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Climate-resilient and sustainable agriculture¹

Abstract

The region's agriculture sector faces the major challenge of raising productivity while reducing the degradation of natural resources, promoting biodiversity conservation, reducing greenhouse gas (GHG) emissions, facilitating adaptation and resilience to climate change and, at the same time, contributing to rural socioeconomic inclusion that recognizes and values the special role of women.

Climate-resilient and sustainable agriculture must mainly focus on reducing the environmental impact of agrifood systems, managing the risks of disasters affecting agriculture, developing and strengthening a new sector governance and increasing climate/environmental financing in the crop and livestock sector.

The region's countries are financing climate change adaptation and mitigation mostly with their own resources. This can mean cutting off or reducing development funds from activities such as poverty reduction and the promotion of food security, to address a global climate problem. All FAO Member States in Latin America and the Caribbean can obtain financing from the Green Climate Fund and other sources of environmental and climate finance.

¹ Agriculture, or the agricultural sector, is understood as encompassing crop and livestock farming, along with forestry, fishery and aquaculture activities.²

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Recommendations

For FAO:

- Cooperate with the countries to strengthen and prepare national, regional and global programmes and initiatives for the sustainable use and responsible governance of biodiversity and natural resources; adaptation of agriculture to climate change and disaster-risk management for the sector; and the development of innovative environmental mechanisms to foster the socioeconomic inclusion of peasant family farming.
- Assist countries with compliance and response in relation to processes linked to the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs), the Sendai Framework for Disaster Risk Reduction and the United Nations Framework Convention on Climate Change (UNFCCC), in particular in the review and implementation of the Nationally Determined Contributions (NDC) and the national adaptation plans (PNADs).
- Continue to help countries invest or access global climate and environmental financing, through capacity building among Member States and by facilitating international cooperation on relevant technical and institutional issues.
- Cooperate with governments in their efforts to more effectively integrate the conservation and sustainable use of biodiversity within and across various sectors, including crop and livestock farming, forestry, fishing and aquaculture, in response to Decision XIII/3 of the thirteenth meeting of the Conference of the Parties to the Convention on Biological Diversity.
- Organize a regional dialogue with stakeholders on integrating biodiversity in the agriculture sectors, which is an important step in the subsequent development of this area of work.

For the Conference:

- Urge Member States to:
 - (a) Strengthen cooperation and coordination to more effectively integrate the conservation and sustainable use of biodiversity within and across several sectors;
 - (b) Consider biodiversity as cutting across subsectors (agriculture, forestry, fisheries) when formulating policies for interventions in the crop and livestock sectors and when designing measures to mitigate climate change.

I. Introduction

1. Demographic growth and the changing nutritional habits of a population of rising purchasing power requires increased food production; and this is also boosted by the region's growing share of world exports. According to FAO, "this trend is set to continue in the future: by 2024, net trade in agricultural products in Latin America is forecast to reach US\$ 60 billion, three times its value in the year 2000."

2. The expansion of agricultural production has generally gone hand in hand with the intensive use and degradation of natural resources. Latin America and the Caribbean accounts for 14% of soil degradation worldwide; net forest loss amounted to 0.23% per year in 2010-2015 compared to a global net loss of 0.08% per year in the same period; and, in the last three decades, water extraction has doubled, far outpacing the global average rate of increase, with most water (around 70%) now being used in agriculture.

3. The degradation of natural resources affects crop and livestock production capacity, which is further exacerbated by climate change. The Economic Commission for Latin America and the Caribbean (ECLAC) projects annual costs on the order of 2.2% of GDP (base year 2010) to deal with disasters in the region, unless action is taken to adapt to climate change. For Central America, forecasts for 2020 predict losses of around 25% in basic grain production and potential losses of up to 22% of Central American agricultural GDP by the end of the twenty-first century. The Caribbean will be impacted by the rise in mean sea level, resulting in saline intrusion and flooding. The damage caused by extreme events is already estimated at around 6% of GDP per year in some Caribbean countries, especially in the small island developing states. The warmer South American regions will be more affected than those with cooler climates and more abundant water. A temperature rise of around 2.6° C could reduce income from rainfed agriculture by between 17% and 29%.²

4. Thus, in addition to an “environmental big push” in regional agriculture, there is also a need to make a qualitative leap in social terms, which includes decent employment and the productive inclusion of peasant family farming, as well as women and young people.

II. Climate-resilient and sustainable agriculture

A. Reducing the environmental footprint of agrifood systems

5. The chief adverse impacts of agriculture on the environment are soil erosion, salinization of irrigated soils, contamination of soil and water by excessive fertilizer and pesticide use, aquifer depletion, loss of genetic diversity owing to land-use change, along with deforestation and the extensive practice of monoculture, and GHG emissions.

6. In relation to climate change, the major national commitments made by the region’s countries in the Paris Agreement are to be applauded, while recognizing the challenge these commitments entail for the individual economies. Mitigation and adaptation actions have been explicitly and heterogeneously compiled by the 32 countries in their respective Nationally Determined Contributions (NDCs). Of these, 26 have issued emissions reduction targets, to be attained by 2030; and 12 of them reported reductions of more than 30% relative to the baseline scenario. The most frequent actions linked to the agriculture sector concern mitigation (reforestation, reduction of emissions from deforestation and forest degradation, sustainable forest management and conservation of protected areas); and adaptation (risk management, which means upgrading agro-climatic information systems, early warning systems and agricultural insurance mechanisms).

7. The effects of biodiversity loss and climate change on the production and productivity of agricultural sectors are closely related. Climate change will modify the distribution of species, including pests and diseases, and their multiple interactions. Without adaptation and mitigation, climate change is expected to impair production of the world’s main crops in tropical and temperate regions, thus making the task of achieving food security an even greater challenge, especially in the most vulnerable parts of the developing world. In these areas in particular, the adaptation of agriculture, fishing, aquaculture and forestry to the effects of climate change will be essential for survival. Genetic resources for food and agriculture play a crucial role in food security, nutrition and livelihoods, and in the provision of environmental services. They are key components of sustainability, resilience and adaptability in production systems. They support the ability of crops, livestock, aquatic

² ECLAC, 2015. *The economics of climate change in Latin America and the Caribbean: paradoxes and challenges of sustainable development*.

organisms and trees to withstand a series of difficult conditions. Genetic diversity enables plants, animals and microorganisms to adapt and survive when their environments change.

8. The challenges for reducing the impact of productive systems include the following:

a. *Sustainable intensification of agriculture (SIA)*. One of the key challenges facing SIA is to achieve zero net degradation, by promoting sustainable management of the territory. This involves adapting soil, water, vegetation and biodiversity management practices in a broad agro-ecological and socioeconomic context. In this connection, FAO is also supporting the region's countries in their expansion of agro-ecology that fosters more sustainable, healthy and diverse agricultural and food systems with low input levels, in addition to conserving and regenerating biodiversity and thereby helping to generate more resilient, energy-efficient and socially just systems. In this context, biotechnology has an important role to play in improving agriculture and combating hunger and malnutrition.

b. *Mitigation of (GHG) emissions from livestock*. The region's countries are making significant progress in mitigating livestock emissions. This is particularly important since the region accounts for almost 30% of global beef production, and 16% of all meat produced worldwide.

c. *Zero net deforestation*. Forest management under sustainability criteria is possible and represents a productive and conservation alternative to other practices or destructive uses of forest resources. In changed environments and even in the presence of degradation processes, restoration using forest plantations under the "planted forest close to natural forests" or "new generation planted forest" models can play a major role in promoting zero net deforestation.

d. *Combating illegal fishing and promoting sustainable fisheries and aquaculture*. Properly regulated fisheries contribute to efforts to combat poverty and promote food and nutritional security, in addition to fostering the conservation and efficient use of fishery resources. Small-scale or artisanal fishing makes a fundamental contribution to these efforts, so the countries need to implement the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries. They should also continue to promote the Code of Conduct for Responsible Fisheries, the ecosystemic approach to the regulation and use of fishery resources, and the implementation of actions to prevent, discourage and eliminate illegal, undeclared and unregulated fishing, including the implementation of the Port State Measures Agreement.³ They should also take steps to ensure that the current vigorous expansion of aquaculture in the region is done in an environmentally sustainable manner that generates safe and healthy products.

e. *Loss of living resources, biodiversity and ecosystem services*. Biodiversity is essential for the productivity, adaptability and sustainability of agriculture. As 75% of terrestrial biodiversity is held in forests, deforestation is its greatest threat. In the case of marine species, 30% of stocks are overexploited. The decline of biodiversity and especially of agro-biodiversity also threatens the sustainability and resilience of agrifood systems; 17% of all livestock breeds in the world are classified as endangered or extinct, and in 58% of breeds, their risk status is unknown due to the lack of recent population data.⁴ With regard to phylogenetic resources, 60% of daily caloric intake per person is provided by just four of the 30,000 edible plants that have been identified: rice, wheat, corn and potatoes. In addition, there is increasing understanding of how humans depend on healthy ecosystems and their products and services. Ecosystem functions regulate our environment and underpin production systems. Such services include: pollination by wild bees, control of pests and diseases through natural enemies and the maintenance of soil fertility through nitrogen-fixing plants. To ensure

³ Thus far, 13 of the region's countries have deposited their instruments of ratification, acceptance, approval or accession.

⁴ CGRFA-16/17 / Inf.15.

the sustainability of agricultural production, ecosystem services need to become an integral part of various crop and livestock farming, forestry, fishery and aquaculture practices.

9. Also in relation to biodiversity, Decision XIII/3 of the 13th meeting of the Conference of the Parties to the Convention on Biological Diversity, held in Mexico in December 2016, identifies strategic actions to strengthen implementation of the Strategic Plan for Biological Diversity 2011-2020 and fulfilment of the Aichi Biodiversity Targets, including those relating to mainstreaming and integrating biodiversity in and across the agriculture, forestry, fishery and aquaculture, and tourism sectors. Among its key observations and approaches, the Decision recognizes that:

- The sectors in question depend heavily on biodiversity and its components, as well as on the ecosystem functions and services that they underpin; that these sectors also impact on biodiversity through various direct and indirect drivers; and that the consequent loss of biodiversity can impact these sectors negatively, potentially threatening food security and nutrition and the provision of ecosystem functions and services that are vital to humanity.
- The benefits of these sectors to biodiversity conservation can be significant, beyond biodiversity itself, for food and agriculture, particularly in the case of traditional communities and indigenous peoples.
- Fundamental changes in consumption and production patterns to ensure sustainable production methods, as well as policy, legal, technical and financial measures in these sectors, are critical for implementing the 2030 Agenda for Sustainable Development.
- The ecosystem functions and services generated in protected areas and other effective conservation measures contribute to the productivity of several sectors; and collaboration with these sectors is required in order to increase connectivity in and among protected areas.
- Indigenous peoples and local communities, along with traditional agriculture, forestry, fisheries and community-based tourism contribute significantly to the objectives of the Convention on Biological Diversity and the Aichi Biodiversity Targets.

10. In response, the Conference of the Parties invited Governments to strengthen their efforts to mainstream conservation and sustainable use of biodiversity within and across various sectors, including agriculture, forestry, fisheries and aquaculture, and tourism at all levels and scales, including by involving relevant stakeholders through multi-sectoral platforms and by taking into account relevant standards and best practice guidance related to biodiversity in these sectors; and to report to the Secretariat on their experiences.

11. At its fortieth session the FAO Conference welcomed the Organization's initiative to act as a Biodiversity Mainstreaming Platform and called on it to facilitate, in collaboration with its partners, the Convention on Biological Diversity (CBD) and other United Nations organizations, integrating in a structured and coherent manner actions for the conservation, sustainable use, management and restoration of biological diversity in all agricultural sectors at national, regional and international scale. The ultimate goal of the Platform is the adoption of good practices across all agricultural sectors that will support biodiversity conservation and increase the productivity, stability and resilience of production systems in an integrated landscape/seascape approach, reducing pressure on natural habitats and species. This will also require better coordination among the different agricultural sectors as none of the sectors can address biodiversity in isolation.

12. FAO supports the countries in implementing the Voluntary Guidelines for Agro-environmental Policies in Latin America and the Caribbean, to link territory, environment and economy in a more integrated and harmonious way under a global change scenario. FAO has also launched a dialogue with the private sector on the mitigation of GHG emissions and the sustainable use of water in the food production and consumption chain in Latin America and the Caribbean, with the aim of exchanging information and experiences on private-sector efforts to align its activities and consumption habits with the new 2030 Agenda for Sustainable Development. FAO will work to forge

a strategic agreement between the Regional Commissions,⁵ which are the Organization's statutory bodies, to promote a reduction of the environmental footprint and adaptation to climate change among the respective productive subsectors.

13. In addition, FAO will work with the countries of the region in a collective effort to:
- a. Build a common vision for sustainable food and agriculture, with the aim of promoting intersectoral discussions and contribute towards fulfilment of the SDGs.
 - b. Prepare a technical assistance programme for the countries of the region for the mitigation of GHG emissions and sustainable water use in their agricultural systems (crop and livestock farming, forestry, and fisheries/aquaculture) and food systems (processing, logistics, transport, wholesale and retail distribution).
 - c. Prepare a global programme on the integration of biodiversity within and between agricultural sectors.
 - d. Design subregional strategies to combat illegal, undeclared and unregulated fishing (including implementation of the Port Agreement).
 - e. Articulate regional action for the implementation of the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the national food security context.
 - f. Promote application of the Voluntary Guidelines on Sustainable Soil Management.
 - g. Promote implementation of the various plans of action for animal, plant and forest resources and in monitoring the targets of the associated SDGs.
 - h. Create a strategic regional alliance to establish guidelines for zero net deforestation in Latin American and Caribbean countries, in accordance with the 2030 Agenda for Sustainable Development.

B. Disaster-risk management for a resilient agriculture

14. The Sendai Framework for Disaster Risk Reduction (2015-2030) guides activity in this area internationally. In the region, subregional entities have reached agreements to work together in disaster risk management. Pillar 4⁶ of the Plan for Food Security, Nutrition and Hunger Eradication of the Community of Latin American and Caribbean States (CELAC) 2025, commits countries to promote “stable production and timely attention to socio-natural disasters that can affect food availability,” for which the countries agreed to “create a Latin American and Caribbean programme of food reserves and supplies to face sociocultural disasters [...] and establish a regional information system that complements the current subregional early warning systems.” Within this framework, under the coordination of the temporary presidency of CELAC, the [Regional Strategy for Disaster Risk Management in Agriculture and Food and Nutrition Security in Latin America and the Caribbean](#) is being formulated.

15. In Central America, the Central American Integration System (SICA) is formulating the Central American Policy on Comprehensive Disaster Risk Management (2018-2030); and, in June 2017, it approved the Sustainable Climate Smart Agriculture Strategy (2018-2030), which includes a disaster risk management pillar. In the Caribbean, the Caribbean Disaster Emergency Management Agency (CDEMA) has prepared the Comprehensive Disaster Management Strategy (2014-2024),

⁵ The Commission on Livestock Development for Latin America and the Caribbean (CODEGALAC), the Latin American and Caribbean Forestry Commission (COFLAC), the for the Western Central Atlantic Fishery Commission (WECAFC), and the Commission for Inland Fisheries and Aquaculture of Latin America and the Caribbean (COPESCAALC).

⁶ Pillar 4: Stable production and timely attention to socio-natural disasters that may affect food availability.

which recognizes the “critical link between disaster management and sustainable development” and calls for disaster management to be included as part of development planning in the productive sectors. The Andean Community created the Andean Committee for Disaster Prevention and Response (CAPRADE) in 2002, which brings together the main technical entities for disaster prevention and response in the subregion. The Committee approved the Andean Disaster Risk Management Strategy (2017-2030) in May 2017.

16. Key challenges for improving disaster risk management in the agriculture sector include:
 - a. *Institutionalization.* Nearly all ministries of agriculture and forestry and fishery administrations have a disaster risk management unit, which in some cases also deals with climate change. These units need to be strengthened, articulated with other national institutions responsible for coordinating the different phases of risk management at the national level; and their rank in the ministerial structure needs to be raised to enable them to influence and coordinate agendas and actions.
 - b. *Preventive action.* In the agriculture sector it is important to focus not just on the disaster itself but also on the risk; policies need to evolve from coping with disasters once they have occurred to managing the risk of their occurrence, in other words focusing on prevention, mitigation and preparedness.
 - c. *Budget allocation.* The allocation of funds is still concentrated in disaster response, and not in risk management. In the few cases where there is a budget allocation for risk management, the agriculture sector does not always receive priority attention.
 - d. *Investment in resilience at the local level.* Although the Latin American and Caribbean countries have upgraded their political and institutional frameworks for disaster risk management in recent years, efforts at the national level still need to be translated into concrete results for farmers, fisherfolk and communities. A joint effort (agricultural extension, producer organizations and local actors, both state and civil society) is needed to facilitate the promotion of, and greater access to, technologies and practices to reduce vulnerability and strengthen resilience.
 - e. *Early warning.* Early warning systems and response readiness plans are the risk management tools that have been most widely implemented in the region. However, it is important that the response goes beyond activating specific protocols and that the actions are integrated among the different sectors, to promote a “better rehabilitation”.
 - f. *Coordination between the central and local levels.* The challenges facing ministerial institutions at the central level, regarding due participation by local institutions and civil protection on the ground in the planning and implementation of risk management and disaster response, can generate inefficiencies in local disaster planning.
 - g. *Damage and loss assessment.* Assessments of post-disaster damage and losses for the agriculture sector and food and nutritional security are still incipient in many countries. This is because capacities to adequately evaluate and quantify damage and losses are not always available. As a result, the impact of disasters on livelihoods is undervalued in some cases.
17. In this context, FAO will support the countries of the region in strengthening their early warning systems through implementation of the Agricultural Stress Index System and monitoring of forest areas and fishery resources. It will also help to set up an operational mechanism for the immediate exchange of experiences, technology and specialists among the countries of the region, to strengthen capacities for prevention, mitigation, preparation and coordination for emergency response in the agriculture sector. The process of preparing the regional strategy for the control of pests and diseases in the four sectors (crop and livestock farming, forestry and fisheries/aquaculture) will continue to be supported; and cooperation will be provided for their implementation with specific actions to strengthen national capacities.

III. Increased funding and capacity for climate change adaptation in agriculture

A. Climate/environmental financing in the agriculture sector⁷

18. Some 16 funds for climate/environmental financing are currently active in the region:

<i>Source</i>	<i>Purpose</i>
Clean Technology Fund (CTF)	Transformation of developing and emerging economies, providing resources to expand technologies with low carbon emissions.
Amazon Fund	Grants for actions to prevent, control and combat deforestation, and to promote sustainable use in the Amazon of Brazil.
International Climate Initiative (IKI)	Financing of climate and biodiversity projects in developing, transition and newly industrialized countries.
Norwegian International Climate and Forestry Initiative	Support for global efforts to reduce the destruction of tropical forests, with the aim of halting carbon emissions.
Green Climate Fund (GCF)	Support for developing countries to limit or reduce their GHG emissions and adapt to climate change.
Global Environment Fund (GEF)	Implementation of the Convention on Biological Diversity, the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention to Combat Desertification.
Climate Investment Funds (CIF)	Energy and climate resilience in the transport and forestry sectors.
UN-REDD	Reduction of forest emissions and increase in forest carbon stocks, contributing to national sustainable development.
REDD + Programme Payments by results (Germany)	Payments by results. Rewards performance in reducing deforestation and forest degradation.
Adaptation Fund (AF)	Adaptation to climate change and resilience in developing countries that are highly vulnerable to climate change and are parties to the Kyoto Protocol.
Forest Carbon Partnership Facility (FCPF)	Preparatory fund: support for developing countries, tropical and subtropical, to prepare for a future system of large-scale incentives for REDD +.

⁷ The document *Financing for Climate Change in Latin America and the Caribbean in 2015* (ECLAC) shows that more than 50% of investment in climate comes from national funds: approximately one third from multilateral banks in the form of loans, around 5% in the form of climate bonds, and just 2.2% from international climate funds. Countries are drawing on their own resources to pay most of the cost of actions to deal with climate change.

<i>Source</i>	<i>Purpose</i>
	Carbon Fund: payment of incentives for the application of REDD + policies and measures in developing countries.
BioCarbon Fund Initiative for Sustainable Forest Landscape (BioCF-IPFS)	Reduction of emissions through smarter land-use planning, policies and practices.
Forest Investment Program (FIP)	Changes in the forestry sector to promote adjustments in the energy matrix and the sector's resilience to climate change.
Global Climate Change Alliance (GCCA) (European Union)	Effective dialogue and cooperation on climate change.
Global Energy Efficiency and Renewable Energy Fund (GEEREF) (European Union)	Capital for private sector investment in clean energy projects in developing and transition economies.
International Climate Fund (United Kingdom)	Climate change supporting growth and adaptation with low carbon emissions in developing countries.

19. One important source of financing is the Green Climate Fund (GCF), a financial instrument of UNFCCC, which contributes to the implementation of the Paris Agreement. In Latin America and the Caribbean, 61% of the countries signed up to mitigation actions in the agricultural sector, and 94% committed to adaptation measures related to agriculture and agricultural livelihoods. In other words, the agriculture sector has broad relevance in countries' efforts to combat climate change and its effects. FAO Member States in Latin America and the Caribbean are entitled to access all forms of financing of the Green Climate Fund, irrespective of their level of development.

20. Another important source of funding for actions in the transition towards a more sustainable and climate-smart agriculture is the Global Environment Facility (GEF). For its seventh replenishment, currently under preparation, the GEF is considering the following impact programmes directly related to agricultural issues: food systems, sustainable Amazon landscapes, wildlife for sustainable development, healthy oceans for sustainable fisheries, landscape restoration and basic agricultural commodities supply chains.

21. Recently, FAO has developed significant regional and global capacity to cooperate with countries in the preparation and execution of projects for the GEF and for the FVC as an accredited agency, as well as other climate/environmental funds. In Latin America and the Caribbean, FAO is supporting the formulation and implementation of 45 GEF projects in 18 countries, representing a portfolio of around US\$ 150 million; and in 17 countries it is structuring 21 projects for investment in climate change mitigation and adaptation with the agriculture sector, totalling an estimated US\$ 1 billion, to be presented to the FVC. With FAO cooperation, complex and transformative projects have been prepared in Paraguay and El Salvador, which link climate change mitigation with adaptation and promotion of livelihood resilience, through agroforestry development, the promotion of food and nutritional security, and the fight against poverty. In addition, transformative actions on the productive systems of peasant family farming are being designed in Bolivia, Guatemala, Honduras, Guyana, Cuba and other countries in the region.

22. The region's countries need to draw up a plan of action to implement the region's Sustainable and Climate-smart Agriculture Strategy, which should include support for countries in implementing their NDCs. Work needs to be done to prepare and implement a regional strategy to finance

investment projects for the sustainable management of natural resources and resilient agricultural systems, which should consider seeking international funds.

B. Development of strategic policy frameworks and institutional capacities for climate-change adaptation in agriculture

23. Most countries in the region are working to respond effectively to the consequences of climate change. Reducing vulnerability to climate change and increasing adaptation capacity in agriculture, requires national institutions to be developed and strengthened, along with the adoption of intersectoral policies, at different levels of government (from local to national) and with multiple actors.

24. The region's countries are addressing the issue of climate change through the existing organizational structure of Ministries/Secretariats of "Environment" or "Natural Resources". These face several challenges:

- a. The need for greater coordination of the public policy instruments of different sectors to achieve significant adaptation effects;
- b. The time-frame of climate change processes and their impacts (mitigation and adaptation actions generally take several years to achieve results, extending beyond the four or five years of government terms of office, which in some cases discourages government intervention);
- c. The relatively weak political influence of public agencies dealing with climate/environment issues, compared to the macroeconomic management institutions (finance, planning) or key sectors such as industry, energy, etc.

25. Climate-change laws need to generate major institutional and governance changes, initiating adaptation and mitigation processes. They should also form the basis for implementing international agreements and commitments at the national level. Several issues need to be considered in the design of legal instruments related to climate change, including: adequate allocation of funding; institutional capacity building; the establishment of monitoring and verification systems; the application of incentives for the adoption of practices; and changes in habits that lead to adaptation and mitigation, among others.

26. In this context, continued support should be given to the Latin American and Caribbean Parliament in drafting, refining and promoting the Framework Law on Climate Change with a focus on agriculture and food and nutritional security. Based on this legislation, the countries' Parliamentary Fronts against Hunger should receive technical cooperation to incorporate climate change adaptation and mitigation issues into national law. Collaboration is also needed to strengthen agricultural institutions, and to create and consolidate organizational mechanisms responsible for climate management, to reduce the risks of hydrometeorological disasters and for climate-change adaptation and mitigation. A regional alliance could promote South-South cooperation between countries, with a view to exchanging experiences and lessons learned in the development of strategic policy frameworks and institutions for adapting agriculture to climate change and reducing its emissions.