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Sustainable development: follow-up to and implementation of the Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States

Follow-up to and implementation of the Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of Small Island Development States

Report of the Secretary-General

Summary

The present report has been prepared pursuant to General Assembly resolution 63/213, in which the Assembly decided to convene in September 2010 a high-level review of progress made in addressing the vulnerabilities of small island developing States through the implementation of the Mauritius Strategy. The report gives an overview of the arrangements being made for the review. The report also provides an account of the continuing efforts of the small island developing Member States, with the support of the United Nations system and the international community, for follow-up to and implementation of the Mauritius Strategy.

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I. Introduction

A. The vulnerability of small island developing States

1. As the international community prepares to review progress made in implementing the Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States, it is appropriate to recall the unique characteristics and vulnerabilities of this group of countries which render them deserving of the continued attention and support of the United Nations system and the wider international community.

2. Small island developing States have in common a number of structural problems. Their populations and markets are small; their resource base is narrow, fragile and prone to disruption by natural disasters; they typically depend for foreign exchange on a small range of primary product exports; and they generally have limited local capital for productive investment. For these reasons, they have limited ability to reap the benefits of economies of scale. The characteristics of small island developing States also include remoteness, geographic dispersion, fragility of their ecosystems, constraints on transport and communications, isolation from markets, vulnerability to exogenous economic and financial shocks, limited freshwater supplies, heavy dependence on imports, depletion of non-renewable resources, and weak human and institutional capacity for strategic decision-making.

3. The adverse effects of climate change and sea-level rise represent the most immediate threats to the sustainable development of small island developing States. The effects of the progressive warming of ocean surface temperatures are already being experienced through the increased frequency and intensity of weather events. Their impact is visible in terms of environmental degradation, loss of infrastructure, increasing health risks and economic stress. Arable land, water resources and biodiversity are also subject to mounting pressures. Coral reefs are under threat from ocean warming and increased acidification. Tourism and agriculture in small island developing States are likely to be disproportionately affected by climate change, and the livelihoods of coastal communities put increasingly in jeopardy.

4. These characteristics define a set of vulnerabilities that collectively are unique and which demand a response that takes into account the need to reduce such vulnerabilities as part of an overall strategy towards achieving sustainable development in small island developing States.

B. Review of implementation of the Mauritius Strategy

5. The principal objective behind the adoption of the Mauritius Strategy was to mobilize action. The Strategy identified the framework for continued action on the part of small island developing States to address their economic, environmental and social vulnerabilities, with the support of the United Nations system and the international community. The Strategy sought to achieve poverty eradication, improvement in the livelihoods of communities in small island developing States and the pursuit of overall sustainable development in those States through attention to the design and implementation of national sustainable development strategies, through efforts to enhance and strengthen human and institutional capacity, and by promoting cooperation with partners at the regional and international levels to

stimulate greater investment flows, more concessionary financial assistance, technical assistance and appropriate technology transfer to strengthen the resilience of small island developing States to address their particular vulnerabilities.

6. In its resolution 63/213, the General Assembly requested the Secretary-General to undertake the following specific actions for its sixty-fourth session in respect of implementation of the Mauritius Strategy:

(a) To report on the follow-up to and implementation of the Mauritius Strategy of Implementation;

(b) To report on possible arrangements for a high-level review of Mauritius Strategy of Implementation to be held during its sixty-fifth session.

7. The present report has been prepared pursuant to the above-mentioned request that the Secretary-General report to the General Assembly at its sixty-fourth session on possible arrangements for the high-level review and gives a forecast of future initiatives that will form part of the preparatory process for the high-level meeting. The report also describes progress made towards furthering implementation of the Mauritius Strategy of Implementation, in accordance with resolution 63/213.

8. Relevant bodies of the United Nations system (including the regional commissions), regional inter-governmental organizations of small island developing States, representatives of civil society and the Governments of Member States of the United Nations were consulted in the preparation of the present report.

II. Follow-up to the Mauritius Strategy

A. Preparation for the five-year review of the Mauritius Strategy

9. Preparations for the five-year review of implementation of the Mauritius Strategy have been initiated and are summarized below.

10. The Commission on Sustainable Development at its seventeenth session decided that the preparatory committee meeting for the high-level review would be convened during its eighteenth session, in May 2010.

11. In preparation for the preparatory committee meeting, the Department of Economic and Social Affairs has scheduled three regional review meetings, which will be held in the Atlantic, Indian Ocean, Mediterranean and South China Seas (AIMS), Caribbean and Pacific regions in early 2010. These meetings will address progress made and the continuing challenges encountered in the implementation of the Mauritius Strategy, with special focus on the vulnerabilities of small island developing States. The regional review meetings will provide an opportunity for both national and regional assessment of actions taken in support of the Mauritius Strategy. These national and regional assessments will then be consolidated at an interregional meeting of small island developing States, which will be held on the eve of the eighteenth session of the Commission on Sustainable Development.

12. The preparatory committee meeting will consider a comprehensive report of the Secretary-General on the Mauritius Strategy, which will be prepared by the Department of Economic and Social Affairs in consultation with the United Nations system and regional intergovernmental organizations of small island developing States. It will also receive the outcomes of the regional and interregional review

meetings. It is expected that the preparatory committee meeting will determine the structure and conduct of the high-level review meeting.

13. The Department of Economic and Social Affairs, with the cooperation and support of the donor community, will make resources available from a trust fund established to support the Mauritius Strategy process, to facilitate the participation of representatives of small island developing States in the regional and interregional meetings.

14. In preparation for these regional and interregional meetings, small island developing Member States have been invited to submit national assessment reports using guidelines circulated by the Department of Economic and Social Affairs. These national assessment reports are expected to play an important role in the review process. The Department is therefore currently exploring ways to offer support to Member States in the preparation of these reports, given the substantial coverage of the Mauritius Strategy and the limited time frame within which the small island developing Member States are required to prepare them, taking into consideration other reporting requirements. So far, the Economic and Social Commission for Asia and the Pacific (ESCAP) has made provision to assist the small island developing States of that region with the preparation of national assessments.

15. Relevant agencies of the United Nations system, regional intergovernmental organizations, key international organizations, the wider international community and organizations representing civil society have also been invited to submit reports on action taken to support the sustainable development of small island developing States. It is expected that their reports will also contribute to the overall assessment of progress made towards implementation of the Mauritius Strategy.

16. The Department of Economic and Social Affairs has initiated regular consultations with the Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States and with representatives of United Nations bodies and agencies and regional intergovernmental organizations from the Caribbean, Pacific and AIMS, through meetings of the Inter-Agency Consultative Group on Small Island Developing States. It is expected that these organizations will play an integral role in the formal review process, particularly at the regional review meetings.

17. The Mauritius Strategy review process is being pursued concurrently with other important review processes within the United Nations system. A high-level meeting to assess progress made in implementation of the Millennium Development Goals 10 years after their adoption will be held during the sixty-fifth session of the General Assembly, in September 2010. The tenth meeting of the Conference of Parties to the Convention on Biological Diversity will be held in July 2010. The review of the Brussels Programme of Action for the Least Developed Countries for the Decade 2000-2010 will be held during 2011.

18. These review processes all require substantial assessment and reporting at the national and regional levels, and will address issues integrally linked to the Mauritius Strategy framework. Given the challenges which small island developing States face in respect of both human and institutional capacity, the Department of Economic and Social Affairs will lead these processes in collaborating with United Nations bodies and agencies, including the United Nations Development Programme

(UNDP), the secretariat of the Convention on Biological Diversity and the Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, to support the reporting requirements of small island developing States. Efforts will be made to encourage the pursuit of synergy in the national reporting.

19. Activities, meetings and other events are also being planned by the agencies of the United Nations system, including the regional commissions, and by regional intergovernmental organizations that fall within the general framework of Mauritius Strategy implementation.

20. The Department of Economic and Social Affairs will maintain a special window on the website of the Division for Sustainable Development to keep the international community updated on activities related to the Mauritius Strategy review process.

B. Thematic review of the Mauritius Strategy by the Commission on Sustainable Development

21. The Commission on Sustainable Development continues to serve as the principal forum for regular monitoring and review of implementation of the Mauritius Strategy. This is done within the framework of the biennial review of the thematic clusters under consideration by the Commission. During the past biennium, therefore, specific attention was given to the progress achieved and continuing challenges and constraints faced by small island developing States in respect of the issues of drought, desertification, sustainable land management, rural development and agriculture.

22. In 2009, review of implementation of the Barbados Programme of Action for the Sustainable Development of Small Island Developing States and the Mauritius Strategy for its further implementation was addressed in general debate during the Intergovernmental Preparatory Committee for the seventeenth session of the Commission. Concern was again expressed at the slow rate of implementation of the Barbados Programme of Action and the Mauritius Strategy. It was noted that while the small island developing States themselves have made some progress at the national and regional levels in building the institutional capacity for sustainable development, in formulating strategies and action plans, and in carrying out policy reforms, many of them continued to encounter constraints which had impeded their sustainable development. Those constraints included limited technical, financial and human resources, as well as the impact of exogenous factors, particularly the global financial crisis. Delegations made an urgent call for more concerted efforts to be made in support of implementation of the Mauritius Strategy. In that context, delegates welcomed the decision to convene a two-day review of the implementation of Mauritius Strategy in September 2010.

23. In anticipation of the review of implementation of the Mauritius Strategy, delegates vigorously urged all development partners to honour the commitments made to help advance the Barbados Programme of Action/Mauritius Strategy implementation process. National and regional efforts should be complemented by international support. In particular, delegates stressed the importance of enhancing support in terms of financial assistance, institutional capacity-building and technology transfer, as well as access to best practices.

24. The gravity of the impact of climate change and sea-level rise on the overall sustainable development of small island developing States was highlighted and its direct impact on the health and well-being of local communities underscored. Delegations from Pacific small island developing States addressed the inevitability of resettlement away from low-lying lands and outer islands, which had become a reality in planning. Many, therefore, supported the integration of climate change adaptation into land, watershed and coastal zone management, as well as the mainstreaming of climate change in national and sector-specific development strategies. Delegates also emphasized the need to strengthen resilience at the national and local levels to the effects of climate change in the short, medium and long term, through such measures as enhanced protection of land and marine biodiversity, and greater protection of ecological resources.

25. Attention was also given to the impact of the world food crisis on small island developing States. It was recommended that concerted efforts be made to build capacity for local production, to enhance food security. It was also highlighted that the sustainable management of fisheries, forestry, agriculture and freshwater resources was important for improving food security and access in small island developing States.

26. With regard to sustainable agriculture and rural development, delegates noted that sustainable agriculture in small island developing States was not possible without appropriate crop insurance, given the vulnerability of those economies to extreme weather events, which often resulted in the total destruction of agricultural industries. Delegations from small island developing States expressed the need for an integrated and coordinated policy response to address the challenges in agriculture which they faced. That would include increased investment in science and technology for agricultural systems; the promotion of agricultural competitiveness through the development of efficient agricultural systems; diversification and value-added activities; greater research and development; limitation of erosion and damage from agrochemicals; development of partnership initiatives in capacity-building and transfer of appropriate modern technologies; and a focus on post-harvesting, marketing and niche product development.

27. The need was acknowledged for a comprehensive approach to the management and control of invasive species, a major threat to biodiversity, local livelihoods, food security, environment and human health in small island developing States.

28. Tourism was highlighted as a growth sector that provided rural communities in small island developing States with opportunities for direct revenue transactions, thus contributing to revitalizing agriculture and rural development, strengthening food security and promoting the well-being of rural communities. The issue of the value of agro-diversification in improving the resilience of the rural sector to economic shocks and natural disasters was also raised. In addition, delegates underlined the importance of the development of niche markets, given the inability of small island developing States to compete internationally with regard to price and volume, owing to lack of scale in production.

29. The need was expressed for strategies to increase productivity in agriculture and rural development activities, which were closely linked in small island developing States and were characterized by low productivity. Policy responses to increase productivity included the provision of high-quality extension services for farmers; focus on simple technology solutions to enhance productivity, such as

better crop selection to fit soil type; improved irrigation methods; more modern and efficient tools; and small innovations that made a big impact.

30. Support for the sustainable development efforts of small island developing States through cooperation among stakeholders was highlighted. International partnerships, including public/private partnerships and horizontal cooperation were recognized for their potential to contribute constructively to the mobilization of resources in support of small island developing States.

C. Secretariat support

31. The Department of Economic and Social Affairs, through its Small Island Developing States Unit, has continued to facilitate the coordination of system-wide implementation of the small island developing States agenda and to provide substantive support and advisory services to States with a view to advancing the implementation of the Mauritius Strategy. Meetings of the Inter-Agency Consultative Group on Small Island Developing States were held to promote a more coordinated and informed approach to implementation of the Mauritius Strategy among the organizations of the United Nations system, regional intergovernmental organizations of small island developing States, and other partners. Consultations in preparation for the Mauritius review process have been initiated.

32. Preparations continue for the dynamic redesign and expansion of the Small Island Developing States Unit website SIDSNet. With the support of Spain, the Department of Economic and Social Affairs recently launched a project entitled “Capacity development through strengthened knowledge management, technology transfer and technical cooperation in small island developing States”, which will involve a complete overhaul of the website to provide an expanded range of enhanced services to small island developing Member States and the wider international community.

33. SIDSNet was designed to significantly improve the use by small island developing States of information and communication technology for advocacy through information, to promote wider understanding and international recognition of the challenges faced by those States. SIDSNet has also sought to provide the opportunity for regular contact among small island developing States of the AIMS, Caribbean and Pacific regions for strengthened interregional exchange, building capacity at the national level by educating stakeholders and mobilizing small island developing States experts, facilitating research and data collection and sharing information on best practices. It is expected that the revamped website will be completed in time to be launched at the high-level review in September 2010.

34. Under the Small Island Developing States Unit’s capacity development project a programme will be established for virtual training through the University Consortium of Small Island Developing States. The programme will expand the access of nationals of small island developing States to tertiary-level education and also introduce modules for specialized skills training for practitioners and decision makers in small island developing States. If successfully implemented, the programme should result in substantial development in human and institutional capacity in small island developing States.

35. The Department of Economic and Social Affairs continued to make available to the 14 small island developing States of the Pacific assistance for capacity-building and institutional strengthening through a project supporting the development of national sustainable development strategies. Since its inauguration, the project has facilitated reviews of existing national and sectoral development strategies, a broad exchange of experience on strategic policymaking and a participatory approach to decision-making. The Department proposes to work in collaboration with the ESCAP Pacific Operations Centre in Fiji to enhance implementation of national sustainable development strategies in the region, thus ensuring the integration of sustainable development concerns into national planning.

D. United Nations system collaboration

36. The funds, programmes and specialized agencies of the United Nations system continued their active support for implementation of the Mauritius Strategy and participated in the Inter-Agency Consultative Group on Small Island Developing States, along with the relevant regional commissions.

37. The implementation of the programme of work on island biodiversity adopted by the Conference of the Parties to the Convention on Biodiversity continues to make an important contribution to implementation of the Mauritius Strategy, particularly in such areas as the control of invasive alien species, the protection and effective use of traditional knowledge, and capacity-building necessary to protect island biodiversity. Preparations for the tenth meeting of the Conference of the Parties to the Convention, in 2010, are ongoing. It is expected that at that meeting the Conference of the Parties will adopt a new strategic plan for the Convention on Biodiversity and agree on a post-2010 biodiversity target. Plans are under way for the convening of a special session of the General Assembly on biodiversity during the sixty-fifth session of the Assembly, in commemoration of the International Year of Biodiversity, 2010. The secretariat of the Convention on Biodiversity also continued to support the Global Island Partnership (GLISPA).

38. The United Nations Environment Programme (UNEP) Caribbean Environment Programme continues to actively promote implementation of the Protocol concerning Pollution from Land-based Sources and Activities within the framework of the Cartagena Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region.

39. Coral reef monitoring and assessments were conducted in the wider Caribbean region and a tool for economic valuation of coral reefs was developed by UNEP in collaboration with the World Resources Institute.

40. The Food and Agriculture Organization of the United Nations (FAO) has been addressing the management and conservation of aquatic resources; utilization, marketing and trade of fishery products; and the development of fisheries policies. Focus is being given to the promotion of responsible fisheries-sector management at the global, regional and national levels; the promotion of an increased contribution by responsible fisheries and aquaculture to world food supplies and food security; and the global monitoring and strategic analysis of fisheries, with priority given to the development of databases and the analysis of information.

41. The ESCAP Pacific Operations Centre has been working to support implementation of national sustainable development strategies in the Pacific small island developing States. This effort will be combined with a programme to support the monitoring of Mauritius Strategy implementation through a Development Account-funded project. ESCAP is working in collaboration with the regional organizations of the Pacific, in view of the importance attached to national sustainable development strategies as a key mechanism for Mauritius Strategy implementation.

42. In the same context, the Department of Economic and Social Affairs has scheduled an expert group meeting on mainstreaming the Mauritius Strategy in small island developing States during October 2009. Strategies to enhance the assimilation of the Mauritius Strategy into national policies and plans will also form an important part of the national and regional reviews.

43. Significant progress towards the operationalization of the regional coordinating mechanism to monitor Mauritius Strategy implementation in the Caribbean region has been achieved under the guidance of the Subregional Headquarters for the Caribbean of the Economic Commission for Latin America and the Caribbean (ECLAC). ECLAC will convene the next meeting of the regional coordinating mechanism in September 2009, to address preparations for the Mauritius Strategy review and to continue regular monitoring of Mauritius Strategy implementation.

E. Regional and international support

44. Much attention has been given by regional and international organizations to strengthening the capacity of small island developing States in various sectors and disciplines, and to enhance policy development and decision-making at the national level.

45. One area of concerted attention is the strengthening of capacity for data-gathering and statistical analysis in small island developing States. It has become increasingly evident that strengthening statistical capacity will ensure better measurement and monitoring of progress, the quantifying of ongoing challenges and the enabling of results-based management and scientific policymaking. Good statistics also enhance advocacy. The small island developing States have therefore been actively engaged in a number of programmes aimed at strengthening statistical capacity.

46. A number of regional and international organizations are involved in the Partnership in Statistics for Development in the 21st Century (PARIS21) initiative to support the implementation of the national strategy for the development of statistics programme, which embraces a new strategic approach to statistical planning. Workshops have so far been held in the Pacific and the Caribbean regions, with the support of the secretariat of the Pacific Community, the Caribbean Community (CARICOM) secretariat, ECLAC, ESCAP and the Organization of Eastern Caribbean States. ECLAC also supports a programme to strengthen the capacity of national statistical offices in the Caribbean small island developing States, so as to assist them in monitoring and reporting on implementation of the Millennium Development Goals at the country level.

47. The Department of Economic and Social Affairs is organizing an expert group meeting in Barbados in September 2009 on institutionalizing sustainable development indicators for measuring the progress of national sustainable development strategies.

48. The importance of enhanced statistical capacity in small island developing States will therefore receive substantial attention in the forthcoming review process.

49. Another initiative worthy of note is the Sea Level Rise Foundation, which will bring resources and expertise together to support small island developing States and other low-lying areas in adapting to the threat of climate change.

III. Action to further implementation of the Mauritius Strategy

50. The Mauritius Strategy sought to re-engage the attention and commitment of the international community to support the implementation by small island developing States of the comprehensive, multisectoral platform to promote their sustainable development, as articulated in the Barbados Programme of Action. For the five-year review of the Mauritius Strategy, the emphasis will remain the same: the mobilization of support to assist the small island developing States in addressing their most urgent sustainable development challenges. The efforts of the small island developing States themselves to implement measures to respond to their ongoing challenges are presented below.

A. Action by Member States

1. Environmental challenges

(a) Biodiversity

51. Seychelles, well known for the richness of its biodiversity and wealth of endemic species, has successfully implemented a range of measures to ensure greater protection of its natural environment. They include policy interventions, mobilization of community awareness and action, and capacity-building. For example, in 2005 the Government approved the National Policy for Wetland Conservation and Management, with the objective to “protect and conserve wetlands so that wise and sustainable use of their functions and values, including indirect benefits, are secured now and in the future”. With the support of the Global Environment Facility, Seychelles also implemented a project entitled “Mainstreaming biodiversity in production landscapes and sectors” to introduce an integrated ecosystem management approach to maintaining the structure and functional integrity of its marine, coastal and terrestrial ecosystems on both its granite and coralline islands. The systematic integration of biodiversity conservation and sustainable use objectives into national plans, strategies and activities of key production sectors was pursued.

52. Belize has focused on the enforcement of laws regulating the conservation and use of biological resources in marine and terrestrial ecosystems; establishing and consolidating four proposed national biological corridors into the Mesoamerican Biological Corridor Project; and actively managing wild species outside protected areas. The Cook Islands have been developing a gene bank of marine flora and

fauna; identifying specific impacts of climate change on birds, flora and fauna; and continuing to develop a database of traditional and indigenous uses of biodiversity.

53. Such interventions notwithstanding, the fragile ecosystems of small island developing States are increasingly subject to degradation and destruction, mostly from the effects of climate change. Terrestrial biodiversity is threatened by the increase of extreme weather events, which are decimating the forests where the greatest levels of biodiversity are found. Another threat to terrestrial biodiversity is posed by global warming, which presents challenges such as the spread of invasive alien species.

(b) Coral reefs

54. Marine biodiversity is equally at risk. Increases in ocean surface temperatures and levels of acidity now threaten the survival of marine life and coastal ecosystems. Of significance to small island developing States is the welfare of their coral reefs, which provide a range of critical ecosystem services to islands. They are a source of biodiversity, food, beach sand, and building materials, and function as natural breakwaters along the coast. They also provide habitats for many marine mammals and reef fish, and generate significant revenues through tourism activities such as snorkelling and scuba-diving.

55. There is now substantial evidence that warming of the ocean surface has led to significant coral bleaching; indeed, major coral bleaching episodes over the past 20 years have been associated with periods of a 1°C increase in ocean temperature. For example, in 1998, El Niño caused sea-water temperatures to increase by between 1.5 and 2°C in Palau over several weeks. This phenomenon resulted in massive coral bleaching, leading to a 99 per cent decrease in some coral species and an economic loss estimated at 91 million United States dollars. Studies now predict that over the next 30 to 50 years, bleaching events could occur every year in most tropical oceans.¹

56. Small island developing States interventions have been focused on minimizing human stress on coral reefs so as to facilitate the natural adaptation of reefs in the face of climate change. In Maldives, action has included research on measures required to enhance the natural adaptation process of reefs and on human-induced stresses such as reef fishery, tourism, land reclamation and other developmental activities that affect the growth and functioning of coral reefs. Jamaica has promoted research on coral reefs, supported coral reef mapping, monitored coastal development and construction that may contribute to coral reef destruction and developed guidelines on the collection and export of reef materials. The Federated States of Micronesia has developed a sustainable community-based coral reef protection programme; introduced the “National Coral Reef Protection ‘Green Seal’ of Approval”, to be awarded to private-sector industries and related businesses that implement specific measures to meet coral reef ecosystem protection criteria; and has created protected marine areas that provide for the customary harvesting of reef resources.

¹ Secretariat of the United Nations Framework Convention on Climate Change, “Vulnerability and adaptation to climate change in small island developing States”, 2006, background paper for the expert meeting on adaptation for small island developing States.

(c) Forestry

57. Forestry resources also provide crucial ecosystem services to small island developing States, including the preservation of their natural environment and the protection of endemic species, among them indigenous plants that are useful for medicinal purposes. Unfortunately, the forestry sector is highly vulnerable to forest fires during periods of droughts. This hazard is identified as a major impediment to forest growth. Also, in several islands, coastal erosion from sea-level rise and climate change has caused the destruction of lowland coastal forest areas.

58. Samoa has developed and strengthened the operational response capacity of local communities in preventing, mitigating and responding to, forest fire emergencies; strengthened early warning and advisory monitoring systems at the community level; and enhanced community awareness with regard to the importance of reforesting coastal lowland areas and inland forest areas. Tonga has introduced a reforestation programme to replant coconut trees felled by farmers, and programmes to educate farming communities and the public on the role of trees and the impact of felling trees in coastal areas. The Bahamas has been assessing the effects of soil salinization and rising water tables on the growth and biodiversity of pine and coppice forests.

59. Mangrove forests are another important coastal resource. They function as nutrient sinks and provide protection against storm surges and tides, and against the introduction of pests and invasive species. They are also an important source of wood products. Mangroves have become increasingly stressed as a result of excessive exploitation, which reduces their resilience to sea-level rise. Antigua and Barbuda is losing its mangrove ecosystem at an average rate of 1.5 to 2 per cent per year. Based on the current yearly sea-level rise of 3 to 4 millimetres, projections estimate that there may be no mangroves left in Antigua and Barbuda by 2075. Similarly, it is estimated that a one metre rise in sea level would cause the complete collapse of the Port Royal mangrove wetland in Jamaica.

(d) Protection of coastal zones

60. The coastal communities of small island developing States face many challenges, including high population density, over-exploitation of coastal natural resources for tourism activities, excessive extraction of inert materials such as sand and stones, and saline intrusion. These problems are exacerbated by the impact of climate change. Many coastal ecosystems are particularly at risk: saltwater marshes, mangroves, coastal wetlands, sandy beaches, coral reefs and coral atolls. Increased climatic and human stresses on these ecosystems would have serious adverse effect on small island developing States.

61. The responses of small island developing States such as Cape Verde have included investing in conservation and field protection activities, and promotion of research on the sustainable extraction of inert materials in coastal zones. Fiji has pursued a range of coastal protection options, particularly those readily implemented at the community level, as well as land-use policies that encourage the establishment of settlements away from low-lying coastal areas. Fiji has also explored the use of artificial reefs to enhance coastal protection and promote increased biological diversity. The Dominican Republic has introduced measures to reduce domestic and industrial pollution in coastal areas and to protect coastal flora and biological diversity.

2. Economic challenges

(a) Tourism

62. The principal economic industries of many small island developing States such as tourism, are concentrated on the coasts. The increase in the deterioration of the natural environment due to factors such as sea-level rise will cause a reduction in the benefits of the tourism sector, as its most important natural resource will be lost. Another major concern will be the damage caused to hotels on the coast, which will result in a significant increase in maintenance costs for these hotels.

63. Barbados has introduced a national tourism policy that pursues sustainable tourism development. The policy includes measures to mitigate the negative impact of climate change and to maintain the quality of the tourism product. St. Kitts and Nevis is developing and enforcing environmental policies and regulations, including building codes, for tourism activities that incorporate adaptation measures for events related to climate change, such as coastal flooding, increased wave action and coastal erosion, and ensures that increased storm surges and rising water tables are taken into consideration in the building and development of new tourism resorts. Dominica has established a reliable database to monitor the impact of current climate variability; and has created new hazard maps which define the impact of climate change in vulnerable areas, to inform strategies for sustainable land use and tourism development. Antigua and Barbuda has focused on hazard mapping to identify those areas most vulnerable to the effects of climate change.

(b) Fisheries

64. Small island developing States are endowed with a rich variety of marine resources, which are vitally important to their populations as a major source of food, and to their economies for their export earnings. Global warming may result in the migration of species from one Exclusive Economic Zone to another. For example, during El Niño and La Niña years, changes in the migration patterns and depth of fish stocks significantly affected the distribution and availability of tuna in Maldives, as well as in other islands. Since fisheries contribute up to 10 per cent of gross domestic product (GDP) of many small island developing States, an increase in similar phenomena might result in a significant reduction in national revenue, including from export earnings, fishing licences, and services provided by port authorities.

65. In response, Dominica has focused on strengthening the capacity of fisheries personnel to assess the effects of climate change and to plan for adaptation, by providing training for technical personnel in climate modelling; enforcing fishing controls within the country's Exclusive Economic Zone; and encouraging the use of fishing boats able to target offshore fisheries. Tuvalu has developed community-based conservation programmes for highly vulnerable marine ecosystems; identified priority conservation areas, developing a marine resources inventory for each of its communities; and integrated traditional and modern conservation practices. Seychelles has improved existing fishery management policies in terms of licensing and catch monitoring; restoring critical coastal habitats that are essential for fisheries; and promoting fishery educational programmes, especially among fishermen.

(c) Energy

66. Energy dependence is a major source of economic vulnerability for most small island developing States. Issues of access to modern and affordable energy services are important for rural and remote island communities. Small island developing States have increasingly embraced alternate energy options to meet their energy needs. Sao Tome and Principe is constructing hydropower stations in rural areas and is also introducing the use of solar, wind and biomass energy. Guyana continues to promote the co-generation of energy from biomass resources in the sugar, rice and forestry industries; setting up micro-systems and mini-scale hydropower stations; and purchasing fuel-efficient machines and equipment.

67. Mauritius has decreased its dependence on fossil fuels while increasing the use of renewable energy alternatives and has focused on lowering energy consumption through demand-side energy efficiency, conservation programmes and incentives, and giving favoured import status to low-energy appliances. Approximately 15 per cent of the energy requirements of the island are being met from bagasse and that proportion is expected to increase in the coming years.

68. In Barbados and in Antigua and Barbuda, Government incentives have encouraged the successful installation of 35,000 solar water heaters. Hydropower is used for electricity production in islands such as Fiji, Jamaica, Solomon Islands, Samoa, Vanuatu, Dominica and Haiti.

3. Social challenges**(a) Impact of climate change on human security**

69. Sea-level rise has the potential to jeopardize the survival of extremely low-lying small island developing States. Moreover, the indications are that the rise in sea level may result in the complete submersion of entire islands, with consequent loss of territorial integrity, land, sovereignty, and national and cultural identity.

70. Sao Tome and Principe is introducing measures to allow local communities to cope with climate change, reducing their exposure to marine and river flooding. Activities have included the relocation and construction of new houses for communities living in highly vulnerable areas. In Kosrae, one of the four states of the Federated States of Micronesia, about 70 per cent of the population and infrastructure is situated in low-lying coastal areas and is thus very vulnerable to climate change and sea-level rise. To address that vulnerability, the State of Kosrae has embarked on a major construction programme to increase the capacity of the main road that joins the village of Walung to the rest of the country. The new road will greatly enhance the adaptive capacity and security of the local population by providing viable retreat options in cases of emergency.

71. Maldives has focused on reducing the vulnerability of its islands to current and future climate-change risks by undertaking detailed technical and engineering studies to identify coastal protection options. Palau has focused on measures to make houses and other buildings typhoon-proof that take into consideration both structural design and the use of appropriate construction materials.

72. Saint Vincent and the Grenadines has revised and enforced the Town and Country Planning Act, establishing land use as a high priority and implementing sound land-use measures as part of adaptation efforts to prevent beach erosion and

shoreline retreat. Other adaptation measures include strengthening building codes; establishing builder certification to ensure that construction standards are being met; and developing thorough vulnerability assessments as a basis for land-suitability and hazard mapping.

(b) Infrastructure

73. Samoa has focused upon implementing its coastal infrastructure management plans in order to increase resilience in highly vulnerable areas and improve local awareness of coastal hazards. In the Cook Islands, a pilot project will focus on enhancing the ocean side of the Manihiki airport to withstand the impact of likely storm surges. Interventions to implement this project will include: redesigning the runway; building drainage systems including side drains to allow flow of water during heavy storms and wave-overtopping; protecting the ocean side of the airport through the construction of protective walls; and increasing the surface thickness of the existing runway to withstand heavy rainfall.

74. In Maldives, the focus has been on developing better and stronger buildings to increase the resilience of island communities to climate change. Activities in this area include the establishment of methodologies and guidelines for the construction of more resilient buildings, and the dissemination of public awareness materials on the development of more resilient building structures. The Bahamas has been taking significant steps to improve coastal infrastructure, as well as to strengthen the design of sea walls, causeways and bridges.

(c) Health

75. Health is increasingly acknowledged to be an important determinant of sustainable development. Studies have shown that climate change has the potential to compromise human health in small island developing States. For example, research undertaken in Grenada has found that the incidence of viral conjunctivitis, influenza and gastroenteritis is correlated with annual precipitation. Of major concern is the increasing incidence of vector-borne diseases such as dengue, malaria and respiratory ailments. The increased incidence of lifestyle diseases, including HIV/AIDS, hypertension and diabetes, is also of concern. The latter diseases, in particular, take a disproportionate toll on the age groups forming the work force in small island developing States. Increased health challenges therefore have a direct impact on the productivity of these countries.

76. In Suriname, attention has been given to suppressing the likely increase in cases of diseases linked to water and vector-borne diseases. Existing control and surveillance programmes will therefore be enhanced through collaboration with relevant organizations operating in and outside the country. Pertinent and permanent programmes will be established for the effective control and suppression of malaria, dengue fever and yellow fever. Control and prevention programmes are also to be put in place to prevent the resurgence of emerging infectious diseases such as whooping cough.

77. In the Solomon Islands, manuals and guidelines on the incidence of malaria and climate change will be developed, community-based health and climate-change awareness programmes implemented, and women and children will be trained on health issues, disease prevention, contamination of water supplies, and sanitation during and after climate-related disasters. The Solomon Islands Training and

Research Institute (SIMTRI) is also developing a manual on climate and the incidence of malaria to assist supervisors in the field to plan their operations in line with weather patterns.

78. The Comoros has been giving attention to reducing vectors of malaria. Activities include the elimination of larva shelters inside and around houses; reducing the proliferation of mosquitoes in the water mains by introducing larva-eating fish; educating and mobilizing communities to promote behaviour that is conducive to the prevention of and the fight against malaria; and encouraging the distribution and the use of mosquito nets.

(d) Food security

79. The rising cost of food and energy imports remains a primary concern in the context of rural development. Land degradation, bio-fuel production, droughts, floods and the impending impact of climate change in small island developing States may also reduce their food security. Food production is also hampered by the scarcity of land, energy, technology, investment and capacity in small island developing States. Efforts undertaken by the small island developing States include regional food security and vulnerability reduction programmes aimed at strengthening the sustainability of the forestry, fisheries and agriculture sectors.

80. In Kiribati, attention has been given to developing compost-based farming. Various compost systems for proven cultivable vegetables and tree crops have been set up and demonstrated for farmers at outer island nurseries. To encourage compost-based farming for home consumption, simple tools will be purchased and disseminated to farmers at prices affordable to them. Furthermore, related food processing, marketing and other new initiatives will be facilitated and promoted. Gene banks for agricultural crops and other planting materials, particularly for those that are becoming rare, will be maintained at each of the outer islands, where they will supply planting materials.

81. In Fiji, new drainage network designs will be developed that take into account changes in rainfall patterns. This will enhance the resilience of high-value economic crops that are planted in low-lying areas to the current and future impact of rainfall extremes, which may lead to flooding or drought. Through this initiative, a strengthened and sustainable climate-resilient infrastructure will be developed to ensure drainage and flood protection in lowland farming areas.

IV. Conclusions

82. Concerted efforts are being made by the small island developing States to implement meaningful policies and adaptation strategies to address their vulnerabilities and build resilience at the national level. It is expected that the forthcoming review process will promote a thorough examination and assessment of the ongoing and emerging economic, social and environmental vulnerabilities of the small island developing States and provide an opportunity for them to showcase their successes and to demonstrate the continuing shortfalls in capacity which undermine their efforts to pursue effectively a sustainable development path or to respond to exogenous shocks. The scaling-up of support from the international community, in particular through concessionary financing, the transfer of appropriate technology and support for

capacity-building, would enhance the efforts of small island developing States to achieve sustainable development.

83. Work in preparation for the five-year review of the Mauritius Strategy is progressing steadily, with strong involvement and commitment on the part of the United Nations system partners and regional organizations, and with the support of the international community. Ultimately, the success of the review process will depend on the positive engagement of the small island developing States with the international community.

84. The fullest participation of all Member States, the United Nations system, international organizations and civil society is therefore strongly encouraged to ensure the success of that high-level meeting in reviewing progress made by small island developing States in strengthening indigenous capacity to address their vulnerabilities, and to ensure its success in assessing how those Member States might best be served through the continued support of the international community.

85. It is also anticipated that the confluence of important, mutually-reinforcing review processes during 2010, notably those relating to implementation of the Millennium Development Goals, biodiversity and the least developed countries, will result in richer debate and a more meaningful outcome to the review of the Mauritius Strategy.
