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Agenda item 8
Koronivia joint work on agriculture

Subsidiary Body for Implementation
Fifty-second to fifty-fifth session
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Koronivia joint work on agriculture

Sustainable land and water management, including integrated watershed management strategies, to ensure food security

Workshop report by the secretariat

Addendum

Strategies and modalities to scale up implementation of best practices, innovations and technologies that increase resilience and sustainable production in agricultural systems according to national circumstances

Summary

The second part of the intersessional workshop on element (b), strategies and modalities to scale up implementation of best practices, innovations and technologies that increase resilience and sustainable production in agricultural systems according to national circumstances, was held in three virtual and three in-person sessions in the pre-sessional period of the twenty-sixth session of the Conference of the Parties. Experts from Parties, international organizations, the private sector, research organizations, civil society and constituted bodies under the Convention as well as farmers presented experience and challenges and barriers in relation to modalities for scaling up implementation, and engaged in in-depth discussion on the potential, co-benefits and synergies, of different options for scaling up sustainable climate-resilient agricultural solutions. The workshop provided an opportunity to discuss options for increasing synergy and collaboration among stakeholders, while highlighting that farmers must be at the centre of all discussions and decision-making on climate change, agriculture, land and water management, and food security.

Abbreviations and acronyms

CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
COP	Conference of the Parties
COVID-19	coronavirus disease 2019
EU	European Union
KJWA	Koronivia joint work on agriculture
NGO	non-governmental organization
SB	sessions of the subsidiary bodies
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technological Advice

I. Introduction

A. Mandate

1. The COP requested the SBI and the SBSTA to jointly address issues related to agriculture, including through workshops and expert meetings, working with constituted bodies under the Convention and taking into consideration the vulnerabilities of agriculture to climate change and approaches to addressing food security.[1]

2. Parties set out a road map of work under the KJWA. It is contained in annex I to documents FCCC/SBI/2018/9 and FCCC/SBSTA/2018/4, and includes six workshops that were to be held sequentially before COP 26. The SBSTA and the SBI requested the secretariat to organize these workshops in conjunction with specified sessions and encouraged admitted observers to participate in the workshops. The six workshops have been completed. Further information on each workshop is available on the UNFCCC website.[2]

3. At SB 50, the SBI and the SBSTA requested the secretariat to organize an intersessional workshop in addition to the workshops mandated in the Koronivia road map to contribute to delivering the outcomes of the KJWA, taking into consideration the vulnerabilities of agriculture to climate change and approaches to addressing food security, and to prepare a report on the workshop for their consideration. They had also requested the secretariat to invite representatives of the constituted bodies to contribute to the work and attend the workshops.[3] They further requested the secretariat to take into account the following elements when organizing the intersessional workshop:

(a) Sustainable land and water management, including integrated watershed management strategies, to ensure food security;

(b) Strategies and modalities to scale up implementation of best practices, innovations and technologies that increase resilience and sustainable production in agricultural systems according to national circumstances.[4]

4. The intersessional workshop was planned to take place in Bonn from 3 to 5 March 2020 but had to be postponed owing to the COVID-19 pandemic. The workshop was subsequently organized in two parts. The first part, on element (a), was held virtually in conjunction with the first part of the 2021 session of the subsidiary bodies and a workshop report was published.[5] The second part, on element (b), was held in three virtual and three in-person sessions in the pre-sessional period of COP 26.

B. Possible action by the Subsidiary Body for Implementation and the Subsidiary Body for Scientific and Technological Advice

5. The SBI and the SBSTA may wish to consider this report at SB 52–55 when reviewing the KJWA and preparing a report to COP 26 on the progress and outcomes of the work, including on potential future topics.[6]

II. Proceedings

6. The second part of the workshop referred to in paragraph 4 above was organized by the secretariat and held in three virtual sessions from 12 to 14 October 2021 and three in-person sessions from 28 to 30 October 2021 in the pre-sessional period of COP 26.

[1] Decision 4/CP.23, para. 1.
[2] https://unfccc.int/topics/land-use/workstreams/agriculture.
[3] FCCC/SBI/2018/9, para. 42, and FCCC/SBSTA/2018/4, para. 64.
[4] FCCC/SBI/2019/9, para. 47, and FCCC/SBSTA/2019/2, para. 45.
[5] FCCC/SB/2021/3.
[6] As mandated in decision 4/CP.23, para. 4.

7. The SBI and SBSTA Chairs invited Philip Blackwell (Ireland) and Milagros Sandoval (Peru) to co-facilitate the workshop.

8. The workshop was organized in six sessions:

(a) Keynote presentations;

(b) Presentations by intergovernmental organizations;

(c) Panel discussion with financing entities and observer organizations;

(d) Party presentations;

(e) Focus session – plenary discussion on KJWA topics with potential to be scaled up;

(f) Focus session – plenary discussion on how the KJWA can contribute to efforts to scale up.

9. Further information on the workshop, including the agenda, recordings, presentations and names of speakers, is available on the UNFCCC website.[7]

III. Summary of presentations

A. Keynote presentations

10. The Special Rapporteur[8] on the right to food of the Human Rights Council of the United Nations gave a keynote presentation on agricultural production. The productivity paradigm that accompanied the Green Revolution created food systems that have increased biodiversity loss, soil degradation and greenhouse gas emissions. The focus of transforming agriculture should be not only on agricultural production but also on food systems (production, processing, transportation and consumption) as connected and central to all aspects of life. Human rights imply that people should have as much control as possible over their own food systems. Governments are obliged to create the conditions for all people to be able to access good, nutritious, affordable food with dignity, now and in the future. The Special Rapporteur proposed agroecology as a holistic approach that makes access to knowledge and resources a central issue to be solved, as well as power dynamics and accountability of people, businesses and governments, while also increasing biodiversity and restoring carbon, nitrogen and phosphorous cycles. It can empower small-scale food producers, which account for 70 per cent of the world's food production. Indigenous peoples, the stewards of 80 per cent of the world's biodiversity on land with ecosystems that are declining less rapidly than elsewhere, have developed agroecological food systems that have worked for centuries and can serve as models. The Special Rapporteur emphasized the need for further research and public investment to improve the situation of small-scale food producers, which only receive 2 per cent of global climate finance.

11. An expert[9] from Project Drawdown gave a keynote presentation on resilient and sustainable food, land and agricultural management practices. Project Drawdown's analysis of climate practices and technologies shows that 11 of the 20 climate solutions with the highest potential for reducing greenhouse gas emissions relate to land and food, such as protecting and restoring ecosystems, changing agricultural practices, reducing food waste and shifting to plant-based diets. The expert explained that the proposed solutions have significant positive direct and indirect links with adaptation, the Sustainable Development Goals (especially with food security) and many ecosystem services. For example, a community that switched to producing shade-grown coffee achieved higher-quality coffee, restored degraded land, increased carbon sequestration and generated other ecosystem services such as erosion control, and climate and water regulation. The benefits and savings resulting from such solutions significantly outweigh the costs, although to be adopted and

[7] https://unfccc.int/event/koronivia-intersessional-workshop-part-2.
[8] Michael Fakhri.
[9] Mamta Mehra.

upscaled they need financial, political and technological support. At the same time, locally specific solutions are needed, which should come from farmers.

B. Presentations by intergovernmental organizations

12. Representatives of three intergovernmental organizations presented their views in response to the following guiding questions:

(a) On the basis of your experience, what key opportunities exist for scaling up implementation of best practices, innovations and technologies that increase resilience and sustainable production in the context of food security and climate change?

(b) Which strategies and modalities are effective for scaling up implementation of such best practices, innovations and technologies?

(c) How can international cooperation support scaling up implementation of such best practices, innovations and technologies?

13. An expert from CCAFS presented its work on scaling up agricultural innovation for climate action. CCAFS has three equal workstreams: evidence (research), engagement (participatory demand-driven approach) and outreach (communication and capacity-building). This strategy ensures that research is used by both farmers and policymakers, and helps partners to upscale their efforts. Examples of CCAFS projects that have been successfully scaled up include one in Senegal, where seasonal weather forecasting is now being used by 7 million farmers thanks to the involvement of female and male farmers, national meteorological services, extension agencies and community radio; and one in Viet Nam, where climate-friendly rice-cropping practices have been upscaled thanks to the combination of formulating accompanying national policy, providing training materials for agri-extension, providing suitability maps, producing a private sector investment guide, articulating low-carbon certification schemes, and promoting use of new rice varieties and innovative agricultural practices. For more systematic upscaling beyond individual projects and across agricultural and food systems, CCAFS is promoting the 100 Million Farmers platform to drive action and support national and regional net zero, nature-positive and farmer-centric transition pathways by catalysing public–private collaboration, building multi-stakeholder coalitions to develop local ownership, and empowering consumers to demand sustainable food.

14. A representative of IFAD presented lessons learned from scaling up strategies for adapting smallholder agriculture. IFAD experience shows that grant financing is useful for upscaling because it can reduce the risk of innovation and highlight what has worked so that other donors and investors carry on successful cases. IFAD has used three modalities for scaling up projects and activities: its own funds, national sources of funding and funding from other donors and partners. Lessons learned for effectively scaling up strategies include the need to align and link with national policies not only on climate but also in other sectors, like energy, technology and decentralization, which allows links with finance for rural development. Other important elements are promoting specific institutional frameworks of local stakeholders and governments, such as supporting local decision-making processes, and involving a variety of actors, such as governments, farmers' organizations and academies. Land restoration, establishing climate-resilient infrastructure along the value chain, implementing renewable energy technologies at household, farm and enterprise level, and capacity-building of communities and local governments have been particularly successful strategies. A recent study showed that less than 2 per cent of global climate finance is directed to small-scale agriculture. In response, IFAD is aiming to mobilize USD 500 million from 2022 onward in collaboration with governments, farmers' organizations, civil society organizations and other financiers.

15. A representative of the United Nations Environment Programme presented the concept of true-value accounting, which has the potential to improve the situation of small-scale farmers. Current financial returns on investment appear to be higher from monocrop systems than from pro-biodiversity options (small-scale, multicrop, indigenous varieties). However, the results change when externalities such as effects on ecosystems or animal and

human health are included in the analysis. The need to consider such positive and negative externalities, which do not feature in current financial measurements, was underlined. Once such effects are included, the best economic option is to invest in pro-biodiversity options and support small-scale farmers, in particular when taking into account long-term effects of agricultural practices. This change in valuation would make the sustainable solutions work for finance, business and government. It is also necessary to include natural, human, produced and social capital in the measurements. As an example of possible international cooperation to support scaling up implementation, the representative shared an outcome of the United Nations Food Systems Summit: the development of the True Value of Food coalition to promote true-value accounting. The coalition is asking member States to harness the approach, assess and quantify all impacts of food systems, and begin the process of assessing, quantifying and valuing those impacts in nature.

16. As part of a survey during the first part of the workshop in June 2021, Parties and observer organizations provided information on 50 initiatives, projects and programmes that they consider good examples of sustainable land and water management, including integrated watershed management strategies, to ensure food security. The secretariat gave a short presentation during the second part of the workshop analysing the initiatives, projects and programme, reflecting a diverse range of interventions in the agriculture sector.

C. Party presentations

17. Representatives of five countries made presentations, in which they responded to the following questions:

(a) What is your country's experience of scaling up implementation of best practices, innovations and technologies that increase resilience and sustainable production in agricultural systems according to national circumstances?

(b) What kind of outcome of the KJWA could contribute to such efforts?

18. A representative of the EU explained that current EU policy, the European Green Deal, has the objectives of increasing EU climate ambition for 2030 and preserving and restoring ecosystem services and biodiversity, which has clear links with agriculture. Related measures include the Farm to Fork Strategy, which is aimed at establishing a fair, healthy and environmentally friendly food system, and the recently approved eco-schemes under the new common agricultural policy, which provide funds for farmers that perform certain practices. The EU is also developing a carbon farming initiative. In Germany a nationwide agricultural survey of the condition of more than 120,000 soil samples showed that over 2 billion t carbon is stored in the country's agricultural soils. The study underlined the importance of agricultural soils for climate protection and adaptation, and, as a result, Germany will make available EUR 186 million over three years through the Climate Action Programme 2030 to support farmers in protecting the soil. Finland's Catch the Carbon programme involves public investment of EUR 100 million in the research, development and implementation of best practices for mitigation and adaptation in agriculture, forestry and other land use between 2020–2025 taking into account biodiversity and environmental, social and economic sustainability. Involving a variety of projects with strong practical applicability, the programme enhances cooperation between public and private actors, is linked to other government and EU strategies and includes a climate-friendly food programme, which primarily focuses on reducing emissions from food consumption.

19. A representative of Mexico highlighted that, to successfully scale up sustainable practices, a systemic approach is needed that involves all the Rio Conventions and all stakeholders, namely indigenous peoples and local communities, women, youth, academia, the research and development community, civil society, the private sector and all levels of government (i.e. national, state and municipal). The representative gave examples of different agricultural policies and programmes developed with the participation of a wide range of stakeholders, such as Mexico's National Strategy for the Conservation and Sustainable Use of Pollinators. The country's network of research platforms and innovation hubs is an example of successful partnership between the Government, research institutions and other actors. Currently, the Government of Mexico is developing a nationally appropriate

mitigation action for sustainable livestock and low emissions in pasture conditions, which includes a large participatory component.

20. A representative of the African Group highlighted the high vulnerability of Africa, where people and agriculture are being negatively affected by climate change. The situation is being exacerbated by the rise in food prices due to the COVID-19 pandemic. There is an urgent need to increase the adaptative capacity of agriculture in African countries in order to contribute to the eradication of hunger and poverty. In this regard, the African Group has prioritized the need for innovation and dissemination of best practices to small-scale farmers, especially for building business models, technology transfer and centres of excellence to provide digital sequencing. Modalities are needed for scaling up agricultural technologies and innovations, taking into consideration such issues as affordable innovation that can be applied to raise farmers' income; using incentives to encourage use of new technologies that enhance the value chain; establishing dedicated centres on the ground to support farmers in identifying best practices; providing microfinance and insurance safety nets for farmers; and mainstreaming women and youth in agricultural adaptation plans.

21. A representative of Sri Lanka explained that, being a tropical island, the country is being very negatively affected by climate change, frequently facing natural disasters with multiple impacts on economic development. The country also has problems due to the decrease of land availability per capita. Sri Lanka is looking for more sustainable agricultural solutions while already implementing its people-centric economic model, national policy framework and national adaptation plan. The new national agricultural policy from 2021 will promote eco-friendly agriculture. The country has achieved success in increasing yields by promoting use of improved seeds, mechanization of paddy planting and harvesting, and maize planting. It has also been working for a long time on reducing nitrogen waste: its objective is a 50 per cent reduction by 2030 by reducing use of synthetic fertilizers and pesticides, and making use of second- and third-generation nitrogen fertilizers (that are slow release, reduce waste and have high use efficiency) and integrated plant nutrient systems and pest management systems for rice production.

22. A representative of the United States of America presented the country's current plans for scaling up implementation of climate-smart agriculture, which include a wide range of actions. They are framed by a whole-of-government approach to achieving net zero by 2050, with a commitment in its nationally determined contribution to reduce net emissions by 50–52 per cent below the 2005 level by 2030. The strategy of the United States Department of Agriculture is centred on voluntary incentives and an inclusive and participatory approach. Climate-smart practices and incentives will be incorporated into existing programmes. In this way, future actions will include improving infrastructure, financing renewable energy and energy efficiency, and supporting reduction of food loss and waste. The United States Department of Agriculture will also promote climate-smart partnership initiatives along the value chain and new market opportunities so that the public and consumers are involved in sustainable farming and forestry. Part of the approach is also to increase investment in climate research and innovation in relation to new technologies, agricultural management practices, adaptation and resilience, and human dimensions and economic effects of climate change for agricultural and forest-dependent communities.

IV. Summary of discussions and way forward

A. Summary of discussions

1. Panel discussion

23. Discussions were initiated by a panel of four representatives of observer organizations and three representatives of financing entities. Each panellist was given the opportunity to respond to the guiding questions listed in paragraph 12 above.

24. The representative of youth NGOs stated that in Africa, as in many other parts of the world, there are opportunities to address high youth unemployment rates by creating good-quality jobs in remote sensing and geographic information systems and throughout the agriculture, forestry and other land-use sector. For scaling up implementation, both capacity-

building and innovation are essential. Education is needed to increase awareness, provide relevant skills and promote innovation. For education and capacity-building, the representative proposed using flexible formats, attracting youth with relevant technologies and using exchange programmes. She underlined the need to improve access to finance flows for youth and to support local initiatives.

25. The representative of business and industry NGOs recognized that climate change has a direct effect on food security, and that both climate adaptation and mitigation practices are needed. She proposed high-level recommendations on reducing emissions in agriculture by increasing nutrient use and water efficiency, improving livestock management and prioritizing practices that enhance soil carbon sequestration.

26. The representative of the World Bank expressed that the current global food system is not working to reduce poverty and hunger and is damaging the environment. Thus, a new food system architecture is needed for healthy people, a healthy economy and a healthy planet by 2030. The representative presented possible actions that could be developed under the KJWA to scale up climate-smart agriculture and more resilient and sustainable food systems, such as providing technical assistance to countries, calling on governments to repurpose agricultural policies, collaborating with the sustainable finance community on sustainability standards, increasing financing of agrifood systems and implementing risk-sharing mechanisms, or identifying investment opportunities to incentivize private sector investment in green and inclusive value chains.

27. The representative of farmers and agricultural NGOs referred to “regional conservation partnerships”, which is one of the main initiatives of the United States Department of Agriculture dealing with water quality, productivity and conservation in a holistic way towards building resilient systems. He emphasized that upscaling requires understanding of how landscapes function, which allows carbon and biodiversity solutions to be considered in a systematic way. Projects concerned with both production and conservation achieve better results than those concerning just one or the other. Early engagement of farmers and local stakeholders in project planning and development is also essential, ensuring local support and trust.

28. The representative of the Green Climate Fund underlined the need to take multiple actions in multiple directions simultaneously to achieve greater combined impact. This means involving small and large projects and many different initiatives, including scaling up innovations. Innovations are not only technological, but also social, such as partnerships that involve and mobilize the private sector while linking with national institutions. Another requirement for scaling up projects is technical assistance and capacity-building. The representative referred to the new Green Climate Fund agriculture and food security sectoral guide, the aim of which is to support transformative change in the agriculture sector by promoting resilient agroecology, climate information and risk management systems, and reconfiguring the food system. There are four drivers towards achieving those objectives: transformational programming and planning, catalysing climate innovation, mobilizing finance at scale, and coalitions and knowledge.

29. The representative of the Global Environment Facility explained that for scaling up implementation it is important to use finance strategically and reach small-scale farmers and businesses. Lessons learned show the importance of simultaneously strengthening the resilience of production systems combined with accessible finance, and of integrating multiple wins. Green financing products with high potential for scaling up implementation are dedicated funds for landscape and climate, green bonds and insurances. Sharing risk by blending concessional finance with commercial finance can help to close the massive gap in finance for climate change mitigation and adaptation in agriculture. The representative saw great potential in providing technical assistance and microloans to smallholders and small and medium-sized enterprises for them to transition to climate-resilient practices.

30. The representative of environmental NGOs emphasized that they would like to see clear guidance resulting from the KJWA process recognizing different contexts and historical contributions to climate change and full commitment to the 1.5 ºC temperature goal under the Paris Agreement. An equitable reduction of agricultural emissions and transition to diverse plant-rich diets and agricultural systems is essential to meeting that goal.

Recommended best practices include agroecology, less and better livestock production in areas that have historically consumed or produced the most (with absolute emission reductions), gender-responsiveness, rejecting soil carbon markets, just transition and providing financial support for these necessary shifts. These shifts can lead to both adaptation and mitigation, while also increasing social and ecological resilience. Sensible joint policymaking should be the foundation for scaling up and aligning agricultural policies with other sectoral policies, such as in relation to trade, public health, environment, labour and gender.

2. Practices and approaches

31. Participants discussed the shortcomings of current agricultural systems in terms of being a threat to food security, in particular biodiversity loss, soil degradation and climate change impacts. Current food production systems are dependent on fossil fuels and disrupt nutrient cycles because of their design according to industrial models to maximize commodity output. The focus on profit margins and economic growth limits sustainability of agricultural practices and has impacts on people's access to food. There is a strong need to link sustainable agricultural practices with environmental services and the achievement of the Sustainable Development Goals. Many practices with the potential to contribute to meeting this need were mentioned, such as enhancing nutrient efficiency, improving water management and irrigation, alternate wetting and drying, increasing soil carbon sequestration, using more resilient crop varieties, agroforestry and sustainable livestock management.

32. Some participants commented that they have sufficient knowledge and research capacity but require support to increase innovation and technology transfer mechanisms so that new knowledge can actually be distributed to potential users. This is important because specific needs are better identified at the national level and knowledge exchange needs to be improved to catalyse technological innovations for unique and varied national circumstances.

33. Social and policy innovations should be promoted to create an enabling environment, such as institutional arrangements, partnerships, financial incentives and farmers' empowerment. In many cases, there are important barriers that impede the successful initiation and functioning of such innovative approaches. An option for solving these difficulties could be to bundle technological and policy innovations, for example when designing policy financing. Related extension services are seen as essential, as they can be used to align common principles and practices with the individual circumstances of each farmer. Engaging local institutions in outreach can also be important, such as when disseminating information in local languages.

34. Several participants suggested that agroecology is the best approach to configuring a new food production system, because the aim of agroecology is to achieve adaptation, resilience and mitigation objectives while also contributing to biodiversity conservation, food security, nutrition and social objectives in an integrated manner. Agroecological principles can also be adapted depending on cultural and physical differences between countries, regions and localities, as well as to indigenous peoples and traditional foods and practices, such as unique varieties of plants or livestock breeds. A key challenge is that the switch to agroecology is a gradual process that requires learning and needs time for the transition phase, in which profitability may not be optimal. Consequently, incentives to cover that transition phase can promote adoption of agroecology. Other challenges raised were limited capability to deal with the immediate effects of pests and diseases, and potentially increased production costs due to practices being more labour intensive. It was mentioned that policy and investment are required to accompany the transition to agroecology, for example in relation to infrastructure, connecting small farmers to markets, education, reducing post-harvest waste, and enhancing distribution networks.

35. Several participants raised concerns about the sustainability of activities implemented at the project level, and whether benefits will continue after the end of a project. While government support may be essential, ultimately the goal must be to provide the right incentives to farmers to continue with more sustainable practices. One participant mentioned that it is difficult to target individual farmers, and projects can be more successfully implemented and their success measured when operating at least at village or watershed scale.

It is also important that projects align with national priorities. Another recommendation was to include a strong institutional mechanism in projects and make use of existing organizations working with farmers, such as water user associations, farmers organizations or climate change management committees. Adaptation actions and projects are a particular challenge, as they are locality- and context-specific and therefore more difficult to replicate than mitigation actions. Nevertheless, as more adaptation projects are being implemented, more solutions for implementing adaptation actions are being found.

36. Several participants referred to positive experience of implementing nationally appropriate mitigation actions in the agriculture sector, for example related to coffee or cocoa production. There could be good opportunities for scaling up existing initiatives if the necessary financial support for extension can be found.

37. Farmers are the stewards of the land and the key agents of agricultural actions and should be considered part of the solution to climate change. Interventions should aim to empower farmers, increase their agency, use a rights-based approach and promote self-organization. Support provided to farmers needs to be system-based, considering all production branches of the farm, instead of focusing on technology-based approaches aimed at improving one single production branch. Farmers must see direct sustainable benefits from interventions, such as improvements in the value chain and increased prices for agricultural products. Tenure uncertainty can affect long-term benefits. Some participants expressed concern about the lack of interest of young people in taking up farming, and the need to make farming more attractive to the younger generation and improve the situation of farmers compared with subsistence farmers.

38. Further research was considered essential by many participants because of its proven potential to improve agricultural systems. Participants proposed increasing research to improve productivity as part of the solution to the reduction of available cultivable land that is occurring in many countries. More research is also needed on how to manage resources that are very interrelated and affect different scales, stakeholders and users with many different motivations. Several participants emphasized the need to increase research into small-scale farming and farmer-oriented solutions. For improving research, participants stressed the importance of co-innovation, involving farmers in all phases of the research process from the definition of problems to the identification of solutions. It was proposed to look at system research and involve the private sector as a useful partner (e.g. as a catalyst for change).

39. Scaling up implementation requires sharing of knowledge, for example on improved practices, advanced technology, and available public services or financing opportunities. Such knowledge is often available but not easily accessed by farmers. It was emphasized that the information has to be provided and sequenced in a way that is useful to farmers. Practical forms of information-sharing were emphasized as being especially useful, such as farmer-to-farmer exchange or South–South cooperation.

40. Participants discussed the role of policies to encourage and incentivize marginalized groups such as youth and indigenous peoples to get involved in sustainable farming and support agroecology. One strategy currently applied to ensure their involvement in scaling up sustainable practices in agriculture consists in developing a citizen engagement process alongside project planning, with specific targets for integrating indigenous and local knowledge into project design.

41. Participants agreed that more sustainable production and consumption patterns are vital. The role of demand-side measures was discussed. Some participants explained that decisions on food should be left to the consumer, while others argued that the choice of consumers is already influenced by industrial monocultural systems that produce a small number of crop and livestock varieties. Diversified agroecological systems in local contexts could provide much wider variety and increase consumers' options by linking consumers and producers more directly. Policies can also influence what farmers produce and what consumers eat, so policymaking should align with science, public health, climate change, livelihoods, etc. Other participants opined that how people eat is not only a political or economic decision but also based on local culture and history.

42. Owing to the high post-harvest losses small-scale farming currently suffers, it was proposed that decreasing these losses would contribute significantly to increasing food security and to adaptation and mitigation of climate change.

43. Participants raised the issue of inefficiencies in current agricultural and food markets, where small-scale farmers have problems selling their products in local or national markets, while the same products are being imported and sold in local supermarkets. It was added that, owing to the pandemic, views are changing in some countries and they are increasingly seeing the importance of local and regional markets. The challenge is to redesign the markets at the global, regional and local scale in order to connect small farmers and producers to local populations. Both production and consumer cooperatives following democratic principles were proposed to increase market access for small-scale farmers. Finally, it was pointed out that, because some countries will not be able to produce all the food they need, international markets will still be very much needed.

3. Measurement and data

44. Data, models and related tools were identified as important for improving measurement and reporting in the agriculture sector and informing decision-making. Some measurement processes can be very expensive, such as collecting data on soil carbon and soil health. Participants underlined the need to improve the measurement of emissions of the different gases on the basis of their differing natures and impacts.

4. Support

45. Participants agreed that investment is necessary to make the agricultural system more efficient and resilient. While some participants emphasized the need for new financial resources, others suggested that existing financial capital could be unlocked by redirecting subsidies to more sustainable activities, for example in the form of transition funds for farmers. This may not be sufficient in all countries, so increasing available financial resources may still be required in countries with insufficient investment. In this regard, green financing products were mentioned as having great potential for driving the transition to climate-resilient and sustainable food production systems. Participants also indicated the need to facilitate access to existing finance.

46. Participants highlighted the need to incentivize farmers to adopt best practices, but countries need financing to be able to provide incentives. A very important way of incentivizing and facilitating adoption of best practices is to cover the risks that farmers face when implementing proposed changes and new practices. Incentives are also needed that cover the short-term costs of practices that produce long-term benefits. Examples of successful incentive programmes were shared, such as a public programme that provides discounts on insurance premiums to farmers that use cover crops.

47. The matter of whether there is a difference in availability of finance for mitigation and for adaptation was discussed. The different approaches to evaluating global finance can lead to confusion, owing to the different scales, terminologies used, types of fund, and sectors or subsectors involved. There are also differences between countries and regions. The situation could be improved by improving the measurement, labelling, classification and definition of financing between sectors.

48. Participants discussed the potential to increase available investment by involving the private sector in agriculture and specifically adaptation. Combined efforts of the public and private sector would be needed to reach the required levels of innovative and transformative investment in adaptation. One way to promote private sector participation is to share risks taken by government with the private sector through guarantees or blended finance. Other options for governments to strategically incentivize private investment in adaptation and resilience are promoting use of related metrics and standards; increasing availability and accessibility of usable climate data for informing investment decision-making; maintaining policy coherence; and providing incentives for individuals and the private sector to pay for ecosystem services. Financing institutions are also trying to attract the private sector by supporting de-risking and providing concessional finance combined in a single project.

Considering the role of the private sector along the whole value chain, so that, for example, consumers pay higher prices if certain sustainable practices are applied, was also discussed.

49. The potential role of carbon markets in providing financial incentives was also discussed. Some participants considered that recent methodological advancements in measuring and accounting carbon sequestration in agriculture opens up interesting options for farmers' participation in carbon markets. Other participants rejected the idea because of problems with the concept of offsetting fossil fuel emissions, unresolved challenges related to non-permanence of carbon sinks, methodological concerns related to baseline-setting, and high transaction costs that effectively exclude small-scale farmers from participation and may contribute to the consolidation of land instead of protecting small-scale farmers.

50. Several participants raised concerns over the small amount of global financing directed to small-scale farming, especially for adaptation, emphasizing that support for small-scale farmers needs to be increased in the near future. Some participants highlighted that financing entities should have a role in capacity-building to help small-scale farmers and small enterprises overcome difficulties in accessing finance. Such entities were encouraged to simplify and streamline their application processes to make funding options more accessible to small-scale farmers, in particular because each financing entity has its own working procedures, which should be adaptable to local circumstances.

5. Cooperation and partnerships

51. Participants agreed that scaling up implementation of best practices, innovations and technologies that increase resilience and sustainable production in agricultural systems needs to be addressed by stakeholders in cooperation and partnership, with farmers at the centre of considerations. A participatory approach is needed from the design of programmes through implementation, monitoring and evaluation, and outreach. For example, research with land managers, following an iterative dialogue, helps researchers and policymakers to understand how farmers adopt and maintain certain practices. Working in consultation with farmers and empowering them to move towards more sustainable practices is key to success. Government accountability is also key to increasing confidence and motivating change. Some countries' formal mechanisms for sustaining multi-stakeholder participation, such as advisory committees and extended public consultation processes, were shared. Other countries adapt participatory processes to suit the stakeholders. Participants emphasized the great potential of the KJWA to promote, develop and advance partnerships at all scales, building multi-stakeholder collaboration and enabling two-way communication between policymakers and implementers. The KJWA is in a good position to contribute to the coordination of international organizations, agencies, processes and conventions in relation to work on agriculture and climate change.

52. It was highlighted that international cooperation should support scaling up implementation of best practices, innovations and technologies through knowledge-sharing, showcasing successful business models, developing public–private partnerships, creating shared values, sharing risk and establishing shared understanding and common frameworks. International collaboration is also considered essential for climate change research. Specific proposals in this regard included the creation of a special fund for fellowships for students, faculties and exchange programmes as a way to build the capacity of the next generations. Capacity-building was reiterated as a key need for scaling up implementation in agriculture, for improving the capacity of governments and stakeholders to obtain finance, and for improving risk assessment, modelling, access to insurance, soil management and early warning systems.

B. Way forward

53. Efforts to scale up interventions related to agriculture and climate change can build on a long history of local, national and international work related to agriculture, including through the use of traditional and indigenous knowledge. Scaling up activities leads to long-term sustainability and profitability for farmers but will usually require initial resources, such as finance, capacity-building and technology transfer. The KJWA could support countries' consideration of agriculture in national plans such as nationally determined contributions,

national adaptation plans and technology needs assessments. While national circumstances are unique and agricultural systems very diverse, sharing of knowledge and learning is a vital component of scaling up successful climate action related to agriculture. Applied research, innovation, technology and methodologies for measuring progress are also essential. Increasing the efficiency and resilience of food production systems will not only secure the income and livelihoods of farmers and improve food security, but also has the potential to contribute to additional social and environmental benefits. The KJWA is seen as a potential catalyser of financing, both for encouraging the increase of finance flows towards agriculture and for improving access to existing climate finance by engaging financing entities.

54. Participants discussed specific steps that could be taken under the KJWA to act as a catalyst for climate action in the agriculture sector by influencing national policies and policy coherence. The KJWA can have an impact by creating awareness of the importance of agriculture within and outside the UNFCCC process to highlight its role in reducing emissions and the importance of adaptation in agriculture as one of the most vulnerable sectors to the effects of climate change. The KJWA can also contribute to mobilizing resources and means of implementation in a coherent manner. Several participants emphasized the great potential of the KJWA to promote, develop and advance partnerships at all scales, building multi-stakeholder collaboration and enabling two-way communication between policymakers and implementers. It is also in a good position to contribute to the coordination of international organizations, agencies, processes and conventions in relation to work on agriculture and climate change.

55. Several options were mentioned for how these matters could be addressed effectively under the KJWA in the future, including:

(a) Continuing to work closely with constituted bodies and financing entities to ensure their continued involvement in the KJWA in the future;

(b) Continuing thematic workshops for countries to share knowledge and experience in relation to addressing challenges;

(c) Creating an institutional structure, such as an agricultural advisory board or committee;

(d) Developing a work programme for enhancing implementation.