Food and Agriculture Organization of the United Nations

Background document for the e-conference

"Innovation systems for food security and nutrition: understanding the capacities needed"

18 April – 13 May 2016

Document based on "Capacity for Change – Common Framework on Capacity Development for Agricultural Innovation Systems"[1]

The Common Framework has been developed under the Tropical Agriculture Platform (TAP)

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TROPICAL AGRICULTURE PLATFORM

[1] The final Framework publications will be available by April 2016. Link to draft Framework products:
http://www.tropagplatform.org/sites/default/files/TAP%20CF_Synthesis_document_v3.pdf
http://www.tropagplatform.org/sites/default/files/TAP%20CF_Guidance_Note_v3.pdf

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1 Background

Innovation will be fundamental for achieving the Sustainable Development Goals (SDGs) of ending poverty and hunger, achieving food security, improving nutrition and promoting sustainable agriculture for a larger world population. Innovation will also have an important role to play in achieving gender equality, ensuring healthy lives for all and contributing to economic growth.

Innovations are developed or adapted to local conditions through the interactions and collaborations among different types of actors of the Agricultural Innovation System (AIS): individuals, organizations and the system as a whole. To be successful, these actors have to develop strong capacities while the system has to provide a nurturing environment for innovation. The Tropical Agriculture Platform (TAP) is a G20 initiative facilitated by FAO with the goal of contributing to the development of capacities for agricultural innovation in the tropics, with particular focus on small- and medium-scale producers, and the objective of enhancing "Capacity Development" (CD) for AIS.

A survey conducted by TAP in 27 countries found that CD is seldom designed and implemented in an integrated manner and thus fails to capture the full complexity of innovation processes. The aim of TAP is to enhance the overall performance of AIS by taking into account this complexity. In particular, CD efforts in developing countries often tend to neglect the high-level political and operational mechanisms needed to assure comprehensive and sustained efforts. In view of these observations, TAP developed a Common Framework on Capacity Development for Agricultural Innovation Systems, which seeks to harmonize and coordinate the different approaches to CD for agricultural innovation. It emphasizes the crucial role of facilitation, learning, documentation and knowledge management for enabling agricultural innovation.

The gaps in CD are compounded when the capacities that need to be developed relate to small-holder agriculture and its link to food security and nutrition. In general, most CD for AIS has been related to agricultural production, value chains or research. Only recently have there been efforts to link innovation with livelihoods and nutrition. In parallel, important efforts have been made to study food consumption and its determinants in developing countries. However, there is a dearth of information about CD for innovation for food security and nutrition, especially at the level of the AIS. TAP is conducting an email conference that seeks to contribute to fill this gap.

The e-conference has its origin in an agreement between the United States and Brazil to jointly promote the implementation of the Post-2015 Development Agenda Sustainable Development Goal on food security, nutrition, and sustainable agriculture. To fulfil this pledge, the United States and Brazil agreed to work together via the Food and Agriculture Organization (FAO)-hosted TAP on improving food security and nutrition by promoting innovation in agriculture, with special emphasis on tropical agriculture. The e-conference will explore ways to promote enabling policies for and to enhance capacities of AIS to improve local sustainable agricultural production and increase its contribution to food security and nutrition.

2 Basic definitions

Malnutrition is a condition that results from eating a diet that is too rich (over-nutrition) or too poor (under-nutrition) in nutrients so that it causes health problems.

Food security and nutrition-sensitive agriculture is an approach that seeks to maximize agriculture's contribution to food security and overcoming malnutrition by making food more

available, diverse and accessible. This includes 1) increasing production and its sustainability; 2) making food more nutritious and safe; 3) empowering women to take more control over income earned from all sources and helping them to reduce the time and energy they use for agricultural work; 4) providing nutrition education and social and behaviour change interventions so that their resources are used to improve household members' nutrition, especially that of women and young children; and 5) linking agriculture to programs that address other causes of malnutrition, namely education, public health and social protection.

Agricultural innovation is the process whereby individuals or organizations bring existing or new products, processes and forms of organization into social and/or economic use to increase effectiveness, competitiveness, resilience to shocks, wellbeing or environmental sustainability.

An Agricultural Innovation System (AIS) is a network of actors − individuals or organizations – which, together with supporting formal and informal institutions (i.e., "rules of the game") and policies in the agricultural and related sectors, bring existing or new products, processes, and forms of organization into social and/or economic use (Figure 1).

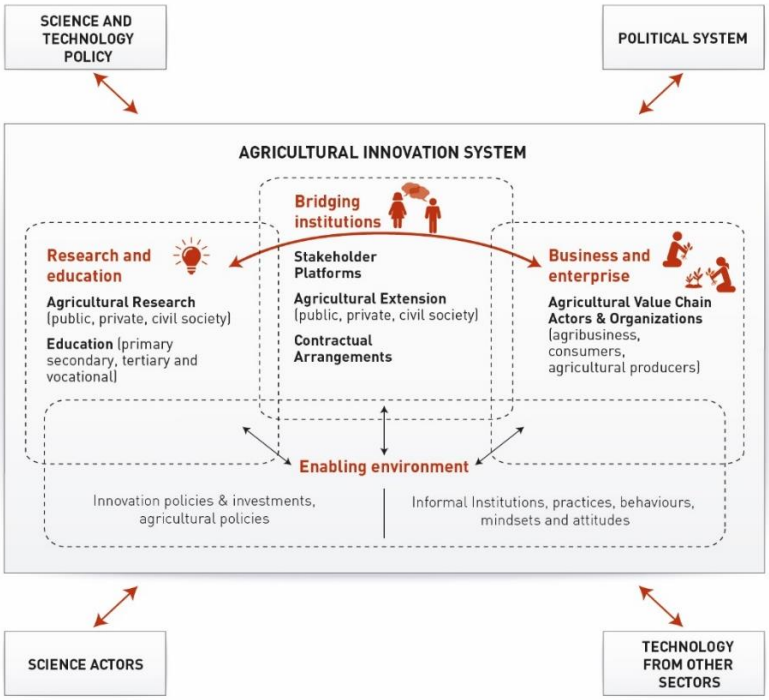

Figure 1. The Agricultural Innovation System

3 What's different in an AIS for food security and nutrition (FSN-AIS)?

In its most common conceptualization, the AIS comprises four components: research and education; business and enterprises (including smallholder farmers); bridging institutions (such as stakeholder platforms and advisory services); and the enabling environment, which consists of public offices not directly involved in particular innovation processes (e.g., ministries and regulatory bodies), laws and regulations, policies, customs, mindsets and attitudes.

When a nutritional dimension is added to the AIS, it is necessary to consider rural households instead of smallholder farmers because decisions about food production, consumption, and

allocation of the household's assets (especially labour for agriculture, off-farm employment or migration) are linked and have implications in terms of the nutritional status of the household members. Better communications and infrastructure are integrating rural households into globalized markets, both for agricultural products and labour. After food markets were deregulated in the 1980s, many smallholder farmers had to compete with large commercial farmers from countries with strong agricultural sectors (e.g., USA and South America) even if they continued doing what their families had done for generations. High value agriculture created off-farm employment which, together with migration (both domestic and international) integrated local and global labour markets, increasing the opportunity cost of on-farm agriculture. In fact, the share of agriculture in rural households' income is falling in most developing countries; also, an increasing proportion of poor rural households are net consumers instead of net producers. Now connected with distant societies, rural inhabitants (especially young ones) are learning of alternative life styles, consumption patterns and diets.

These changes create new demands on decision makers in FSN-AIS, in particular the need for a better understanding of the role agriculture plays in the livelihood strategies of rural households, of the new instruments that are emerging to foster innovation, and of the different types of capacities that all actors in the FSN-AIS need. Particularly important is the recognition of the interdependencies, and of which actors could play a role in specific innovation processes. The partnerships can be large (e.g., an innovation platform) or small (an innovation team) and usually extend beyond formal research; also, they can take many forms, from joint experimentation to exchanges of information.

The enabling environment influences the link between agriculture and nutrition directly and indirectly. One of the most important direct effects is through agricultural and nutrition policies and regulations. For instance, by subsidizing at the same time the production and consumption of cereals, the diversification of food supply and demand is slowed down, as well as positive changes in diets. Trade policies also influence nutrition by changing relative prices of traded staples. Infrastructure can reduce the cost and increase the variety of food available in urban areas and enable the expansion of agriculture in remote areas. At the same time, better knowledge of urban lifestyles and communication can change the consumption patterns of rural households.

Four important interventions that influence the FSN-AIS indirectly are education (especially of women), targeted social and behavioural change activities, formulation of sound macroeconomic policies and institutional strengthening. For instance, sound policies and strong institutions are requirements for development, poverty reduction and better nutrition. Allocation of resources for research and development can also influence the link between agriculture and nutrition. Agricultural research, such as development of biofortified crops, can influence consumption but their effect on nutrition and the willingness of farmers to plant them have not been well established. Gender empowerment programs, including education, can give women more control over productive assets, their time, agricultural production, income and their ability to care for themselves and their children helping them to increase the production of nutrient-rich foods and teaching them how to prepare more balanced diets.

4 Capacity development for innovation

Capacity is defined as 'the ability of people, organizations and society as a whole to manage their affairs successfully.'

Capacity Development ‘is the process whereby people, organizations and society as a whole unleash, strengthen, create, adapt and maintain capacity over time.’ CD enables actors in the AIS to acquire knowledge, skills, and attitudes; it also allows the AIS to operate more effectively.

TAP’s Common Framework recognizes three dimensions of CD – Individuals, Organizations and the Enabling Environment (systemic) – which must be viewed as interconnected and addressed concurrently (Figure 2). In the context of the AIS, partnerships and networks play a crucial role, creating that interconnectedness and bringing together the three dimensions to create new knowledge and innovations. This does not mean that all interventions must develop simultaneously the capacities of all actors in the AIS, from farmers to ministers, but that all interventions should be aware of their linkages with the larger system.

Capacity of individuals refers to the competencies needed to work effectively, included the ability to absorb information, to explore alternatives and to establish sustained interactions with other actors in the FSN-AIS, especially market agents (so that surplus production of individual farmers can efficiently reach consumers), educators (such as NGOs) that can educate poor rural households about nutrition, and intermediary agents that facilitate innovations. Organizational capacities include the capacities of individuals within an organization plus the organization’s processes, cultures and values, including their ability to interact with other agents. Organizational capacities should provide spaces for organizational learning, so that the organization can adapt to changing circumstances, build effective partnerships and take risks.

Figure 2. The Dimensions of Capacity Development

While there are many experiences that developed the capacities of individuals and organizations, bolstering the enabling environment has not received the same attention. The “enabling environment” is the context in which individuals and organizations put their competencies and capabilities into play. It includes the institutional set-up of a country, its implicit and explicit rules, regulations and policies, social conventions, values and beliefs, its power structures and the political and legal environment in which individuals and organizations function.

Because capacities for innovation are complex and involve collective learning, they cannot be designed and implemented in isolation by external actors nor can a well-defined and standardized set of products and services be used. Accepting this fact calls for a fundamental change in the perception of CD – not just as a vehicle for results but as a way of facilitating processes that enable stakeholders to seize opportunities, build trust and take joint action.

For AIS to perform effectively, four plus one key capacities are required; these capacities are discussed in detail in the document *Capacity for Change – Common Framework on Capacity Development for Agricultural Innovation Systems"*:[2]

- Capacity to Navigate Complexity
- Capacity to Collaborate
- Capacity to Reflect and Learn
- Capacity to Engage in Strategic and Political Processes

These four capacities are the core of an overarching "Capacity to Adapt and Respond in order to Realize the Potential of Innovation", shifting focus from reactive problem solving to co-creating the future. This requires facilitative leadership to enable all of the above to happen. The four plus one capacities together, illustrated in Figure 3, are interdependent and are relevant at each of the three dimensions of CD.

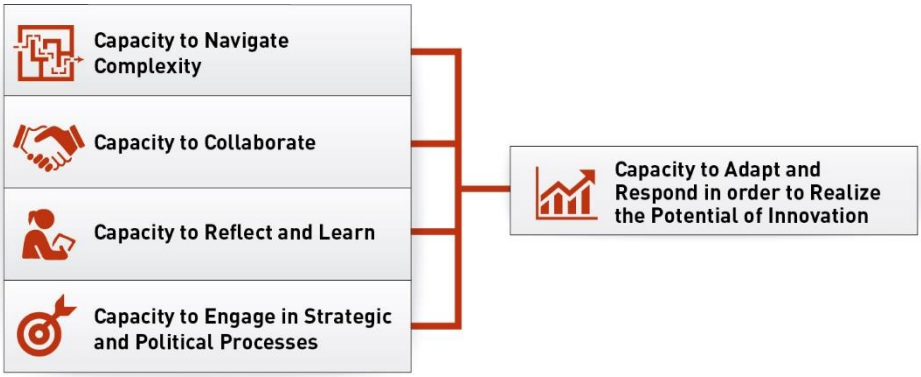

Figure 3. The 4 + 1 Capacities

5 Capacity Development at the level of the FSN-AIS

CD at the level of the FSN-AIS involves (a) fostering interactions among, public and private actors, rural households, development organizations and/or research organizations; (b) building trust between them; (c) changing laws, regulations and informal rules, like cultures; (d) strengthening the capacities of public officers and lawmakers; and (e) iterative learning, periodically revisiting performance and how it is managed. CD at the level of the FSN-AIS is about functional expertise, but also about system cohesion and energy, enabling the implementation of a range of activities, investments and policies that foster innovation.

To set priorities for CD it is necessary to understand how existing laws, regulations and policies affect innovation processes. It is also important to identify gaps in the competencies, capacities and skills of governing, regulatory and policy-making structures. Strategies to narrow such gaps should then be developed and implemented. Investments in CD can take years to yield significant results, partly because an organization's performance is influenced not only by the way it is structured internally, but also by its external environment. The slow nature of the process poses a major hurdle for the sustainable strengthening of capacities. People move to new jobs, governments change, and projects usually are shorter than the time required to build organizational

[2] http://www.tropagplatform.org/sites/default/files/TAP%20CF_Synthesis_document_v3.pdf

and systemic capacities. A major challenge for CD at the level of the FSN-AIS is how to maintain acquired capacities despite these changes.

Developing innovation capacities to address food security and nutritional issues is another area that has not received sufficient attention. Improving household and individual nutrition has at least two major dimensions: access to and utilization of safe, nutrient-rich foods on the one hand, and the way these foods are allocated within the household on the other. Decisions along both dimensions are greatly influenced by globalization, infrastructure, knowledge, cultural preferences and practices. For example, in some African cultures, adult males eat first, followed by adult women, and, finally, small children who are often fed the less nutritious components of meals. Also, poor families in less developed countries are rapidly adopting unhealthy consumption practices from developed countries, such as heavy consumption of soft drinks and empty-calorie snacks. Changing these deleterious practices depends on individual and systemic capacities to achieve and sustain positive social and behavioral change with respect to food consumption as well as the formulation and implementation of nutrition-sensitive policies related to agricultural production, food prices, food safety, gender, and education, among others.

In order to improve the design and implementation of CD programs for FSN-AIS, it is necessary that policy makers increase their understanding of 1) the relationship between agriculture, food safety, and nutritional outcomes; 2) existing and emerging consumption patterns; 3) the integration of rural households into globalized agricultural and labour markets; 4) how decisions about food consumption are made in the household, together with other gender dimensions; and 5) how profoundly the enabling environment (especially policies) affects agricultural production (quantity and diversity) and dietary behaviour. Finally, it is necessary that other actors in the FSN-AIS (researchers, rural services advisors, NGOs and farmer associations) develop capacities to explore new ways to participate in innovation processes.

6 Three instruments for CD in the AIS

The Framework places particular importance on facilitation, learning, and documentation and knowledge management. Facilitation includes communication, information-sharing, fostering synergies between people and resources, and enhancing the capacity for collective decision-making. It enhances interactions and relationships between individuals, organizations, and their social, cultural and political structures through a process of network building, social learning and negotiation. It should also foster entrepreneurship and overcome resistance to change. During the last decade, facilitation has been supported by many development agents. Despite the vast experience accumulated, there are important features that are still not well understood. For example, at what levels of the AIS is facilitation most effective, for instance, individual households, communities, local governments, national governments or multi-stakeholder dialogs? Also, increasing use is being made of innovation platforms, which are set up to facilitate various activities around identified agricultural innovation challenges and opportunities at individual and organizational level. How can the best structure and size of an innovation platform be determined in a particular project? Involving more actors can potentially increase the resources that can be tapped, but at the same time increases the difficulties of implementing collective action.

Group or collaborative learning supports sustained collaboration among a wide variety of actors. Over time the collaborators can develop a shared interpretation of the problems they are trying to address, build trust and mutual understanding and create the right conditions for collective decision-making. However, the process is not linear or straightforward. Two issues are particularly

important for CD. Who decides who is invited to participate in a learning process? Also, as the process evolves, who decides that a collaborator is not contributing to the shared effort and should be left out?

Documentation and knowledge management are a core issue in CD for AIS. Considering that the AIS approach is a decentralized process and encompasses several dimensions, the task of identifying, capturing, evaluating and sharing relevant knowledge among stakeholders is much more complex than in traditional knowledge management approaches. Two particular important issues are what knowledge should be kept and who should keep it. These issues are related to the value of non-scientific knowledge (including procedures that adequately capture local knowledge), intellectual property rights and power within each innovation process.

7 Dual Pathways to CD for FSN-AIS

The conceptual model distinguishes two levels of CD:

- Innovation niches: The spaces for learning, experimentation and micro-level transformation where innovations are developed. In innovation niches, small groups of actors experiment with alternative socio-technical practices. The strength of the niches result from the interplay among three components: (1) articulation and negotiation of shared expectations by participating actors; (2) social networks, including all relevant types of actors within the niche, both creating opportunities for stakeholder interaction and micro-markets that provide the resources necessary for experimentation and temporary protection; and (3) learning mechanisms (across experiments, between actors, etc.).
- System level: The wider system in which the niche operates. Lessons learned from innovation niches inform actors at the system level about their own interactions and help improve the enabling environment for FSN-AIS. CD at system level recognizes social, cultural and political structures in which power relations and social and institutional dimensions determine opportunities for different groups of actors to initiate innovation niches, and then, acting upon the interventions, to attain sustainability

In recent years, several major programs have focused on nutrition-sensitive agricultural innovations. Brazil's school feeding program (PNAE) is an example of a program that links niche and system level innovations. PNAE transfers funds to state governments and municipalities for the local purchase of foods to be used in school lunches. One third of the budget must be used to purchase directly from family farmers, rural family entrepreneurs or their organizations. The program creates a sustained demand for agricultural products, providing incentives for innovation at the local and farm levels. On the nutrition side, the products are used in the preparation of menus following the indications of dieticians.

Focused interventions are necessary to enhance the capacity of social, institutional and political actors in the enabling environment in which the niches operate. The CD of individuals and organizations is linked to their collaboration within niches or at system level (Figure 4).

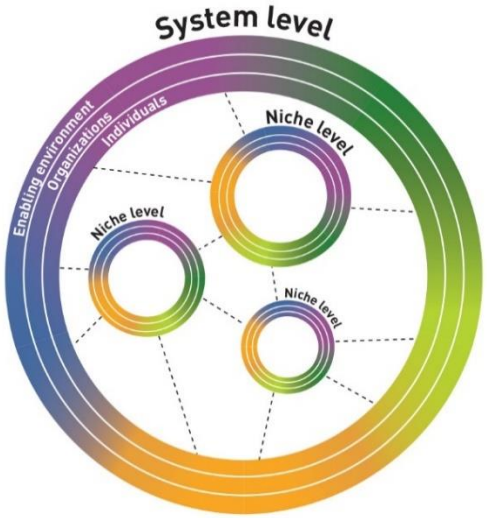

Figure 4. Niche and systems level

A Google search found many projects that link agricultural innovation with nutrition, but there are very few rigorous assessments of these projects and close to no scholarly publications on food security and nutrition-sensitive agricultural innovation. Another area where there is a dearth of information is CD in FSN-AIS. This e-conference seeks to contribute to fill this gap.

8 CD for FSN-AIS - An Operational Approach

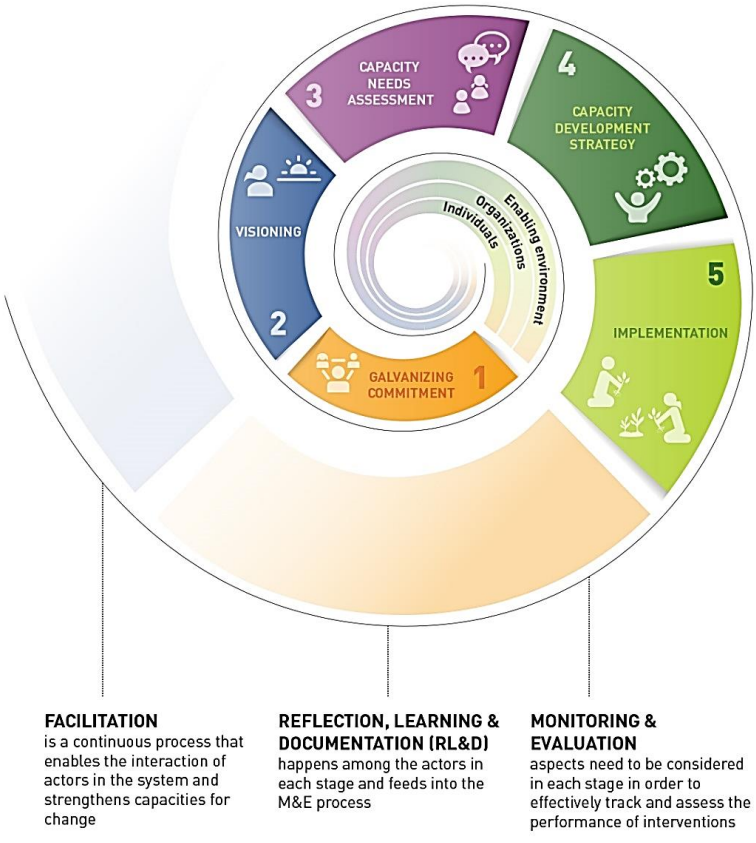

Figure 5. The five stages of the CD cycle

The Framework proposes a cycle of five stages for implementing CD for AIS. The cycles are substantially identical for each of the three dimensions (Individuals, Organizations and the Enabling Environment) although the actors involved and the methods used usually vary. Figure 5 shows how, moving forward in the cycle from one stage to another, capacities are continuously enhanced. Two major challenges for long-term CD strategies structured on the basis of projects are to ensure that the projects follow the cycle and that capacities are not lost over time.

Given the importance of skilled facilitators in the CD process, it is vital that the process described by the cycle is accompanied by the identification and strengthening of individuals and organizations that can act as effective agents of change. They can be extension services, private consulting firms, university departments, capacity building organizations or NGOs.

8.1 Stage 1. Galvanizing commitment

This stage seeks to systematically sensitize key actors – knowledge providers and recipients, organizations and networks that bridge the knowledge divide, and key decision makers in the enabling environment. In order to advance and strengthen CD for AIS, it is important to ensure both a common understanding of the process as well as to create ownership and high-level support by those that lead representative bodies of actors within the system.

It has usually been recommended that the decision of who should participate in a process of galvanizing commitment as well as which actions should be implemented, ought to be made by country actors based on available resources (people, time and finances), available information, as well as existing programs and past experience. However, the literature on innovation has clearly pointed out that demand-driven processes are often based on information sets that are too small and do not take into account emerging opportunities. The Green Revolution and many gender projects are examples of successful externally driven innovation processes. Additionally, recent research has pointed out that often participatory approaches are captured by elites and are less effective than non-participatory approaches. In other words, external actors who are engaged with local agents can sometimes spot opportunities that escape the attention of country actors. Unfortunately, there are no clear guidelines about when locally-driven activities should be preferred to externally pushed projects.

8.2 Stage 2. Visioning

The visioning process brings together interested parties including ministries, legislative bodies, representatives of the private sector and/or development partners and civil society to build on their common understanding of AIS and the need for a coordinated approach. The visioning process also serves to identify the innovation niches seeding and also inform learning and adaptation in the system. A major consideration in visioning exercises is to ensure that the needs of disenfranchised actors be incorporated in the process. In FSN-AIS it is also critical to expand the types of participants beyond the traditional agricultural actors to include, for example, nutritionists, health professionals, educators and ministries other than agriculture.

8.3 Stage 3. Capacity Needs Assessment at the FSN-AIS level

Capacity needs assessment is at the core of the cycle. The assessment aims to ascertain the level of technical and functional capacity, in particular the capacity to adapt and respond. It will also identify the capacity needs to inform the setting of priorities and development of CD interventions in areas such as strategic planning, leadership support and finance, or around more conceptual issues such as systems thinking. An important input at this stage is undertaking a scoping study

based on available documentation and interviews with key actors in the public and private sectors, non-profit organizations, farmer organizations, health professionals, nutritionists and also bilateral and multilateral development partners involved in agriculture and nutrition. Key areas for questions could be around the existence of organizational strategies for FSN-AIS. The assessment will focus on select organizations and institutions that are catalytic for system development (e.g. research organizations, ministries, parliamentary working groups, NGOs, and farmers' associations), or are linked to innovation niches or to the wider system's CD process.

8.4 Stage 4. CD Strategy Development and Action Plan

The leadership team of the CD project (possibly with the active involvement of other actors) decides on goals, objectives, priorities and options for a system-wide CD strategy. Options for CD interventions depend on the country context, ongoing programs and funding opportunities, and may include cross-organizational initiatives such as leadership or change management programs; training of trainers in multi-stakeholder processes; cross-ministry dialogues; policy dialogues; orientation of legislators (e.g., of relevant parliamentary working groups); and the establishment of incentive funds to set up and facilitate multi-stakeholder processes.

8.5 Stage 5. Implementation

An important part of implementation will be the cycle of learning and reflection within individual organizations and institutions, within innovation niches, and across the sector. Opportunities to regularly reflect upon and reassess interventions in a given context should be embedded within projects and programs. Because implementing actors often do not have the time and resources required to reflect on their practices on their own, the process leadership should promote and support learning.

9 Conclusions

Rising to the complex challenges facing agriculture in the 21st century requires strengthening the capacity of FSN-AIS across the three dimensions: individual, organizational and the enabling environment. That requires major changes in the prevailing policies for CD. In particular, international development agencies and the donor community are called on to:

- Increase and sustain the level of development assistance devoted to CD for FSN-AIS;
- Plan and deliver interventions in tight coordination with existing CD initiatives;
- Design and implement CD for FSN-AIS initiatives in an integrated manner, considering the individual, organizational and systemic dimensions of CD;
- Increase the flexibility of CD programs and projects so that they can respond to the evolving needs of actors in the FSN-AIS;
- Assess the emerging dynamics of the FSN-AIS, in particular changes in the roles of the different actors and in the livelihood strategies of poor rural households.

Policymakers at national level are thus called on to:

- Increase and sustain the level of national investments in CD for FSN-AIS;
- Shift the focus from reactive problem-solving to joining together to achieve transformation;

- Establish an environment, including laws, regulations, standards, informal norms and their enforcement, conducive to innovation in food and agricultural systems;
- Create the space and incentives for actors in the FSN-AIS to come together to interact, question the status quo if necessary, and jointly work to bring about the changes needed;
- Be able and willing to learn from initiatives and put in place the necessary incentives and enabling environment required to stimulate creativity and innovation.

In line with these challenges, the e-conference aims to engage in a dialogue with professionals acting in those areas to fulfil the existing knowledge gaps, in order to promote the changes necessary to achieve the Sustainable Development Goals of ending poverty and hunger, achieving food security, improving nutrition and promoting sustainable agriculture.

10 Questions for the e-conference

1. Which policies or instruments would be effective for developing capacities of food security and nutrition-sensitive Agricultural Innovation System (FSN-AIS) at the organizational and systems levels?
2. Once the capacities have been developed, how can they be kept strong despite changes in management and staff turnover? Could you mention cases where capacities were successfully built and kept for at least five years? What were the factors for success?
3. The concept "institution" comprises a number of formal and informal 'rules of the game', including relationships between organizations, regulations and behaviours. Which are the most essential institutions that should be strengthened to foster innovation in FSN-Agricultural Innovation Systems and why?
4. Which initiatives for developing capacities for FSN-Agricultural Innovation Systems are being implemented or planned in the country where your activities are devoted to the achievement of SDGs 2 (zero hunger), 3 (good health and well-being) and 12 (responsible consumption and production)?
5. Which indicators would be relevant to measure improvement of capacities that support collective learning and adaptation in food security and nutrition-sensitive initiatives?
6. Till recently nutrition problems in low and middle income countries were characterised mainly by undernutrition and micronutrient deficiencies. An additional form of malnutrition is now present in the same communities: obesity. How can the framework for capacity development for FSN- Agricultural Innovation Systems be adapted to address the more complex nature of food security and nutrition issues?
7. When implementing the framework for capacity development for FSN-sensitive Agricultural Innovation Systems, how can the needs of often voiceless actors (e.g., small farmers, young people or female-led households) be incorporated and addressed?