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**Sustainable Agriculture and Food Systems in Europe and Central Asia in a
Changing Climate**

Executive Summary

Agriculture and food systems are important sectors of the economy in Europe and Central Asia and provide employment and livelihoods for a significant proportion of the population. They have the potential to strongly advance progress on multiple Sustainable Development Goals (SDGs), the Paris Climate Agreement, the Sendai Framework, the new Urban Agenda and the Biodiversity Strategic Plan of the United Nations Convention on Biological Diversity. Modifications to agricultural systems can reduce total greenhouse gas emissions and contribute to adaptation and resilience to climate change at both the sector and landscape levels. To realize this potential, it will be necessary to have a shared vision on sustainable food and agriculture based on a systems approach, from farm to fork, and its linkages with other sectors. It will require changes in policies in different sectors to support implementation of the 2030 Agenda for Sustainable Development in an integrated manner and to reduce the risks of negative interactions among different parts of the food systems while building synergies among them. It will also be necessary to introduce significant changes in practices in order to improve the sustainability and resilience of agriculture and food systems.

Agroecology may be considered for its transformative potential to achieve multiple objectives holistically, namely economic, environmental, social, nutrition/health, and cultural. Moreover, agroecology contributes to the achievement of at least ten SDGs while significantly increasing the resilience of people and the environment, mitigating climate change, and conserving and sustainably using biodiversity.

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Taking a food system approach, involving all relevant sectors and the participation of all stakeholders combined with a broad adoption of agroecology, will have the potential to greatly accelerate the transition towards making food and agricultural systems and livelihoods more sustainable and resilient to the impacts of climate change, in line with the various international commitments made by countries of the region. In addition, the food system approach can strengthen rural urban linkages, better connecting producers with markets, and consumers, rural areas providing ecosystem services, and serve as a way to connect multiple SDG goals through food. FAO is supporting its Members in transitioning to a new paradigm, guided by its Strategy on Climate Change and in keeping with the 2018–2019 FAO biennial theme on climate change and its impact on the work and activities of FAO.

Several points and recommendations are included in this document for discussion and consideration by the Members.

Guidance sought from the Regional Conference

The Regional Conference is invited to:

- 1) call on governments to adopt a food systems approach for the creation of policy coherence in the implementation of the SDGs and support the establishment of governance/coordination mechanisms, that include all relevant sectors and stakeholders to design policies and strategies for sustainable and resilient agriculture and food systems;
- 2) review the potential of diversified agroecological systems to accelerate the transition to sustainable agriculture and food systems and call on governments to foster the adoption of such systems;
- 3) underline the need to put in place effective mechanisms to align investments from all sources, including the private sector, to the new policies and strategies;
- 4) reaffirm FAO's support to agricultural sectors, ministries and stakeholders, including women, in engaging at national, regional, and global levels in key United Nations Framework Convention on Climate Change processes, in particular the review and update of the nationally determined contributions, the Koronivia decision on agriculture, the Gender Action Plan, the Talanoa Dialogue, and in the preparation of national implementation plans under the Sendai Framework; and
- 5) request FAO to support a food systems approach in rural and urban policies and planning and incorporate agroecological approaches and diversification into the three regional initiatives and bolster its work on agroecology in the context of the United Nations Decade of Family Farming (2019–2028) and the Scaling-up Agroecology Initiative.

I. Introduction: the challenges in agriculture and food systems

1. Agriculture in Europe and Central Asia is mostly based on smallholder and family farms, which are significant contributors to employment and food security.¹ It remains an important sector of the economy and is a major source of employment in many countries of the Caucasus, Central Asia, the Balkans, and Eastern Europe. For example, in Georgia and Tajikistan, the majority of workers are engaged in agriculture, while in Albania, Armenia, Azerbaijan, and Uzbekistan, it represents more than a third. In the 28 member countries of the European Union (EU28), 44 million people, or 8.6 percent of the total population, are employed in food systems – half in agricultural production and half in other food system activities along the entire value chain. While agriculture accounts for an average of 1.6 percent of the gross domestic product in the EU28, it represents between 4.7 percent and 24.9 percent² in other countries in the Europe and Central Asia region. However, demographic changes, migration, the rising affluence of consumers, and urbanization will increasingly change lifestyles and food consumption patterns and are likely to affect the future of agriculture in the region. Furthermore, developments in regional integration and trade may open new export opportunities for a range of agriculture-dependent countries.

2. Beyond these structural changes, agriculture and food systems face a series of urgent sustainability challenges. Global food systems generate one-third of all human-caused greenhouse gas emissions, with agriculture, forestry, and other land-use changes contributing as much as 25 percent.³ Land degradation is a growing threat to agricultural productivity and ecosystem services in Europe and Central Asia.⁴ Warmer air temperatures already are affecting the Europe and Central Asia region, with an average increase of 0.5 °C in the south and 1.6 °C in the north of the region since the early 1990s.^{5,6} In northern areas of Europe and Central Asia, agricultural productivity might increase due to a longer growing season, and new crops may be cultivated, water and nutrient availability and pest and disease pressure permitting. In southern Europe and Central Asia, extreme heat events and erratic rainfall patterns already hamper crop productivity, and this is expected to worsen. Changes also occur in the distribution of animal diseases and their vectors.⁷ Throughout the Europe and Central Asia region, crop and animal production are expected to suffer significant losses due to the greater severity and frequency of extreme weather events. Worldwide, annual economic costs related to natural disasters in agriculture have been estimated at between USD 50 billion and USD 100 billion, with two-thirds related to floods, droughts, and extreme temperatures.⁸

3. Malnutrition in all its forms and non-communicable diseases (NCDs) create heavy social and economic burdens for Europe and Central Asia societies, affecting people's health, well-being, and productivity.⁹ While the majority of countries have made significant progress in reducing the proportion of their populations affected by hunger, the triple burden of malnutrition (i.e. undernutrition, micronutrient deficiency and overnutrition) remains relevant in the region. The FAO overview on food

¹ FAO, 2016. Priorities for FAO's work in the Europe and Central Asia Region. <http://www.fao.org/3/a-mp179e.pdf>

² World Bank, 2015. <https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS?view=map&year=2015>

³ Vermeulen, S.J., Campbell, B.M., Ingram, J.S.I., 2012. Climate Change and Food Systems. *Annual Review of Environment and Resources* 37, 195–222. doi:10.1146/annurev-environ-020411-130608

⁴ FAO, 2015. Combating Land Degradation for Food Security and Provision of Soil Ecosystem Services in Europe and Central Asia, <http://www.fao.org/3/a-mo297e.pdf>

⁵ World Bank, 2009. Adapting to Climate Change in Europe and Central Asia.

http://siteresources.worldbank.org/ECAEXT/Resources/258598-1243892418318/ECA_CCA_Full_Report.pdf ;

⁶ FAO, 2016. The agriculture sectors in the Intended Nationally Determined Contributions: Analysis. <http://www.fao.org/3/a-i5687e.pdf>

⁷ FAO, 2017. European Commission on Agriculture, 2017. <http://www.fao.org/3/a-mu348e.pdf>

⁸ WMO: Last retrieved 2018. http://www.wamis.org/agm/meetings/anadia06/Sivakumar_Overview.pdf

⁹ FAO, 2016. The cost of malnutrition represents an annual loss of USD 32 million in Kyrgyzstan. <http://www.fao.org/3/a-i6877e.pdf>

security and nutrition in Europe and Central Asia¹⁰ reveals that 14.3 million adults still consider themselves to be severely affected by food insecurity, with varying levels of vulnerabilities experienced by different population groups across the region. In addition, micronutrient deficiencies and overnutrition have become two major nutrition concerns across the region. Non-communicable diseases are now the leading cause of death globally, with 70 percent (39.5 million) of all deaths in 2015 being related to NCDs.¹¹ The increase of NCDs and obesity correlates with income increase and urbanization and is due to increased consumption of highly processed food, rich in energy and salt.^{12,13} Every 10 percent increase in consumption of ready meals, sugary cereals, and salty snacks is linked to a 12 percent rise in cancer risks.¹⁴ This trend further points to the need for enhanced education efforts to ensure nutritious and balanced food choices.

4. Prevailing agricultural development pathways and food policies have failed to respond to these challenges sufficiently. The “Green Revolution” high-input type of crop production that has dominated the development agenda for several decades has been successful in producing higher quantities of staple food commodities. However, it has exacerbated several environmental risks, such as land degradation, water and air pollution. Recent decades have seen a drastic reduction of the diversity of agricultural species in fields and farms throughout the region, with a focus on a few genetically uniform staple crops and animal breeds. This has undermined the environmental and economic resilience of farming systems. The dependence on single commodities has increased the vulnerability to market price fluctuations and has decreased the resilience of production systems to climatic shocks. It also has been accompanied by significant losses of wild biodiversity, jeopardizing the delivery of crucial ecosystem services.¹⁵ In the areas of most intensive agriculture, the excessive application of nutrients, particularly nitrates, phosphates, and animal waste, has resulted in severe water and air pollution, while increasing pesticide applications contribute to soil and water pollution and to the emergence of resistant pests and pathogens. Furthermore, “dead zones” are increasingly being observed at the mouths of river systems as a result of fertilizer and pesticide runoff.¹⁶ The overuse use of antibiotics for preventive disease purposes or as additives to stimulate faster growth in livestock and aquaculture production systems represents a significant health risk to consumers.¹⁷

5. Current agriculture and food systems are providing cheaper and more abundant food for a larger part of the population. However, with increasing dependency on high-cost input and oligopoly/monopoly situations, as well as limited economic efficiency and social inclusion in food supply and value chains of staple products, they have largely failed to provide decent livelihoods and food security for all. Poverty remains endemic in rural areas in some Europe and Central Asia countries, in Central Asia and the Caucasus, in particular¹⁸, and farm income levels often are well below global national averages.

¹⁰ FAO 2017. Europe and Central Asia: Regional Overview of Food Insecurity 2016 (based on the new Food Insecurity Experience Scale (FIES)). <http://www.fao.org/3/a-i6877e.pdf>

¹¹ World Health Organization (WHO), 2017. http://www.who.int/gho/ncd/mortality_morbidity/ncd_total/en/

¹² The International Panel of Experts on Sustainable Food Systems (IPES-Food), 2017a. Unravelling the Food-Health Nexus. http://www.ipes-food.org/images/Reports/Health_FullReport.pdf

¹³ FAO, 2016. The mean calorie intake in Europe and Central Asia is 130 percent of the dietary energy requirement, with large differences (e.g., 98 percent for Tajikistan and 156 percent for Turkey). <http://www.fao.org/3/a-i6877e.pdf>

¹⁴ Fiolet Thibault, Srour Bernard, Sellem Laury, Kesse-Guyot Emmanuelle, Allès Benjamin, Méjean Caroline et al. 2018. Consumption of ultra-processed foods and cancer risk: results from NutriNet-Santé prospective cohort BMJ 2018; 360 :k322

¹⁵ Steffen et al., 2015. Planetary boundaries: Guiding human development on a changing planet. Science 347, 1259855.

¹⁶ Parris, K., 2011. Impact of Agriculture on Water Pollution in OECD Countries: Recent Trends and Future Prospects. International Journal of Water Resources Development 27, 33–52.; Bouraoui & Grizzetti, 2014. Modelling mitigation options to reduce diffuse nitrogen water pollution from agriculture. Science of The Total Environment 468–469, 1267–1277.

¹⁷ IPES-Food, 2017a. Unravelling the Food-Health Nexus. http://www.ipes-food.org/images/Reports/Health_FullReport.pdf Also FAO. 2017. Drivers, dynamics and epidemiology of antimicrobial resistance in animal production

¹⁸ UNDP, 2016. <http://hdr.undp.org/en/composite/MPI>

6. According to the Global Multidimensional Poverty Index (2014),¹⁹ 62 percent of the poor in Europe and Central Asia countries live in rural areas. The reduction of the numbers of agricultural producers, ranging from 2 to 3.7 percent annually, is much faster than the rate of urbanization, which ranges from -0.06 percent in some Eastern European countries to 0.3 percent in Central Asia.²⁰ The aging of the farming population is a significant challenge throughout the region. In the European Union, the number of younger agricultural producers decreased most dramatically, with only 6 percent of agricultural producers younger than 35, and over 50 percent of agricultural producers older than 55.²¹ These structural changes in agriculture, combined with perennially low farm gate prices, have contributed to significantly reduced incomes. Even in some high-income European Union countries, despite the European Union Common Agricultural Policy subsidies, farm income has been declining in recent years. European Union input costs increased by almost 40 percent between 2000 and 2010, leading the European Parliament to raise concerns about the viability of the agricultural sector.²²

7. Major changes in food transformation, marketing, and consumption also have occurred, particularly in urban areas, with a rise in consumption of ultra-processed foods,²³ an increase of meals eaten outside the home, and the ever-more-dominant role of major food industry actors. In addition, urbanization is inducing changes in food habits with an increase in consumption of animal protein based food. These have resulted in parallel shifts in agricultural production, with the increasing prevalence of commodities such as wheat and maize entering the processed food chains, limited diversification of crop production, and increase in intensive livestock farming. In this context, a wide range of processed foods based on these commodities have become increasingly more available to many consumers. While the poor continue to lack access to nutritious foods, either because of low access to healthy food choices in poor neighbourhoods (where “obesogenic food environments”²⁴ have taken root) or because of low income. With value continuing to accrue to the highly consolidated upstream (inputs) and downstream (processing and retail) sectors, food systems have concentrated economic and political power in ever fewer hands,²⁵ and small-scale farmers have had difficulties in accessing food supply chains with fair and equitable conditions as well as in meeting the quantity and quality standards imposed by supermarkets. The important problem of food losses and waste, and its significant production related contribution to greenhouse gas emissions, also represents a challenge in the region and must be addressed as part of the transition to sustainable agriculture and food systems.²⁶ It is estimated that around 30 percent of total food produced for human consumption in Europe is largely spoiled, unfit for sale or discarded.²⁷

¹⁹UNDP, 2016. <http://hdr.undp.org/en/composite/MPI>

²⁰UNDP, 2014. <https://esa.un.org/unpd/wup/DataQuery/>

²¹European Commission, 2011. https://ec.europa.eu/agriculture/sites/agriculture/files/rural-area-economics/briefs/pdf/03_en.pdf

²² European Parliament, 2011. Report on the farm input supply chain: structure and implications (2011/2114(INI)). Retrieved from: <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+REPORT+A7-2011-0421+0+DOC+XML+V0//EN>

²³ In Europe and Central Asia countries, there are significant differences in consumption of ultra-processed food, ranging from 10.2 percent in Portugal to 50.4 percent in the UK. Monteiro et al., (2018). Household availability of ultra-processed foods and obesity in nineteen European countries. *Public Health Nutrition*, 21(1), 18-26.

²⁴ Swinburn, B., Egger, G., Raza, F., 1999. Dissecting obesogenic environments: The development and application of a framework for identifying and prioritizing environmental interventions for obesity. *Prev. Med.* 29, 563–570.

²⁵ IPES-Food 2017b. Too big to Feed. http://www.ipes-food.org/images/Reports/Concentration_FullReport.pdf

²⁶ FAO, 2011. <http://www.fao.org/save-food/background/en/> The FAO-led Save Food initiative is partnering with international organizations, the private sector, and civil society to enable food systems to reduce food loss and waste. This provides a framework for Europe and Central Asia countries to address this important issue.

²⁷ FAO. 2011. Global food losses and food waste – Extent, causes and prevention.

<http://www.fao.org/docrep/014/mb060e/mb060e00.pdf> This data for Europe includes EU28 and EFTA countries, Southeastern Europe and European CIS.

II. The need for a systemic multisector approach to transition to sustainable agriculture and food systems

8. Sustainable agriculture and food systems should provide employment and decent incomes in rural areas and along the value chains, together with nutritious and healthy food, other goods, and environmental services for all. This should be done in such a way to address all dimensions of sustainability (economic, social, and environmental) to ensure that the food security and nutrition of future generations will not be compromised. This represents a complex set of interconnected issues that requires a systemic approach involving all relevant sectors and stakeholders involved in the food system.

9. Current prevailing solutions tend to address problems in isolation. For example: i) agricultural policies that promote intensive, high-input production models undermine environmental policies that aim to protect the quality of ground water and aquatic biodiversity; and ii) agricultural policies that promote the production of energy-rich but nutrient-poor commodities conflict with health policies that aim to promote diversified diets and increased consumption of fruits and vegetables. Integrated solutions are needed for the interconnected problems in food systems. A first step is to shift the focus from sectoral to more cross-sectoral, systemic approaches and objectives, considering the food system in its entirety from farm to fork, taking into account all its actors, activities, and elements and their interrelationships. A food systems approach also considers interactions with other systems (non-food agriculture, energy, health, trade, social protection, environment, etc.) as a critical part of strategy formulation, planning, and implementation.²⁸ Reforms will have greater impact if combined and aligned with a range of coordinated steps to introduce new incentives across agriculture and food systems, reducing risks of negative outcomes and building synergies among different systems. Sustainability strategies must also take into account environmental, social, and economic changes driven by exogenous forces including climate change, urbanization, and economic fluctuations. Moreover, in order to create the conditions in which more sustainable and equitable agriculture and food systems can take root, these solutions must rebalance power in those systems and foster broad and gender-balanced stakeholder involvement. In that respect new models of food system governance are needed, involving stakeholders from different sectors and levels (urban, rural, national and subnational levels) to ensure a more systemic and integrated food system approach in policies and strategies.

10. In order, to keep the increase in global temperature below the crucial ceiling of 2 °C, greenhouse gas emissions will have to be reduced by as much as 70 percent by 2050. This can be achieved only with the contribution of the agriculture and food sectors, which hold major potential for climate change mitigation and adaptation. The challenge is to reduce those emissions while meeting unprecedented demand for food, reducing diet-related diseases, and securing the livelihoods of the agricultural producers on whom all food production is ultimately reliant. The centrality of food and agriculture to the sustainability challenge underlines the need for urgent transformation of food systems and therefore represents a major opportunity.

11. In 2016, in the context of implementing the 2030 Agenda for Sustainable Development, the FAO Committee on Agriculture (COAG)²⁹ recognized that effective transition towards sustainable development in food and agriculture requires a common understanding and better dialogue within and across sectors. FAO Members have endorsed five principles for sustainability in food and agriculture³⁰ as a basis for the policy dialogue and governance arrangements needed to identify sustainable development pathways across the SDGs, across sectors, and along related value chains. These are:

- improving efficiency in the use of resources;

²⁸ UNDESA, 2015.

<https://sustainabledevelopment.un.org/content/documents/8506IASD%20Workshop%20Report%2020150703.pdf>

²⁹ FAO 2016. Agriculture and the 2030 Agenda for Sustainable Development. <http://www.fao.org/3/a-mr022e.pdf>

³⁰ FAO 2014. Building a common vision for sustainable food and agriculture. <http://www.fao.org/3/a-i3940e.pdf>

- conserving, protecting, and enhancing natural ecosystems;
- protecting and improving rural livelihoods, equity, and social well-being;
- enhancing the resilience of people, communities, and ecosystems;
- promoting responsible and effective governance mechanisms across natural and human systems.

12. A multisector approach to sustainable agriculture and food systems is essential for countries to achieve the SDGs³¹, which emphasize a similarly integrated approach. It is therefore key for agriculture and food-related sectors to be strongly involved in the national SDG implementation, coordination, and monitoring mechanisms now put in place in some Europe and Central Asia countries, mainstreaming the SDGs into national development policies (e.g., National Councils for Sustainable Development or similar bodies). Some Europe and Central Asia countries also have produced voluntary national reviews of SDG implementation.³² However, despite the existence of coordination bodies, many countries still have low awareness and/or capacity to foster greater policy coherence and to have an effective coordination of the implementation.

III. Agroecology:^{33,34} a pathway to accelerate the transition towards sustainable agriculture and food systems in Europe and Central Asia

13. In the context of the currently predominant paradigm of agricultural production, various practices and approaches, such as conservation agriculture, integrated pest management, climate-smart agriculture and nutrition-sensitive agriculture, have been taken to address individual challenges. While positive, these steps are insufficient to address the complexity and severity of the challenges described above. With its focus on creating synergies at the (agro-eco-)system level and its social dimension establishing closer links between producers and consumers, agroecology embodies the type of systemic thinking described above and merits the consideration of Europe and Central Asia countries for its potential to transition to sustainable agriculture and food systems. Agroecology, as part of an integrated landscape management approach, also offers a pathway to implementing the SDGs in an integrated manner, contributing directly to at least 10 of the 17 goals.³⁵ Today, organic agriculture is the most widespread model of agriculture applying agroecological principles; however, in the region, other types of agricultural practices applying such principles and aiming at increasing sustainability include, among others, permaculture and biodynamic agriculture.

14. Until recently, most efforts to increase food production while addressing the challenges of sustainability and resilience in the face of climate change have focused on genetic improvement and technological and other approaches, such as precision agriculture or conservation agriculture. The added

³¹FAO, 2018. Detailed overview related to the SDG implementation in the region both at country and regional level is given in the Information Note presented to the ERC - ERC/18/INF/11

³² UNDESA, 2018. By 2017, 43 countries, including 11 countries from the region, have already produced voluntary national reviews (VNRs) to carry out the analysis of the implementation of the SDGs at the country level. In 2018, 47 additional countries will be conducting VNRs, including 14 from Europe and Central Asia.
<https://sustainabledevelopment.un.org/hlpf/2018>

³³FAO, 2016. FAO has collated a number of definitions of agroecology at:
<http://www.fao.org/agroecology/knowledge/definitions/en/>

³⁴ In this document, agroecology is defined broadly to include not only the application of ecological concepts and principles to the design and management of sustainable agroecosystems (including agroforestry and a large number of agronomic practices to improve sustainability and resilience), but also the integrative consideration of the ecology of the entire food system, encompassing ecological, economic, and social dimensions.

³⁵United Nations, 2015. SDG1: Targets 1.1, 1.2, 1.4 and 1.5; SDG2: all targets; SDG3: Targets 3.2, 3.4 and 3.9; SDG 6: Targets 6.3, 6.4, 6.5 and 6.6; SDG 8: Targets 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.8 and 8.9; SDG 11: Target 11.4; SDG 12: Targets 12.1, 12.2, 12.3, 12.4, 12.5 and 12.7; SDG 13: Targets 13.1, 13.2 and 13.3; SDG 14: Target 14.1; SDG 15: Targets 15.1, 15.2, 15.3, 15.4, 15.5, 15.6 and 15.9 <https://sustainabledevelopment.un.org/content/documents/11803Official-List-of-Proposed-SDG-Indicators.pdf> see also web annex.

value of agroecology is to offer an alternative paradigm – one in which system redesign and diversification are prerequisites, and changes in knowledge transmission, participation, decision-making, and power relations are as important as shifts in farming practice. Diversified agroecological systems provide a higher resistance and resilience to climatic events, possibly will reduce greenhouse gas emissions, and can make agriculture more sustainable in the medium and long term; therefore, they address the three objectives of climate-smart agriculture.³⁶ Specific technologies and innovations (social and technological) must be considered for their compatibility with agroecological principles, not as alternatives to them. While particular practices will be location-specific, agroecological principles apply equally to small- and large-scale agricultural production systems. This is noteworthy, as the region has a great diversity in the size of its production systems.³⁷

15. There is a rapidly growing body of evidence on the potential of diversified agroecological systems to deliver mutually reinforcing benefits and to sustain them over time³⁸ as well as to limit losses and enable recovery in the face of environmental stresses and shocks resulting from climate change. They contribute to reduced greenhouse gas emissions improved carbon sequestration and water- and resource-use efficiency, improved soil health, greater biodiversity and ecosystem services, and restoration of degraded land.

16. Polycultures and mixed crop-livestock-fish farming systems that are part of diversified agroecological systems also have the potential to address the triple burden of malnutrition, enhancing the local availability of nutrient-rich, diverse, fresh foods throughout the year.³⁹ Diversity is central to the notion of sustainable diets,⁴⁰ and diverse diets reduce the risk of micronutrient deficiencies, obesity, and related NCDs. Furthermore, diversified agroecological systems reduce exposure to pesticides and other harmful chemicals while increasing the concentrations of a range of antioxidants in foods and thereby reducing the risks of chronic diseases.⁴¹

17. Diversified agroecological production strategies also can contribute to more resilient livelihoods. Lower dependence on external inputs reduces production costs and improves profitability, as do local transformation and value addition. The reduced use of external inputs, including energy to produce pesticides and fertilisers, contributes to reductions in greenhouse gas emissions, while the strategies that replace external inputs, such as increased soil organic matter and intercropping (e.g., agroforestry), contribute to both climate change adaptation and mitigation. Various options of shorter supply chains with closer links between producers and consumers establish longer-term relationships of trust and provide higher prices to producers by reducing intermediaries but still offer affordable prices for consumers. Furthermore, crop and animal diversification is a form of self-insurance, stabilizing

³⁶ Climate-smart agriculture has three objectives: 1) sustainably increasing agricultural productivity to support equitable increases in incomes, food security, and development; 2) increasing adaptive capacity and resilience to shocks at multiple levels, from farm to national; and 3) reducing greenhouse gas emissions and increasing carbon sequestration where possible.

³⁷ FAO 2017. Report of the Regional Symposium on Agroecology for Sustainable Agriculture and Food Systems for Europe and Central Asia. <http://www.fao.org/3/a-i7604e.pdf>

³⁸ IPES-Food, 2016. From Uniformity to Diversity: a paradigm shift from industrial agriculture to diversified agroecological systems. http://www.ipes-food.org/images/Reports/UniformityToDiversity_FullReport.pdf

³⁹ Carletto et al., 2015. Farm-Level Pathways to Improved Nutritional Status: Introduction to the Special Issue. *The Journal of Development Studies* 51, 945–957.; Kumar et al., 2015. If they grow it, will they eat and grow? Evidence from Zambia on agricultural diversity and child undernutrition. *The Journal of Development Studies* 51, 1060–1077.; Shively et al., 2015. Agricultural Diversity and Child Stunting in Nepal. *Journal of Development Studies* 51.; Herforth, 2010. Promotion of Traditional African Vegetables In Kenya And Tanzania: A Case Study Of An Intervention Representing Emerging Imperatives In Global Nutrition. Cornell University.; Oyarzun et al., 2013. Making sense of agrobiodiversity, diet, and intensification of smallholder family farming in the Highland Andes of Ecuador. *Ecol Food Nutr* 52, 515–541.; Jones et al., 2014. Farm production diversity is associated with greater household dietary diversity in Malawi: Findings from nationally representative data. *Food Policy* 46, 1–12; Remans et al., 2011. Assessing Nutritional Diversity of Cropping Systems in African Villages. *PLoS ONE* 6, e21235.

⁴⁰ FAO, 2011. Sustainable Diets and Biodiversity. <http://www.fao.org/docrep/016/i3004e/i3004e.pdf>

⁴¹ Barański et al., 2014. Higher antioxidant and lower cadmium concentrations and lower incidence of pesticide residues in organically grown crops: a systematic literature review and meta-analyses. *Br. J. Nutr.* 112, 794–811.

income in the face of crop failure, loss of livestock or aquatic animals, or other risks.⁴² The labour-intensive nature of agroecology entails higher labour costs but also higher potential for value addition and employment opportunities in rural areas.⁴³ The fact that these systems are knowledge- rather than capital-intensive is making the profession more accessible and attractive to young people. In other words, agroecology can contribute to responding to some of the most urgent socio-economic challenges facing the region, particularly in Central Asia and Eastern Europe.

18. The characteristics of agroecology (reduced chemical inputs, knowledge-intensive not capital-intensive, closer links between producers and consumers, more inclusive governance with greater participation in decision-making) hold the potential to rebalance power relations in food systems. This is necessary to overcome the various “lock-ins”⁴⁴ and obstacles that a transition in food and agriculture must confront. The magnitude of this challenge requires strong political will and broad stakeholder involvement. It also requires a significant reorientation of investments and the adoption of supportive policies and incentives. Education systems and extension services will need to put more emphasis on participatory research approaches and agroecology and should be strengthened. Importantly, the period of transition from high-input agriculture to agroecological production will require financial incentives in order to compensate for the temporary drop in productivity that may occur while soil health is being restored. Supportive policies and incentives for the development of alternative markets for agroecological products will be needed, and public procurement should be used to create and support markets for these products.⁴⁵

19. The November 2016 Regional Symposium on Agroecology for Sustainable Agriculture and Food Systems in Europe and Central Asia, with participants from 41 countries, showed strong ambitions and expectations about the transformative potential of agroecology in Europe and Central Asia. The report of the symposium includes a number of examples of successful agroecological transitions in different countries in Europe and Central Asia.⁴⁶ The rapid growth of the market of organic agriculture in Europe, which saw a 123 percent increase in cultivated area between 2000 and 2011⁴⁷ and a further increase of 18.7 percent between 2012 and 2016,⁴⁸ reflects consumers’ concerns for the quality of their food and is an encouraging sign for increased sustainability. Finally, the Second International Symposium on Agroecology, held on 3-5 April 2018 in Rome,⁴⁹ saw the launch of the Scaling-up Agroecology Initiative, bringing together the Rome-based food and agriculture organizations and other relevant UN agencies to develop a joint plan of action.

IV. Opportunities for Europe and Central Asia countries to accelerate progress towards sustainable agriculture and food systems and achieve the

⁴² Gliessman, 2007. *Agroecology: The Ecology of Sustainable Food Systems*. CRC Press.; Johnston et al., 1995. Crop and farm diversification provide social benefits. *California Agriculture* 49, 10–16.; Papademetriou & Dent, 2001. *Crop Diversification in Asia Pacific*, Regional Office for Asia and the Pacific. Food and Agriculture Organization of the United Nations, Bangkok, Thailand.

⁴³ FAO, 2017. Report of the Regional Symposium on Agro-ecology for Sustainable Agriculture and Food Systems For example, European organic vineyards create more employment, with 3.5 against 1.8 jobs in conventional vineyards of the same size. <http://www.fao.org/3/a-i7604e.pdf>

⁴⁴ IPES-Food, 2016. From Uniformity to Diversity: a paradigm shift from industrial agriculture to diversified agroecological systems. http://www.ipes-food.org/images/Reports/UniformityToDiversity_FullReport.pdf

⁴⁵ IPES-Food, 2016. From Uniformity to Diversity: a paradigm shift from industrial agriculture to diversified agroecological systems. http://www.ipes-food.org/images/Reports/UniformityToDiversity_FullReport.pdf

⁴⁶ FAO 2017. Report of the Regional Symposium on Agroecology for Sustainable Agriculture and Food Systems for Europe and Central Asia. <http://www.fao.org/3/a-i7604e.pdf>

⁴⁷ European Commission, 2013. https://ec.europa.eu/agriculture/sites/agriculture/files/evaluation/market-and-income-reports/2013/organic-farming/chap2_en.pdf

⁴⁸ FiBL, 2018. <https://shop.fibl.org/CHen/mwdownloads/download/link/id/1093/?ref=1>

⁴⁹ FAO, 2018. The Symposium outcomes and report will be made available under the website: <http://www.fao.org/about/meetings/second-international-agroecology-symposium/en/>

Sustainable Development Goals

20. The adoption of the 2030 Agenda for Sustainable Development in 2015, including its 17 SDGs, provides a shared global vision towards sustainable development and an overall framework for all that is expected to guide development actions over the next 15 years. The agenda also recognizes the roles of the private sector and civil society in working with governments to achieve the SDGs. Countries need to assess their priorities through a national multistakeholder dialogue and determine national targets in line with global targets, taking into account differences in priorities, local conditions, capacities, and levels of development.⁵⁰ The SDGs are indivisible and universal, and the approach to their implementation therefore needs to be holistic, multisectoral, and multidimensional.⁵¹

21. Sustainable agriculture and food systems are uniquely placed to accelerate progress on achieving the SDGs in an integrated way. The 2030 Agenda for Sustainable Development provides an ideal context and framework for revisiting agriculture and food systems with a view to improving their sustainability and resilience in light of the changing climate. Any transition towards sustainable agriculture and food systems benefits from consistently aligning and integrating a range of other relevant commitments and initiatives, such as the:

- nationally determined contributions of agriculture and food systems in the context of the Paris Climate Agreement and the Koronivia Joint Work on Agriculture;
- Strategic Plan for Biodiversity 2011–2020 of the Convention on Biological Diversity (CBD) and the Aichi Biodiversity Targets;
- United Nations Convention to Combat Desertification (UNCCD) and its land degradation neutrality goals;
- Sendai Framework for Disaster Risk Reduction;
- New Urban Agenda;
- Decade of Action on Nutrition;
- Decade of Family Farming;
- European Soil Partnership;
- revision of the European Union Common Agricultural Policy;
- Regional economic or trade-related initiatives;
- Talanoa Dialogue and the Gender Action Plan under the United Nations Framework Convention on Climate Change (UNFCCC).

A more detailed description of these commitments and initiatives is given in the Web Annex.⁵²

22. In the context of the policy dialogue and governance arrangements needed to identify sustainable development pathways across the SDGs, across sectors, and along related value chains in food and agriculture, the potential of agroecology to address multiple SDGs simultaneously and to underpin a transition to sustainable and resilient agriculture and food systems merits the consideration of Europe and Central Asia countries. Agroecology provides an opportunity to achieve the SDG targets in an integrated way and to simultaneously address the climate change, environmental degradation, nutrition/health, and socio-economic challenges of the Europe and Central Asia region. Developing supportive policies and providing incentives for the adoption of diversified agroecological systems will also contribute to preserving biodiversity in agrifood systems and increase their resilience to climate

⁵⁰ FAO 2016. The Sustainable Development Goals and their implications for agriculture and rural development in Europe and Central Asia region. <http://www.fao.org/3/a-mp172e.pdf>

⁵¹ Global Sustainable Development Report 2015 edition: <https://sustainabledevelopment.un.org/content/documents/1758GSDR%202015%20Advance%20Unedited%20Version.pdf>

⁵²FAO, 2018. <http://www.fao.org/about/meetings/regional-conferences/erc31/documents/en/>

risks. The five principles for sustainability in food and agriculture provide useful guidance regarding which policies need to be developed/modified.

23. Policy dialogue and alignment of sectoral policies under integrated agriculture and food system policies with clear sustainability targets in line with SDGs and other global commitments can be facilitated by national multisector coordination mechanisms, such as those being put in place to coordinate the implementation of the SDGs. Similar dialogue and action planning at local or regional levels can be promoted through Food Policy Councils as already exist in a number of European cities⁵³ or through Local Action Groups⁵⁴ such as LEADER.⁵⁵ These are engaging all relevant sectors and are involving different stakeholders, including consumers and food producers, to participate in the decision-making processes concerning the food system, markets, and trade, and are creating a supportive policy environment for bottom-up, local, sustainable food systems initiatives. Capacities may have to be built to ensure effective action planning and implementation, in particular to promote innovation and partnerships in agriculture and food systems, the mobilization of investments, and the measurement and monitoring of results.

24. Reorienting education and research investments towards innovation in various aspects supporting agroecology and integrated systems, that also look at health and environment, can contribute to significantly accelerate the transition to sustainable agriculture and food systems. Strengthened collaboration among countries can make such efforts more effective. Despite limited investments so far, the Europe and Central Asia region has shown to have great potential in research and innovation in agroecology. Several universities and research centres have created research units and specific curricula on agroecology.⁵⁶ These should be multiplied and strengthened, and links should be established with extension services. The European Food 2030 reflections recognize the need for “adopting a food systems approach underpinned by sustainability, linking land and sea, and encompassing the entire food value chain.”⁵⁷

25. A variety of private-led sustainable supply chain initiatives⁵⁸ have been introduced in various sectors and can contribute to greater sustainability. Notably, “fair trade” products have become significant in several agrifood sectors, with the European Union market accounting for roughly two-thirds of global sales.⁵⁹ The private sector needs to be enabled to take part in the SDG processes but should also respect the principles for responsible agricultural investment. Increased private investments in sustainable agriculture and food systems also should be incentivized.

⁵³ Agroecocities, 2017. <http://www.agroecocities.eu/tag/food-policy-council/>

⁵⁴ Local Action Groups are responsible for the development of local strategies, the support of stakeholder networking, and the appraisal and approval of projects in the European Union.

⁵⁵ European Commission, 2018. LEADER programme: http://enrd.ec.europa.eu/enrd-static/leader/en/leader_en.html see also the ENPARD programme: https://ec.europa.eu/budget/euprojects/european-neighbourhood-programme-agriculture-and-rural-development-enpard-georgia_en

⁵⁶ Examples are: University of Kassel (Germany), Fulda University of Applied Sciences (Germany), Ghent University (Belgium), Institut Supérieur d'Agriculture et d'Agroalimentaire Rhône-Alpes Lyon (France), Technical University of Cluj-Napoca (Romania), and Aarhus University (Denmark). Some research centers like INRA and CIRAD have placed agroecology as the core of their scientific projects, and some others, such as the Center for Agroecology, Water and Resilience at Coventry University (UK) are totally dedicated to the topic of addressing the scientific and social aspects of agroecology.

⁵⁷ European Commission, 2016b. Horizon 2020 Work Programme 2016–2017, 9. Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy. Retrieved from http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-wp1617-food_en.pdf

⁵⁸ United Nations Global Compact, 2017. Examples are given at: <http://supply-chain.unglobalcompact.org/site/initiativesLanding/page:9>

⁵⁹ European Parliamentary Research Service, 2014. ‘Fair trade and consumers in the European Union’. [http://www.europarl.europa.eu/RegData/bibliotheque/briefing/2014/140784/LDM_BRI\(2014\)140784_REV1_EN.pdf](http://www.europarl.europa.eu/RegData/bibliotheque/briefing/2014/140784/LDM_BRI(2014)140784_REV1_EN.pdf)

26. The proposed regional initiatives to be implemented during the 2018–2019 biennium provide important opportunities to accelerate the transition towards sustainable agriculture and food systems in Europe and Central Asia:

- a) The adoption of diversified agroecological systems within Regional Initiative 1⁶⁰ has great potential for improving the livelihoods of agricultural producers and their resilience as well as for creating rural employment.
- b) Paying more attention to short supply chain initiatives and alternative retail systems and the diversification of production for local markets in Regional Initiative 2⁶¹ can contribute to creating the necessary incentives for diversification, greater resilience, and more sustainable value chains, while contributing to health and sustainable diets.
- c) Mainstreaming diversification and agroecology within Regional Initiative 3⁶² can contribute significantly to mitigation of and adaptation to climate change as well as to risk reduction and sustainable natural resource management.

27. In order to take advantage of these opportunities, stronger capacities will be needed in many countries. Below are some areas in which countries in the region may wish to call on FAO to strengthen their capacities:

- a) raising awareness about the importance of multisector “whole of government” collaboration and of stakeholder or “whole of society” participation in transitioning towards sustainable agriculture and food systems;
- b) reviewing national strategies, policies, and programmes in view of an alignment with international commitments (SDGs, NDCs, Aichi Targets, etc.);
- c) strengthening capacity of countries to establish, implement, and monitor SDG targets and indicators;
- d) ensuring inter-ministerial dialogues and building capacities to develop cross-ministerial platforms;
- e) supporting national and local government dialogue to strengthen the implementation capacities at ground level;
- f) supporting the alignment of investments/expenditure planning and resource mobilization with the integrated policies and strategies; and
- g) mobilizing civil society, private sector, and academia to engage in multistakeholder partnerships and developing programmes and initiatives to ensure their active and close collaboration with the public sector for SDG implementation.

28. Importantly, investments from both the public and private sectors must be realigned with the new policies and strategies needed to achieve the transition towards sustainable agriculture and food systems.

29. Members may wish to discuss these issues along the following guiding questions:

- 1) What potential does the sustainable agriculture and food systems approach have for supporting SDG achievement?
- 2) How can diversified agroecological systems support the acceleration of transitioning to sustainable agriculture and food systems?
- 3) How does the policy support at the national level, with FAO's engagement, need to be strengthened to ensure sustainable agriculture and food systems and its contribution to achieving the SDGs?

⁶⁰ Regional Initiative 1: “Empowering Smallholders and Family Farms for improved livelihood and poverty reduction”

⁶¹ Regional Initiative 2: “Improving Agrifood Trade and Market Integration”

⁶² Regional Initiative 3: “Sustainable Natural Resource Management under a changing climate”

- 4) How can the private sector and international financial institutions be further integrated in the transition to sustainable agriculture and food systems, and how can they be incentivized to increase investments?
- 5) What are the key national processes and entry points to drive changes to food systems, in the framework of SDGs, the UN Decade of Action on Nutrition and national commitments to ICN2?