

Full Workshop Report

Diversifying Food Systems in the Pursuit of Sustainable Food Production and Healthy Diets

Third workshop

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10.00 – 16.30

The French Ministry of Agriculture and Food

78 rue de Varenne, PARIS 75007, France

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I. Presentations

Monique Axelos (chair SWG SCAR Food Systems) opened the workshop.

1. Welcome speech and presentation – *Jean-Marc Chourot, French Ministry of Agriculture and Food*

In France which is a country of culinary traditions, the following changes occur:

- 1) consumers expect more and more,
- 2) there are less farmers and they become poorer
- 3) the food system has to deal with recent crises (i.e. food safety)
- 4) there is a decrease in the consumers' trust and
- 5) climate change and environmental concerns are reaching the mind of the consumers and of the policy makers.

All this leads to the organisation of a vast and major consultation at national level. The French National Food Conference has two broad work areas:

- an initial area devoted to the creation and distribution of value and
- a second area of work on food that is healthier, safer, more sustainable and affordable for all.

This resulted in a law (Loi EGALIM 2nd October 2018) to pay right prices to producers, to allow them to live worthily from their work, to strengthen the sanitary, environmental and nutritional quality of products and to promote a healthy, safe and sustainable diet for all.

Attached is a strategic agenda and several underlying action plans and roadmaps.

The following are some examples of policies.

- **First**, the specific chapter about Agriculture of the national Circular economy roadmap (26 February 2019) includes the mobilisation of fertilizers from renewable resources, making farmers the driving force behind the development of the circular economy, better prevention and better management of agricultural waste.
- **Second**, to support aspects of the law EGALIM, regarding animal welfare, one animal protection officer is appointed in each slaughterhouse, with an official 'whistle-blower' status for the employees. Regarding eco-friendly production methods, 27 food chains plans have been developed addressing research, economic, and societal concerns (including consumers and producers aspects).
- **Third**, the plan 'Ambition bio 2022', aims at an increase of 15% of the surface cultivated with organic crops. The plan supports its governance e.g. with new financial measures to encourage the conversion to organic farming among which an increase of the available funding (1,1 Billion €: 200 M€ State, 630 M€ EAFRD, 300 M€ others) and reinforcement of funding to support the structuring of the organic chains. Furthermore, the plan aims at an increase of the consumption of organic meals in schools, which should reach more than 20% and should go along with at an increase of locally produced food and short supply chains by more than 50%.
- **Fourth**, the Bioeconomy action plan supports and guides innovation in the area of equipment for biomass production, harvesting and processing.
- **Fifth**, the Vegetal Protein development (2014-2020) focuses on the development of vegetable protein production and the strengthening of the autonomy of French livestock farming, by mobilizing the regulatory and incentive tools of the CAP, the pursuit of

coordinated research and technical support for producers and strengthening the governance.

There are many initiatives at national level aiming at transforming our food system. In a global context, a lot of attention is paid to European alignment. To conclude, this is one of the reasons why the French Ministry of Agriculture is strongly supporting the SCAR SWG Food Systems and this workshop.

2. Introduction and purpose of the workshop- *Monique Axelos, chair of SCAR FS SWG*

The challenges in diversifying food systems are the decrease in crops' and animal breeds' diversity which undermines the ability of agriculture to adapt to climate change, and to cope with pests and diseases. In parallel to the threat regarding agrobiodiversity, we notice a trend towards the homogenisation of diets (greater intake of calories, animal proteins, and ultra-formulated foods that are high in sugar, salt and fat). Diet-related health problems occur in every part of the world and non-communicable diseases are now the leading cause of death worldwide.

In the future, we expect that our food system will look different from now. Technology and social practices will have changed the way we produce and process our food, how we shop and what we eat. Transitions are already in progress, in particular via a profusion of local and national, private or public, initiatives to meet the consumer's demands for naturality, practicality, increasing the territorial development; reduce wastage, energy consumption, adding value from which coming the farmer profits and increasing competitiveness through innovation. These initiatives lead to more diverse food systems but raise the question of their impact, in terms of sustainability and diet quality.

In the **first workshop**, we tried to answer the following questions.

Q1: what are the benefits and inconveniences of diversity for Food Systems?

Q2: how can diversity contribute to the sustainability of the Food Systems?

Q3: how to promote diversity in the Food Systems?

In the **second workshop**, experts helped us to explore the diversity of food systems and processes, which make this diversity, evolve. In parallel, Member States provided feedback on their related policies. We ended with some recommendations for research and innovation and for food authorities and policy makers.

The purpose of this **final workshop** was to share these recommendations, collect opinions and proposals to improve the document and deliver strategic advice to the EU R&I under the framework of FOOD2030.

- In the first part experts answered the question: why do we need to strengthen diversity in food systems?
- The second part contained the presentation of the recommendations and
- in the third part two round table discussions were held.

3. Why do we need to strengthen diversity in food systems? Focus on the production side - *Jean-Marc Touzard Research, INRA*

The key message of his previous presentation in the second workshop was that diversity in and between food systems can contribute to food security & sustainability. This calls for new research questions:

- to define/describe what is diversity in and between food systems,

- to understand the processes that generate the evolution of diversity in/between food systems,
- to assess the impacts of diversity on food security and sustainability and
- to analyse and support strategies, policies and debates that promote/orient diversity in/between food systems.

New key messages, focusing on the production side of food systems are:

- 1) diversity of production can generate economic gains to farmers and firms in food systems
- 2) diversity of productions can reduce negative externalities, procure positive externalities and promote more sustainable food systems
- 3) diversity of production can be a source of flexibility, innovations, adaptation and creativity.

However, the valorisation of diversity in food system is not a given fact. It may be available under many conditions.

Ad 1. Diversity can generate economic gains to farmers and firms in Food Systems (arguments from microeconomics, variety economy in agriculture). Diversity of activity/production/markets can contribute to:

- a reduction of risks (climatic, market, safety);
- optimization of variability inherent to agriculture (use of heterogeneous factors such as land, skills, weather, water access), seasonal activities (underutilisation of equipment, labour), heterogeneity of products (quality, size) and valorisation of co-products;
- agronomic and technological complementarities: combined crops, rotations, crops and livestock, agroforestry and transformation can increase the global production, limit loss and waste or reduce costs (inputs);
- response to differentiated demand: horizontal and vertical differentiation, changes in quality demand and consumption bundles.

Under some conditions, economic agents also search for economies of scale and specialization (trade-off between variety and scale), including the reduction of costs by increasing volume and efficiency by specialization. Diversity can also generate underutilisation of factors, equipment. Too much diversity can generate costs such as technical cost in food systems (for storage, transformation, logistic, marketing). There are increasing risks of cheating, costs of control and protection of quality.

Furthermore, there are costs for coordination and negotiation, loss of power and a wider range of interests.

Finally, there are costs of research for consumers. Too much diversity can destabilize the market (regarding norms and roles, etc.). The trade-off between scale and variety economies is influenced by a lack and asymmetry of information and knowledge (on alternatives) and domination of short terms economic strategies (price competition, trust).

To conclude, diversity should be supported and organized.

Ad 2. Diversity can reduce negative externalities and promote more sustainable food systems (arguments from sustainability assessments and an externalities analysis). The specialization/industrialization of agriculture has generated negative externalities. Higher diversity can reduce them, or create positive ones such as:

- a reduction of biodiversity erosion and eco-systemic services: conservation of genetic resources (old varieties and races), conservation of species, populations, ecosystems, landscapes and positive impacts of diversified agroforestry, rotations and combined crops;
- a reduction of GHG emission, carbon capture: the introduction of legumes and agroforestry;

- maintaining activities in (disadvantaged) rural areas: valorisation of local products, products of origin, agriculture and tourism;
- inclusion of women, disadvantaged people and new entrants;
- opening opportunities to more diversified and healthy diets? (food security, food sovereignty, a healthy diet, access to cultural food?).

Ad 3. Diversity of production can be a source of flexibility, innovation, adaptation, creativity (arguments from innovation studies, transition approach):

- innovation results from (and generates) diversity: alternative food systems as niches for technical and social innovations, role of cultural diversity in food innovation. Innovation can result from both new and old knowledge. The role of diversity of practices and knowledge (including scientific and practical approaches) is important. Interactions are based on diversity, sharing experiences, debate, confrontation and building new (complex) systems by combining diversity;
- adaptation (to climate change) relies on diversity: in the case of the wine industry this relates to diversity of practices, varieties, locations, products. Adaptive management needs diversity of actors, visions, resources and networks. Capture of weak signal: exploration of scenarios need creativity and diversity.

There is a need for the development of new methods to create and develop solutions. Furthermore, there is a need for new knowledge and methods to promote diversity.

4. Why do we need diversifying interactions between stakeholders all along the food chains?- Yuna Chiffoleau, UMR Innovation

In the past Food Systems were more diverse. We went through a trend towards homogeneity. Our food system has been replaced by an agro-industrial system with mass production and processed food. Proximity of food systems was little considered until the 2010s. The origin of food systems underwent the main form of resistance until the 2000s. Polanyi (The Great transformation, 1944) explained that:

- the economy is embedded in social structures, in social processes (reciprocity, redistribution and market exchange);
- faced with the trend of market autonomisation (dis-embedding, domination of market exchange), there are two main counter-movements: communism and fascism (re-embedding, to take control again);
- there are different ways of re-embedding, more or less democratic, that question the role of institutions (governance) and citizens.

Local food systems (as analysed) are a major trend and driver of re-embedding in Europe and developed countries, mainly from a democratic perspective.

Why do we need to (partly) re-embed food systems in closer interactions between producers and consumers? To address:

- the political issue of rebalancing power and invention of democratic devices, for example projects such as 'Projets Alimentaires Territoriaux' in France (coordination of stakeholders);
- to address the food security issue, including complementarity of long and local chains in daily business in case of perturbations (resilience);
- to address the innovation issue of solidarity contracts between producers and consumers (AMAP and community supported agriculture), participatory guarantee systems, the 'ecologisation' of practices which favours innovation within long chains (co-existence, co-evolution);

- the economic issue of revenue diversification, risk alleviation for producers and a local multiplier effect;
- the social issue of learning and self-esteem.

To conclude, remaining challenges are:

- 1) access by low-budget consumers to diversity of food (change in food environments and food policies, waste cannot be the future),
- 2) access by middle-agriculture producers to diversity (there is a need for more animation in territories e.g. in relation to food catering) and
- 3) regulatory frames are not adapted to small-scale structures (such as local slaughter houses).

5. Diversity and food consumption - *Eric Verger, IRD and Marie Plessz, INRA*

Diversity in packaged supermarket products is far from being healthy. From an Oceanian study, we learn that the variety of sauces and spreads is almost as important as the variety of fruit and vegetables in Oceania. Less than half of the packaged foods had a good nutrient profile (based on Food Standards Australia New Zealand Nutrient Profiling Scoring Criterion). There is a 'clear potential to improve product availability (...), in particular by reducing the large variety of very similar ultra-processed foods' (Luiten et al. 2015).

A positive aspect of dietary diversity is that consuming a wider variety of different foods or food groups, is associated to higher chances to cover nutrient needs, whatever the context (from LIC to HIC). Some negative aspects are that consuming a wider variety of dissimilar foods (e.g. fruits, vegetables, baked goods, snacks, soda) is associated with a higher gain in waist circumference in the USA (Oliveira Otto et al. 2015). Furthermore, exposure to a variety of foods may increase energy intake and food consumption (Science Advisory from the American Heart Association. 2018). Hence, dietary diversity cannot be a stand-alone recommendation for a healthy and nutritious diet. Diversity of fruits and vegetables seems beneficial for health but diversity of ultra-processed foods seems detrimental for health. Diversity is to be found in connection to all the aspects of healthy diets, e.g. see dietary guidelines.

Gaps in current knowledge are optimal levels of diversity in diet for better nutrition and health and compatibility between healthy diets and locally and seasonal food productions.

Consumers work at reducing diversity and its negative effects by trying not to purchase particular products. However, short food chains require more work. Food choices are often based on routines and tastes. Acquiring food requires, work, time, energy, skills and coordination. These factors might cause to fail purchasing diverse food. Furthermore, it is often the women that take care of the food.

Regarding **variety in meal** content as a social norm, it is considered appropriate (good housekeeping avoids monotonous meals). However, it also generates more food waste (Evans, 2014). Sometimes ready-prepared, pre-packaged products are sold (and viewed) as ways to ensure variety. From a food repertoire (tastes) perspective, we can ask ourselves if a different soup every day is a form of variety and if there are wider repertoires in higher socioeconomic groups. Variety in eating contexts includes different eating patterns in different places such as commercial venues, work, school, hospital, retirement home, prison, holiday, while traveling, etc. Eating is both a social norm and an answer to daily-life organisation. Eating out generates more food waste (42% of food waste for 15% of meals). Variety generates economic activity but it is resource-intensive.

Differences in tastes express class, ethnic and gender identity. This is related to liking/avoiding specific foods (Bourdieu, Distinction). It signals who you are to others and it can make you feel either at home or like a stranger. Differences in living conditions depend on the composition of

the household, equipment, housing (access to a garden, compost, a freezer), income, work schedules, food skills and capacities. This varies across socioeconomic groups. Diversity helps to accommodate citizens' tastes and living conditions (social cohesion) but policies focusing on helping citizen to make the right choices, often lead to stigma and blame on the most vulnerable citizens.

To conclude, (why) do we need to strengthen diversity in food systems? We need to rethink the concept of diversity in food systems. There is already a high level of diversity/variety but it is not a balanced system. We ought to focus on more diversity in plant-based food and less variety in redundant ultra-processed foods. We should avoid mental burdens generated by diversity and ensure gender equity and avoid stigma and blame on the most vulnerable citizens.

6. Elucidations (E), questions (Q:), answers (A) and comments

- **(E)** by Jean-Marc Chourot: In France the food is as diverse as its people. E.g. the third national meal is couscous which originates from North-Africa. Food needs to be sustainable from the fork to the plate, which also means understanding the economic challenges behind it;
- **(E)** by Yuna Chiffolleau: explained a project in Montpellier (+/- 400.000 inhabitants) as an example of an economic food variety study. The procurement of food comes from different regions. Tomatoes can come from Brittany, but also from local producers. It is about a balanced mix with regard to fresh tomatoes and volumes. In case of problems, global chains are more efficient. The complementarity of chains is very important. If you purchase in a local producer shop, the consumer often spends more money than in a super market. However, with this purchase the consumer contributes to local development and the re-embedding of money flows. Re-embedding has some challenges. It is not easy. Solely locally produced food cannot be a way to feed all poorer people and decreases variety in food supply.
- **(E)** by Eric Verger: there are not (many) academic studies about food variety in European food supply. Diversity in packaged supermarket products is often far from being healthy. According to Canadian food guidelines, we should eat plenty of vegetables and fruits, whole grain foods and protein foods and choose protein foods that come from plants (more often). We should limit highly processed foods and if you eat them, do not eat them too much and in small amounts.
- **(E)** by Marie Plesz: consumers work at reducing diversity and its negative effects. People, mostly women, try to change not to buy products such as food what kids want or partners want. It takes a lot of effort. Buying local food takes time. People have their own taste which guides their choice and they often buy food they wish they had not purchased. Diversity is different than variety. Variety is about the person's diet. It is considered to be appropriate not to eat the same food every day. If you only eat healthy food, it might be/feel monotonous. Sometimes people use pre-packaged or ready prepared food to achieve eating heterogeneous food. What is variety? E.g. Italians might think no pasta is the same, while other consumers think it is just pasta. We have to take into account the different eating contexts. Sometimes food is a social norm/event like going out and sometimes it is a daily routine. Furthermore, we have to take into account the social norms or habits such as drinking alcohol. There are also differences in access to food because of work schedules, logistics, etc. Gender issues also play a role. The agri-food sector plays a key role in transforming agricultural diversity into food supply diversity. We hardly produce a sufficient variation of vegetables or we are not able to sell them. E.g. we have too much corn e.g. in our diet. The industry alone cannot change the system, we need good policies.
- **Q:** *diversity can generate economic gains for farmers and firms and it can also generate costs; can you explain this?*

A: it is a game for economists to find the trade-off between the production functions, costs and volume. You can reduce the costs but you can also develop new games through new activities. Farmers always have to combine the two different goals of: 1) cost reduction and 2) looking for new activities/markets. Now the game is about diversification. It is about finding the balance.

- **Q:** *regarding the aspect that poor people have no or limited access to food, diversity and new ways of consumption. What is the impact on poor(er) people regarding new consumption patterns? Food aid initiatives might or are leading to feelings of blaming and shaming. What can we say about new ideas to include poorer people in new food systems?*

A: first of all, the development of local food systems is increasing. However, they are not limited to short chains. We should actually speak of regional food chains. We experiment with local food and food aid such as through EU projects on those topics. In the French initiative 'Restos de Coeur' fighting food waste and hunger, we observe positive and negative effects. Some of the poor people respond negatively to supportive aid initiatives, saying it is a way to control them and it is really about the rich(er) people who invented this (for and not with them). That is why we should mix our approaches and mix populations. It is about solidarity through which we should try to develop mixed systems to avoid these stigma's and feelings. Therefore, we should have a critical look at the social and political aspects of aid initiatives first.

- **Q:** *regarding the balance in food systems. We learn from experience that if one food company falls, others fall down too and the same occurs with systems. How will this influence a good balance in diversity? How will legislation and business models be impacted by searching for the right optima of diversity?*

A: we need new R&I approach too.

7. Recommendations on how to increase diversity in food systems - Minna Huttunen senior officer, food policy, Ministry of Agriculture and Forestry

From the Plovdiv Food 2030 conference, we learned that current trends are more focused on the loss in diversity of races, of varieties, of landscapes and on diversity in diets. Supermarkets and fast foods, for instance, have led to a dominant trend of loss in the diversity of primary food products, used for our consumption. Diversity is also helping the most vulnerable groups of small producers and the poorest consumers who are at a risk of falling out of being active members of the food system. Maintaining the existing diversity is a challenge in such a context and re-diversifying is an even greater challenge! Action in favour of diversity is important and public intervention in the R&I system is necessary, as private innovation dynamics will probably not lead to maintaining diversity. Diversity is sustainable (vs. homogeneity) and Europe is diverse.

Furthermore, we learned that diversity is an asset which needs active protection. Recommended actions include the development of a more pluralistic and diverse EU R&I programme and portfolio with equal opportunities for all players, options and solutions, especially in data processing and information production, from all types of available data, and business models.

Second, business strategies in both private and public sectors should be identified and developed which favour culturally relevant product and raw material diversification over standardized mass production and the race to lower prices.

Third, the mechanisms and role of diversity and how it can be influenced have to be well understood. For example, what are the policies or norms that would make diversity models more viable under global competition?

To conclude, diversity across all related policies in terms of raw materials, diets, policies, communication, new business models, processing and production, and use of resources should be explored and applied.

Effective genetic resources conservation and use, healthy diets from sustainable food systems and productive and resilient farms, forests and landscapes should all lead to the impact of improved ecosystems, nutrition, income and other livelihood benefits. The EU could play the role of frontrunner in the global food systems' approach.

The SWG SCAR Food Systems' policy recommendation include 1) general main challenges related to diversity and 2) solutions to better address diversity.

Ad 1. The challenges are formulated in the following questions: *how do innovation processes combined with changes in eating habits, policies and ecosystems, influence the diversity in and between Food Systems? How to assess and compare the impacts of different 'levels and modalities of diversity' in and between Food Systems, according to food security and sustainability goals and how to co-design governances of Food Systems that promote, guide and value their diversity at different territorial scales (local, national, European, global)?*

Ad 2. Solution are:

- a better interaction between stakeholders all along the food chain;
- diversifying primary production;
- diversity of the diets and of food consumption practices and a better integration of diverse proteins sources.

The advice from FOOD SYSTEMS SWG contains the following recommendations to food authorities and policy makers: develop new regulatory frames and governance devices, unite, and harmonise policies on food, health, agriculture, climate and AMR one-health.

Recommendations for Research & Innovation include the development of new indicators and approaches, new business models, standards and logistics (including ICT), securing the integration of end-users, industry and – as a new actor – retail (supermarkets, WEB companies, catering) in R&I programs and diverse proteins sources.

SCAR FS SWG is organising a discussion on country activities related to diversity in Food Systems. In April 2019, a request was sent out to countries to provide information on concrete actions, best practices and facilitators/barriers to increase diversity. An example from Finland on diversity in the production system is Palopuro Agroecological Symbiosis¹. So far, there has been response from: FI, ES, LT, UK, TR, NO and HU (was dated: 10.5.2019).

8. Diversity in food systems in Lithuania- *Alvija Salaseviciene, Kaunas University of Technology*

The ministry of agriculture in Lithuania issued a white paper of the status quo and developments regarding food systems. Lithuania wants to position itself as a healthy and sustainable food producing country, including export with focus on motivating farmers and in particular SMEs, to develop nice products which fit the Lithuanian national heritage.

The government would also like to support a diverse variety of farms, including encouraging small businesses and introducing novel types of farming e.g. to keep genetic potential of animals and to live up to environmental measures. Focus will also be on short supply chains and developing more bio small markers.

Barriers are e.g. the fact that the ministry is giving the right to decide what to produce, how to develop added value and innovate. Hence, it depends on the farmers' will. It are still guidelines for the small businesses and how to support more local communities.

¹ <https://blogs.helsinki.fi/palopuronsymbioosi/english/>

In the white paper there is uncertainty if there should be more support reserved for the lagging communities.

Finally, space is lacking to create more diverse actions and businesses.

II. First Round Table Discussion

Facilitated by Christophe Cotillon (ACTIA)

Panel: Jean-Marc Touzard (INRA), Eric Verger (IRD), Mona Gravningen (Research council of Norway), Akos Kristof (Ministry of Agriculture, Hungary) and Itziar Tueros (AZTI).

- **Q: should there be more private innovation on diversity in food systems; what is your opinion?**
Businesses that innovate always have to address the consumer's needs.
- **Q: is diversity of non-healthy food a good thing?**
There are so many drivers based on what food is available and accessible. It could be either a food desert or a food swamp. There are people that have limited transport options who mostly have access to solely food with low nutritional value. It is really about the question of diversity in food supply. That could be promoted more. Products, which are interesting and good for your health, do have to be available. Then there is the matter of healthy and unhealthy food such as peanuts with your aperitif, which are often very salty. There are many more salted nuts available than unsalted. Hence, the diversity in the supply of nuts and seeds is outbalanced and insufficient. Furthermore, the private sector should be supported to improve access to healthy food.
- In Norway there is a formalised partnership between the food industry and the public authorities. There is sufficient budget available to produce the right amount of food so cooperation is the key word.
- It is not only about the quantity, it is also about the quality. In Spain for example, the quality of food is important. It is difficult for consumers to reduce the right fats e.g. in their diets because of insufficient or contradictory information. Which fats are good for your health and which are not?
- **Q: what is the consequence of diversity from the point of view from the industry?**
For example, if we look at different sources of proteins we need to take into account food security. All the new sources have to be good for our health and be safe. What are the consequences of new proteins e.g. for fishery and consumption? Which effects will the new proteins have on our ecosystem, on ethics; what will be the social impact? We have to take all these elements into account.
- **Is Spain in favour of diversity?** They are more conscious about health.
It is interesting to cooperate with food business R&D departments from Nestle or Danone for example which are concerned about health issues.
- **Q: Is diversity mostly related to health, in the food industry?** They also address environmental issues. Companies are working on circular economy and reuse of ingredients. It is good to support them or collaborate with them.
- There is a **difference between policymaking and consumption**. Policymaking should also concentrate on the environment, loss of soil, growth of the population. Our main concern should be the environment, to leave our earth to other generations. The environment needs biodiversity. We are the dominant species in the world. In the long run, the environment is the greatest challenge. In Hungary the problem is that agriculture is dominated by 5 plant species. All the rest is marginal.
- **Q: How to create a diverse landscape?** It is easy to create commodities. The Hungarian Ministry tries to encourage the agri-food sector to be more innovative in this regard. GMO-based food from outside the EU forms a risk. The Ministry wants to stimulate the growth of new plants and new proteins, also for animals. They focus on education (teaching and

training) regarding diversity in food systems and developing novel, competing products. It will be a long term change but they are not starting as off tomorrow.

- The food system is part of the bioeconomy, which is a complex system and operates on a global level. It is important to stick to the right questions about diversity. It can be difficult to operationalise between nations. What is good for one nation, could be bad for another nation.
- There should be focus on **what kind of diversity is needed**. Food variety can lead to better nutrition but can also lead to overweight. When you see food systems as a whole, you should see it as something that is ought to bring balance. This also means looking at the most important disadvantages. Some possible benefits are a push towards diversity which might lead to the development of new technologies and IT solutions and could also answer other questions in society. Biodiversity and genetic diversity make us less vulnerable to climate change or other kinds of crises. It also leads to more diverse diets, stimulates innovation and the development of novel foods. It can enhance competition and the spreading of power. It leads to more opportunities, more cards at hand and more options.
- It is important that **cooperation** is the key word in all work. To achieve a more diverse food system, every part of society has to participate and contribute. The private sector/the industry has a unique possibility to influence this development while operating in the food market.
- *Q: if there is more diversity, there will also be another landscape but do we not focus too much on self-supporting systems? We also have to look across countries. If you become fully dependent on export such as some countries, how can diversity help these people; how can we cover diversity in that sense, if you are that depending on other countries?*
It is a very important aspect. If we want more diverse products, then we have to deal with issues such as logistics and other challenges.
- *Q: are you working on diversity in Norway?*
Yes and the government wants to enhance local production. We have developed clusters of private producers working with other actors which lead to diversity and niches.
- *Q: how many funds are going to certain food environments and how much is societally related, in Norway?*
That depends on the amount of sufficient applications in the field and the specific programmes. There is more interest by the food environment on accessibility.
- *Q: the fruit and vegetable intake could be more diverse but also the production. How do we differentiate?*
This is a question which should be connected to the local environment, to see what used to grow in that particular environment. Then you can see certain types of fruits/vegetables that have been forgotten such as certain types of berries, etc.
How can these be reintroduced? This can help to balance diets, avoid a lack of nutrients and ensure there are specific vitamins during the year. Rediscovering and reintroducing these old or forgotten foods is also a political issue. E.g. look at the example of almonds. The main production of almonds is in the States but there are regions in the EU where you can grow almonds. However, it requires a big **political push** on local, regional, national and international level **to reshape our production system** and to push the cultivation of forgotten fruits and vegetables.
- Regarding the **growth** and **development** of new proteins, there is a synthetic need. We need more research and insight on the impact of both health and the environment by new proteins.
- There are also the JPI's that launch knowledge calls. We have knowledge on production on the one side, on climate change on the other side, the nutritional value on the third side and impact on the health side. Two months ago a map on cross-sectoral issues was launched to build up a programme on cross-sectoral activities and to build up strong commitment for R&I knowledge on food systems.

- **Q:** *Do we consider the trend in overweight? When we increase diversity, do we also notice an increase in calorie intake/obesities or does this depend on population, social structure, etc.?*
- This depends a.o. on behaviour and other various factors. There is no simple answer.
- All aspects need to be assessed. If we want to reap the benefits of more diversity, we also have to consider the negative side effects. We need to think of these negative side effects and their impact on society first.
- **Q:** *there are some areas where we need to decrease the diversity with respect to junk food. So should we look at lesser diversity in the one context and more in the other context?*
It depends on the type of diversity. We also have to look at **'fake' diversity** such as marketing strategies which are only making it seem like there is more diversity when it is actually only about more variety. Diversity depends on models, geographical factors, etc.
- **Q:** *What could be beneficial? An incremental increase or a very radical one?*
- There are different ways to support transition. There can be multiple actions. The question is how information rationally leads to optimal diversity. We have to focus on niches. What are preferential options, which diversity in which contexts? One can argue which sectors need diversity and which do not. This depends on context and location.
- If we want to organise an ideal food system, we have to think of what we want with fruits, cereals, vegetables, etc. It will be a radical shift compared to how consumers get their food at this moment. In some fields, we have to change the system completely compared to how we have organised it up until now. For example, we cannot eat as much red meat anymore but we can decrease the consumption of red meat and increase diversity in other parts of the food system.
- It is a global problem. **Unhealthy** food is highly **available**. We can think of legislation or making it harder to get access to unhealthy food. There are a lot of solutions to reduce the total quantity of junk food but it is a tough job.
- **Q:** *we looked at targeted impact. Shouldn't we also discuss unexpected impact?*
It is difficult to anticipate impact. There are so many influential factors and drivers. E.g. raising the diversity of artificial meat can have good or bad consequences.
- **Q:** *seasonality is linked to diversity and the benefits and challenges that this poses. We don't know enough about the effects of processed food and its consumers. What is the tension between seasonality and diversity?*
Studies on this aspect are limited. One study focuses on modelling a sustainable diet. It might be challenging. People need to be happy with little variety and acceptance of this diet. We need to **investigate the potential for local production more**. There is a long history of agricultural chains to look into.

III. Second Round Table Discussion

Panel members: Annamaria Marzetti (MIPAAF), Pawel Chmielinski (PL), Margaux Denis (FR), Jonas Lazaro Mojica (FoodDrinkEurope), Paolo Patruno (CLITRAVI) and Ondina Afonso (SONAE M.C)

Facilitated by Ruairi Colbert (Ministry of Agriculture, IE)

- **Q:** *what is the Italian government doing on diversity?*
The Italian food system is really diverse. It should be filtered in different domains, diverse climates, social aspects, etc. The political diversity is key. There are many different ministries which are or should cooperate regarding food systems and we are dealing with many regions. So how to govern this kind of diversity? We **need concerted action**. We moved on from the industrialisation and delivery of food to **include the social impact of food as well**. We try to valorise the production, the geophysical aspects as well as the origin of food. But on the other hand this means that we have to sit around the table and identify what we want. All actors in the chain have to identify the value chain. In the last CAP period, there were innovation measures, so we developed the rural areas and

facilitated the process from agricultural production to the logistics of the chain. We set up a number of measures that support the food system approach. We developed concrete actions on diversity between ministries, which was not an easy task, and the main actors (farmers, retailers, consumer organisation, etc.). They share a strategy together. There is a certain roadmap on the bio-economy and we have organised a meeting on the revision towards a collective national strategy on rural development, agriculture and food, etc.

- **Q: What does the government do on diversity in Poland?**
We foresee a great opportunity for policy based on the demands of consumers, to develop a consistent strategy for sustainable development. On the one side we follow the EU trend in a systematic approach or a food systems approach, to write in our new strategies. On the other hand, our policies fit between the stakes of the industry and the public domain. We are working at the strategy now, bringing all actors together. We face a few problems. We have a competitive food industry and the bigger companies are usually the first to introduce new models and technology. Besides that we have our own ways in local food systems/markets with their own innovation challenges. The problem is the gap between the big food companies introducing innovation and the smaller entrepreneurs like farmers.
- **In France** there is a national programme (explained this morning) with some actions on diversity and there is a large project being conducted at both city and rural level. The ministry of agriculture was the initiator. There is a programme on health and environmental issues. We want to get all ministries together on the topic of diversity.
- **In Portugal** there is a group of 200 fresh local producers with who Portugal Foods work together. Agriculture was not sufficiently organised to address the big demand of the retailers. Most of the agri-business derives from SMEs. Portugal Foods employs about 20 researchers who share their knowledge with the farmers. We try to boost innovation to be one step ahead of what is happening. We developed a 6-month training programme. Most of the trainers are people from the agri-food chain and academia. We try to share information regarding our quality demands, logistics and other knowledge. At the same time a marketing team from our innovation department is supporting the development of innovative products and linking those to a price. We have a simple protocol and we are developing a quality scheme in order to certify the production, including animal and welfare indicators. One example is our chutney project in which we cooperate with a small business on reducing packaging. Another example is the traffic light mark, which was developed 10 years ago to guide consumers to choose healthier food. In school programmes, we stimulate the preparation of healthier food and we develop contents for TV and magazines. There are technicians who help us with the scientific base. We also developed the new product 'Continent healthy products'. We signed a protocol with the ministry of health but we went a little bit further than that. We did not focus on artificial sweeteners or lactose free products because we believe that these only addresses a small target group.
- The following examples from **FoodDrinkEurope** were explained. The major challenge is that our food system is already so diverse, also in actors. There are start-ups, SMEs, multinationals. Hence, it is a very diverse field. SMEs and start-ups are very good drivers for innovation but we need bigger companies to make innovation mainstream. I think the key word in the SCAR FS policy brief should be the **multi-actor approach**. The milestone which we have to achieve is **cooperation** and **collaboration**. That may sound logical, but it has not always been so. It should be about harmonisation. We still have a lot of work to do. The first step is to **define different actions**. Smaller companies invest more at local level. Companies should work more in line together based on common grounds and common messages. Corporate Social Responsibility works better. Europe is very good at

creating public-private environments or contexts, which bring different actors together in the value chain. However, we have to **involve SMEs and start-ups** more.

Furthermore, we have to be critical on health claims. We should not provoke the consumers in thinking that all processed food is bad. If the consumer distrusts the retailers or the food processors, then we have a problem (and it is already a problem). So we should reduce this distrust and stigmatising certain foods. It is more about creating the right balance. The consumer should not excess but he/she should obviously **have a food choice**. It is a very difficult matter and the stakeholders tackling this problem should be praised. *Why do consumers behave like they do?* It is all quite complex. Stimulate more local products? We operate in a global market. That makes it challenges. If we want to grow coffee in Europe, would that be sustainable? Patterns vary between EU MSs also. For example, the H2020 project Smart Chains looks at local to local production, legislative issues and how it relates to diversity. There are certain trade-offs e.g. mass production for food security versus healthy and sustainable food production. We need **innovation to cover the gaps**. The investments are huge but there are certainly gaps where we can improve efficiency.

- *How much improvements can we make?* **Communication** is very important. Ultra-processing does not sound good. Maybe it's not as bad as often claimed but it certainly has a bad connotation which reaches many consumers. We have to be very careful about making and communicating (false) conclusions and its impact. It is also about choices. For example, do we want to remove coffee from our diet?
- According to the **The Liaison Centre for the Meat Processing Industry** in the EU (**CLITRAVI**), we must set an appropriate climate to promote innovation. When we speak about innovation we must not forget that the meat processing sector is based on a **balance between tradition and innovation**. We try to promote best practices, also regarding ancient recipes. Now we go a bit further than that by setting an appropriate innovation climate, to get an appropriate framework too. There are a couple of cases in which the legal regulatory framework was not ready yet. I refer to some ingredients, natural ingredients or food additives that were not registered as such, so this business had to stop and now they have to wait for legislation. Setting up the appropriate innovation climate is also about **education**, about **promoting diversification**, **public campaigns for balanced diets**, etc., in order to match the future challenges. One of our principles is: '**eat less but better**'. We should work together on this. Another important area is the issue of **local versus global production and consumption**. This requires a good compromise. Diversification is about proposing new ingredients from all over the world but it is also a question of restoring local systems to circulate best practices that have worked for a long time on a local level. Fundamentally, diversification already exists. The problem is how to address it properly. If you go to some regions in Italy, you see a lot of different products but in other supermarkets the supply is not so broad.
- **Q: what are the opportunities for diversity?**
- Diversity is certainly an opportunity and there are triggers. E.g regarding the campaign to forbid palm oil, a first reaction was what would happen to the whole chain. However, within half a year the industry had fixed it. **Consultation, communication and cooperation are essential to create a sustainable food system for the future.**
- Regarding the example of palm oil, there are palm oil free products for the EU and products which contain palm oil for other markets. This is a problem of diversity and how should we design policy on this? First of all, we have to **diversify the law**. The industry is very competitive. We should support diversity and technologies to develop new products. We also have to focus on **education and raising awareness among consumers**. In the case of Africa, as mentioned before, consumers are not free to choose what they eat. Developing diversity is a huge task and it takes long term goals to achieve it. What can we improve

now within EU regions? EU consumers are very aware of what they eat. There are lots of niches and the market for quality and more expensive food is big. Often consumers want to buy what they see.

- We don't communicate sufficiently with certain actors. The food system depends on **communication**. How to deal with that? We can easily claim that 50% about food and nutrition is fake news, which influences our health system. The consumer buys food without any scientific background. Therefore, education and awareness are important. And transdisciplinary R&I approach. We have thought of it all but we need new researchers who are prepared not to work in siloes but with other actors and in multiple disciplines. Education also means training farmers to (co-)develop and implement innovation and renewing their businesses approaches.
- We have to **listen to the consumer** and at the same time we have to take into account the trends. We applaud the importance of retailers in taking initiatives to test new concepts and products. Their contribution is great. It was mentioned before that different countries need their own flexibility in food choices and approaches but there should be common ground too. We should have a part that is more flexible in food choices next to the promotion of healthy food and dis-promoting unhealthy food. It is important to look at the food chain as a whole. It might be dangerous to introduce and utilise taxes. We should focus more on education and stimulate a more democratic supply. It is important in the food system transition e.g. regarding new protein sources and different meat consumption, to propose different options.
- We also have a **diversified communication system**. Fake news is indeed dangerous. We want the system to be consumer driven but scientifically proof (evidence based). Consumers do not trust scientists that much anymore. The example on palm oil teaches us that there is an opportunity for diversification. However, if we replace one product by another we have to think carefully how we will substitute it and which side effects this will cause. More evidence is needed.
- Regarding **nutrition**, it is debatable if every country needs to define its own guidelines. This might make the system too flexible so maybe we should decide on more common ground in the EU. We could analyse for example how it works in the US.
- It is also debatable whether **taxing has a positive or negative influence**. The sugar tax in Ireland did influence the industry for example.
- Diversification can offer opportunities for everybody. It can help to face global challenges and lead to different types of consumption patterns. There is a study indicating that diets are changing and we see different trends in diversity. On the policy recommendation on taxes, there is disagreement on that point. Furthermore, the availability of products should be coherent with the concept of diversity and the possibility to develop available new products. Availability of different sources of proteins in particular.
- We are developing a **public debate** on what kind of agriculture the people want. We should develop a balanced structure based on what the industry supplies and what is scientifically proven regarding health and claims.
- We need **new indicators** and more KPIs that we are going in the right direction. Diversity in itself is good but you don't know where it's going. Which allergies do we have to take into account? KPIs are difficult to define but it's a good approach. There are many opportunities. How do we make the system efficient? We can be innovative and it is a good thing to stimulate innovation but what is the right way to look forward? Cultural heritage is also very important which we have to take into account.
- As a source of inspiration, it would be useful to better understand what kind of **agriculture** the consumer wants. This concept can probably help us more than persuading which foods are good and which are not.
- Suggestion regarding the policy brief: do not focus too much on proteins. Animal diets are also important. It might be better to rephrase this recommendation.

- Regarding **false implications**, in France there are different applications which consumers can use on different kinds of food which show you all the additives. The only thing is that these apps are developed by private initiatives so it not always known what their background is or how reliable they are. This is something the public sector should investigate.
- There are also examples of **apps** which started off as public initiatives but resulted in spin-off products on the private market.
- We do need to address the issue of access though. How many and which people use these apps? How can diversity can be managed to avoid risks of gaps in society and between classes? The driver of the food system should be to reduce the gap between different parts of the population.
- Regarding **taxes and subsidies**, this is a recommendation in terms of research. We should explore the fact if taxes and subsidies could be instruments to improve our food system and what are its effects? We could possibly explore synergies between effects. There is not much evidence what works best so we should investigate it. Communication should focus on how consumers will make healthier choices. We have to learn how this works compared to communication and marketing by food companies. Also, when we look at different budgets, how can we find a good balance?
- Regarding **exploring the introduction of taxes** and evaluating **their impact**, there might not be enough cases available. For example, there was a common agreement on the reduction of salt, sugar and fat. If we want to open up the dialogue, we have to fix the scene. However, one of the uncertainties is that strategies change. In the case of salt reduction, an umbrella association was formed and after two years, we noticed a significant reduction on salt additions by the industry. This opened the discussion on sugar additives. Hence, it is very important to start a dialogue from the public as well as the private side. The second assessment will be in 5 years' time. We want to develop a roadmap to assess the system and organise a clear evaluation.
- We cannot expect that all consumers will become more aware. **Accessibility** and **affordability** are important. We also have to take into account the effects of the CAP and align with this EU policy. Policy on food systems should naturally also be evidence based.
- If we are increasing diversity, we are also **increasing circularity** or **biodiversity**, so we should also look into that. It is about food but also about non-food. The second is more related to storage and conditions. What are we going to do with products that have to be stored for a long time? Will the industry be able to handle this? Regarding education, the challenge will be how to rebalance our education system and not only at university level, to be able to deal with all this complexity. If we want to confront students with this complexity we do not even understand yet, how are they going to deal with it?
- **In biology** for example, ethics was never a subject. It is now possible to follow classes in ethics while studying biology but the subject is not compulsory (in Italy). We should introduce different educational instruments to students and training. Start introducing elements of the food system approach in curricula.
- The **Food 2030** strategy has the image of a complex system. Integrating all areas might become too complex. We have to think in terms of possible outcomes and think systematically. Again, KPIs are quite difficult to define.
- **In Portugal** we connect the local producers to the stores in the same region (in short supply chains) and at the same time bigger producers are working with these stores on capacity and storage. They are working on improving the quality of the warehouses they are using so the stores can supply both local and other products complementary.

IV. Conclusion

1. At the agro level it is necessary to develop agro diversity in order to adapt to climate change and reduction of pesticides. Perhaps the question is how to benefit, coming from agriculture all along the food chain to the plate of the consumer. Starting with diversity in agriculture.
2. About the trade-off between mass production and diversity, we should address this question by looking at new business models. Focus on diversity could also lead to new forms of food processing. The challenge is to maintain the quality and it addresses the question how to adapt logistics and legislation. Hence, we should formulate different questions around trade-off.
3. Diversification is dependent on communication. Fake news forms a risk.
4. It is also about mixing different types of innovation opportunities.
5. Diversification needs flexible and not too rigid legislation, preserving EU common ground.
6. We also spoke about a better balance of public private cooperation which focuses on consumers' demands and better food choices.
7. Regarding taxes, subsidies and equities, there is a need for research to explore the potential benefits and disadvantages.

Closure of the workshop.

V. ANNEX

1. Agenda

Diversifying Food Systems in the Pursuit of Sustainable Food Production and Healthy Diets Workshop

Paris, 14th May 2019

10.00 – 16.30

The French Ministry of Agriculture and Food

78 rue de Varenne, PARIS 75007, France

Room: Gambetta

Chair: Monique Axelos, FR

Co-chair: Minna Huttunen, FI

Rapporteur: Floor Geerling-Eiff, NL

Task leaders: Minna Huttunen (FI), Monique Axelos (FR), Christophe Cotillon (FR), Ruairi Colbert (IE)

09.00-10.00	<i>Registration and welcome coffee</i>	
10.00-10.15	Welcome speech	- Jean-Marc Chourot, The French Ministry of Agriculture and Food.
10.15-10.30	Opening – Introduction and purpose of the workshop	- Monique Axelos - Chair of SCAR FS SWG.
10.30 -11.30	Diversifying Food Systems – Why do we need to strengthen diversity in food systems?	Scientific experts.
11.30-12.00	Presentation of recommendations on how to increase diversity in food systems	- Minna Huttunen- Co-chair of SCAR FS SWG.
12.00-13.00	Round table 1: What is the expected impact when diversification in Food Systems increases? Discussion Moderator: Christophe Cotillon	Scientific experts - Jean-Marc Touzard – INRA. - Eric Verger – IRD.
		Representatives of Public sector - Mona Gravningen Rygh -The Research Council of Norway. - Akos Kristof - The Ministry of Agriculture, Hungary.
		Representatives of private sector - Itziar Tueros – AZTI.
13.00-14.00	<i>Lunch break</i>	

14.00-15.45	<p>Round table 2: What improvements are required in order to achieve these objectives?</p> <p>Discussion</p> <p><i>Moderator: Ruairi Colbert</i></p>	<p>Representatives of Public sector</p> <ul style="list-style-type: none"> - Annamaria Marzetti- MIPPAF, Italy. - Paweł Chmieleński - The Ministry of Agriculture and Rural Development, Poland - Karine Boquet - Food National Council, France. <p>Representatives of Private sector</p> <ul style="list-style-type: none"> - Jonas Lazaro Mojica- FoodDrinkEurope. - Paolo Patruno - CLITRAVI. - Ondina Afonso - SONAE M.C
15.45-16.00	Coffee break	
16.00 -16.30	Findings from the sessions – Closing the workshop	- Monique Axelos - Chair of SCAR FS SWG.

2. List of Participants

	Family Name	First Name	Nationality	Organisation/ Institution
1	Afonso	Ondina	PT	SONAE MC
2	Alford	Heather	UK	The Department for Environment, Food and Rural Affairs (Defra)
3	Alonso de Blas	María de los Angeles	ES	INIA. National Institute for the Agricultural and Food Research
4	Andeltova	Lucie	CZ	Federal Office for Agriculture and Food (Germany)
5	Axelos	Monique	FR	INRA
6	Basinskiene	Loreta	LT	Kaunas University of Technology
7	Boquet	Karine	FR	Conseil National de l'alimentation (Food National Council), France
8	Bosscher	Douwina	BE	Cargill R&D Centre Europe
9	Chiffolleau	Yuna	FR	INRA
10	Chmieleński	Paweł	PL	Ministry of Agriculture and Rural Development Department of Strategies, Analyses and Development
11	Colbert	Ruairi	IE	Department of Agriculture, Food and the Marine.
12	Cotillon	Christophe	FR	ACTIA
13	de Froidmont- GörtZ	Isabelle	BE/FR	European Commission

14	de la Bretesche	Gabriel		GreenFlex - Sustainable and responsible consulting solutions for companies
15	Denis	Margaux	FR	Conseil National de l'alimentation (Food National Council), France
16	De Vos	Liselotte	BE	Flemish Government
17	DE VRIES	HUGO	NL	INRA
18	Demirkesen Mert	İlkem	TR	Ministry of Agriculture and Forestry, General Directorate of Agricultural Research and Policies
19	Dr. Szűcs	Viktória	HU	Hungarian Chamber of Agriculture
20	Dussort	Pierre	FR	INRA
21	Flament	Guillaume	FR	INRA
22	Gaitán Cremaschi	Daniel	IT	Farming Systems Ecology, Wageningen University and Research
23	Geerling-Eiff	Floor	NL	Wageningen University and Research
24	Guichaoua	Adrien	FR	ACTA
25	Hassan	Nikola	DE	Jülich
26	Hippolyte	Isabelle	FR	ANR - French National Research Agency
27	Huttunen	Minna	FI	Ministry of Agriculture and Forestry
28	Kristóf	Ákos	HU	Ministry of Agriculture-Hungary
29	Laurent	Catherine	FR	EIT Climate-KIC
30	Lazaro Mojica	Jonas	ES	FoodDrinkEurope
31	Loconto	Allison	IT	INRA
32	Macherez	Florence	FR	Animal Task Force
33	Marzetti	Annamaria	IT	Ministry of agricultural, food and forestry policies - MIPAAF, Italy
34	McMahon	Deirdre	IE	SNV Netherlands Development Organisation
35	MICHEL	Valérie	FR	ACTALIA
36	Palin	Sophie	FR	INRA
37	Patruno	Paolo	IT	CLITRAVI
38	Petithuguenin	Philippe	FR	CIRAD
39	Pihlanto	Anne	FI	Natural Resources Institute, Finland
40	Pijls	Ludovicus	NL	Loekintofood
41	Plantinga	Martijn	NL	Ministry of Agriculture, Nature and Food, Strategy Unit

42	Plessz	Marie	FR	INRA, Centre Maurice Halbwachs
43	Pozo	Rogelio	ES	AZTI Tecnalia- Transforming Science into Business
44	Redd	Tom	UK	JPI Oceans
45	Røsjø	Camilla	NO	Nofima
46	Rygh	Mona Gravingen	NO	The Research Council of Norway
47	Salaseviciene	Alvija	LT	Food Institute of Kaunas University of Technology
48	Soler	Louis-Georges	FR	INRA
49	Terzieva	Anastasiya	BG	INRA
50	TOUZARD	Jean-Marc	FR	INRA
51	Tueros	Itziar	ES	AZTI
52	TURRINI	AIDA	IT	CREA-Council for Agricultural Research and Economics]
53	Valderrama	Elisa	ES	Citic Cita - Agri-food Technology Center
54	van Ansem	Wilke	NL	JPI HDHL
55	van Dis	Renée	NL	UPEM
56	van Geel	Sanne	NL	ZonMw/JPI HDHL
57	Verger	Eric	FR	IRD
58	Yven	Claude	FR	French National Research Agency, France