consideration.
 - Innovative technical solutions to increase consumption and reduce waste of F&V.
- Timelines and barriers:
 - Timelines for changes of consumer taste.
 - Health claims considered as a barrier for innovation by the stakeholders.
- Prioritization:
 - Understanding consumer perception and behavior.
 - Technical environmental improvements for F&V production rather than changing the consumer choices.

Outcomes of the discussion on the livestock and fish case study included the following items. Participants noted that one has to keep the social aspects with respect to food choices, possible trade-offs due to dietary changes, food safety and how to promote dietary change in mind:

- Issues of interest:
 - What is the role of animal source food within healthy diets (positive and negative)?
 - Provides e.g. B12, iron, calcium, omega 3
 - Link between meat and health e.g. cancer, obesity?
 - Differs between groups within the human population (cultural, sex, age) and between product types (fish versus meat).
- Environmental Issues:
 - Using different types of measurement units e.g. protein, kcal, iron.
 - Intensive versus extensive livestock systems:
 - Sustainable use of natural resources e.g. fish, wild meat but also ruminants grazing on marginal land.
 - GHG, land use, energy use, eutrophication, biodiversity, water use.
- Social and economic issues:
 - How to encourage people to consume a healthy diet?
 - Contribution of livestock production to farmers' livelihoods.
 - Bargaining power.
 - Support small production systems that e.g. contribute to biodiversity.
 - True cost pricing.
- Innovative pathways:
 - Novel feeding strategies e.g. insects or feed additives.
 - Changing consumption patterns e.g. bean burger, replacing meat by fish, insects, upgrading feed to food.
 - Circular economy.

Scenarios

The other half of the stakeholders discussed the use and analysis of exploratory scenarios for policy formulation in two groups. Dr Joost Vervoort, who is working in WP6 on this topic, introduced the notion of exploratory scenarios and their use in policy analysis and formulation. Stakeholders were given a list driving forces of food systems change in the future that resulted from a review of scenarios work done in two other Horizon 2020 projects (TRANSMANGO and FOODSECURE). Then participants were asked to discuss were the following questions, using the conceptual framework:

- Which drivers are missing?
- Which are most important?
- What directions could they develop into?
- What are the key policy questions?

The results of the discussion on food systems' drivers will be an integral part of the analysis of existing scenarios and foresight work in WP6. First, we present the original drivers list developed from TRANSMANGO and FOODSECURE analyses, with additions, changes and comments by participants indicated in *italics*:

Direct drivers – consumers:

- Consumer characteristics (choice motives, health concerns).
- *Dietary habits: animal vs plant foods; sugary vs non-sugary foods.*
- Social environment (cultural & social norms) *-religious and socio-economic status, traditions, beliefs.*
- Consumer environment (economic incentives, information, availability) – *labelling; knowledge – linked to inequality and poverty levels (indirect drivers) + revenues.*
- Influence of consumer associations *and media – marketing, advertising.*
- Food waste by consumers – *reformulated as awareness about food waste? cooking, storage – convenience.*
- Consumer awareness of and opinions on government *policies* and private sector *strategies.*
- Education on food utilization & *healthy nutrition.*
- Technology's impact on consumption.
- *Consumer cultural norms/habits/consumer taste.*
- *Food prices.*
- *Preference for quality.*
- *Availability of food from consumer point of view, visibility in supermarkets etc.*
- *Consumer preferences – appreciation of foods, combinations of foods, eating moments etc.*
- *"Beliefs" about nutrition, food "gurus" + pseudoscientists' influence.*
- *Consumer income.*
- *Marketing practices.*
- *Consumer education levels.*
- *Age groups.*
- *Role of food in society.*

Direct drivers – post-farm food system actors:

- *Reformulation of foods as requested by governments (less salt, sugar, better fats, more fiber).*
- Regulatory environment & standards (*specific policies*).
- Input and output prices.
- Customer preferences.
- Market structure *and retailing structure; organization of food value chain; value distribution, risk sharing.*
- Levels of food waste.
- Global competitiveness.
- Food frauds and scandals.
- Food demand from rest of the world.
- Technology's impact on business models.
- *Supply of raw materials (quality, trade, quantity).*
- *Capital revenues.*

Direct drivers – producers:

- Regulatory environment & standards (*specific policies*).
- Subsidies and incentives (*linked to indirect driver political budgets*) (*policies*).
- Input and farm gate prices.
- Contract opportunities -> *structures.*
- Natural resource availability.

- Available technology.
- Power of producer organizations.
- Generational succession.
- Land use change – *agricultural potential*.
- Diseases of crops and animals + pests.
- Pressure on coastal areas.
- Water quality.
- Intellectual property and patents.
- Agricultural pollutants.
- Insurance.
- *Capital revenues*.

Stakeholders commented that it might be useful to have an overarching drivers' typology to ensure all relevant categories are addressed, such as *demographics, economics, culture, environment, policies, etc.*

With respect to the most important drivers in the future stakeholder chose from the enlarged drivers lists the ones that they saw underlying and shaping how a future EU food system might look. They differentiated between consumers and other food system actors for this. While the policy environment and regulatory frameworks will shape the future for both of these groups, for producers and food chain actors stakeholders saw a wider range of drivers, ranging from technology to resources availability and value chain organization, as being important than for consumers:

- For producers and food chain actors:
 - Policies and legislation.
 - Technology, R&D.
 - Demand for special food products, including geographic identification (GI), consumer willingness to pay for special products.
 - Resources, resource use, resource availability, use efficiency.
 - Organization of value chains.
 - Subsidies and incentives.
- For consumers:
 - Regulatory framework, policies, legislation.
 - Consumer acceptance.
 - Income and prices.
 - Consumer associations.
 - Public health.

Important drivers could take the following directions:

- Distribution systems/retailing: from retailing including supermarkets to distribution centers.
- More private R&D with the risk of R&D concentration on a few commodities/food stuffs.
- More food fads (gluten-free), more catering to perceptions.
- Food becomes ever more "than nutrients" , i.e. inclusive of environmental considerations of production and distribution (food miles), fair trade, social impacts, impacts on development and developing countries.
- Food waste: Shelf life on the shelf becomes longer, improved post-harvest processing, improved utilization of wastes.
- Urbanization: multi-local, pluriactive households.

The Stakeholders also formulated a variety of policy questions that they feel are important to address in order to determine how to achieve sustainable FNS in the EU. These questions will set the scope for analyzing existing scenarios and foresight analyses for new insights. The policy questions varied in detail and level, some addressed the whole food system while others focus on a particular food system actor or activity, such as consumers or agricultural production. The majority of the questions though focused on policies that could move the EU food system towards achieving sustainable FNS, such as:

- Is a food system policy possible?
- How to develop legislation for fair governance of the food system?
- How to manage the power relationship along the food chain, avoid market concentration?
- How can agri-food and trade policies be considered together?
- How to reflect and formulate environmental policies and their impacts on the food system?
- Where is policy needed? Where is the market failure?
- How can FNS policy coherence be achieved?
- Can we design a SFNS stress test for all policies?
- Will the increasing number of non-communicable diseases lead to policy measures influencing food production?

A number of questions addressed consumer behavior and how to change it, such as:

- How can behavioural changes be promoted?
- How to respect and incorporate values and perceptions held by food consumers?
- What is the role of regulation versus awareness/education?
- Should a 'stick' or 'carrot' be used?

And a third set of questions focused on specific issues in food production and processing processes:

- How can the use of inputs in production change?
- How can the use of sugars, fats, etc. in food products change?
- How can Big Data be used?
- Will food reformulation (including less salt) influence shelf life, waste etc.?





Workshop Participants



List of Participants

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Metrics, Models and Foresight for European Sustainable Food and Nutrition Security (SUSFANS)

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