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Challenges for the sustainable production of goods and services in agriculture, livestock, forestry and fisheries, reducing risks and improving the resilience of livelihoods to threats and crisis, in a context of climate change

Executive summary

- While the countries of Latin America and the Caribbean have increased their agricultural, forestry and fishery production at rates above the global average over the past decade, they also face serious problems of soil degradation, water depletion and pollution, deforestation, biodiversity loss, social, economic and environmental sustainability threats and increased risks associated with climate change. The acute vulnerability of these sectors to natural disasters and weather events such as drought, floods, frost and hurricanes has led to recurring emergencies threatening the livelihoods of thousands of people. Emerging pests and diseases of plants and animals also pose an increasing threat owing to their impact on trade, public health and food security. Structural changes are needed in agricultural production models to improve the balance between productive functions and the regulatory and protective functions of ecosystems. There is a pressing need to improve governance for the responsible tenure of land, fisheries and forests. It is necessary to reduce the vulnerability and manage the risk of rural populations and to improve the resilience of rural livelihoods to threats and crisis. At the same time, there is an urgent need to ensure the adaptation of agriculture, livestock, forestry, aquaculture and fisheries to climate change.
- A wealth of knowledge, technologies and practices exists for the sustainable production of goods and services and for risk management across the region's rural sector. However, it is necessary to increase investment and strengthen public policies, legal frameworks and cross-sector coordination and the national institutional capacity for adopting them, as well as to strengthen South-South cooperation in the region. To this end, FAO will support the Plan of Action 2014 of the Community of Latin American and Caribbean States (CELAC).

Suggested action

- Support FAO's planned actions in Latin America and the Caribbean to improve the sustainable production of goods and services in agriculture, livestock, forestry, aquaculture and fisheries, as well as to reduce risks and improve the resilience of livelihoods to threats and crisis in a context of climate change and to strengthen South-South cooperation in the region.
- Support FAO's management in strengthening agro-environmental policies in countries of Latin America and the Caribbean in the context of CELAC, in order to promote simultaneously: the reduction of rural poverty; improvement of food security; and climate change adaptation and mitigation activities in countries of the region.
- Support FAO's actions in the context of CELAC with a view to adopting a Regional Strategic Agenda for Comprehensive Disaster Risk Management and designing a regional Plan of Action.

- Any questions concerning the content of this paper may be sent to Mr Tito Díaz, Secretary of the 33rd FAO Regional Conference for Latin America and the Caribbean (Tito.Diaz@fao.org) Tel: +56-2 2923-2250

Introduction

1. Latin America and Caribbean has made great strides in fighting hunger and food insecurity. In the early 1990s, an estimated 14.7 percent of the region's population was undernourished. By 2013, the percentage had dropped to 7.9 percent. Sixteen countries in the region have already achieved Millennium Development Goal 1 and 10 countries have achieved the World Food Summit target.

2. However, to succeed in eradicating hunger and in parallel advance the three pillars of sustainable development (social, economic and environmental) it is not enough simply to increase productivity. It is also necessary to promote the adoption of innovation and practices to ensure protection of natural resources, sustainable production of goods and services and adaptation of agriculture, livestock, forestry and fisheries to climate change. There is also a pressing need to improve governance and public access to land, water, food and services; strengthen national risk management and emergency response systems; and protect the gains achieved by improving the livelihood resilience of those most vulnerable. It is also important to support traditional populations deriving their livelihoods either directly or indirectly from natural resource management, including family farmers, indigenous communities and forest peoples.

I. Risk management and resilience for sustainable production

3. To promote sustainable production, it is important to understand and reduce potential risks and, at the same time, to build capacity to recover from the impacts of such risks. The biggest risks to the region's production are severe natural resource degradation and extreme weather events. According to FAO, developing countries could experience a decline in total agricultural productivity of between 9 percent and 21 percent as a result of climate change, with this becoming one of the major challenges facing agriculture.

4. Risks can be mitigated by recovering degraded land and adopting production systems in accordance with an agro-environmental or agro-ecological approach. This makes it important to develop and adopt good agricultural, livestock, forestry, fishery and aquaculture practices, which not only increase productivity but also make it more resistant to extreme weather events that are exacerbated by climate change. In pursuit of sustainability, it is crucial to use adapted species and

genetic resources and to develop new materials resistant to biotic and abiotic stresses, hence the importance of protecting biodiversity and ensuring a broad enough genetic base to allow countries to adapt their crops to the changing climate and to diversify production. Greater production diversification also helps to reduce the risk associated with pests and diseases of crops, animals and forest plantations. Pests and diseases pose a major threat to sustainable production. The region has suffered significant economic losses from such transboundary diseases as coffee leaf rust, black sigatoka disease of bananas and plantains and Huanlongbing (HLB), or citrus greening disease.

5. In the area of animal health, diseases such as foot and mouth disease and classical swine fever jeopardize the region's meat exports and cause huge losses to producers. Moreover, zoonotic diseases (those transmitted from animals to humans) have become the biggest public health threat and call for a new management approach at the animal–human–ecosystems interface, known as "One Health".

6. As plant, animal and forest health are important regional public goods, governments are responsible for protecting them across the region. Effective measures for risk reduction and the protection of national production systems, which require extensive coordination efforts among countries, include: regional information and surveillance systems; exchanges of experts and experience in pest and disease control; regional early warning and emergency response systems; and approved standards between countries for trade in animal and plant products.

II. Regional efforts for sustainable production and risk reduction

7. Every year, countries in the region are struck by natural disasters such as drought, floods, hurricanes, landslides and volcanic eruptions, compounded by epidemics and transboundary diseases of animals and socio-economic crises. Such disasters are increasing in frequency, intensity and complexity, requiring them to be addressed using a holistic approach that includes preparedness, prevention and mitigation, response and recovery activities. To this end, FAO developed a strategic framework for disaster risk management aimed at improving preparedness for, and effective response to, food and agricultural threats and emergencies. This strategy should be implemented in coordination with other actors, including regional and subregional institutions, governments (at central and decentralized levels), United Nations agencies and non-governmental organizations.

8. In this context, the Community of Latin American and Caribbean States (CELAC) has requested FAO and World Food Programme (WFP) technical backstopping for the design and implementation of regional risk prevention, reduction and management initiatives, as well as for strengthening national, regional and subregional humanitarian assistance mechanisms.

9. FAO is playing a major role in strengthening regional mechanisms for policy coordination – including agricultural-development, environmental and climate-change policies and their relationship with policies for food security and for eradicating hunger, poverty and malnutrition – within the regional integration organizations (CELAC, Southern Common Market [MERCOSUR], Union of South American Nations [UNASUR], Andean Community [CAN], Central American Integration System [SICA] and Caribbean Community [CARICOM]).

10. For example, jointly with other international organizations, FAO helped the Central American Agricultural Council (CAC) to prepare a regional strategic framework for climate risk management in the agricultural sector of Central America's dry corridor, promoting a strategic and action approach aimed at resolving problems in agriculture, natural resource management and climate change adaptation, to build resilient livelihoods. The strategic framework comprises six priority areas and strategic actions.

11. Despite a proliferation of funds, programmes and initiatives in recent years to support climate change adaptation in developing countries, there needs to be closer coordination and linkages between them. It is also necessary to further systematize successful adaptation experiences at national, regional and local levels, and to facilitate the dissemination and sharing of such experiences.

12. FAO's regional technical commissions for Latin America and the Caribbean's forestry sector (LACFC), livestock sector (CODEGALAC), and fisheries sector (COPESCAALC/WECAFC) are advisory bodies of the FAO Regional Conference, making them ideal forums in which to discuss and

coordinate policy frameworks (for production, social, environmental, trade, health and research and development policies) in each of the above subsectors, given that their members represent governments, the productive sector, academia and civil society. However, there needs to be further integration or linkages between the four regional technical commissions to create synergies and complementarities among the various subsectors and so advance the ecosystem approach and that of sustainable rural and territorial development across Latin America and the Caribbean.

III. National strategic frameworks for sustainable production and risk reduction

A. Governance and policy integration and coordination

13. To achieve sustainable production of goods and services in the region's agriculture, livestock, forestry and fisheries and meet growing demand for food and ecosystem services, it is necessary to build national strategic frameworks and national and regional coordination and governance mechanisms to increase integration and synergy, not only among different sectors but also between institutions and policies in the area of agricultural, livestock, forestry and fishery development and environmental, social and economic policies.

14. In this context, CELAC-promoted forums for dialogue on coordinating and linking regional sustainable-development and climate-change policies and FAO's active participation in supporting countries during the process of setting the post-2015 development agenda will help to strengthen national strategic frameworks and build institutional capacity for improving governance and agro-environmental policy integration and coordination aimed, in particular, at improving the sustainability of production, reducing environmental risks and promoting sustainable rural territorial development and poverty eradication.

15. At country level, a territorial approach to natural resource planning and management is critical to achieving sustainability, given that the supply of soil, water and biodiversity for producing goods and services, and the political, economic, social, environmental and cultural context in which production systems operate, vary widely from one territory to another. At territorial level, it is easy to identify cause–effect relationships, possible interactions among the different sectors and the spatial and temporal dimension of production system components.

16. At country level, proper coordination and interaction between institutions attached to ministries of agriculture and rural development, environment, social development, public health, economy and trade is essential when developing policies, plans and programmes for sustainable production and risk reduction. This entails a public-policy integration, coordination and linkage effort.

17. In addition, responsible governance of tenure of land, fisheries and forests is essential to ensuring social stability, sustainable use of the environment, responsible investment for sustainable development and the eradication of poverty and food insecurity in rural areas. In this context, FAO will give high priority to supporting countries in implementing the voluntary guidelines on responsible governance of tenure of land, fisheries and forests agreed by the Committee on World Food Security.

Agro-environmental policies and their linkage with climate change policies

18. Meeting increased demand for food in a context of climate change requires cross-sector collaboration and support for agro-environmental policies that promote optimal use of land and sea space and meet food requirements in a region where the human population has doubled in the space of 40 years (from 286 million in 1970 to 588 million in 2010). It is also a region where natural disasters are increasing in frequency, intensity and complexity.

19. Although few countries in the region have such policies and strategies, in Brazil, Chile, Colombia, Mexico, Nicaragua and elsewhere, experiences with such policies have been positive and could be replicated in other countries in the region. The Brazil-FAO Programme for International Cooperation, concluded between the Brazilian government and the FAO Regional Office for Latin America and the Caribbean, has therefore identified the need to strengthen agro-environmental policies in countries of the region as a prerequisite for meeting sustainable-development and food-

security objectives, in response to which it is implementing a technical cooperation project to strengthen agro-environmental policies in Latin America and the Caribbean that promotes simultaneously: the reduction of rural poverty; improvement of food security; and climate change adaptation and mitigation activities in countries of the region.

20. The project has studied and documented the agro-environmental experience of five countries, drawn lessons from the process and held a number of national and regional roundtables on the subject with the aim of enhancing policies, programmes and plans for such issues as climate change adaptation, eco-friendly food production, governance and institutional linkages for sustainable production and food security.

21. Experience in the region points to an urgent need to advance agro-environmental policies that promote integrated and sustainable natural resource management in different agro-ecosystems and, at the same time, facilitate biodiversity conservation and sustainable use, rehabilitation of degraded land, production planning and ecological intensification of production systems.

22. It is also considered necessary to boost the implementation of health policies that promote the "One Health" approach to protecting animal health, wildlife and ecosystem health, and to reduce the risk of zoonotic and emerging diseases associated with climate change, which exact an enormous cost on public health.

23. However, the One Health approach, promoted jointly by three international organizations (FAO, OIE and the World Health Organization [WHO]), requires closer linkages between institutions and policies in the agriculture, health and environmental sectors and stronger regulatory and policy frameworks based on climate and health-risk information.

Policies for improving resilience and their linkage with social policies

24. The gains made in global and regional food and nutrition security may be lost if priority is not placed on building resilience, that is to say, if there is no investment in reducing the vulnerability of poor communities and preventing social and environmental crisis and conflict. There is a pressing need to promote policies for improving livelihood resilience to threats and crisis. It is therefore important to strengthen the livelihood strategies of rural communities whose livelihoods depend on managing the various forest, water and land systems, including indigenous communities and family farmers.

25. Every year, countries in Latin America and the Caribbean are struck by natural disasters such as drought, floods, hurricanes, landslides and volcanic eruptions, compounded by epidemics and transboundary diseases of animals and socio-economic crises. Such events lead to loss of life, property and livelihoods, undermining the food and nutrition security of the most vulnerable populations. The increasing frequency, intensity and complexity of such crises requires them to be addressed using a holistic approach that includes preparedness, prevention and mitigation, response and recovery, and that supports the transition to development by covering all aspects and phases of disaster risk management.

26. Accordingly, FAO has developed a new strategic framework one of the main objectives of which is to increase resilience of livelihoods to disasters, which aims to: strengthen the legal, regulatory and institutional systems of FAO member countries; help to identify, predict and analyse threats; and enhance preparedness and effective response to food and agriculture threats and emergencies.

27. FAO's goal for disaster risk reduction is to lessen vulnerability and enhance resilience of livelihoods against agricultural production threats and emergencies and to protect and improve the food and nutrition security of farmers, fishermen, herders and foresters.

28. FAO has made disaster risk reduction an integral part of its broader disaster risk management approach in order to reduce people's vulnerability before, during and after a disaster. This disaster risk reduction approach is linked to FAO's work on long-term development and humanitarian assistance. It

promotes institutional capacity-building, early warning systems and best practice and technologies in agriculture, livestock, forestry, fisheries and natural resource management to prevent and mitigate the adverse impacts of crisis on the most vulnerable people and ecosystems.

29. The effective implementation of disaster risk reduction and management systems relies on strong institutional capacity among key actors at different levels of government, the private sector and civil society and on effective coordination between these actors and levels.

30. This programme expresses FAO's commitment to reducing risks and building livelihood resilience, thus protecting development gains. It aims to scale up and accelerate actions for disaster risk reduction at local, national, regional and global levels.

31. To make the livelihoods of rural communities more resilient and ensure a more timely response to emergencies and crisis, it is important to adopt a rights perspective in the sustainable development context. In other words, to promote sustainable production and resilient livelihoods it is important to develop public policies aimed explicitly at: reducing ethnic, gender, territorial and socio-economic inequalities; promoting responsible governance of tenure of land, fisheries and forests; and improving the access of smallholders and local communities to basic services and to technology, credit and markets. Public policies for women's development should also be promoted, as women are playing an increasingly important role in the production of goods and services in agriculture, livestock, forestry, aquaculture and fisheries.

32. To this end, FAO is supporting the post-2015 development agenda and, together with CELAC, will participate in consultations on sustainable development policies and priorities aimed, in particular, at eradicating poverty and abolishing inequality in countries in the region. It is also necessary to respect and preserve the cultural heritage of indigenous peoples and to draw upon their knowledge to enlist them as strategic partners in the sustainable production of goods and services, in view of their historical role in developing agrobiodiversity and the contribution of their knowledge and land management systems to adapting local production systems to extreme climatic variability over time.

B. Information and knowledge for decision-making

33. Knowledge and information are key tools for improving the efficiency of sustainable production processes and building resilient livelihoods.

34. It is therefore necessary to advance systems for evaluating and monitoring the status of biotic and abiotic resources and the use of inputs and their impact on ecosystems and animal and public health. Robust spatial and temporal databases are required for the analysis, evaluation and modelling of production processes and for decision-making to promote their sustainability.

35. Furthermore, information and knowledge are essential for risk assessment and the quantification of climate change impacts and of mitigation and adaptation measures. No proper risk preparedness or emergency response coordination will be possible without systems of up-to-date, reliable information. This calls for new methodologies and tools for the management, aggregation and analysis of data relating to land use, production system integration, climate change, natural resource assessment (including genetic resources), social and economic analysis under different scenarios, and mapping of the vulnerability, risk and resilience of ecosystems, production systems, communities and livelihoods.

36. There is a crucial and urgent need to build national and regional institutional capacity for the development and implementation of information and analysis systems in agriculture, livestock, forestry, aquaculture and fisheries, and to promote proper decision-making.

IV. Targeting actions

A. Family farming and improved livelihood resilience

37. The close relationship between natural resource degradation, rural poverty and food insecurity makes it necessary to target actions for the sustainable development of agriculture, livestock, forestry, aquaculture and fisheries on those territories facing the greatest vulnerability and risk. When exploring options for the sustainable production of goods and services to ensure food and nutrition security and the resilience of rural community livelihoods to disasters and crisis, an important alternative is to prioritize policies for strengthening family farming systems.

38. To this end, FAO is focusing its actions on supporting member countries in developing and implementing the CELAC Plan of Action 2014, in order to enhance cooperation, coordination and dialogue on national agro-environmental policy, as well as on supporting regional plans and programmes for sustainable development and risk reduction in the most vulnerable countries and territories.

39. Also, in a joint effort on strategic objectives 1, 2 and 3, FAO will continue to support the creation of an enabling environment for the adoption of voluntary guidelines on responsible governance of tenure of land, fisheries and forests and the strengthening of programmes for sustainable rural territorial development, in order to close productivity gaps in family farming, especially among the most vulnerable populations. To this end, FAO will support governments in developing differentiated policies and creating new opportunities for women, youth and indigenous peoples, including: programmes for local social and productive innovation that facilitate the adoption of best practices; access to sustainable technologies; valuation of local knowledge, genetic resources and products; valuation and payment for environmental services; integration of production systems; access to credit and support services for the sustainable production of goods and services, including training, extension and technical assistance; and smallholder access to fair trade markets.

B. Planning and management of natural resources (soil, water, biodiversity) for sustainable rural development using a territorial approach

40. The sustainable development of agriculture, livestock, forestry, aquaculture and fisheries should be based on a territorial approach to natural resource planning and management, given that the supply of soil, water and biodiversity for producing goods and services – and the political, economic, social, environmental and cultural context in which production systems operate – vary widely from one territory to another.

41. FAO has developed natural resource management tools, including agro-ecological zoning systems, which facilitate decision-making and support policy and programme development for the sustainable management of soil and water resources, while facilitating biodiversity conservation and sustainable use, rehabilitation of degraded land, production planning and ecological intensification of production systems.

42. Forests and agroforestry systems contribute to climate change mitigation and adaptation and provide a direct source of food and income for rural communities. The regional technical commissions LACFC and CODEGALAC have asked FAO to promote and support sustainable forest management and the rehabilitation of degraded land in agricultural, forestry and pastoral livestock production systems, as well as to develop, in partnership with governments, a policy framework and policy instruments to facilitate the implementation of programmes for recovering degraded soil, including the implementation of agroforestry and crop–livestock–tree systems at territorial level.

C. Sustainable intensification of production and climate change adaptation

43. Sustainable intensification of production calls for a clear-cut ecosystem and production systems integration approach to ensure a balance between productive functions and the protective functions of ecosystems. In most agro-ecosystems, continuous monocropping should make way for crop rotation and integrated production systems (integrated crop–livestock or crop–livestock–tree systems, including silvopastoral systems and multiple systems of family farming) in order to reduce current high rates of soil degradation, prevent depletion and contamination of water sources, and lessen the intensive use of inputs with an adverse impact on the environment and public health.

44. When setting production and productivity goals for sustainable intensification, both market demand for products and market opportunities for ecosystem services (water, carbon, biodiversity) should be considered. Similarly, economic analysis should determine not only economic, but also social and environmental returns, making it necessary to incorporate new variables into the analysis relating to: production and payment for environmental services; protection of the landscape and cultural heritage; land use and protection; social stability and risk and conflict reduction; and prevention of threats and crisis.

45. It is necessary to develop policies, incentives and strategies for adapting agriculture, livestock, forestry, aquaculture and fisheries to climate change, including the promotion of integrated food–energy systems. In addition, agroclimatic information systems should be strengthened at national and local levels to support producers' decision-making, provide for adaptation and prevention, and facilitate timely response to extreme weather events.

D. Institutional strengthening and capacity-building

46. Governance mechanisms for sustainable development and the responsible tenure of land, fisheries and forests need to be strengthened at global, regional, national and local levels. In the case of Latin America and the Caribbean, the regional organizations CELAC, UNASUR, CAN, SICA and CARICOM, in conjunction with governments, parliamentary fronts against hunger and the Hunger-Free Latin America and the Caribbean Initiative (HFLACI), are best suited to provide political impetus for the development of new judicial, legal and regulatory frameworks and mechanisms for coordinating governments, the private sector and civil society, in order to promote the sustainable production of goods and services in agriculture, livestock, forestry, aquaculture and fisheries, so helping to eradicate hunger, food insecurity and malnutrition, reduce poverty and make livelihoods more resilient to threats and crisis.

47. It is essential to strengthen institutions and build capacity in the agro-environmental sector to facilitate the development and implementation of national action plans for adaptation (NAPA) and other actions relating to natural resource management, conservation and sustainable use of genetic resources for food and agriculture, climate change adaptation and the associated knowledge systems. There is an urgent need to increase public and private investment in research, technological development and innovation for the sustainable production of goods and services in agriculture, livestock, forestry, aquaculture and fisheries. The priority is to promote and strengthen the development of integrated production systems and the implementation of local social and productive innovation systems based on the identification of local value chains and new models of education, extension and transfer of technology and support services to small- and medium-scale producers, incorporating information and communication technology advances to facilitate access even in remote areas.

48. There is much room for developing and strengthening national systems of disaster and emergency risk management, early warning and coordination. These national systems can be supported by subregional or regional systems established on the basis of South-South cooperation between countries and joint efforts in highly vulnerable geographical and border areas.

V. Conclusions and recommendations

49. Although Latin America and the Caribbean has huge potential for increasing the sustainable production of goods and services in agriculture, livestock, forestry and fisheries, if the region is to enhance the contribution of these sectors to food and nutrition security and to reducing high rural poverty rates, it must urgently develop policies and intervention strategies to: protect natural resources and reduce degradation risk in strategic ecosystems; make more efficient use of environmental and productive resources (including genetic resources); recover degraded land; and close productivity gaps in family farming, as provided in the CELAC Plan of Action 2014.

50. Countries in the region must also: progress with the characterization of agroclimatic risk, natural resource management, zoning and production planning based on risk analysis; increase investment in climate change adaptation; improve the production of environmental services; promote the production and sustainable use of bioenergy not competing with food production; promote the adoption of voluntary guidelines on responsible governance of tenure of land, fisheries and forests; and ensure inclusive and equitable development of rural areas to close the gap between specialized producers and family farmers. It is essential to: increase the participation of women, rural youth and indigenous peoples in the rural development process; further the development of differential policies and specific mechanisms for reducing the acute vulnerability of poor rural communities to threats and crisis; and enhance inter-agency coordination and cooperation with a view to the adoption of a Regional Strategic Agenda for Comprehensive Disaster Risk Management focusing on issues recommended by member countries in the context of CELAC.

VI. Guidance sought

51. The Regional Conference is invited to:

- Support FAO's planned actions to improve the sustainable production of goods and services in agriculture, livestock, forestry, aquaculture and fisheries, and enhance climate change adaptation, in the context of FAO Strategic Objectives 2 and 5.
- Confirm the need for countries to develop national policy frameworks, incentives and strategies for the protection of natural resources and the adaptation of agriculture, livestock, forestry, aquaculture and fisheries to climate change.
- Support FAO's actions to assist CELAC in adopting a Regional Strategic Agenda for Comprehensive Disaster Risk Management and designing a regional Plan of Action.
- Request FAO to facilitate South-South and triangular cooperation programmes on: regional information and surveillance systems; exchanges of experts and experience in pest and disease control; regional early warning and emergency response systems; and approved standards between countries for trade in agricultural, forestry, fishery and aquaculture products.
- Support FAO's management in strengthening agro-environmental policies in Latin American and Caribbean countries and in the context of CELAC, to promote simultaneously: the reduction of rural poverty; improvement of food security; and climate change adaptation and mitigation activities in countries of the region.