



COMMITTEE ON AGRICULTURE

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Enabling smallholders and family farmers to access appropriate innovation, information and advisory services for sustainable agrifood systems

Executive Summary

Access to appropriate innovation, information and advisory services by smallholders and family farmers is a vital element in transforming agriculture and food systems and achieving the Sustainable Development Goals (SDGs). Extension and Advisory Services (EAS) play a critical role in improving access and bridging the gap between information provision and use. However, EAS and other bridging institutions face consistent challenges due to inadequate funding, insufficient capacity, and the lack of an enabling environment or the necessary reforms to meet current and emerging challenges. A number of actions need to be taken to address the gaps: (i) develop the technical, organizational and management skills of EAS and necessary infrastructure to better deliver services to farmers; (ii) reorient innovation, information and advisory services in order to build human capital and resilient agrifood systems; (iii) increase investment and promote institutional reform to meet emerging needs; (iv) assess EAS performance and provide evidence to develop an enabling environment; and (v) develop programmes to understand farmers' demands and facilitate the co-creation of innovative practices. These priorities are key building blocks if we are to enable access and achieve the mission of reaching the most vulnerable farmers and delivering the last mile in order to "leave no-one behind". FAO is playing an important role in providing policy recommendations, guidelines and tools to overcome these challenges and assist countries by bridging the gap and making information and advisory services inclusive, relevant, accessible, and affordable to smallholders and family farmers.

Suggested actions by the Committee

The Committee is invited to:

- Provide guidance on renewed directions to further strengthen the efforts to bridge the gap between information generation service providers and use by smallholder family farmers, to help accelerate progress in achieving the Agenda 2030 Sustainable Development Goals and in implementing the UN Decade of Family Farming.
- Encourage Members to reform their information, innovation and extension and advisory service (EAS) systems, taking account of emerging issues and new developments with greater understanding of farmers' needs.
- Recommend that Members and concerned stakeholders enable inclusive access to innovation, information and advisory services by smallholder family farmers and improve participation of farmers and all relevant actors of EAS in the co-creation of innovative practices, information and knowledge for decision-making.

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I. Introduction

1. Smallholders and family farmers are central to achieving food security and are custodians of natural resources and their sustainable use. Over 570 million family farmers manage 75 percent of farmland worldwide and produce more than 80 percent of the world's food. The majority are smallholder farmers, chronically suffering from food insecurity and vulnerable to local and global challenges. This vulnerability is further aggravated by lack of access to appropriate agricultural innovation, information and advisory services, which are essential to transforming how these farmers practise agriculture, if they are to lift millions of people out of poverty and food insecurity and to achieve the Sustainable Development Goals (SDGs), including in the context of the UN Decade of Family Farming (2019–2028).

2. The key challenges around access to innovation, information and advisory services are availability, affordability and relevancy. The development and use of innovation and information are constrained by both supply and demand and the lack of adequate linkages between them. At the supply end, lack of investment and technical capacity, coupled with complex and irrelevant information based only on scientific studies, completely overlook the demand perspective. At the demand end, smallholders and family farmers are often uninvolved in the co-creation of knowledge, leading to information that does not recognize farmer know-how and is often neither affordable, understandable nor actionable. This leads to a large number of smallholder farmers worldwide, especially women, lacking awareness that such information is even available. In fact it is estimated that more than 75% of family farmers worldwide have no access to reliable advisory services.

3. Much-needed investment to improve technical, infrastructural and institutional capacity of bridging institutions within the agricultural innovation systems (AIS), including the EAS, is rapidly dwindling. In many low-income countries, public investment has often been reduced to paying staff salaries, while EAS include a wide range of public and non-public, formal and informal service providers who also need support. The efficiency of these institutions is hampered due to the lack of human capital or infrastructure, as well as the remoteness of target populations. The fragmented and broken linkages between agricultural education, research, extension and farmers, as well as the absence of institutional mechanism to bring them all together, hinder the co-creation of innovation, information and appropriate joint actions.

II. Facilitating access to innovation, information and advisory services

A number of formal and informal mechanisms facilitate access to innovation and information to smallholders and family farmers. Among them, EAS plays a key bridging role between researchers, farmers, the private sector and other key actors in the AIS. However, over the last 30 years, the institutions that provide extension and advisory services have undergone a considerable transition worldwide and are consistently challenged by very low levels of funding in many countries. Amid such limited capacity and resources in the public sector, other actors and stakeholders of the agrifood system have stepped in to support farmers, but without sufficient coordination and linkages to ensure quality and inclusive service.

5. EAS have now become Pluralistic Service Systems (PSS), in which advisory services are provided by different actors and funded from different sources. Private companies, Non-Governmental Organizations (NGOs) and Producer Organizations (POs) currently play more active roles alongside public sector service providers¹. This trend towards multi-actor systems has improved access to information, innovation and technologies, and this is particularly relevant as farmers are highly diverse, differing in resources, gender, market access, crops and livestock systems, and therefore require different types of information and services. While pluralism in EAS has increased access to

¹ FAO (2016) *Towards inclusive Pluralistic Service Systems Insights for innovative thinking*. FAO, Rome. <http://www.fao.org/3/a-i6104e.pdf>

information and advisory services, inadequate coordination of multiple actors has led to conflicting and low-quality information and advisory services.

6. Smallholders and family farmers are heterogeneous and the challenges they face today are multiple, interconnected, and complex. The solutions for those challenges should be well-coordinated and customized, and advisory services should be relevant to geographic regions, type of agricultural activities and time-specific decisions beyond agriculture production. The COVID-19 pandemic has also highlighted the importance of coordination and collaboration among existing advisory service providers. This also requires them to pick up new services, new roles and new skill sets, both in terms of functions and technical areas of focus². The EAS and other mechanisms should move from the traditional role of technology transfer to cover various points from “farm to fork” and to accelerate the transition to sustainable food systems, involving the following actions:

- (a) Facilitate linkages between farmers and other actors (formal and informal) in the system such as agribusinesses, micro-credit organizations, education and research institutes, community or producer organizations, as well as government agencies and policy makers;
- (b) Facilitate innovation processes, collective action, joint learning and co-creation of knowledge;
- (c) Provide timely and accurate information on markets, price, climate/weather, pests and diseases;
- (d) Develop the capacities of smallholders and family farmers to access and use new technologies and innovation, including digital tools;
- (e) Translate “big data” to actionable data-driven information and services, tailored to different farmer groups, including the most vulnerable;
- (f) Provide necessary services on food and nutrition standards, soil and pesticide residue testing, crop production and post-harvest practices, pest monitoring, seed certification and distribution, testing inputs for quality and agro-producers certifications etc.; and
- (g) Participate in relevant policy processes at national levels on issues such as institutional reforms, digital agriculture, data ownership and advocacy.

7. Despite the commitments of multiple actors to facilitate the interaction with partners in research, education, agribusiness and other relevant institutions, the services they provide are insufficient in a complex globalized setting, such as market dynamics, digitalization and the challenges of climate change. Strengthened multi-actor mechanisms are key not only to enabling inclusive access to relevant innovation and information, but also to facilitating the co-creation of innovations and knowledge through empowering people.

III. Strengthening extension and advisory services for increased access to innovation and information

8. While EAS have gained increased recognition and renewed importance as the key delivery channel of access to appropriate innovation, information and advisory services to farmers, lack of investment and institutional reform to meet emerging needs has left a huge gap between information generation and use by the farmers. One of the basic reasons for the widening gap and poor-quality advisory services is a lack of understanding of farmers’ needs and insufficient involvement of farmers in the co-creation of innovation and knowledge for informed decision-making. As a first step, a rigorous and widely accepted assessment framework that helps assess the needs of the farmers as well as current infrastructural, institutional capacities and performance of extension and advisory systems is needed to

² World Bank (2012), *Agricultural Innovation System: an investment sourcebook*
<https://www.innovationpolicyplatform.org/www.innovationpolicyplatform.org/document/agricultural-innovation-systems-investment-sourcebook/index.html>

provide an evidence base to develop an enabling environment and the relevant policies plus much needed investment.

9. From a technical standpoint, the services of EAS need to be aligned to address challenges such as climate change, degradation of natural resources, and malnutrition and take into account advanced tools emerging from disruptive innovations, including digital technologies. However, the lack of technical capacity together with inadequate evidence³ to demonstrate the return on investment have failed to attract financial resources to improve the EAS. Addressing complex challenges in turn depends on the type of tasks, market demand and the mobilization of farmers' organizations in identifying alternative channels for linking farmers to consumers through digital tools and platforms. In addition, EAS should be equipped to facilitate linkages, broker deals with the private sector, support farmers organizational processes and mediate conflict resolution in specific contexts such as rangeland management, with herders and water resources management with water users' associations and farmer groups.

10. New and unexpected crises and threats often trigger the need for new roles for EAS. For example, the COVID-19 pandemic has triggered the need for new ways of working to address many real time challenges in terms of food production and maintaining the supply chain. In this context, disruptive technologies, communication tools, and online platforms, together with innovative production technologies and practices, offer renewed opportunities for the EAS to streamline their services. Empowering EAS to make use of digital tools and platforms can increase the efficiency and effectiveness of timely services to farmers. However, the digital divide between men and women, and between rural and urban dwellers, is widespread and can lead to increased inequalities. Appropriate infrastructure (including coverage of electricity and Internet network) as well as strengthening the capacity of farmers' networks (including women, youth and the most vulnerable) to use digital tools and technologies can make a huge difference in terms of timely access to information.

11. It is important to acknowledge the diversity of tools, ranging from simple SMS, rural radio, and IVR systems to drones, artificial intelligence and big data. For example, radio is a trusted source of information for farmers which reaches over 70% of the world's population and is regularly used by EAS to reach people in remote areas with information and advice⁴. These efforts should ensure that digital tools are placed in the hands of capable individuals at local level, supported by EAS actors and infrastructure. It is important to remember that digital tools can complement – but not substitute or replace – EAS. Human interactions are critically important in the co-creation of innovations. People-centred approaches to innovation and technology development are central to strengthening the EAS.

12. The capacity development of EAS with new skillsets and approaches to support smallholders and family farmers more holistically throughout the agrifood system is a priority. Developments such as Agroecology, climate-smart agriculture and integrated pest management also need renewed support and better integration within EAS for sustainable agrifood and rural transformation. New service delivery approaches and methodologies such as online discussions, collective action and group learning, the co-creation of innovation, participatory research and extension and social intelligence should be strengthened. While enabling access to innovation and information is critical, it is equally important to ensure that content and interpretation are relevant to farmers' needs and inclusive without causing information overload.

³ IFPRI (2016). *Framework to assess performance and impact of pluralistic agricultural extension systems: The best-fit framework revisited*. IFPRI Discussion Paper 1567.

<https://ebrary.ifpri.org/digital/collection/p15738coll2/id/130842>

⁴ IFPRI (2019). Blog on Extension and Advisory Services Role in the COVID-19 Crisis
<https://www.agrilinks.org/post/extension-and-advisory-services-role-covid-19-crisis>

IV. The creation of an enabling environment for inclusive access to an appropriate innovation and information

13. Overcoming the challenges and embracing the opportunities faced by various mechanisms that facilitate access to appropriate innovation and information, including EAS, need to be supported and reinforced by policies, innovative instruments, reform processes, and infrastructure. These ultimately need to create an inclusive enabling environment and incentives for actors, including producers to work together for co-creation of appropriate innovations, practices and information⁵. The challenges and opportunities raised by enhancing access to innovation and information impose behavioural changes on the innovation system actors especially EAS, who are increasingly taking on new and non-traditional roles and functions. Policy makers are thus progressively realizing the need for well-coordinated, demand driven, and market-oriented information and advisory services to accelerate the SDG progress, in particular for zero-hunger and eradicating poverty.

14. Institutional development, including building resilient local systems, the strengthening of existing mechanisms such as multi-actor innovation platforms, innovation hubs and national level knowledge portals, is critical to enhancing better access to community-driven local advisory services. Some examples include: Science and Technology Backyard (STB) - an approach that provides a platform which enables research, education and EAS sectors to work together in conjunction with farming communities in order to foster knowledge and information generation and exchange⁶ and the European Innovation Partnership (EIP- AGRI) - an operational multi-actor group that co-create innovations in response to farmer challenges⁷. Where governance and policies support coordination and collaboration among formal and informal institutions and service providers, this can help avoid duplications and conflicting information when it comes to decision-making.

15. Establishing innovative instruments, incentives and processes to link actors throughout the agrifood system including education, research, extension, farmers' organizations, private sector and farmers for joint actions – and sustaining these arrangements – are vital in ensuring effective enabling environments. Promoting new financial mechanisms such as e-vouchers and mobile phone payment credits directly by farmers can improve efficient use of information by farmers. Case studies, pilot interventions, experiences in participatory technology development and decision-making, approaches for the co-creation of knowledge with farmers can be used to design incentive mechanisms and rewards for a well-functioning enabling environment that supports the EAS system and its pluralistic actors. A balanced and holistic approach to investment is also needed to enable inclusive access to relevant products, services, and innovations by smallholder family farmers, and ensure adequate performance of the institutions and actors delivering the last mile.

16. Defining clear roles and responsibilities of various institutions and EAS actors can help enhance the seamless access of innovation and information. Public services can play a crucial role in setting standards and certification, ensuring quality of services, and the coordination and facilitation of other actors in the system, in addition to their regular advisory role. The private sector can mainly engage in the supply of relevant inputs, transport, processing and markets. Producer organizations, NGOs, farmers' organizations, farmer groups and informal networks can ensure inclusive access to information and innovation by different producer groups, including the poor and the most vulnerable smallholder producers, as well as disadvantaged groups that often have no access to innovation, information or advisory services.

17. The availability of necessary data is critical to enabling the policy process to define appropriate priorities together with necessary financial investment. Despite the existence of a

⁵ FAO (2020). *Agricultural extension in transition worldwide: Policies and strategies for reform*. Rome, FAO. <https://doi.org/10.4060/ca8199en>

⁶ Zhang et al (2016). *Closing yield gaps in China by empowering smallholder farmers*. Nature, pp. 537, 671

⁷ Information available at <https://ec.europa.eu/eip/agriculture/en>

tremendous amount of data in agrifood systems, farmers can rarely access it due to cost, complex formats, lack of analytical tools and capacities and infrastructure challenges⁸. Ensuring an enabling environment for increased use of open data lie at the heart of improved access to information for farmers and service providers at two levels: 1) farmers need open data and access to information on modern farming methods, on appropriate inputs such as seeds and fertilizers, on market opportunities, prices, weather, quality standards, agricultural laws and regulations and, where appropriate, on how to apply for subsidies; and 2) service providers need to use open data that smallholder farmers provide for analysis, to make positive decisions for the food system and to ensure food security, while providing regulations on the use of farm data and farmers' rights. However, to be able to find and use such information, both the service providers and farmers need access to, and training in, information and communication technology (ICT)⁹. Furthermore, in case of the information provided by farmers, appropriate arrangements are needed to protect data privacy and prevent improper use.

18. Governments have a strong role to play in ensuring quality and inclusion, and making sure that appropriate innovation, information systems and advisory services are available and affordable to smallholder family farmers – especially those in remote areas, vulnerable groups, and women. Reaching the unreached and delivering at the last mile should be the new mission of these innovative information and advisory service systems in order to “leave no-one behind”. Digital services can effectively complement direct face-to-face advisory services to greatly improve access. However, efforts are needed at various levels in order to reduce the risks and increase the benefits of digital technologies. Enabling inclusive policy, institutional mechanisms and relevant programmes should also incorporate the necessary elements to strengthen digital literacy of smallholder and family farmers, as well as their capacity to access them and ensure the first/last mile of connectivity in rural areas.

19. Partnership among as well as beyond pluralistic EAS actors – coupled with better linkages between research, extension and farmers – widen the scope of the services as well as delivery mechanisms. Both public and private sectors should invest in agricultural education to modernize courses and curricula to develop the practical skills of students, such as networking, coaching, facilitating, advocacy, communication, leadership, teamwork and entrepreneurship skills. Evaluation of education and research excellences should not be merely academic. Rather it should be practical and respond to farmers' demands. Public and private partnerships ease some of the burden on government institutions and enhances the pluralistic services and ease of access to innovation and information by smallholder farmers. Relevant regulatory frameworks and mechanisms must ensure that such partnerships are feasible and favourable to enhance the availability, affordability and accessibility of innovation and information systems to help informed decision-making by farmers.

V. FAO's role in improving access to innovation, information and advisory services

20. FAO is playing an important role in providing policy recommendations, guidelines, and tools to overcome the challenges, help Members bridge the gap, and make information and advisory services inclusive, relevant, accessible, and affordable to smallholders and family farmers, recognizing in particular the roles of women as farmers and stakeholders in the value chain. The areas of priority identified to further strengthen the services may include:

⁸ ITU (2019) *Facts and Figures 2019. Measuring digital development*, also available at <https://itu.foleon.com/itu/measuring-digital-development/contents/>

⁹ IFLA (2017) by the International Federation of Library Associations and Institutions (IFLA) and the Technology and Social Change Group, University of Washington. <https://da2i.ifla.org/wp-content/uploads/da2i-2017-chapter3.pdf>

- (i) Strengthen and develop technical, organizational and management skills of a range of farmers' service providers, especially extension and advisory services to better facilitate innovation, and deliver information and advisory service to match the needs of farmers;
- (ii) Reorient the innovation, information and advisory services that cover entire agrifood systems considering the complex setting, such as market dynamics, digitalization and the challenges of climate change;
- (iii) Support countries to make evidence-based and informed investment and policy decisions to help small holder family farmers to access information, innovation and advisory services;
- (iv) Promote institutional reforms to meet emerging needs and guide the development of enabling environment through relevant policies; develop methodology and guidelines to assess national extension and advisory services and their performance to better demonstrate return on investment and outcome of service provision;
- (v) Develop programmes to improve articulation of farmers' demands and enhance farmer participation in the co-creation of innovative practices and information systems, including expanding the overall role of farmer producer organizations and networks, in coordinating needs assessments, creating relevant advisory, as well as in delivery services; and
- (vi) Provide platforms and neutral space to document, discuss, and promote good practices and innovations for sustainable transformation of agri-food systems that produce more with less.

21. FAO will continue developing knowledge products and guidelines to ensure the necessary support for members in the areas prioritized above. FAO will continue to act as a convener of Members and stakeholders to discuss issues related to innovation, information and advisory services and identify solutions in order to improve access for smallholders and family farmers. Strengthening FAO's capacity at headquarters and decentralized offices is critical to realizing its potential.

The Committee is invited to:

- a) Provide guidance on directions to further strengthen efforts to fill the gap between information generation service providers and use by smallholder family farmers, to help accelerate progress in achieving the Agenda 2030 Sustainable Development Goals and in implementing the UN Decade of Family Farming;
- b) Encourage Members to reform Extension and Advisory Services (EAS) in the context of agricultural innovation systems taking into consideration emerging issues and new developments with greater understanding of farmers' needs; and
- c) Recommend that Members and concerned stakeholders enable access to innovation, information systems and advisory services for smallholder family farmers and improve participation of farmers and all relevant actors of EAS in the co-creation of innovative practices, information and knowledge for decision-making.