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Challenges for Sustainable Use of Natural Resources, Risk Management and Climate Change Adaptation in Latin America and the Caribbean in the New Framework of Sustainable Development Goals

Executive summary

- The region of Latin America and the Caribbean (LAC) has the most arable land in the world and abundant water resources. It is also blessed with an astonishing wealth of agro-biodiversity, fishery resources and forestry reserves that cover about half of its territory. All these resources contribute significantly to feeding its population. Unfortunately, these resources are suffering degradation as a result of overexploitation and misuse. Furthermore, climate change, and natural, social and economic disasters and crises are a serious threat to food security and nutrition (FSN), the eradication of poverty and sustainable development.
- Within this context, and in order to promote the sustainable use of natural resources, risk reduction and climate change adaptation, member countries have made commitments and reached agreements on development actions with global, regional, national and local impact.
- The recent Paris Agreement, approved by the Conference of the Parties of the United Nations Framework Convention on Climate Change, represents a historic breakthrough in combating climate change and driving actions, commitments and investments to create a secure line of defence against the worst effects of climate change.
- The main challenges and opportunities for the region comprise the development of effective policies (including agro-environmental policies), climate change adaptation as a matter of urgency, strengthening risk management of family farmers and value chains, promoting horizontal cooperation to promote resilient livelihoods, and strengthening efficient and sustainable food systems.

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Suggested actions for the Regional Conference

The Regional Conference could request the following from FAO:

- Support political dialogue between countries to identify agreed actions to promote better coordination between actions on climate change adaptation and risk management of disasters, through the exchange of experiences, practices, knowledge and technology between countries.
- Complement national support given to countries by the Organization within a regional context, in the prevention and mitigation of and preparation for extreme events with particular emphasis on vulnerable populations such as small-scale producers and family farming.
- Continue to strengthen national agricultural health and food safety systems, and develop programmes to strengthen national efforts for prevention, control and eradication of invasive species, pests and diseases.
- Continue to work on the development of guidelines to help formulate agro-environmental policies, based on the practical experience of countries, promoting a regional development programme that seeks to incorporate a relevant exchange of experiences and lessons learned by other countries on similar issues.

Please send any questions on this document to the Secretary for LARC 34, Tito.Diaz@fao.org

I. INTRODUCTION

1. Latin America and the Caribbean achieved target 1C of the Millennium Development Goals (MDG), and the even more ambitious target of the World Food Summit, to halve both the proportion of the undernourished population and the number of undernourished people between 1990 and 2015. In order to continue to meet these targets, the region must intensify its work on promoting the sustainable use of natural resources, risk management and climate change adaptation to reduce the vulnerability of production systems and increase food security and nutrition.

2. Of the 17 Sustainable Development Goals (SDG) that were adopted as part of the 2030 Agenda for Sustainable Development, eight are directly related to the issues mentioned above. Furthermore, the recent historic Paris Agreement on climate change recognized “the fundamental priority of safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the impacts of climate change”. During the Third United Nations World Conference on Disaster Risk Reduction, the United Nations General Assembly approved the Sendai Framework that represents a new opportunity to consolidate the potential of the agricultural sector in risk reduction and to integrate agricultural sectors in strategies/policies/plans in order to create more resilient and sustainable communities.

3. The thirty-third FAO Regional Conference for Latin America and the Caribbean recognized the need for countries to develop national policy frameworks and strategies to protect natural resources and climate change adaptation of agriculture, forestry, aquaculture and fisheries, in tandem with what had already been agreed in other fora. Several organizations, initiatives and international fora in the region have addressed and established as a matter of priority the joint work of countries on issues relating to this document, including the Community of Latin American and Caribbean States (CELAC), the Central American Integration System (SICA), the Union of South American Nations (UNASUR), SAMOA (Small Island Developing States Accelerated Modalities of Action) Pathway,

the Caribbean Community (CARICOM), the Southern Common Market (MERCOSUR), Andean Community (CAN), Petrocaribe and the Southern Agricultural Council (CAS).

II. CURRENT SITUATION

A. THE STATE OF NATURAL RESOURCES FOR AGRICULTURAL PRODUCTION

4. As previously stated, LAC has the most arable land in the world and abundant water resources. It covers 15 percent of global land area, has 10 percent of world population and receives 29 percent of the planet's rainfall. However, the region is also home to both the most arid and most humid places on earth. The availability of water and the quality of soils vary considerably both between countries and between areas within the same country. In the last three decades, water extraction in the region has doubled at a much higher rate than the world average, with the majority being used for agriculture.

5. During the last 50 years (1961 - 2011), the region's agricultural surface area has increased considerably, surpassing 561 million hectares and now extending to 741 million hectares, with South America accounting for the greatest expansion. The expansion of production has generally been accompanied by an intensive use of inputs, water and soil degradation and a reduction in biodiversity and deforestation that undermines not only the quality and availability of natural resources but also the livelihoods of individuals. LAC accounts for 14 percent of global degradation.

6. LAC has an amazing wealth of genetic resources. Seven of the 25 most critical places in the world with high concentrations of endemic species are found in Latin America and the Caribbean. The region is the centre of origin for many species that form part of the diet of the world's population. There is also a countless number of species that are less widespread but that are essential for feeding local populations. Nevertheless, the region is experiencing plant and animal genetic erosion, as a result of the extension of the agricultural frontier and the overuse of few species, new breeds and varieties. Native species and traditional varieties are abandoned for monoculture and extensive stock raising. The diet of local populations is becoming increasingly homogenous and less varied.

7. The proportion of evaluated world fish stocks that are exploited in a biologically sustainable manner was reduced from 90 percent in 1974 to 71.2 percent in 2011. A similar trend is noticeable in the region. The average annual growth rate of fisheries and aquaculture production in Latin America and the Caribbean from 1974 to 2011 was only 3 percent with a downward trend in fisheries but an upward trend in aquaculture. Marine fisheries have increased to such an extent that there is barely margin for greater growth. Over the last few decades it has been noted that approximately 20 percent of freshwater fish species in the world has been classified as under threat, in danger and extinct.

8. Almost 47 percent of the earth's surface in the region is still covered by forests, representing approximately 22 percent of the world's total forest area. The rate of deforestation is high, but is falling. During the period 2000-2005 it was 4.8 million hectares per year and in the five years from 2010-2015 it was estimated at 2.2 million hectares per year.

B. CLIMATE CHANGE IN THE REGION'S AGRICULTURE

9. Climate change poses a serious threat to food security and nutrition, the eradication of malnutrition and poverty, and sustainable development. It is estimated that climate change will reduce productivity, stability and farming income in many parts of the world, leading to the additional elements of stress and risk in areas that have a high level of food insecurity and nutrition. In Latin America and the Caribbean, the changes in rainfall patterns and in temperatures that affect the yields of staple crops such as wheat, rice and beans will generate pressure for non-agricultural areas to be used to grow food.

10. A recent report from the Inter-American Development Bank (IADB) on the region's agriculture and climate stated that "annual agricultural exports in Latin America and the Caribbean

could fall by almost USD 50 billion by 2050, solely as a result of the effects of climate change on crop yields. On a regional level it is anticipated that by 2020 there will be a fall in the yields of maize, soya, wheat and rice resulting in losses between USD 8 - 11 billion on net export profits”.

11. Furthermore, according to the United Nations Environment Programme (UNEP), the “implications of rising sea levels in climate patterns could have particularly disastrous consequences for the Caribbean. Every aspect of Caribbean life would be affected and this could place even greater strain on its limited natural resources ...”. UNEP states that the annual cost of inaction in the Caribbean would be USD 22 billion per year by 2050 and USD 46 billion by 2100, as a consequence of damage from hurricanes to infrastructure and losses from a consequent drop in tourism. These costs represent 10 percent and 22 percent respectively of the current Caribbean economy.

12. The IADB estimated that LAC needs to invest an additional USD 1.1 - 1.3 billion annually in infrastructure and development of technical and institutional capacities in order to adapt to climate change. Coinciding with IADB estimates, the World Bank (WB) estimates requirements for adaptation by the region’s agricultural sector at between USD 1.2 and 1.3 billion per year.

13. Climate change is altering risk patterns, the frequency of events and exposure, and the vulnerability of the population. One problem that needs to be tackled is investment in risk reduction versus investment in emergency response, taking into account country-specific increases in fiscal limitations and macroeconomic conditions. In order to do this, it would be necessary to make public accounts “greener” and thereby facilitate public and private sector investment for sustainable development.

C. RISK MANAGEMENT AND FOOD SECURITY AND NUTRITION

14. The impact of natural disasters is increasing, affecting agriculture, food security and nutrition. This increase is due to the growing frequency and intensity of natural disasters and the exposure and vulnerability of individuals and natural, social and economic systems. In Latin America and the Caribbean, it is estimated that a third of the region’s population live in areas with a high risk of geological natural disasters, particularly hydro-meteorological disasters. The rural population is the most affected, especially smallholders, who have low resilience and whose lives are hugely dependent on climate, trapping them in a recurrent cycle of poverty.

15. Natural disasters in LAC have led to major economic losses, putting food security and nutrition at risk. For example, in 2010, 98 of the greatest natural disasters in the world occurred in Latin America and the Caribbean, 79 of which were climatological. The International Center for Tropical Agriculture (CIAT) and the Economic Commission for Latin America and the Caribbean (ECLAC) state that “in the last 40 years, extreme events have intensified with adverse consequences for the agricultural sector. An estimate of damages and total losses, caused by the main events, which occurred between 1972-2007, yields a figure of almost USD 11 billion, equivalent to 5.7 percent of Central America’s gross domestic product (GDP) for 2007. Almost 60 percent of that amount was due to the devastating effects of Hurricane Mitch in 1998. During this period, the agricultural sector suffered losses and damages totalling USD 3.7 billion. A very serious consequence was the destruction of physical capital (USD 2.072 billion), which tends to be slow to create in the sector”.

16. Storms, (hurricanes, tropical storms, typhoons, strong winds) generally appear in the Caribbean and Mesoamerica. The countries with greatest exposure to cyclonic storms are Mexico and Cuba. Furthermore, the Dry Corridor (El Salvador, Guatemala, Honduras, Nicaragua and parts of Costa Rica and Panama) is one of the areas most affected by extreme weather events. For example, in the Caribbean in 2010, Hurricane Tomas in Saint Lucia generated losses equivalent to 43.4 percent of GDP, corresponding to nine times agricultural GDP and 47 percent of external public debt. Additionally, there are recurrent floods throughout the region, with the greatest economic impact in South and Central America. Droughts mainly affect South America (northeast Brazil, the Chaco and the northern-central part of Chile) and Central America (Arco Seco).

17. Historically, natural threats caused by geophysical events (volcanic eruptions, earthquakes and tsunamis) have led to large-scale disasters in the region. LAC has the greatest levels of seismic activity

in the world where between 80 and 85 percent of the world's energy is released in the form of earthquakes and volcanic eruptions.

18. As a result of intensified agricultural production, climate change and a greater commercial exchange in the region, LAC faces greater risks linked to invasive species, plagues, and crop and animal diseases. Plagues, pathogens and weeds cause more than 40 percent of losses of world food supply. Some of the most recent threats to the region are Huanglongbing, which attacks plant species of the citrus genus, and coffee rust, which led to a crisis in five Central American countries, resulting in losses of almost USD 550 million and the loss of 441 000 jobs during the 2012-2013 campaign. Other threats include foot-and-mouth disease, hog cholera, avian influenza (highly pathogenic), bovine paralytic rabies, bovine spongiform encephalopathy and acute hepatopancreatic necrosis (AHPND). Invasive species, such as the lionfish, affect the ecological balance of reefs with a consequent impact on the fisheries sector, the tourist sector and communities that depend on the resources. A worrying threat for the region, although the strain has not yet been reported, is Panama disease that destroys banana plantations.

19. Forest fires are another event that can be classified as natural in some cases, or as anthropogenic in the majority of cases. In Latin America and the Caribbean, the El Niño phenomenon has led to large-scale forest fires.

20. Finally, other threats to food security and nutrition are economic and financial crises. This was the case between 2006 and 2009, when as a result of the rise in food prices and the financial and economic crisis, the number of people living in the region suffering from hunger increased from 47 million to 53 million, almost reaching 1990 levels.

D. POLICY DIALOGUE AND RELATED INTERNATIONAL AGREEMENTS

21. To promote the sustainable use of natural resources, climate change adaptation and mitigation, and to reduce risks that affect agriculture, and food security and nutrition, member countries have made commitments and reached agreement on the development of actions to be taken with global, regional, national and local impact.

22. The Rio+20 Conference agreed to set a series of Sustainable Development Goals (SDG). Of the 17 SDGs agreed by the countries for the 2030 Agenda, eight SDGs are related to issues discussed in this document. They are as follows:

- SDG 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- SDG 5. Achieve gender equality and empower all women and girls
- SDG 6. Ensure availability and sustainable management of water and sanitation for all
- SDG 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- SDG 11. Make cities and human settlements inclusive, safe, resilient and sustainable
- SDG 13. Take urgent action to combat climate change and its impacts
- SDG 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- SDG 15. Promote the sustainable use of terrestrial ecosystems, combat desertification, and halt and reverse land degradation and halt biodiversity loss

23. During the Third World Conference for Disaster Risk Reduction (DRR), the Sendai Framework was approved for DRR 2015-2030 (successor of the Hyogo Framework for Action 2005-2015). This framework represents a new opportunity to boost risk reduction in the agricultural sector and integrate it into strategies/policies/plans to build resilient and sustainable communities.

24. In the 2015 CELAC Action Plan, member countries agreed to develop a regional strategy and a regional action plan on Integrated Disaster Risk Management and requested that "FAO and the World Food Programme (WFP) provide technical support with a view to design and implement regional initiatives geared towards the prevention, reduction and risk management of disasters". In

Pillar 4 of CELAC 2025 Plan for Food Security, Nutrition and the Eradication of Hunger, countries committed to promoting the “stable food production and opportune management of man-made and natural disasters that may affect food availability”, and agreed, amongst other things, to “create a Latin American and Caribbean programme of food reserves and supplies to face sociocultural disasters”, “implement prevention and risk management programmes as well as disaster management to face events that could affect food security” and “establish a regional information system that complements existing subregional early warning systems”, with gender mainstreaming.

25. In November 2014, the United Nations General Assembly approved the Small Island Developing States Accelerated Modalities of Action (SAMOA Pathway). The SAMOA Pathway recognizes that Small Island Developing States (SIDS) are basically net food importers and are therefore extremely vulnerable to the availability of said imports and volatility of prices. With regard to climate change, it recognizes that “this and rising sea levels continue to pose a significant risk to SIDS...and that, in some cases, they pose the biggest threat to survival and viability”. With regard to risk management, it proposes supporting SIDS in “gaining access to technical support and funding for early warning systems ...” and “establishing and reinforcing services to insure against national and regional risks ...”.

26. What is particularly important for the Caribbean is the 2014-2024 strategy for the integrated risk management approach developed by the Caribbean Disaster Emergency Management Agency (CDEMA). This strategy recognizes the “critical link between the management of disasters and sustainable development” and therefore proposes the integration of disaster management factors in country development planning and decision-making processes. This strategy was set up within the CARICOM Regional Framework 2005-2015.

27. Partner countries of the Central American Integration System (SICA) have agreed a Regional Strategy on Climate Change to complement national and local efforts. In 2010, they approved the Central American Policy for Integrated Risk Management (PCGIR) in Central America. As part of their work on integration, Central American countries have also approved a series of development instruments linked to environmental and agro-environmental issues, including the Mesoamerican Environmental Sustainability Strategy (EMSA), a strategic framework to reduce vulnerabilities and disasters in Central America, the Regional Disaster Risk Reduction Plan, the Central American Strategic Programme for Forest Ecosystem Management, a regional agreement for Integrated Water Resources Management (under review) and the Regional Agro-environmental and Health Strategy (ERAS).

28. The Constitutive Treaty of UNASUR states among its specific goals, “protection of our biodiversity, water resources and ecosystems, and cooperation among Member States in matters of disaster prevention and the fight against the causes and effects of climate change”. UNASUR is currently preparing a South American strategy on Disaster Risk Reduction. It is also working towards a common policy on the management of natural resources, promoting changes to traditional exploitation systems, the generation of added value, and enabling work on building a collective conscience for development, exploitation and rational use of natural resources.

29. Issues relating to the management of natural resources, climate change and risk management have led to agreements between the countries within the framework of several other international organizations, initiatives and fora. They include MERCOSUR, that has set up the principles required for managing natural resources shared by states; the Andean Community (CAN), that has an Andean Environmental Agenda and that has agreed on a legal framework to adopt health and phytosanitary measures; Petrocaribe, that has agreed a series of actions to foster sustainable development through regulations that protect the environment and stimulate the rational use of resources. The Central American Agricultural Council (CAC), which is part of SICA and the Southern Agricultural Council (CAS), has also addressed these issues and reached specific agreements.

III. CHALLENGES AND OPPORTUNITIES

30. Sustainable Development Objectives are set up to offer opportunities to systematically address and boost the work and cooperation of proposals and commitments that have been made by different countries on different platforms, and in different fora for dialogue and policy agreements.

31. Given the particularities of the region, the following can be identified as challenges and opportunities: a) the need to promote agro-environmental policies that link agricultural production to the adequate management of natural resources; b) the urgent need for climate change adaptation to help reduce vulnerabilities and guarantee food availability; and c) the incorporation of practices geared towards risk reduction in particular for smallholder farmers and family farming. It is important to highlight that in order to address these challenges and take advantage of the opportunities, it is necessary to promote gender equality, and to create job opportunities and alternatives to promote the development of young people and especially women, thereby strengthening the resilience of livelihoods.

Effective agro-environmental policy development

32. LAC continues to increase food production in a sustainable manner by using productive, inclusive and integrated systems. Without having an agriculture that reduces the impact on the environment, “saves natural resources” and has a clear gender-based approach, food security and nutrition will be fragile or will be at risk of not being achieved. It is important for countries to promote transition towards more sustainable and integrated production practices (agriculture, livestock, forestry, fisheries and aquaculture). For this transition, a policy and legal framework is necessary as well as specific instruments for development. One tool for this approach is an agro-environmental policy that addresses the multiple purposes of the economic viability of food production, protects the environment and natural resources, combats rural and indigenous poverty and provides greater food security and nutrition for women, men, boys and girls. This calls for recognition at policy level of products that can be obtained from natural resources, and also of ecosystem services that can be generated by the sustainable use and protection of these resources.

33. The formulation and implementation of agro-environmental policies is an opportunity for different government sectors/institutions to work jointly. The effectiveness of agro-environmental policies largely depends on the choice of facilitation incentives and services offered by governments to encourage the participation of farmers and especially of rural and indigenous women. It is therefore necessary to consider the differing realities of smallholders and larger producers in the adaptation of the proposed measures. Simple production support measures (for example, access and efficient water use programmes) have led to significant progress in the mitigation of rural poverty and the negative impacts of agriculture on the environment, such as desertification, as well as contributing to food security and nutrition.

Climate change adaptation is urgent

34. Agriculture is very vulnerable to climate change. The gradual rise in temperature will modify the quantity and quality of food produced and could encourage the spread of plagues and diseases. Even though it is important to continue trying to reduce greenhouse gas emissions, mitigation in of itself is insufficient and will not be noticeable until the second half of the century. Countries need to boost adaptation strategies as a matter of urgency. Adaptation is an integrated and flexible process that depends on the sustainable management of natural resources and the application of good practices. Countries should promote the alignment of these practices in the context of current and future climate change impacts in their respective countries. Each country also needs to develop a solid understanding of the vulnerability of its food systems, its ecosystems, its communities and its national economy.

35. Countries need to have a stronger and more efficient adaptation approach, by diversifying rural production and integrating agriculture, livestock, agroforestry activities, classification and management of water and land, sustainable management of land, watershed management and disaster risk management/reduction.

36. A major adaptation action that can be developed in the short term by countries is the strengthening of current measures such as early warning systems and systems to detect critical climate change areas. Countries could focus their rural investments to reduce the effects through agricultural insurance and incentives to encourage farmers to adopt better agricultural practices and better use of land and water. It is also necessary to integrate policies between different levels of government and between different sectors, and to take advantage of possible synergies between mitigation and adaptation.

Strengthening family farmers to promote risk management

37. Family farmers that experience food insecurity and nutrition are the most vulnerable to the impacts of crises and disasters. They have a lower capacity for adaptation and recovery. The impact of disasters on FSN and livelihoods can be prevented or mitigated by applying the appropriate technologies and practices. Although much of this good practice is applied, greater outreach is required, which is why it is also important for countries to strengthen their national systems on rural extension and communication to help develop smallholders.

38. Countries should promote disaster risk management in the agricultural sector and in processes aimed at achieving FSN as well as promoting a gender-based approach at a regional, national, municipal and local level. In order to achieve this, it is necessary to strengthen countries' institutional capacities and increase the level of participation of producers and local authorities in national risk management systems. One key aspect of this is that countries make available up-to-date, trustworthy and quality information for the implementation and operation of early warning systems, risk evaluation and rapid measurement of the impacts of crises.

39. It is also important for countries to initiate systems that protect farmers from possible disasters through financial risk transfer mechanisms, such as agricultural insurance, contingency mutual funds, agricultural guarantee funds and others. In order to protect farmers, it is also important that countries strengthen their national plague and disease control systems for plants, animals and invasive species, and the regional coordination initiatives between these systems.

Cooperation between countries in the region to promote resilience of livelihoods

40. As previously stated, there are a series of regional and subregional agreements, platforms, strategies and plans that promote the sustainable use of natural resources, climate change adaptation and mitigation, and risk reduction for agriculture and food security and nutrition. A major challenge for the region is to implement the proposals and agreements reached. One option is horizontal cooperation, which would promote the deployment and exchange of human, technical, financial and material resources, as well as the exchange of experiences and technologies between countries in Latin America and the Caribbean, thereby encouraging supportive development.

41. To support this, it will be particularly important for the region to work on horizontal cooperation on the following initiatives:

42. *Create a Latin American and Caribbean programme of food reserves and supplies to face sociocultural disasters (Pillar 4 of the CELAC Plan for Food Security and Nutrition 2025).* In many crisis situations there has been limited or insufficient availability of agricultural inputs, in particular plant material and a variety of seeds adapted to local conditions. The programme will enable the flexible transfer of food and productive agricultural inputs from strategic country reserves, to support other countries in emergency situations.

43. *The SAMOA Pathway for Small Island Developing States (SIDS).* As previously stated, the rises in both sea level and sea surface temperature, and the changes in rain patterns, as well as the impact of natural disasters and the degradation of coastal and marine ecosystems, are all adding additional pressure on the sustainable management of SIDS in the Caribbean. Overcoming climate change is more than a just a challenge for these countries, it is a question of survival. Therefore, it is essential for other countries to support SIDS in the Caribbean through horizontal cooperation, focusing on improving their adaptation and resilience capacities, while taking into consideration their respective vulnerabilities and unique economic, environmental and social situations.

44. *The Dry Corridor in Central America.* Central America is one of the world's most vulnerable regions to climate change and natural disasters. Based on statistics from 1994 – 2013, of the 12 countries considered as having the highest rank on the global climate risk index, four countries are from Central America (Honduras [1], Nicaragua [4], Guatemala [9] and El Salvador [12]). These four countries form part of the Dry Corridor in Central America.