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Innovation for food and agriculture: strategies, guidelines, action plans and knowledge platforms

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I. Background

1. Agricultural innovation can contribute to the transformation of agriculture and food systems necessary to achieving the Sustainable Development Goals (SDGs). Though innovation is central to all SDGs, it is particularly important when it comes to ending poverty in all its forms everywhere (SDG1), ending hunger, achieving food security, improving nutrition and promoting sustainable agriculture (SDG2). The challenges confronted due to the COVID-19 pandemic also highlight the need for investments in innovation solutions to food system challenges. The way we produce and consume food should be innovative in terms of bringing new products, processes, and forms of organization into use in specific contexts, in order to increase effectiveness, competitiveness and resilience, and address the challenges faced in food and agriculture.

2. The importance of agricultural innovation is set out in Resolution 7/2019¹ adopted by the 41st Session of the FAO Conference (June 2019). The Resolution noted the potential of agricultural innovation in supporting transformative change within the various agricultural systems, as well as the need to strengthen the capacity of family farmers to innovate. The Conference requested that FAO support Members, both at the country and regional level, in enhancing their commitment and engaging more effectively in transitioning towards sustainable agriculture and food systems by encouraging innovation in agriculture.

3. The International Symposium on Agricultural Innovation for Family Farmers held at FAO headquarters in Rome in November 2018, highlighted the need for assessment of agricultural innovation systems to identify the gaps and promote integrated policies and increased investments to create an enabling environment for innovation². The 26th Session of the Committee on Agriculture (COAG) in October 2018 also recommended that FAO play a greater role in assisting countries and local communities in developing their agricultural innovation strategies through comprehensive diagnosis and needs assessments³. FAO prioritized innovation as one of the main drivers of agricultural and rural transformations in its 20 interconnected actions designed to guide decision makers in transforming food and agriculture in achieving the SDGs⁴.

II. Strategies, guidelines, action plans and knowledge platforms

4. In response to the recommendations and priorities highlighted above, FAO's Research and Extension Unit is leading implementation – with the support of a wide range of technical divisions and decentralized offices – of the Global Knowledge Product on *Innovation for Sustainable Food and Agriculture* under Strategic Programme 2 (Make agriculture, forestry and fisheries more productive and sustainable). The Global Knowledge Product includes strategies, guidelines, action plans and online knowledge portals. The following paragraph provides a brief summary of the status of selected activities designed to further development of strategies, guidelines, action plans and online knowledge portals.

5. FAO is engaged in a range of activities that promote access to innovation and its use in sustainable agriculture, including agro ecology, biodiversity, biotechnologies, sustainable food systems, nutrition, antimicrobial resistance, animal health, agricultural machinery and digital agriculture. However, a strategic approach is needed to benefit from synergies and ensure a coordinated response to the needs of its Members. To address this issue, a synthesis is needed of lessons learned from use of technological and institutional innovations that support smallholders and family farmers in improving food security and reducing poverty. Such a synthesis could lead to the

¹ FAO. Report of the FAO Conference. 41st Session, 22-29 June 2019.

<http://www.fao.org/3/na421en/na421en.pdf>

² FAO. 2019. *Proceedings of the International Symposium*. <http://www.fao.org/3/ca4781en/ca4781en.pdf>

³ FAO. 2016. Report of 25th Session of the Committee on Agriculture, 26–30 September 2016.

<http://www.fao.org/3/a-mr949e.pdf>

⁴ FAO. 2018. *Transforming food and agriculture to achieve SDGs: 20 interconnected actions to guide decision makers*. <http://www.fao.org/3/CA1647EN/ca1647en.pdf>

development of a background document and identification of key priorities to develop an FAO innovation strategy.

6. FAO is working to develop guidelines to support regional organizations and governments in strengthening their integrated policies and increasing investments for agricultural innovation. Such policies and investment plans will address a renewed agricultural research agenda, reforms of the education and extension systems, use of digital technologies and proposals for adequate financial mechanisms to promote innovation. This work has begun in partnership with the International Food Policy Research Institute (IFPRI), including the preparation of a review of current guidelines for strengthening integrated policies and investments in agricultural innovation across sectors.

7. In collaboration with the French Agricultural Research Centre for International Development (CIRAD) and other partners, FAO is developing guidelines for the assessment and diagnosis of agricultural innovation systems (AIS) to identify key gaps that require strategic interventions and strengthen their effectiveness. A guideline to assess the effectiveness of extension and advisory services (EAS) at national level is also being developed in order to better understand the current gaps, diversity of functions, services, types of actors, delivery mechanisms and priorities for reform. These AIS guidelines have already been tested in Thailand and in the United Republic of Tanzania, while the EAS guidelines are now being trialled in different countries including Azerbaijan, Ecuador, India, Kyrgyzstan, Madagascar, Tajikistan, Uganda, Ukraine and Uzbekistan. The implementation of guidelines will be complemented with necessary training manuals for capacity development.

8. Innovation in agrochemicals – including risk reduction and enhancing the efficacy of bio) pesticides – will contribute to sustainable agriculture and ecosystem health. In collaboration with WHO and UNEP, FAO has developed a draft Global Action Plan to eliminate Highly Hazardous Pesticides (HHPs) and promote sustainable agriculture through identification of alternative, and innovative ecologically based methods. A virtual consultative meeting was conducted to discuss the key issues associated with the phasing out of HHPs and identification of innovative products and low risk alternatives. The Global Action Plan will be presented during the 5th International Conference on Chemical Management (ICCM5) in Bonn, Germany, in July 2021. Through the Rotterdam Convention, and on a continuous basis, FAO is assessing the needs⁵ of its parties to implement the Convention and thus to protect human health and the environment from risks posed by certain pesticides and other hazardous chemicals.

9. FAO promotes the sharing of good practices and technologies that can help smallholders and family farmers overcome their challenges in food production and value chain development. The Technologies and Practices for Small Agricultural Producers (TECA)⁶, online platform provides a catalogue of innovative practices and technologies designed to ensure that smallholder farmers gain access to appropriate innovation. As the Secretariat for the Tropical Agriculture Platform (TAP), FAO developed an information sharing platform called TAPipedia⁷, which contains resources on good practices, innovation success stories and lessons learned, in support of capacity development for agricultural innovation systems.

III. Summary and the way forward

10. Innovation is fundamental to moving from incremental to transformational change and unlocking the potential in more resilient agrifood systems to achieve sustainable development goals. FAO is developing strategies, guidelines and knowledge portals, and promoting a holistic approach to developing and accessing appropriate innovation for smallholders and family farmers. These products

⁵FAO & UN Environment Programme. Rotterdam Convention. Technical assistance needs assessment to implement the Rotterdam Convention.

<http://www.pic.int/Implementation/TechnicalAssistance/NeedsAssessment/Overview/tabid/3755/language/en-US/Default.aspx>

⁶ TECA. Online platform for sharing successful agricultural technologies and practices to facilitate knowledge exchange. <http://www.fao.org/teca/en/>

⁷ TAP. TAPipedia: Exchanging knowledge and supporting capacity development for agricultural innovation systems. <https://tapipedia.org/>

include guidelines to enable regional organizations and governments to strengthen their integrated policies and increase investments, the assessment and diagnosis of agricultural innovation systems (AIS), the assessment of the functioning of extension and advisory services (EAS) and the Global Action Plan to eliminate Highly Hazardous Pesticides (HHPs). The guidelines are being tested at country level, along with the necessary training manuals for capacity development.

11. Further efforts in this regard need to focus on the synthesis of lessons learned from the use of technologies and innovations that support smallholders and family farmers, and the development of an innovation strategy to ensure a coordinated response to the needs of Members. The strategy should aim to leverage innovation, technology and new approaches and implement these in partnership with Members by facilitating cooperation within and across countries, and by bringing partners together to accelerate and scale up innovation in agrifood systems. The innovation strategy may be pertinent to the FAO's new Office for Innovation⁸ and can help to apply modern science and technology and adopt innovative approaches when facing new situations and challenges.

⁸ FAO. Adjustments to the programme of work and budget 2020-21. 163rd Session of the Council, 2-6 December 2019. <http://www.fao.org/3/mz825en/mz825en.pdf>