



منظمة الأغذية
والزراعة
للأمم المتحدة

联合国
粮食及
农业组织

Food
and
Agriculture
Organization
of
the
United
Nations

Organisation
des
Nations
Unies
pour
l'alimentation
et
l'agriculture

Продовольственная и
сельскохозяйственная
организация
Объединенных
Наций

Organización
de las
Naciones
Unidas
para la
Agricultura
y la
Alimentación

THIRTY-FIRST REGIONAL CONFERENCE FOR LATIN AMERICA AND THE CARIBBEAN

Panama City, Panama, 26 to 30 April 2010

GLOBAL AND REGIONAL EMERGENCY ISSUES: RISK MANAGEMENT AND REACTIONS TO EMERGENCIES IN THE AGRICULTURE, FORESTRY AND FISHERIES SECTORS IN LATIN AMERICA AND THE CARIBBEAN

AGRICULTURE SECTOR

1. The agriculture sector, understood in the national accounts to mean crop cultivation, livestock, forestry, fishery and aquaculture activities in Latin America and the Caribbean, contributed 5 percent of total regional GDP in 2008.¹ The principal importance of agriculture lies in its ability to create jobs, drive economic growth, absorb risks in possible crises and contribute to the reduction of poverty and food and nutritional insecurity in the region.
2. Latin America and the Caribbean have enormous potential to increase food production. Global food production is expected to increase by 40 percent by 2030 and 70 percent by 2050, compared with the 2005–2007 average. While it is one of the few regions in the world with sufficient land and water available to increase agricultural production and, in so doing, to contribute to the first Millennium Development Goal (MDG), this potential is being jeopardized by high rates of natural resource degradation.
3. Within the agriculture sector, livestock production systems in Latin America and the Caribbean represent more than 45 percent of agricultural GDP, contribute to food security by providing essential sources of animal protein in the human diet and provide a livelihood for millions of rural inhabitants.
4. As a result of globalization and climate change, agricultural production systems in the countries of the region are facing three serious threats: (a) the emergence or re-emergence of transboundary animal diseases with an impact on animal health and on trade in livestock products, carrying enormous risks to public health; (b) the increase in greenhouse gas emissions and more frequent periods of severe drought or flooding in arable and livestock production areas, causing heavy economic losses and threatening production; and (c) deforestation, natural resource degradation and the loss or erosion of valuable genetic resources for meat, milk, egg and wool

¹ *The Outlook for Agriculture and Rural Development in the Americas: A Perspective on Latin America and the Caribbean...* Joint publication by FAO, IICA and ECLAC.

production, which undermines environmental sustainability and productivity and jeopardizes the incomes of thousands of producers and the food security of vulnerable communities.

5. FAO has developed a knowledge and management platform to provide countries with technical cooperation and support in risk analysis and management and in responding to animal health and production emergencies. Countries have received FAO technical support for improving their rapid response capacity and surveillance systems for transboundary animal diseases and for setting up national, regional and global early warning mechanisms.

6. Information and early warning systems, vulnerability studies, risk analysis and management, including mitigation and adaptation actions, and an appropriate and timely emergency response, including FAO-supported rehabilitation actions and compensation mechanisms for producers, have all been crucial in preventing or reducing the economic, social and environmental impact of these threats and emergencies.

7. The most important actions in the area of transboundary animal diseases have included support for dealing with global emergencies arising from highly pathogenic avian influenza H5N1 and 2009 pandemic influenza A (H1N1). At regional level, FAO also provided technical cooperation to countries affected by outbreaks of prevalent diseases, such as foot and mouth disease, classical swine fever and screwworm, preventing heavier losses in animal production and in the regional economy and trade.

8. In response to animal health emergencies, FAO, in partnership with OIE, developed the Crisis Management Centre - Animal Health (CMC-AH) as a rapid response mechanism for transboundary animal disease emergencies. Support was provided to several countries in the region that requested CMC-AH assistance (Haiti, Mexico).

9. In the case of the 2009 pandemic influenza A (H1N1), the interagency working group comprising FAO, OIE², the World Health Organization (WHO), the Regional International Organization for Plant Protection and Animal Health (OIRSA) and the Inter-American Institute for Cooperation on Agriculture (IICA), headed by FAO, assessed the possible role of pigs in the origin or transmission of the disease in Mexico. In addition, FAO mobilized resources totalling more than USD 1 million for two emergency projects in Central American and Andean countries, in order to assess the presence of the 2009 pandemic influenza A (H1N1) virus and other viruses causing influenza in pig production systems; build capacity of national veterinary services; and find out more about the possible pig-human interface for diagnosis, prevention and control of the disease in both human and swine populations, thereby putting into practice the FAO /WHO/OIE 'One World, One Health' initiative.

10. In view of the huge repercussions of transboundary animal diseases and the risks associated with animal health, trade in products of animal origin and risks to public health, the technical response and cooperation that FAO has provided to the countries has been rapid, strategically planned and well coordinated, and has prevented these diseases from spreading to a larger number of countries.

11. The CMC-AH is able to deploy a team of animal health experts within 72 hours of an official request for assistance with a transboundary animal disease emergency. The activities include assessment of the animal health situation, control measures, formulation of an emergency action plan, communication and compensation policies, interagency coordination and resource mobilization for the emergency response. Technical assistance was provided to Haiti for the control of porcine enterovirus encephalomyelitis (Teschen disease), which was reported for the first time on the American Continent. Although it is not transmissible to humans, the disease causes mortality rates of between 40 percent and 50 percent in affected pig populations, with a resulting detrimental impact on food security and on the economy of family or industrial farms.

² OIE: World Organisation for Animal Health (Office International des Epizooties).

12. The FAO Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases (EMPRES) monitors information on the world animal health situation on a daily basis using the Global Early Warning and Response System for major animal diseases (GLEWS). It also carries out risk analyses and takes decisions for responding rapidly and effectively to new animal health developments and emergencies via the FAO Emergency Centre for Transboundary Animal Diseases (ECTAD). In addition, the recently created EMPRES-food safety programme has extended its scope to cover emergencies relating to agricultural product safety.

13. Foot and mouth disease continues to affect the meat and milk production systems of Andean countries, especially Ecuador and Venezuela. In Ecuador in 2009, there were more than 200 outbreaks of foot and mouth disease among livestock in mountain, coastal and Amazonian areas, exacting severe losses on domestic production and on domestic and cross-border trade in products of animal origin, placing at serious risk the livestock populations of Colombia and Peru, which have already made advances with their programmes for the progressive control and eradication of foot and mouth disease. In Venezuela, 49 and 13 outbreaks of foot and mouth disease were reported in 2008 and 2009 respectively.

14. To strengthen Andean national foot and mouth disease programmes and reduce the risk of the disease spreading to other regions of the continent, FAO provided technical cooperation resources to assist in coordinating the regional plan for the eradication of foot and mouth disease of the Community of Andean nations (CAN) and to reinforce policies and strategies for the progressive control and eradication of foot and mouth disease in all five countries of the Andean region (Bolivia, Colombia, Ecuador, Peru and Venezuela).

15. FAO cooperation projects for foot and mouth disease commenced in the last quarter of 2009 and aim to improve the capacity of the Andean region's veterinary services for risk analysis and management throughout the livestock production, marketing and agroprocessing chains; strengthen national and regional information, epidemiological surveillance and diagnosis systems; and improve national emergency response plans, including compensation for producers and strategies for the progressive control and eradication of foot and mouth disease, supported by sound prevention, vaccination, information and risk communication campaigns, as well as control and surveillance actions in border areas, together with technical training, health education and public awareness initiatives.

16. The progressive control of classical swine fever in the Americas has continued apace with implementation of the Continental Eradication Plan, with FAO acting as technical secretariat. The Plan entails coordinating the efforts of national control programmes and supplementing the activities of subregional and regional animal health organizations. This has helped to eradicate the disease from Belize, Costa Rica, Guatemala, El Salvador and Mexico. However, as in the Southern Cone, greater efforts will be required in the Caribbean and Andean subregions in order to meet the Plan's goal of eradicating the disease by 2020.

17. Bovine spongiform encephalopathy (BSE), the disease of greatest importance to the agrifood sector and the main barrier to trade in beef and cattle products, has not been reported in the Latin American and the Caribbean region. Nevertheless, the potential threat that it poses in the spheres of animal health, public health, international trade and food security meant that, during 2008, the seven Central American countries, together with Cuba and the Dominican Republic, requested technical FAO assistance to strengthen their BSE prevention systems, as well as to establish guidelines for the application of the OIE animal health category of controlled or negligible risk. The project has reinforced each of the technical aspects of the BSE prevention system, with an emphasis on risk assessment.

18. Cutaneous myiasis, a disease caused by the screwworm fly, continues to represent a serious economic burden and public health problem for most South American and several Caribbean countries. To help its control, FAO provided technical assistance for conducting a successful pilot test on the border between Brazil and Uruguay, with the participation of Paraguay and funding from the Inter-American Development Bank (IDB). The aim was to demonstrate in the field the

feasibility of the sterile insect technique, which had been used to eradicate the disease from North America, Central America, several Caribbean countries and Libya.

19. Furthermore, the risks associated with climate change and natural resource degradation in livestock production areas are beginning to make themselves felt in the region in the form of serious droughts in Southern Cone countries (Argentina and Uruguay), where they resulted in thousands of animal deaths and millions of dollars in lost production.

20. The same situation, albeit less dramatic, occurred in other countries of Latin America and the Caribbean, where it was compounded by natural disasters caused by hurricanes in Central America and some Caribbean islands. It is estimated that every year more than 90 million people worldwide are affected by drought.

21. According to the estimates of the FAO *ad hoc* group on livestock and environment, more than 75 percent of the land given over to livestock production in Latin America suffers moderate to severe degradation, which not only affects the productivity of the region's livestock but also contributes to the extension of livestock production and a high rate of deforestation in fragile ecosystems.

22. The expected growth in global demand for meat and dairy products, especially in developing countries, could exacerbate such processes unless appropriate action is taken to formulate sustainable livestock development policies. To this end, the FAO Commission on Livestock Development for Latin America and the Caribbean, via the *ad hoc* group on livestock and environment, has supported the preparation of workshops, the development of instruments for analyzing the risks associated with pasture degradation and pilot studies for estimating the marginal costs and benefits of recovering degraded pasture areas in various countries of the region as a basis for formulating policies and programmes for sustainable livestock development in Latin America.

23. According to the Intergovernmental Panel on Climate Change (IPCC), in the near future there will be a reduction in area suitable for crop and livestock production, in length of sowing seasons and in potential pasture and crop yields, particularly in the region's arid and semi-arid zones. FAO therefore provided crucial support to the countries concerned to speed up agroclimatic characterization and risk analysis in the agriculture sector and to promote vulnerability studies and climate change mitigation and adaptation strategies in the livestock sector.

24. Under a framework agreement, FAO will support the livestock component of Chile's Plan of Action for Climate Change and methodological aspects of the quantification, classification and analysis of greenhouse gases in the livestock sector. It will also assist in designing pilot sectoral studies of vulnerability and adaptation to climate change, updating animal health risk analyses for emerging or re-emerging diseases, cataloguing wildlife diseases, developing surveillance systems for exotic diseases and devising disease models that could be used as indicators of climate change.

25. In view of the high risk of loss and erosion of animal genetic resources, FAO supports the implementation of the Global Plan of Action for Animal Genetic Resources and has received a technical cooperation request from Chile and Colombia to help formulate the respective national action plans. These action plans are crucial to the sustainable management of the livestock sector and must be made part of the countries' national livestock policy frameworks.

26. FAO assisted with climate-based emergencies caused by the cold wave in Peru and Bolivia and by drought and floods in countries of Central America and the Caribbean, alleviating their impact on family food production and reducing the food insecurity risk of vulnerable rural communities whose livelihoods depend chiefly on family-based livestock production systems.

27. In short, risk management and emergency response in the livestock sector call for a huge technical cooperation effort to reinforce national animal health systems, strengthen sustainable livestock development policies and strategies and enhance national information, risk analysis, prevention and emergency response systems. The Conference acknowledges the crucial role

played by FAO in providing technical support and in mobilizing international resources for setting up and reinforcing national and regional risk analysis and management mechanisms and strategies in the areas of animal production and health, and for responding to natural disasters with an impact on the livestock sector.

Recommendations to the Conference

28. The Conference could recommend that national governments reinforce national policies and strategies for risk analysis and prevention in the livestock sector and prioritize vulnerability and climate change mitigation and adaptation studies in sectoral agendas, including the establishment of monitoring and early warning systems for emerging or re-emerging animal diseases.

29. The Conference could recommend that governments strengthen national strategies and regional or subregional agreements for the prevention of, and emergency response to, transboundary animal diseases, including diseases posing a high risk to public health.

30. The Conference could recommend that governments develop specific policies and programmes for small producers located in areas at greatest risk of natural resource degradation and climate change, who require support for sustainable agricultural development.

31. The Conference could recommend that governments design policies and mechanisms for promoting and stimulating the implementation of sustainable agricultural production systems, including the adoption of best practices, the development of integrated crop-livestock and crop-livestock-tree systems, as well as payment for environmental services to producers who use sustainable practices in the production of foodstuffs and agricultural products.

32. The Conference could recommend that governments and national agricultural research and development institutes communicate and disseminate the benefits of recovering degraded areas and of sustainable livestock systems, emphasizing the socio-economic and environmental advantages of using integrated crop-livestock systems, integrated crop-livestock-tree systems and practices such as direct sowing and conservation agriculture.

33. The Conference could recommend that governments boost the development of climate-change research policies, including genetic improvement programmes for pasture and fodder; the development of less water-intensive and more drought-tolerant planting material; the improvement of cropping and harvesting systems to make better use of available water and resources; and the conservation, improvement and sustainable use of indigenous plant and animal genetic resources to enhance the ability of production systems to adapt to climate change.

34. The Conference could recommend that, if they have not yet done so, national governments formulate their national strategies for sustainable livestock management and recovery of degraded areas as part of their national livestock development programmes, to lessen vulnerability to climate change.

35. The Conference could suggest national capacity-building, technical assistance, technology transfer and knowledge sharing in the areas of sustainable livestock management; recovery of degraded areas; climate change mitigation and adaptation techniques; and negotiation methods and processes in the pasture-based carbon market.

36. The Conference could recommend the design of a regional strategy for the recovery of degraded areas and the sustainable management of agricultural, livestock and forestry systems in priority ecosystems of South America, Central America and the Caribbean. It could also suggest building national technical, financial and institutional capacity to tackle the problem of natural resource degradation.

37. The Conference could confirm the importance for the region's livestock sector of the FAO statutory body, the Commission on Livestock Development for Latin America and the Caribbean (CODEGALAC), as the most effective mechanism for facilitating, coordinating and promoting cooperation and sharing of knowledge and experience concerning livestock development and

climate change policies and strategies in Latin America and the Caribbean. It could also ask FAO to strengthen CODEGALAC to enable it to continue supporting the countries of the region in any aspects that member countries may request.

FORESTRY SECTOR

Sustainable forest management and climate change risk mitigation

38. Climate change is one of the greatest challenges of this century, and the United Nations Framework Convention on Climate Change (UNFCCC) was set up to tackle the problem.

39. The forestry and agriculture sectors contribute to climate change mitigation by acting as carbon sinks. Conversely, when forests are destroyed, degraded or burned, they become a source of CO₂ emissions.

40. Land-use change resulting from the clearing of natural forest is responsible for approximately one-third of greenhouse gas emissions. Forests store 35 percent of carbon emissions in developing countries, which makes the potential role of the forestry sector crucial to tackling climate change.

41. Forests throughout the world are being significantly affected by temperature and rainfall changes, rising temperatures and the increasing frequency of events such as drought, pest infestation and forest fire, affecting biodiversity and the productivity of agricultural and forest crops.

42. Around 1.6 billion people, 20 percent of the world population, rely on forest resources for their survival. In addition, forests provide global services in terms of biodiversity, soil conservation and flood control. Approximately 60 percent of the planet's water supply comes from forested areas and, for this reason, markets and governments need to acknowledge and pay developing countries for the environmental services provided by their forests.

43. Forest fires release large quantities of CO₂ into the atmosphere, in addition to severely reducing forest biodiversity. Forest fire management strategies must therefore be implemented to mitigate risks. The FAO Regional Office for Latin America and the Caribbean, jointly with the FAO Forestry Department and the countries of the region, has developed a regional fire management strategy and three subregional strategies for South America, Central America and the Caribbean. The necessary financial and institutional support would need to be provided to implement these strategies effectively. In the South American subregion, Brazil (IBAMA/PREVFOGO Wildland Fire Protection Programme) and Chile (National Forest Corporation (CONAF)) are responsible for coordinating a South American fire management network. In the Caribbean, the fire management network is coordinated by Cuba and, in Central America, by the Central American Commission on Environment and Development (CCAD).

44. Worldwide attention is being focused on all the Earth's forests as a result of the 2009 session of the Conference of the Parties (COP 15) held in Copenhagen in conjunction with the UNFCCC³, where negotiations took place on a new climate change agreement.

45. The mechanism adopted for Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD) will be a great asset in the battle against climate change.

46. Not only could the REDD mechanism reduce the impact on the climate, it could also generate valuable resources by improving livelihoods, conservation efforts and food security.

47. The United Nations set up a Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries, which is creating structures to

³ UNFCCC: United Nations Framework Convention on Climate Change.

support developing countries in devising national strategies for reducing carbon emissions resulting from forest loss. It will also set up monitoring and verification systems. A number of organizations (including FAO, the United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP) and the World Bank) have instigated other initiatives.

48. One of the key elements of climate change risk mitigation will be mutual support between climate change policies and sustainable forest management strategies, as sustainable forest management (SFM) is a key component of global efforts to reduce carbon emissions and promote long-term equitable development. SFM practices are widely known and there are excellent examples in Latin America and the Caribbean.

49. It is therefore important to protect and conserve the different types of forest resource by managing them sustainably, and this will be one of the great challenges that we all face this century.

Recommendations to the Conference

50. The Conference could recommend to national governments that climate change policies are linked closely with and mutually support national forestry policies, specifically sustainable forest management strategies.

51. The Conference could recommend that national governments that do not yet have them formulate national strategies for sustainable forest management as part of their national forestry programmes.

52. The Conference could suggest national capacity building, technical assistance, technology transfer and knowledge sharing in the areas of sustainable forest management; REDD; climate change mitigation and adaptation techniques; and negotiation methods and processes in the forest-based carbon market.

53. The Conference could recommend the implementation of the Regional Fire Management Strategy, as well as the subregional strategies of South America, Central America and the Caribbean, and could suggest building national technical, financial and institutional capacity to tackle the cyclical problem of forest and agricultural fires.

54. The Conference could confirm the importance for the region's forestry sector of the FAO statutory body, the Latin American and Caribbean Forestry Commission (LACFC), as the most effective mechanism for facilitating, coordinating and promoting cooperation and sharing of knowledge and experience concerning forestry and climate change policies and strategies in Latin America and the Caribbean. It could also request that FAO strengthen the LACFC to enable it to continue supporting the countries of the region in any aspects that member countries may request.

FISHERIES SECTOR

Current status of fisheries and aquaculture in Latin America and the Caribbean

55. For the first time in history, global aquaculture production has risen to 50 percent of total fish production worldwide, which reaffirms the sector's dynamism yet also reflects the fact that many fisheries have reached their maximum sustainable yield and have levelled off markedly in the past five years.

56. Aquaculture is the fastest-growing food sector worldwide, with a steady average annual increase of 8.8 percent since 1970. In contrast, fish landings grew by an annual average of only 1.2 percent during the same period, and in some fisheries the number fell.

57. Latin America accounts for around 17 percent of world catch and 3 percent of global aquaculture production, although in the latter sector it has world's highest average annual rate of growth (22 percent). In addition, the hydrogeological and climatic characteristics of its extensive territory mark it out as the region with the greatest global potential for growth in aquaculture.

58. All Latin American and Caribbean countries practice commercial and/or subsistence fishing, whether in marine or inland waters. Even though virtually all countries in the region report some type of aquaculture production, five countries are responsible for over 80 percent of the volume produced: Chile, Brazil, Mexico, Ecuador and Colombia. With more than 2 million people working in the region's fisheries and aquaculture, the sector makes a huge contribution to food security and to the economy of Latin American and Caribbean countries generally.

59. The annual *per capita* supply of fishery products in the region averaged 13.6 kg in 2005, with wide intraregional variation, ranging from less than 1 kilogram in the Bolivian Altiplano to over 20 kg in some Caribbean areas. The aggregate indicator is however below the global average (16 kg).

Critical and emerging issues of relevance to the sustainable management of fisheries and aquaculture in Latin America

60. An estimated 0.5 million women and men work directly or indirectly in Latin America's aquaculture industry. Of these, approximately 80 percent are producers with limited resources. Even though this group is included in government support programmes, it has not been properly characterized in the region, with the result that most countries have few public policies for the development of such producers.

61. Inland fisheries make a major contribution to the economy of many Latin American and Caribbean countries, in terms of employment, food supply and, increasingly, foreign exchange earnings. This sector is especially important to food security and to the subsistence of large rural populations living near main rivers and lakes, where it provides much of their (and often their sole) livelihood. Nevertheless, no up-to-date information is available on fishers and their families, nor are there any recent assessments of fishery resources, particularly transboundary fish stocks.

62. The challenges posed by climate change to fishery and aquaculture resources, as well as to ecosystems and fish stocks, calls for comprehensive public policies to channel state resources into building the capacity of producers and fishers to prepare more effectively for disasters and to adapt to new environmental conditions in a way that exploits positive externalities and minimizes detrimental effects.

63. In some cases, changing climate patterns bring about conditions that, when combined with environmentally irresponsible fishery and aquaculture practices, lead to epizootics and health and/or environmental disasters. There is a pressing need to determine environmental capacity, including setting production limits and monitoring the health of ecosystems where aquaculture and fishing are practiced, to ensure the sustainability of these practices and minimize the impact on other economic sectors. These are precepts of the Code of Conduct for Responsible Fisheries (CCRF), and all member countries should comply with them.

64. Uncertainty in the production of many inputs for making formulated feed, particularly fish meal and oil and some cereals and pulses, has increased the cost of feed for aquaculture. This has resulted in some producers with scant resources abandoning aquaculture, a situation aggravated by higher energy prices.

65. The displacement of shoals as a result of climate instability calls for heightened research efforts to improve decision-making on resource management and regulatory frameworks. In all likelihood this will require a revision of the legislative frameworks relating to the law of the sea.

66. The growth in aquaculture in many countries of the region has exceeded the capacity of states to manage the sector and to create a favourable environment for sustainable development. There is a pressing need to incorporate the aquaculture sector into national development plans, as well as to revise legislative and institutional frameworks and to formulate sectoral public policies for promoting growth in harmony with the environment and with other economic sectors.

Recommendations

67. Sustainable aquaculture development calls for a holistic approach that considers not only the economic benefits but also the environmental balance, the concerns of the communities involved and consumer requirements. The ecosystem approach to aquaculture (EAA) is an integrated methodology promoted by FAO that contributes to achieving this harmony.
68. The EAA pays special attention to coordinated biosecurity measures as a means of preventing the occurrence of diseases with a high economic, social and political cost, such as the shrimp crisis in Ecuador in the late 1990s (affecting approximately 200 000 workers) and the current crisis in Chile (approximately 25 000 workers).
69. As a means of preventing overexploitation and a resulting decline in landings of high-quality fish for consumption normally targeted by artisanal fisheries, there is a pressing need to implement effective and participatory regulations and enforcement systems.
70. Public policies should encourage the adoption of socially and environmentally responsible codes of conduct, such as the FAO Code of Conduct for Responsible Fisheries. To this end, it is important to ensure strategic environmental planning and limit industrial production and harvesting based on scientifically sound parameters and models.
71. Research and technological development of native freshwater and saltwater species should be encouraged. Amazonian species hold special potential, as they rely mainly on vegetable protein and are in great demand both locally and globally.
72. Recreational fisheries should be encouraged as an alternative to collapsed artisanal fisheries, as recreational fishing is non-lethal (catch and release), creates high demand for local services (including boat operators, guides and accommodation) and provides motivation to protect related environmental services.
73. Production, health, environmental, economic and social information must be reliable and regular. The implementation of harmonized indicator systems regionwide will contribute to compliance with processes and the timely response of the public and private sectors.
74. Effective and respected institutions are crucial to ensuring adequate support for sustainable aquaculture and fishery development. Coordination between state and private institutions must be encouraged in order to lay solid foundations for long-term planning.
75. Owing to the wide differences between fisheries and aquaculture, it is recommended to have regulatory bodies and administrative systems that reflect these differences. In view of the wide differences between low-income producers and global industrial producers, it is also recommended to tacitly acknowledge these differences at regulatory level to allow the commercial development of small producers, who create more jobs than large firms.
76. Quality assurance systems, such as hazard analysis and critical control point (HACCP) and traceability systems are required to help ensure that low-income producers implement best hygiene and production practices. The establishment of clusters serves to achieve economies of scale.
77. Lastly, increasing competitiveness by means of the above measures, in conjunction with skills creation, adoption of new technology and participation in value chains and markets would ensure the sector's sustainable development and enable it to achieve production self-sufficiency, economic sustainability and a better quality of life, not only for the women and men working in the fisheries and aquaculture sector itself but also for the millions of people who benefit indirectly in our region.