

**AIMS Regional Synthesis report
for**

**the Five-Year Review of the Mauritius Strategy for Further Implementation
of the Barbados Programme of Action for Sustainable Development of SIDS (MSI+5)**

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Acronyms/Abbreviations

ACCLIMATE IOC	Climate Change Adaptation programme
ACEP	Africa Coelacanth Ecosystem Programme
AfDB	African Development Bank
AIDS	Acquired immune-deficiency syndrome
AIMS	Atlantic, Indian Ocean, Mediterranean and South China Seas
AMESD	Africa Monitoring of the Environment for sustainable Development
AOSIS	Alliance of Small Island States
APANA	Asosiasyon Pour Apprann Nouvo Artizana
ARER	Agence Reunionnaise pour L'Energie Renouvelable
ASCLME	Agulhas and Somali Current Large Marine Ecosystems
ASCLME	Agulhas and Somali Current Large Marine Ecosystems <i>Project</i> .
ASLR	Accelerated Sea Level Rise
BPNL	Basic Poverty Needs Line
BPOA	Barbados Programme of Action for Sustainable Development in SIDS
CDM	Clean Development Mechanism
CESD	Climate and Environmental Services Division (of DOE)
COMESA	Common Market for Eastern and Southern Africa
COP15	Conference of the Parties (15 th meeting)
DENARP	Document de Stratégie Nationale pour la Réduction de la Pauvreté
DOE	Department of Environment
DRDM	Department of Risk and Disaster Management
EAC	East African Commission
EC	European Commission
EDF	European Development Fund
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EMPS	Environment Management Plan of Seychelles
ESA-IO	Eastern and Southern Africa and Indian Ocean
ESD	Education for sustainable development
EU	European Union
FAO	Food and Agriculture Organization
FFEM	Fonds Français pour l'Environnement Mondial
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gases
GIS	Geographic Information System
GOOS	WMO/IOC/UNEP Global Ocean Observing System
Ha	Hectare
HDI	Human Development Index
HDI	Human Development Index
HIV	Human immune-deficiency virus
ICT	Information Communication Technology
ICZM	Integrated Coastal Zone Management
IMF	International Monetary Fund
INC	Initial National Communication

IOC	Indian Ocean Commission
IOD	Indian Ocean Dipole
IPCC	Intergovernmental Panel on Climate Change
ITDP	Information Technology Development Project
LWMA	Landscape and Waste Management Agency
MASMA	Marine Science Program for East Africa
MDG	Millennium Development Goal
MENRT	Ministry of Environment and Natural Resource and Transport
MID	Maurice Ile Durable
MPAs	Marine Protected Areas
MSI	Mauritius Strategy for Further Implementation (of the BPOA)
NAR	National Assessment Report
NEAP	National Environmental Action Plans
NGO	Non-governmental Organisation
NSDS	National Sustainable Development Strategies
OTEC	Ocean Thermal Energy Conversion
PET	Polyethylene terephthalate
PTWC	Pacific Tsunami Warning Center
PUC	Public Utilities Corporation
PUMA	Preparation for the Use of the Meteosat Second Generation satellite in Africa
PV	Photovoltaic
RECOMAP	Regional Cooperation Management Programme of the coastal zone in
RETs	Renewable energy technologies
SIDS	Small Island Developing States
SLM	Sustainable Land Management
SLR	Sea Level Rise
SLRF	Sea Level Rise Foundation
SNC	Second National Communications
SST	Sea Surface Temperature
SWIOP	South West Indian Ocean Fisheries Project
UN	United Nations
UNCCD	United Nations Convention on Combating Desertification
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Education, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
WIO	Western Indian Ocean
WIO-Lab	Addressing land-based activities in the Western Indian Ocean
WIOLAB	Western Indian Ocean Land
WIOMSA	Western Indian Ocean Marine Science Association

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Executive Summary

The Small Island Developing States covered in the report are dispersed in the Atlantic (Cape Verde, Guinea Bissau, Sao Tomé & Príncipe), in the Indian Ocean (Bahrain, Comoros, Maldives, Mauritius, Seychelles), and in the South China Seas (Singapore). Cyprus and Malta, located in the Mediterranean, also members of the group, are no longer considered as Small Island Development States and are, thus, not included in the review. The group is referred to as the AIMS countries.

They all face numerous challenges in terms of economic development, social justice and environmental preservation and have sought to overcome such challenges by expanding development in various socio-economic sectors most appropriate to them. Many are among the poorest countries in the world. It is recognized that the greatest natural threat to sustainable development is climate change and sea level rise. They have, nevertheless, developed and strengthened National Strategies and Plans to drive the processes of sustainable development eradicate poverty and improve the livelihoods of people through enhancing resilience and capacity to address their unique and particular vulnerabilities.

Almost all of them have experienced some progress, albeit to a varying degree, in the first few years with actions called for in the Mauritius Strategy. An IOC Climate Change Adaptation programme is being implemented to address climate change issues. Following the devastating Tsunami of December 2004 in the Indian Ocean, an Indian Ocean Tsunami Warning and Mitigation System has been put in place under the aegis of the IOC of UNESCO. Cooperation with the Pacific Tsunami Warning Center (PTWC) from the USA and the Japan Meteorological Agency (JMA) had been established. Many are participating in UNEP-GEF project “Addressing land-based activities in the Western Indian Ocean” (WIO-Lab) to address marine pollution. Various national and regional initiatives have been taken to enhance the development of coastal and marine resources. The process to develop renewable sources of energy, to reduce dependence on imported fossil fuel, has been initiated. Tourism development is being diversified to attract more tourists in the region. Transport and communications, the lifelines linking AIMS with the outside world, have considerably improved and modernised.

However, in the last couple of years, the global energy, food and financial crises have slowed the progress with the poorest countries like Comoros, Guinea Bissau and Sao Tomé et Príncipe being most affected. According to the last report of the MDGs (2009), progress towards the MDG goals, because of the economic crisis, is now threatened by sluggish, even negative economic growth as a consequence of diminished resources, fewer trade opportunities and aid flows from donor countries.

Other constraints and challenges have hampered the sustainable development of the region. Insufficient level of financial and technical support has a serious barrier to implement fully the Mauritius Strategy. In the last five years, the implementation gap has widened with reduction in aids flows from donor nations, as a consequence of the global food and energy crises. Many countries suffer from lack of qualified man power and poor institutional capacity. Brain drain has exacerbated the problem. They are facing great difficulties to implement the various conventions and agreement they have ratified. Building their capacity with assistance from the international community is an urgent priority.

The increase frequency of natural disasters such as flooding, drought and more intense cyclones, as a consequence of global warming, has further impeded progress.

Recent Trends and Emerging Issues

Since the Mauritius conference in 2005, AIMS-SIDS has been confronted with new challenges, which have threatened the sustainability of the countries. They are net food and net energy importing countries and the global energy and food crisis and volatility of food prices have aggravated their socio-economic situation.

Global warming is already occurring, affecting the countries with enormous impacts on several socio economic sectors. Sea level rise is accelerating. A decrease in the rainfall regime has been noted in some countries whereas in others an increase with, however, frequent fast floods. Temperature is expected to increase by 2 to 3 degree C and sea level by 1 m by the end of the century. Extreme weather and oceanic systems such as flooding, drought, strong winds and high waves are projected to become more frequent.

Drug trafficking has increased recently. While some measures to control illegal drugs coming in by air can be taken, the illegal drug trade by sea remains extremely difficult due to limited resources of National Coast Guard. As a consequence, the consumption of drugs has increased. A notable shift from smoking of cannabis and hashish to intravenous heroin use and addictions has been noted. Current policies and laws do not seem to be effective, and authorities lack capacity and resources to deal with the problems. In Mauritius, the number of babies born HIV positive have tripled (from 7 to 21) from 2000 to 2008, born from mothers who were Intravenous drug users and/or sex workers

New pandemics such as swine flu, H1N1, as well as vector-borne diseases like chikungunya have had negative impacts on SIDS' economies, in particular the tourism and transport sectors. With climate change, health problems such as malaria will be aggravated and more outbreaks of water diseases such as diarrhea and non-vectors infectious diseases like cholera are expected. HIV/AIDS is the communicable disease requiring most attention, whereas chikungunya, dengue, malaria and Influenza A being ad-hoc, imported. Many countries are short of specialists, equipment and knowledge.

Piracy in the Western Indian Ocean is a major security concern for AIMS countries in the region. Limited initially in the region off Somalia, it has now extended south of the equator. In Seychelles, fishing activities alone are reported to have declined by 54% from January to August 2009 due to the risk of piracy. The AIMS countries in the threatened region have no capabilities to address the piracy issue. Assistance from friendly countries is needed. However, though agreement has been signed with some developed countries, piracy continues to be a serious threat.

Progress with the Millennium Development Goals (MDGs)

In general the level of progress since 2005 has been satisfactory for most countries. Seychelles and Singapore are expected to meet all the targets of the MDGs. Bahrain and Cape Verde have made much progress and are potentially on track on most of them. Bahrain has high levels of human development and is free from extreme poverty.

The only MDG goal that Mauritius is unlikely to meet is the reduction by two - thirds in child mortality. However, emerging challenges identified in Seychelles include pockets of poverty, particularly among women, increasing trends in teenage pregnancy and households headed by single women, infectious and communicable diseases such as HIV/AIDS. Nevertheless, the level of HIS/AIDS in the AIMS countries is well below the levels of countries in the Sub-Sahara region except Guinea Bissau.

All the countries have given focused attention to primary education. Bahrain, Mauritius and Singapore have 100 per cent enrolment in primary school. Mauritius has a literacy rate estimated at 95 percent for 15-24 year olds. In Cape Verde, primary schooling is around 96% at the national level.

Much progress in gender equality and women empowerment, particularly in access to education, has been noted. Representation in parliament, however, remains very unequal in all countries. In Mauritius, for example, the proportion of seats held by women in parliament is now only 17.1 percent. In 2008, in Sao Tomé et Príncipe, only 4 of 55 seats in the national assembly were held by women.

The Comoros shows its best results in education and health and, to a lesser degree, in the level of income poverty. The prevalence of HIV/AIDS has been kept under 1 per cent. The proportion of the population living below the poverty line went down from 54.7 per cent in 1995 to 44.8 per cent in 2004. These results have been achieved largely because of investments made in the health and education sectors through programmes supported by the international community.

The Maldives' first Millennium Development Goals (MDGs) Report (2005) showed that the country had either met or was on track to achieving the MDGs, with the exception of Goal 3 - promoting gender equality and empowering women, and Goal 7 - ensuring environmental sustainability.

In Guinea Bissau, the delays in achieving the Goals were thrown into relief by the first report on the national MDGs, published in 2004, and the 2006 National Human Development Report focusing on the theme 'Reforming policies as to achieve the Millennium Development Goals in Guinea Bissau.

In Sao Tomé, during the last years, the macroeconomic environment is generally favorable, with average GDP growth of over 6% and a substantive reduction of the public debt with completion of the Highly Indebted Poor Countries-initiative (HIPC) and some bilateral write-offs. However, inflation peaked at 27.6% last year. In this situation, most of the MDGs will likely or possibly be achieved until 2015; exceptions being poverty eradication (MDG 1), gender equality (MDG 3) and a sustainable environment (MDG 7), which are not likely to be achieved.

The Way forward

The global economic crisis has slowed down socio-economic development and, as consequence, reduced investment and effort to address effectively environmental degradation. Some bold steps should be taken to reverse the trend.

Agenda 21 of UNCED recognized that Small Island Developing States (SIDS) is a special case both for environment and development as they are ecologically fragile and vulnerable. They face special challenges for planning and implementing sustainable development. Consequently, they will not be able to address these challenges and meet the objectives of the MDG goals without the cooperation and assistance of the international community. The special development requirements of Small Island developing States have been highlighted on many occasions in regional and International fora. The United Nations Conference on Sustainable Development (Rio +20) scheduled to take place in 2012 in Rio de Janeiro represents a golden opportunity to reiterate the plight of SIDS and make an appeal to obtain access to financial mechanism for their sustainable development.

Adaptation to climate change and sea level rise is viewed as crucial to the very survival of many AIMS countries. This will require enormous funding. The AIMS countries should play a more prominent role in international climate change negotiations and increase synergies with the G77 and China to attract more funding to address adaptation strategies. Much effort should be deployed to take advantage of the Copenhagen Launch Fund.

The AIMS regions are scattered over a vast geographical area in the Western Indian Ocean, East Atlantic Ocean, Mediterranean and south China Seas. This represents a special challenge in terms of coordination and intra-regional cooperation. However, there is currently not a devoted region-based UN or non-UN organization in the AIMS regions to address the issue of proper regional coordination to promote their sustainable development as it is the case in the Pacific and Caribbean regions. There is an urgent need to develop further and strengthen regional support mechanisms for intra-regional cooperation, partnerships and exchange. An institutional regional mechanism similar to the other SIDS should be envisaged.

Monitoring and Evaluation are essential to follow progress in the implementation of sustainable development programmes. It is essential that the Indian Ocean Commission, in collaboration with UN-DESA, work out a monitoring and evaluation mechanism. The AIMS countries should also fully support the initiative of revitalizing SIDSNet and the University Consortium of the Small Island States.

The above summary and issues are developed in the various chapters of the report. Chapters 1, 2 and 3 provide an overview and current context to the region. Chapter 4 gives a summary on the progress achieved in the implementation of the thematic areas of the Mauritius Strategy. Chapters 5, 6 and 7 provide a synthesis on the challenges, emerging issues and progress in the implementation of the MDGs. Finally, Chapter 8 provides some proposals, which can serve as a strategy for AIMS delegation.

Chapter I

1. Introduction

The Mauritius Strategy for the Further Implementation of the Programme of action for the Sustainable Development of Small Island Developing States (SIDS) was adopted by 129 countries and territories in the global conference held in Mauritius, Port Louis 10-14 January 2005. It addresses the unique development problems of Small Island developing States and sets out the basic principles and specific actions required at the national, regional and international levels to support sustainable development. It covers various economic, social and environment sectors and the need for building capacity to implement sustainable development policies.

This report provides a synthesis of the achievements and progress of the AIMS countries in the implementation of the Mauritius Strategy since 2005 as well as the constraints encountered and challenges facing them in its implementation. It covers also a chapter on the way forward which includes some ideas and suggestions on what actions should be taken to address the specific requirements of the member countries to enable them to move towards sustainable development.

The AIMS Small Island Developing States (SIDS) are a small group of 11 small island states in the Atlantic (Cape Verde, Guinea Bissau, Sao Tomé & Príncipe), in the Indian Ocean (Bahrain, Comoros, Maldives, Mauritius, Seychelles), in the Mediterranean (Cyprus, Malta) and in the South China Seas (Singapore). Cyprus and Malta, however, are no longer considered as Small Islands Developing Islands and are, thus, not included in the review. They form a distinctive group, each with their own unique characteristics but nevertheless sharing many features in common. Most of them are located in the tropical regions between the Tropic of Cancer and Tropic of Capricorn with only Malta and Cyprus situated in the Mediterranean. They may comprise a single island (Singapore), a few islands (Comoros, Cape Verde, Republic of Mauritius) or numerous islands (e.g. Seychelles (115), Maldives (1190)). Yet they tend to share several common characteristics that not only identify them as a distinct group but also underscore their overall vulnerability in the context of sustainable development.

They differ in size. The largest being Guinea Bissau with an area of 36,120 sq km and the smallest being Maldives with an area of 298 sq km. Mauritius is endowed with a large area of arable land. Many have 2 % or less arable land. Fish as expected is the common natural resource.

Table I Area, Arable land and Natural resources

	Bahrain	Cape Verde	Comoros	Guinea Bissau	Maldives	Mauritius	Sao Tomé et Príncipe	Seychelles	Singapore
Area (sq km)	620	4033	2235	36125	298	2040	1001	455	704
Arable land	2.8	11%	35%	11%	10%	49%	2%	2%	2%
Natural resources	Oil, fish and pearls	Salt, limestone, fish	fish	Fish, timber, phosphate	fish	Arable land, fish	Fish, hydropower	Fish, copra	fish

1.1 Geographical characteristics

Bahrain is a generally flat and arid archipelago, consisting of a low desert plain rising gently to a low central escarpment, in the Persian Gulf, east of Saudi Arabia. The highest point is 134 m. Bahrain has a

total area of 665 km². As an archipelago of thirty-three islands, Bahrain does not share a land boundary with another country but does have a 161 km of coastline. It has mild winters and very hot, humid summers. Bahrain's natural resources include large quantities of oil and natural gas as well as fish stocks. Arable land constitutes only 2.82% of the total area. Desert constitutes 92% of Bahrain. Periodic droughts and dust storms are the main natural hazards. Environmental issues facing Bahrain include desertification resulting from the degradation of limited arable land; coastal degradation (damage to coastlines, coral reefs and sea vegetation) resulting from oil spills and other discharges from large tankers, oil refineries, distribution stations. The agricultural and domestic sectors' over-utilization of the Dammam Aquifer, the principal aquifer in Bahrain, has led to its salinization by adjacent brackish and saline water bodies. The summer is very hot since the Arabian Gulf waters provide low levels of moisture supply. Seas around Bahrain are very shallow, heat up quickly in the summer. During those periods, summer temperatures may reach about 35 °C. Rainfall in Bahrain is minimal and irregular. Most rainfalls occur in the winter season. The average annual rainfall is 71.8 mm.

The Cape Verde archipelago is located approximately 604 kilometres off the coast of West Africa. It is composed of ten islands (of which nine are inhabited) and eight islets. Though Cape Verde's islands are all volcanic in origin, they vary widely in terrain. A still active volcano on the island of Fogo is the highest point on the archipelago (elevation 2,829 meters). Cape Verde's climate is milder than that of the African mainland because the island is surrounded by the sea, temperatures are generally moderate. Cape Verde is part of the Sahelian arid belt. It rains irregularly between August and October, with frequent brief-but-heavy downpours. Cape Verde's total annual rainfall of 261 mm makes the area climate semi desert. The islands are geologically principally composed of igneous rocks, with basic volcanic and pyroclastics comprising the majority of the total volume. Mount Fogo is an active volcano and the last eruption occurred in 1995. Hurricanes that form near the Cape Verde Islands are sometimes referred to as Cape Verde-type hurricanes. These hurricanes can become very intense as they cross warm Atlantic waters.

Comoros has an area of 2,235 km². The interiors of the islands vary from steep mountains to low hills. The climate is generally tropical and mild, and the two major seasons are distinguishable by their relative rainfall variation. The temperature reaches an average of 29–30⁰C in March, the hottest month in the rainy season, and an average low of 19⁰ C in the cool, dry season. The islands are rarely subject to cyclones. The soil is mainly basaltic. At Grande Comore, the volcano is still active. The last volcanic eruption occurred in 1991.

The area of Guinea Bissau is 36,125 sq. km. The interior is savanna and the coastline is plain with swamps of Guinea mangroves. Its monsoon rainy season alternates with periods of hot, dry harmattan winds blowing from the Sahara. Guinea-Bissau is warm all year around and there is little temperature fluctuation; it averages 26.3⁰C. The average rainfall for Bissau is 2,024 millimetres although this is almost entirely accounted for during the rainy season which falls between June and September/October. From December through April, the country experiences drought.

The Republic of Maldives consists of a chain of coral atolls 80-120 km wide and 860 km long, which lie on the Laccadive Chagos submarine ridge, in the Indian Ocean. There are 26 natural atolls over a total land area on about 300 square kilometers with an exclusive economic zone of approximately 859,000 square kilometers. The population of the Maldives is approximately 310,000 inhabiting 198 of 1190 islands scattered through the atoll system. The atolls vary in shape from oval to pearl shaped and they surround lagoons 40–60 metres deep. The islands themselves vary in size, from 0.5 square kilometers to around two square kilometers. Some islands are sand banks with sparse vegetation while others are elongated strips of land. Some islands move as a result of storms and are often formed or

destroyed by such storms. The annual rainfall averages 2,540 millimeters in the north and 3,810 millimeters in the south.

The island of Mauritius itself is formed around a central plateau, with its highest peak in the southwest, Piton de la Petite Rivière Noire at 828 metres (2,717 ft). Around the plateau, the original crater can still be distinguished from several mountains. The local climate is tropical, modified by southeast trade winds; there is a relatively dry winter from May to November and a hot, wet, and humid summer from November to May. Strong anticyclones affect the country during May to September. Cyclones affect the country during November-May. The average annual rainfall is 2000 mm.

Sao Tomé et Príncipe is composed of two islands and several smaller islets. The country has a total area of 1001 sq km of which 859 sq km belongs to the island of St Thomas and 142 sq km to the island of Príncipe. It is situated about 300 km off the African coast. The islands have a very rugged topography with the highest point being the St. Thomas peak with an altitude of 2024 m. The islands comprise basaltic rocks as a result of volcanic activity. The average rainfall is 2000 mm reaching 7000 mm in the south west part of St Thomas. The soil is mainly basaltic generally having good fertility. The presence of vegetation- about 90% of the country- has an influence on the decreased rates of soil erosion.

Seychelles is located just below the equator, some 1600km from the east coast of Africa. It consists of 155 islands, 42 granitic and the remainder coralline. Most of the population of 85,000 lives on the granitic islands of Mahé, Praslin and La Digue, along the narrow strip of coastal land. The total land mass of the islands stands at only 455km², but the Exclusive Economic Zone (EEZ) covers just under 1.4 million km². The islands have a limited range of natural resources, limited flat coastal land. The small land area and mountainous topography of the populated granitic islands do not easily favour large-scale industries and agriculture.

Singapore comprises the main island of Singapore and some 63 smaller offshore islets. It is located in the midst of one of the world's busiest sea and air transit point. Being outside the Pacific Rim of fire, it is spared from natural disasters such as earth quakes and cyclones. Singapore has a tropical rainforest climate with no distinctive seasons. Its climate is characterized by uniform temperature and pressure, high humidity, and abundant rainfall. Temperatures range from 22⁰C to 34⁰C. Singapore has on-going land reclamation projects with earth obtained from its own hills, the seabed, and neighbouring countries. As a result, Singapore's land area grew from 581.5 km² in the 1960s to 704 km² today, and may grow by another 100 km² (38.6 sq mi) by 2030. The projects sometimes involve some of the smaller islands being merged together through land reclamation in order to form larger, more functional islands.

1.2 General Remarks

The AIMS countries face numerous challenges in terms of economic development, social justice and environmental preservation. Many SIDS have sought to overcome such challenges by expanding development in tourism, fisheries, sugarcane, offshore financial centers, gambling havens and trading hubs. All these developments however, rely heavily on the natural resource base, and through years of exploitation, the ecosystems and services that ecosystems provide in many SIDS have reduced causing further erosion to socio-economic growth.

Climate change and sea level rise has been identified as the main present and future threat for many countries to address sustainable development challenges. This global phenomenon is a question of survival for most of the countries as a 1 metre rise in sea level will cause much damage to coastal and

marine resources. However, Maldives can be singled out as global warming and sea level is a serious threat to its very existence.

Just after 2005, almost all the AIMS countries have experienced some progress with actions called for in the Mauritius Strategy for further implementation of the Programme of Action for the Sustainable Development of SIDS agreed to in Barbados in 1994 (MSI). However, in the last couple of years, the global energy, food and financial crises, whose full repercussions have yet to be felt, has slowed the progress with the poorest countries like Comoros and Guinea Bissau being most affected. Pandemics have exacerbated their vulnerabilities. In Mauritius, for instance, the economy growth dropped from 5.1% in 2008 to 2.8% in 2009. This is indeed a global downward trend. According to the last report of the MDGs (2009), progress towards the MDG goals, because of the economic crisis, is now threatened by sluggish, even negative economic growth, diminished resources, fewer trade opportunities for developing countries and possible aid flows from the donor countries. A chapter provides some details on progress achieved so far in meeting the MDGs goals by the AIMS countries.

National Assessment Reports (NARs) have been received from Comoros, Guinea Bissau, Mauritius, Maldives, Sao Tomé & Principe, Seychelles and Singapore. The Maldives also submitted a completed UNDESA Questionnaire on progress in the implementation of the Mauritius Strategy. An English translated version of the Sao Tomé & Principe has been used, the original being in Portuguese.

A preliminary meeting was held in the Maldives on 9 and 10 March 2010 and was attended by Comoros, Guinea Bissau, Mauritius, Maldives, Sao Tomé et Principe and Singapore. The Commonwealth Secretariat, IOC, UNEP and UNDESA were also present. It provided an opportunity for participating countries to present their National Assessment report. A preliminary regional synthesis was also presented. This draft is based on the NARs and the outcomes of the discussion. Every effort has been made to compliment these NARs with other available national and regional reports and information from other sources as given in the annex.

Chapter 2 - The regional economic, social and environmental development context

In the Western Indian Ocean region, regional integration (ESA-IO region) is being promoted among the various regional economic groupings – IOC, COMESA, EAC, and IGAD – in order to be eligible for assistance within the framework of the European Development Fund scheme for the sustainable development of the region. IOC is following the COMESA in the regional economic integration agenda. COMESA launched its Free Trade Area in 2000 and is preparing to launch its Customs Union by 2008 and plans to achieve a Common Market and a Monetary Union by 2014 and 2018, respectively. IOC has a mandate together with COMESA and IGAD to address peace and security in the region. The Member States that form part of the ESA-IO region are heterogeneous in terms of size, economic structure, as well as endowment with resources. However, they share a common objective to address poverty reduction through regional economic integration and trade.

Several projects have been approved or under consideration with the framework of the 10th EDF programme. The overall objective of the 10th EDF ESA-IO RSP is to contribute to the eradication of poverty in the region's countries and assist them in attaining the MDGs, as enshrined in the ACP-EC Partnership Agreement, by supporting economic growth and developing trade. Interventions are being considered under two focal areas: Regional Economic Integration, covering regional integration policies, trade and EPA, and regional sector policies, and furthering the Regional Political Integration/Cooperation Agenda, through the development of a series of flanking measures to assist the region in tackling regional political problems in a coordinated fashion. Most of the funding to be provided (85%) will be devoted to Region Economic Integration.

The small size of the AIMS countries, their isolation and their geographical position make them prone to large scale changes arising from economic and social change and natural and manufactured environmental phenomena.

2.1 Economic development context

The AIMS countries, as it is the case for all SIDS, have limited capacity in terms of markets, economics, lands and labour for sustainable development. They have a narrow range of products to exchange for the large range and volume of imports. The large distance from overseas markets imply high transport and transaction costs for goods, services and labour. In addition the AIMS countries have limited natural mineral resources. Other socio-economic contributors to island vulnerability include external pressures such as terms of trade, impacts of globalization, financial crises, international conflict, rising external debts and internal conditions such as rapid population growth, rising incidence of poverty, political instability, unemployment, reduced social cohesion and a widening gap between poor and rich. Bahrain is an exception with its oil supplies and Sao Tomé et Príncipe has the potential to develop newly found oil reserves.

Since 2005 the AIMS countries have been facing a global financial and economic crisis coupled with a social crisis, a food crisis and an environmental crisis. However, at the beginning of the period, most countries have experienced some progress in many socio-economic sectors as shown in Table II. Only three countries have a population of more than one million with a population of more than 4 million in Singapore and the smallest being Seychelles with a population less than 90,000. The population growth rate is more than 2% in the poorest countries of Comoros, Guinea Bissau and Maldives. With regards to GDP per capita all the countries have made some significant progress since 2005. The number of people with telephone lines and internet subscribers has increased substantially.

Table II. Socio-economic progress in the AIMS countries

Country	(GDP per capita (current US\$))			Total telephone subscribers (per 100 inhabitants)			Internet users (per 100 inhabitants)		
	2000	2005	2007	2000	2005	2007	2000	2005	2007
Bahrain	15 900		16060						
Cape Verde	1700		5570						
Comoros	288.8	485.1	556.1	1.0	4.6	6.8	0.2	2.2	2.6
Guinée Bissau	157.2	188.6	210.7	0.9	8.1	17.8	0.2	2.1	2.3
Maldives	2287.1	2547.1	3453.7	11.9	77.4	114.9	2.2	6.6	10.8
Mauritius	3864.4	5062	5846	38.6	81.5	90.0	7.3	24.1	26.9
Sao Tome & Principe	547.4	750.1	911.6	3.3	12.2	24.0	4.7	13.4	14.6
Seychelles	7618.7	8448.5	8202.6	60.4	99.5	115.3	7.8	26.0	36.9
Singapore			22680						

It was in the last few years that the negative impacts of global crisis were felt. In Seychelles, in the mid-2008, the global oil and food price spikes pushed Seychelles over the financial brink on which it had teetered for many years, due to unsustainable macroeconomic policies. Due to the inability of the country to repay loans due to structural problems, and the global food and oil crises of 2008, Seychelles was obliged to turn to the IMF for assistance in restructuring the economy. The implementation of the IMF reform programme began on November 1st, 2008 with the introduction of a floating exchange rate for the Seychelles rupee. Overnight the currency was devalued by over 100%, and had the immediate effect of wiping out the black market in foreign exchange. Inflation went up initially to over 60%, but by the end of 2009, the value of the rupee had settled down to a more stable market rate and inflation had stabilized to single digit levels.

According to a report by the IMF at the end of 2009, Seychelles' macro-economic reform measures being implemented under the guidance of the IMF but with a high degree of ownership from the government, were having the desired effect of helping Seychelles achieve economic stabilization. Plans for the coming two years include putting in place structural reforms to remove barriers to growth and improving the efficiency and performance of the public sector. The IMF is also working with Seychelles to address the issue of external debt which continues to remain unsustainable. Overall it appears that Seychelles economy is responding positively to the reforms. Now the biggest threat would seem to be dynamics in the world economy which could severely impact the tourism industry in particular. The global economic crisis had a severe effect on tourism earnings in the first quarter of 2009, but by the end of 2009, the tourism industry reported a complete recovery with the number of arrivals comparable to 2008.

Mauritius has been implementing wide-ranging reforms and policy measures over the past 5 years with a view to securing transition from trade preferences to global competitiveness and setting the stage for sustaining growth, attracting foreign direct investment, and enhancing the country's competitiveness. The bold reform programme bearing early and prudential measures introduced in the Budget 2006-2007 had a positive impact on GDP, which registered growth rates of 5.1% and 5.4% in 2006 and 2007 respectively in spite of the adverse effects of the financial and economic crisis.

However, growth rate in 2009 slowed down as expected to 2.8%, mainly because of the negative growth rates recorded in the following industry groups: textile (-4.0%) and in the hotels and restaurants (-6.4%). The economic situation is slowly changing positively in the past few months. Tourism activities have picked up. It is estimated that the growth rate will be 4.6 in 2010.

Mauritius is diversifying its economy to address the challenge of globalization. From a supported monocrop economy, predominantly dependent on sugar, Mauritius has successfully diversified its economic activities by carving out special niches in textile, tourism and financial services. Whilst the share of agriculture in the economy dropped from 3.2% in 2005 to 1.7% in 2009, and textile from 6.7% to 5.3%, that of financial intermediation increased from 10.3% to 11.7%.

Diversification of the economy remains a priority. Emphasis is now being laid on the following:

- Developing the Information and Communication Technology (ICT) sector
- Framing the right policy mix to consolidate public finances
- Creating an enabling environment
- Enhancing export competitiveness
- Modernising the Welfare State
- Favouring a participatory approach of all stakeholders

Singapore believes that the key to its future economic growth is to embrace and adapt to globalisation rather than to resist it. With a new economic paradigm after the onset of the global economic recession in late 2008, the Economic Strategies Commission (ESC) was formed in May 2009 to develop long term strategies in the next years to boost skills in every job, enhance corporate capabilities to seize opportunities in Asia and make Singapore a distinctive global city and endearing home.

On the other hand, Comoros and Guinea Bissau are classified in the category of least developing country. In the last few years, Comoros is facing serious economic problems, attributed mainly to unprecedented economic crisis at global and national levels, alarming deterioration of public finance and persistent political and institutional crisis. Economic growth was 0.8% in 2007 and 0.2% in 2008, the lowest growth rate in the last 10 years. The slow growth rate was attributed mainly to shortage of basic commodities such as rice and oil products and an energy crisis in mid 2008 which paralyzed the overall economic development of the country. The economic situation continues to worsen and the population living below the poverty line is more than 50 %. Export of spices – vanilla, ylang ylang and other spices- has decreased from 2457 tons in 2006 to 1939 tons in 2008 whereas imports of basic necessities – food and construction materials - have increased from 202 950 tons in 2006 to 220 797 in 2008.

The GDP per capita in Guinea Bissau is the lowest in the region (Table III). Economic growth increased from 2.7 % to 3.2% in 2008 on account of an increase in the production of cashew nuts but dropped to 3.0 % in 2009 due to the global economic crisis. With a very inefficient productive sector, the country has a very fragile economy and depends entirely on external assistance for food and manufactured goods.

It is evident from the countries' reports that the major economic challenges facing most of the AIMS countries include:

- They are net importers of food and basic commodities, the price and supply of which depend on the world trends and currency rates;
- They are heavily dependent on external trade and are seriously affected by trade fluctuation and economic crises, lacking resilience for adequate and rapid response;
- Most of them depend on external financial and technical aid
- As maritime nations, they have not developed marine technology and security adequate for the needs of industrial fishing on a large scale nor for becoming major marine transport powers;
- Many depend on the tourism industry the expansion of which represent new threats to the environment on which the tourists depend; and
- Their large EEZ are yet to be effectively exploited and demands new infrastructure and new maritime security in the face of illegal penetration of foreign vessel and piracy.

2.2 Social development context

The social situation differs from country to country. Though socio-economic development has improved gradually in all AIMS during the period under review, albeit, with different levels of development, poverty is still prevalent in many countries. Many are among the poorest countries in the world as shown in table III.

Table III. Gross Domestic Products per capita (US \$) at nominal values

Countries	International Monetary Fund (out of 180 countries)	World Bank (out of 180 countries)	CIA World Fact Book out of 191 countries)
Guinea Bissau	244 (177 th)	273 (167 th)	300 (186 th)
Comoros	788 (147 th)	824 (140 th)	700 (163 th)
Sao Tomé & Príncipe	1160 (130 th)	1085 (129 th)	900 (154 th)

Data year: IMF 2009, WB 2008 and CIA 2009 (estimated)

With regards to GDP per capita, Seychelles tops the list. Most of them depend heavily on tourism (e.g. Seychelles, Mauritius) and marine sources (e.g. Maldives). Other statistics are provided in Table IV.

Table IV. Some socio-economic statistics in 2007

Country	Population (000)	HDI (Rank)	Tourist arrival (000)	Threatened species	Emission of CO2(metric tons /capita	Population growth rate %	Life expectancy at birth 2005-2010	Infant mortality rate 2005-2010 (per 1 000 live births)
Bahrain	645	0.839(37)						
Cape Verde	530	0.727(103)	267	28	0.6	1.9	73.7	13
Comoros	839	0.528(134)	29	89	0.1	2.5	69.7	29
Guinée Bissau	1695	0.393(166)	12	37	0.2	3.0	46.4	112.7
Maldives	310	0.751(86)	676	55	1.8	1.8	68.5	34.1

Mauritius	1262	0.804(81)	907	219	2.8	0.8	72.8	14.0
Sao Tome & Principe	158	0.639(122)	12	66	0.7	1.8	65.5	72.3
Seychelles	87	0.840(36)	161	155	6.8	0.5		
Singapore	4200	0.884(28)				1.0	77.8	3

2.2.1 Population

Among the AIMS countries, only Singapore has a population exceeding 4 million. Guinea Bissau and Mauritius have a population more than 1 million whereas in the case of others the population is less than 1 million with Seychelles having the smallest population of only 87,000 inhabitants. Population density is highest in Singapore, Bahrain, Maldives and Mauritius which have all levels of more than 900 per square kilometer of land. The population growth rate varies inversely with the wealth of the country. Guinea Bissau has the greatest rate of 3% and Comoros 2.5%. Life expectancy is also the lowest in Guinea Bissau and it has the highest infant mortality. Some countries – Mauritius and Singapore - are having an increasing proportion of retired people putting new pressure on social and economic resources including social security and health services. To address the issue of increasingly heavy pressure on the pension scheme for retired public officers, Mauritius has raised the retiring age of public officers from 60 to 65.

2.2.2 Human Development Index

Bahrain, Seychelles and Singapore are in the UNDP class of high human development index with Singapore in the 28th and Seychelles in the 33th places respectively. Maldives and Mauritius are classified in the medium human development whereas Guinea Bissau has the lowest HDI ranking 166 out of 175 countries. The HDI classification and the country ranking are reflected in the general socio-economic indicators for the countries themselves as given in Table IV.

2.2.3 Health

Most countries have established an effective health scheme. In Mauritius, free healthcare is a foundation of the country's Welfare State. The national health strategy is both preventive and curative. Since 2005, spending on the public health sector has increased by 85% to reach more than \$250 million in 2010. These funds for the public health sector are directed to health delivery system, services and personnel, as well as population control measures. Over the last five years, the health policy and legal framework has been updated. As a consequence, much improvement has been noted in the health of the population. From 2000 to 2008, life expectancy of men has increased from 64.7 to 69.1 years and for women from 74.6 to 76.1 years. Infant mortality rate during the period has decreased from 15.8% to 14.3%.

For Seychelles, 20.4% of public expenditure in 2006 went to health (4.6% of the GDP. This has remained relatively constant. However, the macroeconomic situation has been putting the health and social welfare system under pressure over the last half of the decade, and social service delivery has been negatively affected. Despite these constraints, general health care indicators such as low infant mortality, long life expectancy remain quite impressive although emerging threats include the

macroeconomic instability, the ageing population, increases in unhealthy lifestyles, substance abuse, crime and violence and the increase in sexually transmitted infections.

In Sao Tomé et Príncipe, the levels of the provision of health care to the population of health care experienced a marked improvement as a result of the successes in malaria control and the programme of sexual health and in the fight against HIV/AIDS. About 74% of households have access to health services close to their residential areas. Malaria which in recent years was the leading cause of infant death has been reduced quite drastically.

On the other hand, in Guinea Bissau, the health of the population has deteriorated. Malaria, respiratory infection, malnutrition and diarrhea are the main causes of infant mortality. The number of death for 1000 births from 2000 to 2006 has increased from 124 to 138 and from 203 to 223 for children below 5 years.

2.2.4 Drugs

The increase use of drugs has become a major concern for most of the countries. In Seychelles, there is evidence to suggest that drug related problems are on the rise in Seychelles. The number of hard drug related offences is on the rise, and substance abusers are increasingly younger. The past five years have seen a notable shift from smoking of cannabis and hashish to intravenous heroin use and addictions. Current policies and laws do not seem to be effective, and authorities lack capacity and resources to deal with the problems. While some measures to control illegal drugs coming in by air have been implemented, the illegal drug trade by sea remains extremely difficult because of the size of Seychelles EEZ and limited resources of the coast guard. More effort is needed to ensure that all stakeholders participate in a well coordinated and planned campaign against drugs and substance abuse.

Guinea Bissau is used as a transit point for the drug trafficking towards Europe and America. Organized crime is quite common and the use of fire arm to commit murder or for larceny is widespread.

2.3 THE ENVIRONMENTAL DEVELOPMENT CONTEXT

The AIMS countries have different geographical and physical characteristics. Some are low lying main island, e.g. Seychelles, Comoros, atolls dispersed over a very large region e.g. Maldives whereas some are mountainous with narrow coastal strips. They are rich in terrestrial and marine biodiversity. However, they are faced with many environmental challenges. They are vulnerable to extreme events such as drought, floods, and cyclones and, in certain cases, volcanoes. Some are not single islands but agglomeration of islands in archipelagoes or more widely dispersed groupings presenting special problems for communication. Pollution, both land and sea based constitutes a serious threat too.

2.3.1 Biodiversity

The AIMS are typical example of islands where a rich of land-based fauna and flora have evolved in isolation from human intervention and the intrusion of alien species. This high biodiversity contributes to the unique ecology of these islands and provides significant ecological and economic benefits. It supports the tourism industry and provides food, shelter, and clothing and construction materials for the socio-economic development of the countries. In addition, many plants species are used medicinally and several species are being investigated for pharmaceutical use. In Mauritius a research project entitled: "Biological activities of Marine Natural Substances from Mauritius Waters" to assess

the biological activities of the extract of certain classes of marine organisms, is now well advanced and have already given rise new drugs which is in use today on some chosen bioassays.

However, species population on the islands is small, localized and highly specialized making them extremely vulnerable to external threats. Biodiversity in the AIMS islands is under increasing threat because of growing demand for biological resources due to increasing population and economic development. The primary causes of biodiversity loss include:

- Unsustainable natural resource exploitation
- Habitat conversion and destruction
- Introduction of alien species
- Inappropriate harvesting technologies
- Pollution and soil degradation
- Natural processes such as coastal erosion, bush fires and sea water intrusion.

As a result of these pressures, a significant number of plants and animal species are threatened with extinction or have become extinct. In Seychelles, 54% of amphibians are threatened with extinction and the country is cited to be 9th on the world list of countries with the highest threatened and extinct amphibians.

The AIMS SIDS faces major challenges in biodiversity conservation. Appropriate management tools should be put in place in order to protect the islands ecosystem and rich biodiversity. The ecosystem restoration at Ile aux Aigrettes Nature Reserve, Mauritius is a good example worth mentioning. The Mauritian Wild life is responsible for the management of the islet. Alien species have been eradicated; native plants and animal species have been conserved and re-established.

2.3.2 Coral Reefs

All the countries are surrounded by coral reefs. Apart from providing protection from the high waves, their ecosystems and biodiversity constitute important resources for food, habitats for marine life and the tourism industry. However, they are constantly under threat from various factors – natural hazards (cyclones, global warming and ocean acidification) and human activities (overfishing, trampling and removal for lime production). The widespread bleaching event of 1998 when 98% of coral bleaching occurred in Seychelles is a reminder what could take in the future as a consequence of climate change. Bleaching episodes are occurring more frequently in the last decade – 2003, 2005 and the recent January 2009 event in the Indian Ocean.

The IPCC is projecting that with a sea temperature increase of 1 deg. C, wide spread bleaching will occur and an increase above 2 deg. C will bring about mass mortality. On account of the vital socio-economic importance to the livelihood of the population of the AIMS countries as for other SIDS, the real challenge is what should be done to preserve them for the present and future generations. The solutions depend on actions that should be taken at international, regional and local levels.

2.3.3 Coastal environments

Coastal resources contribute substantially to the economy of the countries. The tourism industry is mainly coastal-based. The artisanal fisheries provide livelihood to a large number of the coastal population. Mangroves which thrive only in coastal environment are habitats to fingerlings and shell

fish, sources of food for marine life and protection against soil erosion and high waves. However, sewage and waste disposal, cutting for firewood, removal for coastal development, soil erosion from heavy rain and destruction by extreme weather systems pose important threats to their survival. Coastal erosion is widespread and is worsening as a consequence of sea level rise threatening pristine beaches which are the main tourism attraction.

The coastal population is increasing and will continue to increase. Pollution from land-based and sea-based activities is bound to continue. This is a world-wide trend. The challenge is how to preserve the resources in the AIMS region. Sensitization is one issue which should be given much emphasis.

2.3.4 Natural disasters

The greatest natural threat to sustainable development is climate change and sea level rise. This is recognized by most AIMS countries in their national reports. It is already occurring. Air temperature records show an upward trend and available dataset – Mauritius and Rodrigues (Mauritius), Maldives, Seychelles, Sao Tomé & Príncipe and Singapore - shows that sea level rise has accelerated since 2005 from about 1.5 mm/yr to more than 3.0 mm/yr. Tropical cyclones are becoming more intense with at times unprecedented rapid intensification and rainfall pattern is changing with more heavy rainfall leading to flash flood causing loss of life and property.

Table V - Number of people killed/ affected during natural disasters in 2005-2009

Country	Flood		Storm		Drought		Volcano		Epidemic	
	Killed	Affected	Killed	Affected	killed	Affected	Killed	Affected	killed	affected
Bahrain	No Major disaster									
Cape Verde	3	Several hundred	-	-	-	-	-	-	6	20147
Comoros	2	2500	-	-	-	-	-	284000	29	2848
Guinea Bissau	-	-	-	-	-	32000	-	-	620	40971
Maldives	-	1649	-	-	-	-	-	-	-	-
Mauritius	4	Several hundred	2	Several hundred	-	-	-	-	-	-
Sao Tome & Principe	No Major disaster									
Seychelles	No major disaster									
Singapore	No Major disaster									

Source: EM-DAT – CRED (2010)

Some countries were affected by natural disasters for the period 2005-2009 whereas others were spared. It is noted from Table V that flooding caused the death of some people in Cape Verde,

Comoros and Mauritius. Comoros was also affected by epidemic and the volcanoes of 16 April and 24 November 2005 affected 284 000 people. Epidemic of March 2007 also caused the death of 29 people. Guinea Bissau was affected by epidemic outbreak on 6 June 2005 and in May 2008 killing 620 people and affecting 40 971 people. The drought in May 2006 affected 32 000 people.

The negative impacts of natural disasters on agriculture, food security, water resources and settlement are worsening the poverty levels of many countries. Following the December 2004 tsunami, resources, already scarce, are being diverted to develop and strengthen a Tsunami warning system in the western Indian Ocean region. The AIMS countries should raised their voice during international fora to obtain as much funds as possible from the Climate change Launch Fund, which will be placed at the disposal of developing countries to address climate change issues.

2.3.5 Environmental pollution

A regional UNEP report of 2007 indicates that Marine litter/ solid waste including synthetic/ plastic litter is becoming a significant contributor to marine pollution in the Western Indian Ocean causing particular damages to ecological, economic, cultural, recreational and aesthetic values of coastal and marine ecosystems and their components.

Key findings of the assessment are:

- Very little data exist on quantities, types, trends, sources and sinks of marine litter.
- Marine litter is not dealt with in policy or law as a separate category of waste;
- The most significant source of marine litter is solid waste associated with surface runoff from urban areas.
- Marine based sources of litter are more difficult for countries in the region to control and the Western Indian Ocean is heavily trafficked by commercial shipping and fishing vessels.
- Marine litter produced by the countries has a potential of becoming serious and in this respect it requires urgent remedy.

It was further noted that none of the island or bordering coastal states can afford to effectively police their territorial waters or exclusive economic zones, where applicable, and they are not legally permitted to police the high seas. Further, because of the nature of the ocean currents, litter dumped almost anywhere in the Indian Ocean can be transported for thousands of kilometres. In this regard, marine litter has a potential of becoming a significant transboundary problem in the WIO Region if it is addressed as a matter of urgency.

Some actions required include:

- The need, feasibility and benefits of establishing a "Regional Programme on Marine Litter in the Western Indian Ocean Region" should be considered;
- It is considered prudent that marine litter arising from sources on land be tackled separately from litter arising at sea because different laws and approaches;
- To control marine based sources of litter, all coastal States in the Western Indian Ocean Region and all other Flag States should be encouraged to ratify and adhere to existing international instruments, particularly MARPOL Annex V with respect to ship generated garbage and the London Convention concerning dumping at sea;
- The appropriate regional mechanism for implementing recommendations about land-based sources of marine litter is considered to be the Nairobi Convention;

- Solid waste management/ marine litter abatement strategies should also be brought into focus in all foreign funded programmes that governments are allowing in their countries, to assist with development
- To help with capacity building and awareness raising, Western Indian Ocean countries and regions within countries, could draw on the numerous existing sets of guidelines for marine litter and solid waste management, and adapt them to their own specific circumstances.

2.3.6 Oil Spill

The World Bank has identified marine pollution from tanker traffic as one of the serious coastal management issues in the Western Indian Ocean. The region is a main sea route for oil tankers from the middle-east and about 30% of oil traffic transit along the route. Although no major oil spill accident has occurred, its potential is really great. The World Bank/International Waters has implemented the “Western Indian Ocean Islands Oil Spill Contingency Planning” project in the region to enhance the capacity of participating countries to address the issue in case of an oil accident.

The main progress/ongoing activities include:

- Establish appropriate legal and institutional framework to ensure compliance with marine conventions
- Develop national and regional contingency planning processes
- Build appropriate national and regional oil spill response capacity
- Establish sustainable financial and institutional agreements through regional cooperation arrangements.

Chapter 3

National and Regional Enabling Environment

It has been agreed, in principle, that National Sustainable Development Strategies (NSDSs) are the appropriate tool for implementing the Mauritius Strategy as well as other international and regional frameworks. The call for the development of NSDS to create an enabling environment for sustainable development emerged on the global agenda over two decades earlier. However, at no stage was the intent to replace existing national planning and development strategy tools with a national sustainable development strategy per se.

As outlined in paragraph 86 of the MSI, SIDS reaffirmed their commitment to meeting the sustainable development goals and priorities contained in the Programme of Action by, inter alia, more effective utilization of available resources and reinforcing their national sustainable development strategies and mechanisms are committed to promoting sustainable development,. In the AIMS region, National Plans on Sustainable Development are considered vital to promote sustainable development in all socio-economic and environmental sectors. Most of them are yet to establish NSDS. They have, however, initiated other political, economic, social and environmental systems to drive the processes of sustainable development, eradicate poverty and improve the livelihoods of peoples by the implementation of strategies that build resilience and capacity to address the unique and particular vulnerabilities.

3.1 National Strategies for Sustainable Development

Progress in the establishment of national frameworks for sustainable development has varied. The concept that sustainable development is primarily about environmental management has now changed. It is now well recognized that a fresh emphasis is needed to move from policies focused on environmental protection to those that integrate environmental concerns with plans and initiatives for economic and social development. This has led to the involvement of inter-ministerial planning and the participation of the private sectors and the NGOs in the process of strategy review and the development of plans. However, inter-agency or cross-sectoral coordination remains a challenge in most countries of the region.

Few countries have changed their institutional executive framework for the pursuit of Sustainable Development policies; many have adapted the existing framework or added on another overview body. All countries have an overarching development plan. Many countries are currently reviewing, or intending to review existing national development plans.

The Comoros has not yet developed a dedicated National Plan for Sustainable development. It has however, developed various national policies on several socio-economic and environmental sectors to guide sustainable development and implement the Mauritius Strategy. These include the National Policy on Environment and National Action Plan on the Environment, National development Strategy on Statistics, a National Strategy for Growth and Poverty Reduction (SCRP): Stratégie de Croissance et Réduction de la Pauvreté).

The Guinea Bissau is in the process of preparing a National Strategic Action Plan (NSAP), which is expected to contribute to the implementation of the MSI. A National Environment Management Plan was developed in 2004 to oversee the socio-economic development and environmental preservation. It

has established a National Department for the Environment and Sustainable Development. This will provide the necessary structure to develop a NSAP.

The Maldives established a national strategy for Sustainable Development in 1999, called for vision 2020 to make the country a top ranking middle income economy. It covers political, economic, social and environmental matters. The Strategy has been incorporated in the Sixth National development Plan. Other documents to guide sustainable development include National Adaptation Program of Action (NAPA), First National Assessment Report (2002), National Capacity Self Assessment Report (2008), Technology Needs Assessment (TNA) for Energy and Transport Sector, Seventh National Development Plan (NDP7). Maldives National Strategy for Sustainable Development (NSSD), Third National Environment Action Plan (NEAP III), First National Communication to United Nations Framework Convention on Climate Change (2001) and National Strategic Action Plan 2009–2013. To strengthen the framework of the government in disaster risk management, the Maldives Strategic National Action Plan (SNAP) for Disaster Risk Reduction and Climate Change Adaptation was initiated in 2009. It is designed to promote collaboration among policy makers, experts, and practitioners of disaster risk reduction and climate change adaptation in the country for the development of a comprehensive risk management approach. SNAP aims to build resilience of the nation and the island communities to disasters by sustaining progress made, by consolidating learned best practices, and by incorporating risk reduction into the strategy for decentralization.

In Mauritius, the National framework for sustainable development was set up in the 1997 policy document Vision 2020, in the 1999 second national Environmental strategy and Action Plan for the period 2000-2010, National Solid Waste Management Plan, National Sewage Plan, National Biodiversity and Action Plan, and Tourism Development Plan. The government has published a White paper on health sector development and reform on Education. It has a trust fund for social Integration of vulnerable groups to promote social integration and reduce poverty. It is involving civil society in a variety of vehicles, which contribute to planning. These include MACOSS, NPCC, and NESC. The concept of Maurice Ile Durable (MID), announced in 2007 was initially meant to enable the country to achieve energy independence, but has gradually expanded in scope. National consultations are under way to define its vision so as to enable the development of an MID Policy and Strategy. The MID Fund was set up in June 2008 with a provision of \$40 million with resources mobilized various through taxes to finance scheme for the preservation of local natural resources with a view to achieving sustainable development and adapting to climate change.

Sustainable development in Seychelles is guided by the Environmental Management Plan for Seychelles (EMPS). The mission of this plan is to promote, coordinate, and integrate sustainable development programmes that cut across all sectors of society. In 2009, an extensive review of the EMPS 2000-2010 was conducted by a group of consultants with input from a wide range of stakeholders. The EMPS review is currently focused on studying options for re-organising the structure and implementation process of the next generation of EMPS and its role in helping Seychelles achieve sustainable development. The country is initiating the development of a new Energy Policy which will address issues of alternative energy sources to reduce Seychelles' absolute dependence on imported fuel. The implementation of Seychelles Macro-Economic Reform Programme, which was first initiated by the Government of Seychelles in 2003, has been stepped up in 2007 to address built-up arrears to bilateral creditors, the exhaustion of official reserves, foreign exchange shortages and extensive foreign exchange restrictions that constrained economic activity.

The Sao Tomé & Príncipe has developed and is implementing its National Environment Plan for Sustainable Development, which include eight priority programmes on the environment and for development. However, this is already ten years old. A Council for Social Dialogues composed of

representatives of the state, Civil Society and private sectors is an advisory body to the Government. The national Poverty Reduction Strategy provides the necessary framework to address poverty reduction issues and contribute to sustainable development. With the assistance of GEF, it has further established the National Plan for Adaptation to Climate Change which has identified the most vulnerable areas and proposed a set of adaptation measures. It has also established the National strategy and Action Plan for Biodiversity Conservation of fauna, Flora and Protected areas to address the preservation of natural ecosystems. A Master Plan on Tourism to develop sustainable tourism is in the process of being updated.

Singapore has developed the Sustainable Singapore Blueprint (SSB) for sustainable development till 2030. It summarizes Singapore's approach to addressing the challenges of population growth, resource constraints and climate change. It sets out a series of goals to be achieved by 2030, in the areas of resource efficiency, physical environment, capability development and community engagement. The Inter-Ministerial Committee on Sustainable Development (IMCSD), overseeing the implementation of the blueprint, reviews it regularly to discuss any new developments and ensure that the targets remain relevant and up to date.

3.2 Regional and International Frameworks for Sustainable Development

Regional and International protocols and agreements provide some guidance for sustainable development. The AIMS countries are party to these policy instruments.

Climate Change and Sea Level Rise has been recognised as one of the greatest environmental hazards threatening sustainable development of all the countries and in some countries such as Maldives the very existence of the country. Hence the need for regional collaboration is strongly felt to attract attention at international level on the impacts of global warming. All countries have signed and ratified the United Nations Framework for Climate Change and in some cases the Kyoto protocol. Comoros ratified it in 2008. They all have completed their First National Communication and are in the process of preparing their Second National Communications. Mauritius and Seychelles are expected to complete it in 2010. Most of them have established Sea level Stations to monitor sea level variation within the framework of Global Sea Level Station Network.

They all have ratified the Convention of Biological Biodiversity and have prepared national plans to implement the convention.

With regards to the marine environment the preservation of which is vital to the socio-economic development of the countries, they all are party to various regional and international conventions and agreements. Most of them have ratified the Nairobi Convention for the protection, Management and Development of the Marine and Coastal Resources. The Regional Coordinating Unit (RCU) is located in Seychelles which promotes programmes and projects that enable participating countries to manage their coastal and marine resources in a sustainable way. IOC is a partner to the convention and coordinating the implementation at regional level.

The countries actively are participating in the activities of the New Partnership for Africa's Development (NEPAD), the main aim of which is to eradicate poverty through sustainable development. The African process has produced a comprehensive programme of intervention and a portfolio of regional projects to address identified issues including impacts of uncontrolled tourism development, over exploitation of fisheries and other living resources and loss and modification of ecosystems.

Sao Tomé & Príncipe is part of the International Civil Aviation Organization Western and Central African (WACAF) convention and is also a member of the Community of Portuguese Language States. Singapore works within the ASEAN region and is promoting the clean and green ASEAN programme including the Hanoi Action plan adopted in 1998. Other programmes include the ASEAN Socio-cultural Community Blueprint and ASEAN Agreement on Trans-boundary Haze Pollution.

Chapter 4 - The Thematic Areas

Chapter 20, para. 84 of the Mauritius Strategy, on implementation, highlighted the most urgent sustainable development challenges for SIDS. These were in relation to: climate change adaptation and sea-level rise; management of waste; natural and environmental disasters, coastal and marine resources conservation; management of freshwater, Land and Energy resources, sustainable development of the tourism industry, addressing loss of biodiversity resources and improving transport and communication technology. This chapter reviews progress in the implementation of the various thematic or sectoral areas since 2005.

4.1 Climate Change and Sea-Level Rise

Climate Change and Sea Level Rise has been identified as the greatest threat facing the AIMS countries. It is recognized that climate change is not only an environmental issue but, more importantly, a development issue. Many are already experiencing the impacts of climate change. In Mauritius, a decrease of almost 8 % of rainfall since the 1950's has been observed. In Guinea Bissau too a decrease in the rainfall regime has been noted. Nevertheless, flash flood has become more frequent with frequent heavy downpours leading to disease outbreaks. On the other hand, in Seychelles, records show an increase rainfall regime with frequent flooding events. With regards to temperature, an increasing trend has been identified in all the countries. In Mauritius, and its outer islands temperature analysis has shown a definite warming of 0.74 to 1.2⁰C when compared to the 1961-1990 long term mean. Consequently, measures and actions to address climate change issues have been given much attention.

Most of the AIMS are contracting Parties to the UNFCCC and many have signed and ratified the Kyoto Protocol. Most countries have are in the process of completing their Second National Communication, which include national inventories of human induced emissions by sources and removal by sinks of all greenhouse gases, a general description of steps taken or envisaged to implement the convention and prepared Climate Change Action Plan. Seychelles and Mauritius are expected to complete it in 2010. Climate change policies and strategic actions - NAPA, NSDS, TNA, NCSA - for adaptation developed to address impacts on key socio-economic sectors. Actions are being taken to reduce energy consumption and develop renewable sources of energy. Financial assistance should now be sought to implement the plan.

At the national level, public awareness and sensitization programmes among school children, at grassroots level, civil society and the general public have been strengthened. At the international level, the President of Seychelles played a key role in attracting world attention on the plight of SIDS through declaration in international fora. It set up the Sea level Rise Foundation by an act of law to provide a mechanism for leveraging global attention on the impacts of sea level rise on small island states and other low-lying area (www.sealevel-rise.org). Maldives, too, was active on the international scene. The cabinet meeting under water circulated the globe and raised global attention.

(i) Regional initiatives

Some activities relevant to some AIMS countries took place during the last 5 years. At the Commonwealth Heads of Government Meeting (CHOGM) in the Republic of Trinidad and Tobago (27-29 November 2009), attended by some world and many SIDS leaders to review global, political and economic developments, a Special Session on Climate Change took place. The Head of States recognized that Climate change is the predominant global challenge and it poses undisputed threat the security, prosperity, economic and social development of the people. The initiative to establish, as part of a comprehensive agreement, a Copenhagen Launch Fund starting in 2010 and building to a level of

resources of \$10 billion annually by 2012 was welcome. A proposal to provide immediate, fast disbursing assistance with a dedicated stream for small island states, and associated low-lying coastal states of AOSIS of at least 10% of the fund, on the initiative of the Prime Minister of Mauritius, was accepted.

On the 4 September 2009, Tunis, the African Development Bank (AfDB) Group and the Indian Ocean Commission (IOC), concluded bi-lateral consultations aimed at strengthening collaboration between the two institutions. Capacity building for climate change mitigation and adaptation is one of the areas for consideration for funding.

(ii) IOC Climate Change Adaptation (ACCLIMATE) programme

The AIMS countries in the Indian Ocean have developed strategies at national levels to address climate change issues. They are at different levels of preparation and implementation. However, they all need assistance in terms of finance and technology, particularly to enhance their adaptive capacity. In order to coordinate activities at regional and international levels and mobilize funds, the IOC initiated a 3-year climate change adaptation programme in October 2008 to enhance capacities of the IOC countries to adapt to climate change and sea level rise, in particular to carry out vulnerable assessment impacts studies on key socio- economic sectors including water, agriculture, health and coastal zone. The project is being funded by the "Fonds Francais pour l'Environnement Mondiale" (FFEM) and French Ministry of Foreign Affairs for the region of Reunion.

The main objective of the programme is to prepare a regional report in collaboration with National Meteorological Services to review the state of climate variation and change during the last 50 years and develop a regional climate change scenario up to 2100. In the short term, regional seasonal climate forecast will be prepared and awareness and preparedness through education and sensitization campaign enhanced. Short courses for climate scientists on new technologies and training on transfer of knowledge to educate politicians, policy makers and high officials on climate change issues to enhance their participation in climate change negotiations to derive maximum benefits will be organized. Research on climate change and its impacts and collaboration among climate scientists in the region will be promoted. A degree course on climate change and Sea Level Rise will be developed and introduced in the universities of the region for the benefits of IOC members. A website is under development. It will provide details on the progress of implementation of the programme, links to other climate related websites and national, regional and international activities relevant to climate change.

An agreement has been signed with the International Funding for Agricultural Development and Republic of Greece for climate change project funding. IOC has also been accepted as observer to the UNFCCC, An international conference is planned in 2011 to assess progress and plan the way forward.

A regional meeting was held on 24 and 25 February 2009 to develop a regional programme. It was attended by IOC countries and some regional and International organisation. The recommendations include:

- Expansion of the climate and sea level monitoring to obtain long term series of data to identify trends
- Development of regional climate model for climate scenario
- Preparation of a current and future climate change report
- Climate proofing in the region.

A second meeting was held on 6 April 2010 to develop a strategy and prepare a document for presentation at COP 16 (Mexico, November 2010). The Copenhagen accord was presented and discussed in depth. Though a legally-binding agreement with clear and quantified targets was not reached as sought for during the previous UNFCCC negotiations, one important outcome of the “Copenhagen Accord” that resulted from the conference was the financial commitments made by developed countries through the Copenhagen Launch Fund to support adaptation and mitigation actions in developing countries. The need to reduce emissions so as to keep the global temperature below 2 degrees Celsius was recognized. It was further highlighted that in the context of future assessment of the implementation of the Accord, limited temperature increase to below 1.5 degrees Celsius should be negotiated.

On the funding side, the Accord made provision for US\$ 30 billion to be spent in 2010, 2011, and 2012 for tackling climate change to support projects, programme, policies and other activities in developing countries with balanced allocation between adaptation and mitigation including REDD-plus, adaptation, capacity-building, technology development and transfer. Developed countries have made a commitment of jointly mobilising US\$100 billion a year by 2020 to address the needs of developing countries.

An enormous amount of work remains to be done to translate the accord into a binding and ambitious international agreement on climate change. The AIMS countries should now mobilize their efforts to develop a financial mechanism to take advantage of the funds available within the framework of the Copenhagen Accord. They should agree on a strategy to prepare and submit national and regional projects eligible for funding under the accord.

Singapore (12 January 2010) and Maldives (29 January 2010) have formally submitted letters_ to the United Nations indicating association with the Copenhagen accord and submitted nationally appropriate mitigation actions. Maldives has set a voluntary and unconditional action achieving carbon neutrality by 2020. Singapore is expected to commence to implement measures to reduce its emissions from 7 to 11 % by 2020. It noted that the accord is not a perfect deal but, nevertheless provides a step in the direction of arriving at a globally binding framework agreement to address climate change.

(iii)African Sea Level Network

Several sea level stations have been installed in the Africa including the Island States Maldives, Mauritius, Seychelles, Rodrigues (Mauritius) as from 1986 by the University of Hawaii within the framework of the Tropical Ocean Global Atmosphere (TOGA) project. These have continuously been upgraded and providing hourly sea level data. These stations now form part of the Global Ocean Observing Sea Level Network (GLOSS). The University of Hawaii Sea level data Centre is responsible for archiving the data and set up a sea level data base. Fast mode sea level data and Research quality data are available on line for operational and research purposes. The AIMS countries have benefited from the services of a technician from the University of Hawaii on an almost annual basis for maintenance purpose.

A survey of the status of the African Sea level network undertaken in 2005 within the framework of the Ocean Data and information Network for Africa (ODINAFRICA) revealed that most of them were in good working condition and are providing useful data to monitor sea level variations and changes. There were gauges at eight (8) locations which were not working. It was noted that only two stations in the entire network met the specifications for tsunami early warning system (Rodrigues and Port Louis, both in Mauritius). Since then the Rodrigues, Port Louis (Mauritius) and Pointe La rue (Seychelles) sea level stations have further been upgraded within the framework of the Indian Ocean Tsunami Early

Warning and Mitigation System. Singapore, Sao Tomé et Príncipe and Cape Verde have also operating sea level stations.

4.2 Natural and Environmental Disasters

Flooding, landslides, drought and high winds characterize the threats the AIMS countries have to face on a regular basis. In addition, most of the countries lie in the cyclone/hurricane belt of tropical cyclone/hurricanes. In the South-West Indian Ocean, around ten tropical storms/cyclones may occur during the cyclone season. Other countries, not directly in the cyclone belt (e.g. Seychelles and Maldives) are affected indirectly by heavy swells emanating from these tropical systems. Storm surges from tropical cyclones and high latitude deep lows, which cause extensive damage to socio-economic infrastructure and the environment, occur occasionally. Climate change and sea level rise are expected to increase the frequency of those extreme events. Tropical cyclones are expected to become more intense and drought as well as floods will occur more frequently. Other natural and environmental disasters include volcanic eruptions particularly in Comoros with the Karthala volcano which erupt now and then and forest fires.

Coastal erosion due to extreme events and sea level rise is a major concern for all the countries. The Tsunami of December 2004 affected some countries in the West Indian Ocean, al be it, not as severe as other countries in the region (India, Sri Lanka, Indonesia). As a tsunami can again occur in the region, this has prompted the establishment of an Indian Ocean Tsunami warning system with the assistance of the IOC of UNESCO which is of benefit to the AIMS countries in the region.

A major Oil spill has never occurred in the region. However, the possibility of an oil accident happening at any time should not be ignored.

The AIMS countries have taken various initiatives and strengthened existing programmes to mitigate the impacts of natural and environmental disasters. These include:

- A National Volcanic Observatory to monitor “Karthala” has been established in Comoros and an International Conference on ‘Karthala’ was organized in November 2008 with support from UNDP
- Following the drowning of 70 people in Guinea Bissau, a National Protection Service and a National Commission for Natural Disaster Management have been set up.
- The Strategic Action Plan for Disaster Risk Reduction (DRR) and Climate Change Adaptation initiated in 2009 in Maldives to strengthen the framework in disaster risk management.
- A Central Cyclone and Other Natural Disasters Committee and A Torrential Rain Emergency Scheme further been strengthened in Mauritius
- A National Civil Protection and Fire Service established in Sao Tomé et Príncipe to coordinate activities in the event of disasters
- In Seychelles, the National Risk and Disaster Management Secretariat (NRDMS) established in October 2004 has been upgraded to a department (DRDM) in 2006 under the President’s Office to help communities identify risks and develop an emergency evacuation plan. Several disaster response simulation exercises were successfully carried out by the DRDM developed a public awareness strategy in 2009 through participatory consultation with stakeholders,
- Several civil emergency preparedness and disaster management frameworks and plans for planning, coordinating and implementing emergency preparedness programmes and activities put in place in Singapore.

At the regional level, many initiatives have been taken to coordinate response strategies.

Indian Ocean Tsunami Warning and Mitigation System

On Dec. 26, 2004, more than 230,000 people in countries bordering the Indian Ocean lost their lives in the deadliest tsunami in history. The two AIMS countries worst hit were Maldives and Seychelles. In the Maldives, 82 people were killed and 26 reported missing. Two-thirds of the capital city Malé was flooded some of the major resorts, completely submerged at the peak of the tsunami. In Seychelles a bridge linking the Seychelles international airport with the capital, Victoria was destroyed. Widespread damage to beaches, coastal vegetation, roads, bridges, houses and other infrastructure occurred. Total estimates of damage amounted \$30 million. Wave run up in Comoros was of the order of 6 m. Some low-lying areas in the coastal region of Mauritius were inundated without much damage.

The lack of any warning system or proper education in the Indian Ocean region was evident as people were caught by surprise. As a consequence, the Intergovernmental Oceanographic Commission of UNESCO (IOC-UNESCO) received a mandate from the international community to coordinate the establishment of the System following several international and regional meetings. The Indian Ocean Tsunami Warning System is a tsunami warning system set up to provide warning to inhabitants of nations bordering the Indian Ocean of approaching tsunamis. It was agreed to in a United Nations conference held in January 2005 in Kobe, Japan Seventeen Seismic VSAT stations with 2 Central Recording Station have been installed within the framework of the programme to provide the seismic event alert to the scientists through SMS and E-mail automatically within 2 min. The system became active in late June 2006. It consists of 25 seismographic stations relaying information to 26 national tsunami information centers, as well as three deep-ocean sensors.

The AIMS countries are now participating in and benefitting from the Indian Ocean Tsunami Warning and Mitigation System put in place under the aegis of the IOC of UNESCO, in cooperation with the Pacific Tsunami Warning Center (PTWC) from the USA and the Japan Meteorological Agency (JMA). All participating countries now receive international tsunami warnings from the Pacific Tsunami Warning Center (PTWC) and the Japan Meteorological Agency (JMA), and most countries receive these warnings at facilities with back-up systems for receiving warning messages that operate 24 hours a day, 7 days a week.

The AIMS countries are now better prepared in the event of the occurrence of a Tsunami. Early Tsunami warning systems have been established with the involvement of all stakeholders. Tsunami sensitization campaigns are ongoing to raise awareness on tsunami system and characteristics, precautions and actions to take, refugee centres and tsunami refugee points identified. An effective system to disseminate early warning has been established in the countries Seismographic stations to detect earth quakes have been installed, existing tide gauge stations strengthened and new stations set up. Simulation exercises to coordinate activities among stakeholders and identify weaknesses in warning systems are being organized on a regular basis.

Preparation for the Use of the Meteosat Second Generation satellite in Africa (PUMA)

The PUMA has enabled 53 African countries including the AIMS countries to be equipped with computers, satellite receivers, training and application support for receiving meteorological data to receive data and information from the Meteosat Second Generation (MSG) satellite to improve weather forecast and prepare early warnings to save life and property. It is helping countries fight drought, starvation, underdevelopment and other problems through the better use of meteorological data. It is the first pan-African project to receive funding from the European Commission. The U.K.,

Belgium and France also contributed to the project through bi-lateral cooperation. All countries in Africa have now the same level of equipment as in Europe.

Western Indian Ocean Islands Oil Spill Contingency plan

No major oil spill has occurred in the western Indian Ocean countries. However, it is recognized that 30% of world petroleum is transported through the Mozambique Channel. Hence, it is vital that countries in the region should get prepared as there is inadequate national and regional capacity to respond to any major oil spill emergencies. This World/ GEF International waters project terminated in 2003. It has enhanced the capacity of many AIMS countries in the WIO. Mauritius has established a National Oil Spill Contingency Plan. Some tar balls reached the shore of the island in the 1970's.

The WMO South West Indian Regional Cyclone Committee

In the South West Indian Ocean tropical cyclone basin, the cyclone season officially starts on 1 November and ends on 15 May. The main warning center is the Regional Specialised Meteorological Centre at La Reunion Island (France) but the naming of Cyclones is the responsibility of the Meteorological services of Mauritius and Madagascar. A regional cyclone committee has been set up under the aegis of the World Meteorological services to coordinate regional cyclone activities. All the AIMS countries of the Indian Ocean are members of the committee. It meets on a bi-annual basis to review procedures, provide guidelines to coordinate regional activities and plans regional cyclone programmes.

4.3 Management of Wastes

The shortage of land areas and resources available for safe disposal makes the management of waste a critical issue for AIMS. The disposal of waste is a serious constraint to sustainable development. They are significant contributors to marine pollution and coastal degradation. Both land and sea-based sources of pollution require urgent attention.

The problem of how to safely dispose of solid and liquid waste, particularly, the wastes generated by urbanization, which result in the contamination of groundwater and lagoon areas, is worsening with increase in population. In Mauritius, more than 1000 tons of solid waste is generated everyday mostly in Port Louis, the capital. One of the islands of the Maldives is solely being used for the disposal of waste collected in the other islands. Incineration, while reducing the volume of waste, is prohibitive in terms of cost and still requires the disposal of ash containing potentially hazardous substances in high concentration. In Comoros there is not an organized system for the proper collection and management of waste. This constitutes a major problem to health.

National plans of Action for abating land based sources of pollution as well as a regional protocol for existing environmental conventions such as the Nairobi conventions and annexes are being planned. Broad stakeholder participation and private sector co-operation with the other strong focal points in the project is being promoted. In the Maldives, strict restriction for waste management for the hotel industries has been adopted. As a consequence, though the tourism sector has a much higher rate of waste generation in comparison to Male' and inhabited islands, the problems relating to waste management are relatively small due largely to better waste management facilities. Initiatives on composting to reduce solid waste have been taken by many countries (Maldives, Mauritius, and Seychelles). Singapore is using waste as a

resource to produce electricity through incineration. This accounts to 2 to 3% of the country total electricity supply. Mauritius is planning to do so.

The passage of ships carrying toxic and hazardous waste, chemicals and radioactive materials and tankers carrying oil to the region is of priority concern. Though some AIMS countries (e.g. Mauritius) have established national oil spill contingency plans and IOC, a region oil spill contingency plan, the sub-region will unlikely cope with a major waste ship/oil tanker accident. Most AIMS have ratified the Basel Convention on the control of transboundary movements of hazardous wastes and their disposal, the convention on the Prevention of Marine Pollution by Dumping of Wastes as well as regional conventions. The disposal of ballast water from ships in the open sea and in the port should be closely monitored. Port reception facilities for the collection of waste according to the International Convention for the Prevention of Pollution for Ships should be established.

Since long-term disposal options are limited, there is a need to look for ways of minimising and/or converting wastes such as sewage into a resource (e.g. fertilizer for agriculture). This will include action ranging from limiting impacts of non-biodegradable and hazardous substance to changing attitudes to the disposal and use of sewage. Mauritius has already taken the initiative to ban the use of non-biodegradable plastic bags. This initiative has also been taken in Seychelles.

Regional Initiatives

At the regional level some initiatives have been taken to address pollution issues.

UNEP-GEF project “Addressing land-based activities in the Western Indian Ocean” (WIO-Lab)

Marine pollution from land based sources is becoming a serious problem in the Western Indian Ocean. Agricultural practices, coastal tourism, ports and harbour developments, damming of rivers, urban development and construction, mining, fisheries, manufacturing, among others, are sources of marine pollution threatening coastal and marine habitats. To address the issue, the WIO-Lab is being implemented in the region. Comoros, Mauritius and Seychelles are the participating AIMS countries. It concentrates on some of the major environmental problems and issues of the region: degradation of the marine and coastal environment due to land-based activities. It is a direct follow-on to the African Process and the World Summit for Sustainable Development (WSSD). Three objectives developed for this GEF project include:

- Reduce stress to the ecosystem by improving water and sediment quality;
- Strengthen regional legal basis for preventing land-based sources of pollution through GPA; and
- Develop regional capacity and strengthen institutions for sustainable, less polluting development.

Each of the countries has its own set of relevant laws, policies, regulatory and institutional frameworks to address environmental matters generally. These are “Le Direction General de Environment” for Comoros; the Environment Protection Act (2002) (Mauritius) and the Environment Protection Act (EPA) 1994 and the Ministry of Environment for Seychelles. However, none of the countries has dedicated Land Based Sources and Activities Management (LBS/A) legislation, policy or institutions.

Some useful outcomes have emerged in the course of the project implementation. Countries should intensify efforts at better implementation and enforcement of existing laws and policies, identified as a major weakness across the region. It is imperative and urgent to create a regional legal framework in the

region in the form of the proposed LBSA Protocol to the Nairobi Convention. The countries should establish, strengthen and implement environmental impact assessments (EIA) regulations nationally and regionally. It is also recommended that bold and specific prohibitions of certain degrading activities and practices such as beach sand mining, and disposal of raw sewage to the ocean should be undertaken. It is recalled that Mauritius has already banned sand mining as from October 2003 and rock sand has invariably replaced coral sand in construction practices.

Sustainable funding, however, remains a major challenge. Countries individually and as a region should seek more sustainable funding mechanisms, including the establishment of strategic partnerships, grants and long term low interest credit facilities.

Marine Litter in the West Indian Ocean Region

Marine litter/ solid waste are becoming a significant contributor to marine pollution in the Western Indian Ocean. Synthetic/ plastic litter particularly damages ecological, economic, cultural, recreational and aesthetic values of coastal and marine ecosystems and their components. It has a potential of becoming a significant transboundary problem in the WIO Region if it is not addressed as a matter of urgency. A project has been implemented under the auspices of UNEP-GEF WIO-LaB Project entitled “Addressing land-based activities in the WIO Region” to make an assessment of marine litter problem in the WIO in 2007. The major land-based sources of marine litter are found to be:

- Waste from legal and illegal dumpsites located on the coast or on river banks;
- Rivers and floodwaters;
- Industrial outfalls;
- Discharge from storm water drains, untreated municipal sewerage; and
- Littering of beaches and coastal picnic sites/eating areas.

Key findings of the assessment include:

- In most countries in the WIO Region, very little data exist on quantities, types, trends, sources and sinks of marine litter;
- Marine litter is not dealt with in policy or law as a separate category of waste; it is considered to be part of the general waste stream in the Western Indian Ocean region;
- The most significant source of marine litter is solid waste associated with surface runoff from urban areas;
- Marine based sources of litter do not appear to be as significant as land based sources;
- The extent to which solid waste generated on land is prevented from reaching the sea varies greatly between countries, and regions within countries; and
- Although the overall levels of marine litter produced by the countries in the Western Indian Ocean must be insignificant compared with levels from highly industrialised economies, the situation has a potential of becoming serious and in this respect it requires urgent remedy.

4.4 Coastal and Marine Resources

The AIMS are the custodians of very significant ocean space with extensive EEZ. They are highly dependent on coastal and marine resources because of their contribution to the economy through fishery and tourism. They are important sources of income and foreign exchange. For example, in Seychelles, coastal tourism contributes 46-50% of GDP, 70% of foreign income and employs 20% of

the population and in Cap Verde, tourism is the most important economic resources. Fisheries are an important socio-economic activity particularly in Maldives and Seychelles. The heavy dependence of the AIMS countries on coastal and marine resources emphasizes the need for appropriate and effective management.

The AIMS countries have established Marine Protected Areas (MPAs) and measures for more effective protection, conservation and management of MPAs have been promulgated under various Fisheries, Coastal, and Marine Resources Acts .Most AIMS countries have produced National Environmental Action Plans, which highlight gaps and recommended project proposals to address coastal and marine issues, including Integrated Coastal Zone Management (ICZM). Mauritius is in the process of finalizing an ICZM Plan. Most AIMS countries have established National Oceanographic Data Centres (NODCs) within the framework of the IOC/UNESCO Ocean Data and Information Network for Africa (ODINAFRCA). Many Argo floats to provide a profile to 2000m water depth of temperature and salinity every 10 days to enable the measurement of the storage and transport of heat and freshwater, which are fundamental elements of the climate system project have been deployed in the WIO. Mauritius participated in the project and has deployed a few floats off St Brandon Island.

The countries are preparing their claim for an extension of their continental shelf as required under Article 76 of UNCLOS. The Republic of Mauritius and the Republic of Seychelles made an official joint presentation of their submission for the extension of their continental shelf to the United Nations Head Quarters in March 2009. In May 2009, the Republic of Mauritius made another submission to the United Nations for an Extended Continental Shelf in the region of Rodrigues.

4.4.1 Regional initiatives

Several coastal and marine projects are being implemented particularly for the benefit of countries in the WIO. These include:

Indian Ocean Tuna Commission

The WIO is very rich in tuna fisheries. The main species are big eye tuna, yellow fin tuna and swordfish. In Maldives, large scale investment has been made in fishing infrastructure in the skipjack tuna industry in the past few years. And large yellow fin tuna has further developed in recent years and represents, on average about 14 percent of the total landings over the past five years. Many foreign vessels are operating in the region and some species are being over exploited particularly yellow fin tuna. For sustainable management of the tuna stocks, the Indian Ocean Tuna Commission (IOTC) has been established to promote cooperation among its Members with a view to ensuring, through appropriate management, the conservation and optimum utilisation of stocks and encouraging sustainable development of fisheries based on such stocks.

To achieve these objectives, the Commission has the following functions and responsibilities, in accordance with the principles expressed in the relevant provisions of the United Nations Convention on the Law of the Sea:

- To keep under review the conditions and trends of the stocks and to gather, analyse and disseminate scientific information, catch and effort statistics and other data relevant to the conservation and management of the stocks and to fisheries based on the stocks covered by this Agreement;
- to encourage, recommend, and coordinate research and development activities in respect of the stocks and fisheries covered by this Agreement, and such other activities as the Commission

may decide appropriate, including activities connected with transfer of technology, training and enhancement, having due regard to the need to ensure the equitable participation of Members of the Commission in the fisheries and the special interests and needs of Members in the region that are developing countries;

- to adopt, on the basis of scientific evidence, conservation and management measures to ensure the conservation of the stocks covered by this Agreement and to promote the objective of their optimum utilisation throughout the Area;
- To keep under review the economic and social aspects of the fisheries based on the stocks covered by this Agreement bearing in mind, in particular, the interests of developing coastal states.

One the project being implemented in the region is the Tuna Tagging project (2005-2010). The project, funded by the European Union, studies the tuna stock structure and its distribution in the Western Indian Ocean. It will contribute to improve scientific and practical knowledge of the tuna and small pelagic stocks in the region.

South West Indian Ocean Fisheries Project (2008-2012) (SWIOP)

The West Indian Ocean is one of the largest of 19 global major fishing areas demarcated by the Food and Agriculture Organization of the United Nations (FAO). While global trends in fish landings for most of the 19 areas are negative, the West Indian Ocean has maintained a steady rate of increase in total landings. This has largely been as a result of the increased harvest of tuna and tuna-like species, along with recent additions of tooth fish and orange roughy. This body of water provides sustenance and job opportunities to an ever-increasing human population, but riparian countries mostly developing countries lack the capacity to draw appropriate benefits from the resources in their exclusive economic zones (EEZ). Consequently countries of the region are implementing a collaborative project, the World Bank” South West Indian Ocean Fisheries Project” (SWIOFP), to provide an overall transboundary diagnostic analysis (TDA) and associated Strategic Action Plan (SAP).

The objectives of the Southwest Indian Ocean Fisheries Project (SWIOFP) are to: (i) identify and study exploitable offshore fish stocks within the Project Area, and differentiate between environmental and anthropogenic impacts on shared fisheries; (ii) develop institutional and human capacity through training and career building; (iii) develop a regional fisheries management structure and associated harmonized legislation; and (iv) mainstream biodiversity in national fisheries management policy and through national participation in regional organizations that promote sustainable exploitation of fisheries resources. The IOC countries are participating in the project.

It focuses on existing and potential deep-water fisheries in the region with 150 m isobaths as the inshore limit. The following main components are in the process of implementation:

- Collection of data describing the various fish species in the 200 mile limit;
- A fish pressure survey to estimate the commercial fishing pressure in the study area;
- Establish a project management structure which includes collaboration, capacity building and shared decision making;
- Formulation of intermediate management guidelines to reduce threats to endangered fish species and to control exploitation of fish stocks to environmentally sustainable levels; and
- Adoption by the end of the project of a fisheries management strategy including appropriate institutions at a regional level for implementation of and ecosystem approach to LMEs and their fisheries resources.

The Regional Coastal and Marine Conservation Programme for West Africa

The Regional Coastal and Marine Conservation Programme for West Africa was established through a joint initiative by the World Conservation Union - IUCN, the International Foundation for the Banc d'Arguin - FIBA, the Worldwide Fund for Nature - WWF, and Wetlands international - WI, in partnership with the Sub-regional Fisheries Commission - CSRP. The purpose of this coordination is to improve the overall coherence of actions, pool available resources, enhance skills at regional level, foster exchanges of experiences, and develop research, training, communication and advocacy action in order to promote a shift toward sustainable development in coastal and marine areas, a change from which human societies will reap the benefits. Cape Verde and Guinea Bissau are participating in the programme.

At the 4th Forum held from 16th to 20th February 2009 in Guinea Bissau, the following recommendations on fisheries management were made:

- To involve professional organizations at all the levels in the conservation of natural resources and fisheries management;
- To promote the diversification of fisheries management tools, in particular the use of artificial habitats (e.g. artificial reefs, etc.);
- To pay particular attention to issues of security at sea for fishers (develop a training and awareness on the use of safety vests etc.)
- To promote participative surveillance to reduce IUU fishing;
- To study the impact of fisheries product processing on mangroves.

AMESD project (Africa Monitoring of the Environment for Sustainable Development)

The AMESD project is an extension to ACP countries of the implementation of the Global Monitoring of Environment and Security (GMES) at a regional scale and on a thematic basis. The main themes covered are: forest, desertification, marine and coastal environment, prevention of natural disasters and weather forecast. IOC is coordinating the marine and coastal Environment component.

Regular remote sensing data from the Meteosat Second Generation satellites are proving of valuable assistance in the mapping of coastal zones and to the creation of inventories of marine biodiversity and their subsequent monitoring. It is helping in the observation of pollution. The observations and data are also providing vital information for the production and dissemination of indicators related to marine habitats and fish stocks with particular emphasis on factors which impact their quality and productivity. These indicators constitute building blocks for scientifically based management policies contributing to the effective governance of marine resources.

Regional Cooperation Management Programme of the coastal zone in the Indian Ocean (RECOMAP, 2006-2011)

This a regional project programme for the sustainable use of the coastal zones of the countries in the Indian Ocean funded by the European Union. Activities include integrated coastal zone management courses, call for proposals, education and awareness programme and support to management committees.

Africa Coelacanth Ecosystem Programme (ACEP)

This project was launched after the discovery of a substantial population of coelacanths near Cape St Lucia off the South African coast where 18 individual were identified. This discovery in 2000 prompted the formation of ACEP as a NEPAD initiative. The programme undertakes research and training in the participating countries, the collection of biological specimens as well as other data monitoring the entire ecosystem.

Agulhas and Somali Current Large Marine Ecosystem (ASCLME)

The five-year Agulhas and Somali Current Large Marine Ecosystems (ASCLME) project is centred on the two Large Marine Ecosystems (LMEs) of the western Indian Ocean region. The objectives are:

- to gather new and important information about ocean currents and how they interact with and influence the climate, biodiversity and economies of the western Indian Ocean region;
- to document the environmental threats that are faced by the countries of the region in a Trans-boundary Diagnostic Analysis;
- to develop a Strategic Action Programme which sets out a strategy for the countries to collectively deal with trans-boundary threats;
- To strengthen scientific and management expertise, with a view to introducing an ecosystem approach to managing the living marine resources of the western Indian Ocean region.

4.4.2 INTERNATIONAL ACTIONS

The region is attracting international interest to enhance marine resources exploration and exploitation.

4.4.2.1 Promoting safe mineral exploration in Seychelles waters

Agreements for prospection/exploration of mineral resources have been signed during the past 6 years taken full consideration of possible environmental impacts

In 2006, Petro quest, an oil prospecting company did a 2 dimensional seismic survey. During the period 2007-2010, East African Exploration is interpreting the seismic data and findings will be presented in 2009.

4.5 Freshwater Resources

Rainfall is abundant in the AIMS countries. The average annual amount of rainfall is of the order of 2000 mm/yr which is adequate enough to satisfy all the domestic, industrial and agricultural needs of the countries. Cape Verde which is situated in the belt of the Sub- Sahara desert is an exception which an average annual rainfall of only 96 mm/yr. However, high run off because of the steep topography of some countries (Sao Tomé et Príncipe, Guinea Bissau, Seychelles, and Mauritius) and lack of facilities to build reservoirs (Maldives), freshwater is becoming a scarce commodity. Water consumption is increasing due to population increase and more demand from tourism and other industries as well as agricultural irrigation. The AIMS countries have taken various measures to preserve freshwater resources to meet the growing demand.

Several countries have begun to invest, at great financial cost, in the implementation of adaptation strategies to offset current water shortage. Seychelles and Maldives have invested in desalination plants. Options such as large water reservoirs and improved water harvesting are now being explored more widely.

Campaigns to raise awareness on efficient use of water and water saving have been organized. School children have been sensitized. In Comoros, a project on waste water management and water resources has been implemented and a water consumption charter prepared and widely disseminated. In Maldives, high priority given in policies to promote rainwater harvesting such as through awareness raising and by providing water tanks to household and for community use. Rain harvesting in schools and households in Seychelles is also being promoted to reduce water demand.

Water quality monitoring has been strengthened to improve distribution of good water quality to reduce incidence of water borne diseases. A water analysis Laboratory has been set up in Comoros. In Maldives, fifteen new sewerage systems completed and construction of 8 new sewerage systems is underway. Public-private partnerships encouraged to operate and maintain the water supply and sewerage services in the islands. Coordination and Programming of the water and sanitation sector has been initiated in Sao Tomé et Príncipe to raise public awareness of good hygiene practices and management of water resources and a Water and Sanitation Master Plan developed. In Mauritius, four storage dams planned to be constructed by 2020 with Bagatelle and Rivière des Anguilles dams in 2013.

4.6 Land Resources

Agriculture is an important activity in the AIMS. In Comoros and Mauritius, 40 and 48% of the land area are under cultivated crops. It employs a significant percentage of the workforce. However, the small size of most AIMS countries coupled with land tenure system, soil type, relief and climatic variations limit the area available for settlement, agriculture, forestry, tourism and other infrastructure. This creates intense competition between land use options. Agricultural output as a consequence of better infrastructure, investment in research and new technologies in Maldives has increased in recent years.

Many countries have resorted to land reclamation to foster new economic development and social facilities. Seychelles is deriving many benefits from the land it has reclaimed from the sea. Many key facilities on the 115 island Indian Ocean archipelago - including the capital city, industrial area, roads, airport and housing estates - are on reclaimed land. The last such project was completed in 2003 when Seychelles reclaimed 350 hectares of land at a cost of US\$ 50 million. Available land for economic activities on reclaimed land is already under pressure. It is studying the possibility of turning shallower ocean area into more hectares of land for tourism, industrial, fisheries, port development and housing.

The Maldives have been set on a policy of land reclamation since Male was hit by towering waves in 1987. The latest one is the 195-hectare reclaimed land at Hulhumale at a cost of more than \$60.5 million and rising more than six feet above sea-level. It is the largest and most complex construction project of its kind. It is fashioned from compacted sand, shredded coral and shell piled on to the natural reef. Houses, a hospital and a school have been built and all facilities and infrastructure such as electricity, water and telephone systems have been provided. Mauritius has also reclaimed some land for port development.

Several bold steps are being taken to preserve land resources and ecosystems. In Mauritius, a National Forest Policy (NFP) was adopted in 2006 with clear guidelines on reforestation with native species, biodiversity conservation and eradication of alien invasive species. In 2006, Seychelles adopted a National Wetland Conservation and Management Policy in its attempt to address and reverse the degradation of wetlands. Propagation of mangroves for the Future (2009-ongoing) to promote investment in coastal zone ecosystem conservation for sustainable development is underway. In

Singapore, policies are being implemented to make optimum use of scarce land resources and ensure utilization in a sustainable manner in Singapore. Higher-density housing and commercial developments is being planned around and integrated with rail transit to provide greater convenience and accessibility to public transportation. In Comoros a small UNDP Grant project on land conservation is being implemented. National Botanical Garden has been created to protect the flora of threatened species in Sao Tomé et Principe.

4.7 Energy Resources

All the AIMS countries depend almost entirely on imported oil as a source of energy. They will continue both in the short and medium term to be heavily dependent on imported petroleum products, in particular for transport and electricity generation. Energy often accounts for more than 12% of import. As they continued to develop, their demand for fossil fuels has also increased in particular for transportation and electricity production.

For many countries, transportation remains the greatest consumer of fuel on account of multi-island characteristic of some countries. In the Maldives, transportation by boats is the main connection facilities between the islands. The distance separating the islands in the north to the islands in the south is more than 800 km. Seychelles having several inhabited islands scattered in the Indian Ocean. The outer islands of the Republic of Mauritius, Agalega and Rodrigues are more than 1000 km and 600 km respectively. Sao Tomé and Principe are separated by more than 600 km. The generation, transmission and distribution of electricity are the second consumer of petroleum. On the other hand, in Sao Tomé et Principe, firewood and charcoal remain the main source of energy. According to data from the Directorate of Statistics, in 2005, about 53770 kt of wood was consumed with about 16450 kt use in the manufacture of charcoal.

Many countries are planning to develop renewable sources of energy such as solar, wind, ocean, wave, geothermal, biomass and hydro power and have adopted strategies and targets for promoting renewable energy. All the countries have a constant supply of solar energy. Solar Water heaters have been promoted in Mauritius and the number of solar heaters has increased substantially in the past few years following a grant offered by Government. The use of solar photovoltaic power, however, is still limited on account of the high cost for installation. They are swept by the trade winds. Some countries like Sao Tomé et Principe have substantial potential for hydro electricity which remains to be fully exploited. Technology for ocean energy is developing rapidly. Proposals to develop waste-to-energy facilities are being considered in Mauritius with the setting up of a 20 MW Waste-to-Energy plant and also in Seychelles.

The production of cleaner alternative energy sources such as biofuel from coconuts or other biomass products is being considered. In Mauritius, test on the use of coconut oil as fuel for vehicles has proved encouraging. Biomass for sugar cane, on the other hand, is providing about 25 % of the energy needs of the country. Biogas for cooking produced from animal waste has been used on a small scale.

Several initiatives have been taken to make countries less dependent on imported fuel. In the Comoros, Studies on potential solar, wind, hydroelectric and geothermal energy have been completed. The sub-regional project for the generation hydro-electricity production of Gambia River will be implemented in 2010 in Guinea Bissau and coal production project (FAO) is envisaged. In Maldives, six alternative sources of energy have been identified within the framework of Science and Technology Master Plan for practical use. Mauritius is planning the construction of two hydro power plants of 375 kW at La Nicolière and Midlands Dam. The Nicolière power plant is expected to be commissioned by early 2011. The Seychelles Energy Commission (SEC) established in July 2009 to promote the use of

more sustainable and viable alternative technologies.

Energy efficiency and energy conservation is being promoted in all countries to reduce energy consumption. Numerous awareness campaigns and workshops are being organized on a regular basis. In Mauritius, Compact Fluorescent Lamps (CFL) heavily subsidized by Government is being sold to the public by Central Electricity Board. This initiative reduced evening peak demand up to 14.36 MW. In Singapore, enhanced awareness promoted on greater use of public transport, with a goal of achieving a 70:30 ratio between public and private transport journeys by 2020.

4.8 Tourism Resources

Tourism is one of the few development options for most of the AIMS countries. It has special significance for them as they are not resource-rich and therefore depend upon international tourism as an important source of foreign exchange earnings. It has contributed much to the economic development of a number of countries including Maldives, Mauritius, Seychelles and Singapore and will continue to be important for their future growth. Tourism development has also created new business opportunities for entrepreneurs of small and medium-sized enterprises.

The number of visits is increasing in all the countries. The table below shows that the number of tourists' arrivals has increased after 2005.

Table VI - Number of Tourist arrivals (2000, 2005 and 2007)

Country	Year		
	2000	2005	2007
Bahrain	24,000	26,000	29,000
Cape Verde	8,000	5,000	12,000
Comoros	467,000	395,000	676,000
Mauritius	656,000	761,000	907,000
Sao Tomé & Príncipe	7,000	16,000	12,000
Seychelles	130,000	129,000	161,000

Tourism accounts for a substantial share to the GDP and employment, foreign earnings, construction, banking are all dominated by tourism-related industries. In the Maldives, development activities are mainly centered upon the tourism industry and its complementary service sectors. It is one of the largest employers in the country contributing 32.5% to GDP in 2001. The number of tourists almost trebles from 1992 to reach 676,000 in 2007. Tourism represents the third foreign earning in Mauritius and contributes 11% of the GDP. In Bahrain, tourism is expanding and is most likely to be one of the most important contributing factors to national economy. In Seychelles, it accounts for about 20% of

the GDP and 17% of employment. The initiative for the private market to lead the tourism market through the Seychelles Tourism Board is proving fruitful.

The tourism industry is mostly coastal-based and publicity has focused on the three "S" - Sand, Sun and Sea - to attract foreign tourists. It is a very fragile industry and, if not properly planned and managed, could significantly degrade the environment on which it is so dependent. Coastal erosion, coral reef degradation and water quality deterioration are clearly visible in most AIMS countries in the coastal zone. Over-development of tourism in particular areas could be environmentally and culturally disruptive and detrimental to other valuable sectors. Intensive tourism is contributing to the damaging of the coral reef habitat by pollution from boats, hotels and other infrastructure and by excessive walking on coral or its removal for souvenirs.

Sustainable tourism development is being given serious consideration. Much importance is now focused on eco-tourism. It is no longer in the domain of green technology. It is increasingly being recognized that only by means of ecotourism that it is possible to sustainable tourist development. Promoting sustainable ecotourism development and public awareness at all levels of the society has already been taken in some countries. Seychelles Eco-Tourism Strategy for the 21st Century (SETS 21) was launched in 2003 and serves as a basis for reviewing and developing ecotourism products and to create awareness about ecotourism significance for Seychelles. The designation of Ile Moyenne National Park in 2009 has added a new ecotourism attraction for tourists. In Singapore, some major attractions are in the process of implementation such as the Gardens by the Bay and Nature-based attractions to attract environmental related tourism.

Tourism development is also being diversified. Mauritius is positioning itself as a cruising destination. Medical tourism is being developed in Mauritius and Singapore. New high technology clinics have been set up. Mauritius, which is planning to attract 2 million tourists by 2015, is being advertised as a new destination for hair transplant and Singapore as an education hub. A new Mauritius Brand Strategy has been launched in October 2009 to strengthen and enhance the image of the Mauritius destination. Cultural tourism is another area which is being exploited. In Mauritius, local culture is being promoted on the value and beauty of the Creole culture, language, cuisine, art, music and dance, organization of Regatta competitions. A Regional Cruise Strategy is now being promoted in the Indian Ocean to exchange of tourists among the countries.

However, the tourism industry is not well developed in Comoros, Guinea Bissau and Sao Tome et Principe but is expanding. In Comoros, forty five potential touristic sites identified and a master tourist plan has been prepared. A touristic development plan in Guinea Bissau has formulated in 2003 in collaboration with Tourism Directorate but not yet implemented.

4.9 Biodiversity Resources

The region has a large heritage of biodiversity and is considered as a distinct biogeographical province with high levels of regional endemism providing natural wealth which is a critical source for its socio-economic and cultural development. The Western Indian Ocean Islands alone are home to more than 1500 marine endemic species. Endemic to these islands also include about 8000 of the 9500 species of higher plants and more than 50% of all birds, reptiles and amphibians. Besides fisheries, mangroves, sea grass beds and coral reefs reflect a high degree of biodiversity and endemism and, along with beaches and estuaries, serve as a home, breeding ground and nursery areas for many species.

The biodiversity of the countries contributes to their unique ecological conditions. It is important for tourism, food, construction and shelter. Many plant species are used medicinally and several species are being researched for commercial, agricultural or pharmaceutical use. Coral reefs and mangroves

are spawning and nursery grounds for many fish species. They support the tourism industry and subsistence and commercial fisheries. Seychelles has the highest level of amphibian endemism of any island in the world. Over 1200 species of reef fish, 250 species of hermatypic corals and 285 species of algae have also been identified in the Maldives.

The biodiversity ecosystems provide household resources (fruits, wood, meat as well as fish), soil and water conservation, protection against natural forces, recreational facilities and contribute to environmental stability and enhancement. In addition many plant species are used medicinally and several species are in great demand for commercial agriculture or pharmaceutical use.

However, environmental degradation is having significant impacts on biodiversity, Mauritius and Seychelles are ranked second and third of the world respectively in terms of the percentage of native plants that are threatened. Climate and non-climate stresses are threatening the sustainability of livelihoods, hampering thus long-term management planning efforts. The greatest threat is habitat destruction resulting from expansion of agriculture, rapid change in use of land for agriculture, pollution and degradation of soil and human settlements and urbanisation. Additional threats are overexploitation of resources and increasing pollution of the environment. Mangroves are being cleared for mariculture, coral reefs are being mined for lime and construction materials. These are being degraded further by pollution from land-based and sea-based sources and the use of explosives for dynamite fishing.

Invasive alien species pose an additional threat. Their rate of proliferation and spread is of great concern to the survival of indigenous flora and fauna and affecting ecosystem services. For island states, apart from introduction through airports and seaports, the discharge of ballast water in territorial waters is a major dilemma.

However, in spite of the above threats, the region has still a wide range of biodiversity, if properly conserved and managed, can contribute substantially to its sustainable development. The terrestrial biodiversity still play a vital role in the lives of the peoples and not only contribute to their unique ecological condition but also provide valuable raw materials for local and commercial use. The region is endowed with a wide area of coral reefs, which not only protect the coastal countries from high waves, but also supports a rich diversity of coral fisheries for commercial and tourism recreation purposes. Mangrove forest too harbours a rich biodiversity which should be preserved.

The AIMS countries have taken numerous strategies and plans to mitigate the loss of biodiversity. They all have ratified the UN Convention on Biological Biodiversity. In Guinea Bissau, an Institute for Biodiversity and Protection areas has been established in 2005 to coordinate and implement policies on biodiversity and Protection areas and a first Marine Protection Area established. 33 Protected Areas out of which 28 are Marine Protected Areas have been designated in the Maldives. Integration of biodiversity protection into national sustainable development strategies – Atoll Eco Based Conservation Project (AEC) – has been developed. In Mauritius, new policies and strategies developed are being implemented. These include: National Biodiversity and Action Plan (2006 – 2015), National Strategy and Action Plan (2010- 2019) for Invasive Species, National Forestry Policy 2006, of 16 offshore islets, 8 proclaimed National Parks in June 2006. In Sao Tomé et Príncipe National Strategy and Action Plan for biodiversity conservation prepared with aid from GEF. Action Plan for species conservation developed and implemented in Seychelles for Sharks, Terrapins, Seychelles white eye, Seychelles Scops Owl, Coco de Mer, Seychelles Black Parrot, Seychelles Magpie Robin, Seychelles Fody, Seychelles Black Paradise Flycatcher, Sheath tail bat, Sea Turtles. In Singapore, terrestrial ecosystems conserved within a network of two national parks and four nature areas

4.10 Transportation and Communication

Transport and communications are the lifelines linking AIMS with the outside world, with each other and within their own countries. They are important means to make them become closer to the outside world and make them less isolated. They also contribute substantially in achieving sustainable development.

Shipping is an important activity in the region. It can be divided into three main types: domestic, international or transit shipping. In Maldives, marine transport is the only means of connection among the scattered islands of the archipelago. In Mauritius, supply ships to Rodrigues and its outer islands (Agalega, St Brandon) are the only means of providing basic necessities to the people. Safer boats for passengers and cargo have been purchased in Sao Tomé et Príncipe to enable a more secure connection to the island of Príncipe. Port Bandim in Guinea Bissau has been rehabilitated to contribute to the development of fishing activities and maritime surveillance.

The contribution of international shipping – merchant ships, cruises, yachts and pleasure craft, fishing vessels, tankers and containers - on the sustainable development cannot be underestimated. In almost all AIMS countries, most basic food is imported from overseas, mostly by sea-freight. In Mauritius, the port has been transformed into an economic nerve centre, with modern port facilities. The Merchant and Shipping Act (2007) promulgated in June 2009 to ensure that shipping practices and operations are conducted according to international safety norms. A National Strategic Plan for Mauritius shipping sector for 2009-2015 is under preparation to restructure the shipping sector.

Most of them are well connected by air to Europe, the Far East and Australia. Air Mauritius which offers 62 destinations across the world has widened its network on Europe and Asia and has consolidated its fleet with the acquisition of 4 new aircrafts. A gradual air access liberalization policy has been implemented since 2005 to increase overall seat capacity and provide multiple designations of airlines and cooperative arrangements with third country airlines. In Comoros, a new international airport constructed and the Anjouan airport has been rehabilitated. Regarding air transport in Sao Tomé et Príncipe, the national authorities have set up a national company, in conjunction with another company, thereby increasing the existing options for air travel to Europe which has somewhat stabilized the price of air tickets, even at peak demand time.

Land transport has been growing steadily and most report an increase in the number of vehicles in use. Various steps have been taken to reduce the number of accidents and made land transport safer and cleaner. In Mauritius, under the National Road Safety Strategy, speed limits have been reviewed to strike the right balance between traffic fluidity and road safety and laser speed radar installed. A general speed limit of 65 km/hr, with limit of 40 km/hr in the built-up areas has been imposed in Seychelles to address the problem of frequent accidents due to narrow roads. To improve the effectiveness of The Fuel Economy Labelling Scheme (FELS), mandatory fuel economy labelling for passenger cars and light goods vehicles has been introduced in Singapore as from 1 April 2009. The number of green vehicles-cleaner and more fuel-efficient increased substantially from about 140 in 2005 to more than 5,400 by the end of 2008 as a consequence of promotion for green vehicles.

In the area of telecommunication, mobile phones and the use of internet have increased substantially. A mobile telephone network has been established in Comoros and an ADSL and CDMA network developed and GSM network extended. In Maldives, telecommunications services, especially the cellular mobile services have expanded to cover nearly the entire country and 100 percent penetration

in teledensity achieved. In 2008 in Singapore, mobile penetration rate at almost 100%, household broadband penetration was almost 100%, a jump from about 77% in 2007. From 2007 to 2008, 3G mobile subscription also increased by 47%. Mauritius has been transformed into a cyber island. Between 2007 and 2008, a number of measures have been taken to bring down telecommunication charges.

The use of e-technology in education and services has increased substantially. In Seychelles, new policy to promote accessible, affordable, high quality and well-regulated ICT facilities and services, for a modern, ICT enabled and knowledge-based information society has been drafted. A robust infocomm infrastructure put in place in Singapore within the framework of the overall “Intelligent Nation 2015” (iN2015) master plan to improve access to and literacy in infocomm usage. ICT in education has been deployed to provide a learner-centric and collaborative learning environment that equips the youth to face the challenges of a digital, knowledge-based world. In Maldives, A Government computer network and e-government has been implemented under the ongoing Information Technology Development Project (ITDP).

Information and Communications Technologies have been modernized. In December 2008, Mauritius along with Member States of the Indian Ocean Commission signed the “Protocole d’Accord” relating to the project - SEGANET (the Inter Island connectivity project) for connection via a sub marine fibre optic cable. A link between Seychelles to East Africa via fibre-optic cables to improve the accessibility of the internet is planned. In Sao Tomé et Príncipe, an agreement has been made for the installation of submarine cable to connect with Gabon signed with Santomean Telecommunications Company.

Chapter 5

Challenges, Constraints and Lessons Learnt

The Barbados Plan of Action and the Mauritius Strategy provide the right guidance and tools to promote sustainable development, build resilience and capacity, eradicate poverty and improve the livelihood of the people. As noted in the previous chapter, some progress has been made in the implementation of the Mauritius strategy in spite of many constraints. However, much remains to be done in the majority of the AIMS countries to provide productive and decent employment for all including women and young people, improve sanitation for the health of the communities and the local environment, preserve the natural resource base on which the future of the countries depends, develop more efficient 'green' technologies and make the structural changes needed that will contribute to sustainable growth.

The determination to move towards sustainable development is present as shown by the numerous actions taken during the last five years. With greater political will, the goals are achievable. On the other hand, many challenges, both internal and external, remain and are likely to become more difficult in the current economic climate. The poorest ones – Comoros, Guinea Bissau and Sao Tomé – already face great difficulties to implement plans and strategies developed within the framework of the BPOA and MS. Even countries with high HDI lack some capabilities to address various issues hampering their smooth development.

5.1 Main Challenges and constraints

The main challenges and constraints include:

Insufficient level of financial and technical support

Most of the AIMS countries lack funding and technical support to address their socio-economic and environmental concerns. The poorest countries, in particular, Comoros, Guinea Bissau and Sao Tomé et Príncipe face great difficulties in implementing adaptation measures to address climate change and sea level rise impacts or take advantage of potentially important coastal and marine resources in their large EEZ for their sustainable development. Even better off countries like Maldives and Seychelles lack the technical knowhow to deal with environmental disasters.

The AIMS countries are all located in regions where rainfall is plentiful. However, water conservation poses great problem. Most of them are either flat making it difficult to build reservoirs or mountainous with high run off towards the sea, The management of solid and liquid wastes including hazardous is also very poor in some countries. The supply of good water quality in Comoros, Guinea Bissau and Sao Tomé et Príncipe for domestic purposes is not available jeopardizing thus the health of the population.

Though it is generally agreed that it is the primary responsibility of individual States, themselves, to implement the Programme of Action and other development strategies, there is still limited access to financial and technical resources from the international community to assist countries to meet their obligations. The concern noted 5 years ago that “10 years after the Global Conference on the Sustainable Development of Small Island Developing States, held in Barbados, implementation of its commitments had fallen far short of expectations, largely due to insufficient levels of financial support” still prevails. Since the Mauritius Strategy, the implementation gap has widened. The

ecological, economic and social vulnerabilities of small island developing States and their lack of resilience caused by financial markets and globalization has magnified the lack of capacity of most countries to mobilize the necessary funding and technical expertise required to fully implement the Mauritius Strategy.

Financial constraints have also hampered the development of renewable sources of energy compelling the countries to continue to rely almost entirely on imported fossil fuels. On the other hand, the countries are endowed with plenty of sunshine and wind energy, which are yet to be exploited, on account of the high cost of production and lack of technological knowhow. Ocean energy also is promising. France which has the technical and financial capacity for investment is contemplating of producing ocean energy in the region of Reunion Island in the Indian Ocean from the Ocean Thermal Energy Conversion concept. In Sao Tomé et Príncipe, firewood as well as charcoal remains one of the most important sources of energy amounting to 32.6 % of the total consumption in 2005. Paradoxically, hydro-electrical power, the potential of which is immense, represents only 1% domestic energy consumption. It is noted that in 2004 and 2005 hydro-electric production decreased due to long and tedious electro-mechanical maintenance works.

Much focus has been given to energy conservation and energy efficiency. Many countries have promoted the use of solar heaters and low energy Compact Fluorescence Lamps (CFL). Education has been intensified in schools and social centres to encourage the saving of electricity at community and individual levels through very basic and simple actions. Building codes are being revised in Mauritius and Seychelles to promote better energy management aspects such as using natural lighting and ventilation.

Some ideas have been developed to assist SIDS to generate financial revenues. Trade for fishermen is considered as a sustainable source of mobilization and has been highlighted in various fora. However, most small island developing States are too small to be competitive in international markets and require support in enhancing their competitiveness. Moreover, their share of global trade is too small for the failure of their economies to have any significant impact on the global economic system. Due to their remoteness and small markets, many countries have great difficulties in attracting external financial resources, including from international financial institutions. The appeal for Small Island Developing States to be given special treatment in WTO and the ongoing Doha round of multilateral trade negotiations is yet to materialize. The inherent vulnerabilities and priority concerns of AIMS SIDS, such as those related to small size and isolation which cannot be changed, have to be factored into the multilateral development agenda and work programmes.

Global Crises: Economic, Food and Energy Crises

The last five years have witnessed several global crises affecting seriously, both directly and indirectly, the economies of the AIMS countries. Income growth, climate change, high energy prices, globalization, and urbanization are transforming the world food situation. Food prices have been rising (some have more than doubled) affecting not only the world's poor, but also communities that had so far been food-secure. High food prices are expected to remain high, intensifying concerns about food security. The situation has "major setback" in the accomplishment of the Millennium Development Goals and implementation of the Mauritius strategy.

The impacts have varied from country to country and responses have led to mixed results. In Seychelles, the initiation of the country economic reform measures unfortunately coincided with the global economic crisis as well as the energy and food crises of 2008, exacerbating the local economic situation. Fuel prices were prohibitive, affecting the costs of local goods, transportation and the cost of

imports. The cost of many basic imported food items such as milk, rice and wheat products more than doubled. In response to the food crisis, Seychelles introduced a new Food Security Strategy in 2008 to find ways of becoming more self-sufficient in basic foods which can be produced in Seychelles such as fish, poultry, pork, fruits and vegetables. However, the prices of fuel, foods and many other imported goods had come down significantly by the end of 2009, mainly due to the stabilization of the currency, but still remain much higher than pre-crisis prices.

The global economic crisis had a severe effect on tourism earnings in the first quarter of 2009, but by the end of 2009, the tourism industry reported a complete recovery with the number of arrivals comparable to 2008. In response to these challenges Seychelles initiated the development of a new Energy Policy which will address issues of alternative energy sources to reduce the country absolute dependence on imported fuel.

In Guinea Bissau, the GDP dropped from 3.3% in 2008 to 3.0% in 2009. This decrease was attributed to the global economic crisis and the rise in global energy prices. The inflation rate was 10.4% in 2008 as a consequence of significant increase in the price of basic food commodities and fuel. Economic reform is expected to increase the GDP to 3.8% in 2010.

Mauritius too was affected to a certain degree by the global crisis but the bold economic reform undertaken recognised worldwide since the beginning of 2005 softens the impacts. Growth rate in 2009 slowed down from 5.1% in 2008 to 2.8%, mainly because of the negative growth rates recorded in the following industry groups: textile (-4.0%) and in the hotels and restaurants (-6.4%). Against the backdrop of the seriously deteriorating global economic outlook and its repercussions on domestic activity, the balance of payments for 2009 was bleak. Tourism receipts and export proceeds remained under severe pressure owing to persistence of recessionary conditions in almost all advanced economies and the main export markets of Mauritius. Inflows of foreign direct investment slowed down while outflows of portfolio investment persisted in 2009 against the backdrop of heightened risk aversion among global investors, persistent credit strains and lower domestic growth.

Since early May 2008, Mauritius has been taking measures to cushion the economy from the risks of deterioration in the world economy. This include the presentation of Additional Stimulus Package (ASP) amounting to \$350 M spent basically on major capital projects with focus on fast-tracking and frontloading of existing public infrastructure projects, new investments in public infrastructure, accelerating private sector investment, improving business climate, building human resource capacity, and supporting vulnerable sectors such as the Small and Medium Enterprises, export oriented & manufacturing and tourism. This prevented to a large measures to the loss of jobs. The economy is picking up and the growth rate is expected to be 4.6 % in 2010.

Natural and environment disasters in the AIMS countries

During the period under review, several natural and environmental disasters, in addition to the global crisis, exacerbated the bleak socio-economic and environmental conditions. These included:

- Landslides occurred a few years ago in Sao Tomé et Príncipe in the area of Rebordelo in the north of the island of St Thomas, burying the entire community and killed the entire population of the community;
- Mauritius recorded record sea surface temperature of more than 31 deg C in its waters causing wide spread coral bleaching and torrential rain and flooding on many occasions killing 4 people on one occasion;

- The tsunami of December 2004 caused severe damages to the physical infrastructure of many island estimated at US\$ 470 million, amounting to 62 per cent of the Gross Domestic Product or GDP in the Maldives;
- Frequent volcanic eruptions in the last few years in Comoros covering at times three quarter of the island with sand and ash affecting about 284000 people;
- The sinking of several boats in Guinea Bissau in January 2009 caused the loss of life of 70 people;
- A strong storm hit the island of Praslin, Seychelles in 2002 causing the occurrence of record winds speed and considerable damage to infrastructure; and
- In addition, many countries have suffered from human-induced disasters related to chemicals management or poor land planning. HIV/AIDS, Malaria and other diseases as well as new pandemic such as H1N1 and Chikungunya affected almost all the countries, with serious repercussion on their socio-economic development. In Mauritius, Chikungunya was first reported in 2005 and accounted for 1,381 cases. In 2006, 11,165 cases were reported. Fortunately with drastic measures and education, only one (imported) case of chikungunya was reported in 2007 and none in 2008. Influenza A (H1N1) has also been contained following better control of incoming passengers, use of antiviral drugs personal protective equipment.

Lack of human resources and insufficient institutional capacity

As reported in their national assessments, many countries suffer from lack of qualified man power and poor institutional capacity to address the challenges caused by socio-economic and environment problems. Brain drain because of lack of opportunities for employment exacerbates the problem. In Seychelles, it is estimated that a significant number of graduates default on their bonds and do not return to the country.

The AIMS countries have signed many international and regional conventions and agreements- UNFCCC, UNCBD, RAMSAR, CITES, Convention on Migrating Species (CMS/Bonn convention, and Nairobi convention. It is widely recognised that implementing those conventions and agreements will contribute significantly to meet the challenges to achieve sustainable development and alleviate poverty. However, many of the countries lack the capacity to implement fully the complex provision of this growing body of international and regional laws. Moreover, the multiplicity of multilateral reporting requirements has been a burden on AIMS/SIDS although some countries are exploring integrated and simplified reporting approaches. Building their capacity with assistance from the international community to meet the challenges is an urgent priority and effective investment for sustainable development.

The critical importance of human resources development through education, training and capacity-building has been highlighted on several occasions. The establishment, of multidisciplinary centres of excellence, to take full advantage of the social capital available in small island developing States and enhanced cooperation among them to maximize and better harness scarce resources, should be given serious consideration.

5.2 Lessons Learned and some best practices

Although the progress achieved in some countries to implement the Mauritius strategy has been far from satisfactory, much experience has been gained during the last five years and many lessons learned.

Advocacy role at international level

The AIMS countries are vulnerable to external shocks and activities taking place outside their boundaries. Although their emission of GHGs is insignificant, they are at the forefront of climate change and sea level rise caused by activities of developed countries since the industrial revolution in the 1850s. Global warming is expected to continue. Marine pollution in their EEZ because of international shipping is another trans-boundary issue. There is nothing at national level that they can do to address such issues. The only alternative that SIDS has is to attract world attention to their plight and raise their voice in international fora. The initiative of the Maldives to hold a cabinet meeting under water is a laudable example. The International Year of Biodiversity and the CBD COP-10 planned for October 2010 provide an opportunity for the SIDS to highlight their concern on the loss of biodiversity and share knowledge and best practices.

However, visible evidence on impacts on socio-economic and environmental sectors resulting from activities from other countries is needed to be credible. It has been realized that there is lack of data and information in many areas to provide concrete, objective and quantitative proof. Absence of long term series of sea level data in many countries to demonstrate sea level increase is one example. Consequently, lack of an efficient observations network and systematic, timely and routine collection of relevant data have been identified as shortcomings to be addressed.

Diversification of the Economy

Many countries have diversified their economy to enhance their resilience towards external shocks. From a supported monocrop economy, predominantly dependent on sugar, Mauritius has successfully diversified its economic activities by carving out special niches in textile, tourism and financial services. The share of agriculture in the economy has dropped from 3.2% in 2005 to 1.7% in 2009, and textile from 6.7% to 5.3%, that of financial intermediation increased from 10.3% to 11.7%.

Diversification of the economy remains a priority. Many countries depend on imports for their staple food. Agricultural diversity is another initiative, which has to be encouraged to reduce dependency on imported food.

There is also a shift from the branding of the islands as touristic destinations for sea, sand and sun as other countries nearer to the marine tourist markets have similar characteristics and facilities. Eco-and cultural tourism is being promoted. Mauritius is being advertised as a destination for medical tourism and provision of hair grafting services and Sao Tomé and Príncipe as a spa destination. Singapore has successfully marketed themselves also as business destination, as well as serving as health care and education hub.

5.3 Constraints and Challenges in the thematic areas

The constraints and challenges faced by AIMS and some measures taken to address issues related to the thematic areas are given below.

Climate change and Sea Level Rise

Though SIDS contribute less than 1% of GHG to the global inventory, they are the most vulnerable to the impacts of GHG-induced climate change and sea-level rise in view of their unique physical characteristics and geographical locations. Socio-economic sectors, which will be most affected, include coastal and marine resources, water resources, agriculture and the health sectors.

There are clear indications that global warming is already occurring. Eleven of the warmest years on record since observations started in the mid 1980's occurred during the last 12 years with 1998 as the warmest year on record (+0.55°C above the 1961-1990 mean). It has now been confirmed that 2009 was the second warmest year.

The map below shows temperature changes for the last decade - January 2000 to December 2009 - relative to the 1951-1980 mean. Though the largest temperature increases occurred in the Arctic and a portion of Antarctica, it can be seen that the region of the AIMS countries too experienced some warming.

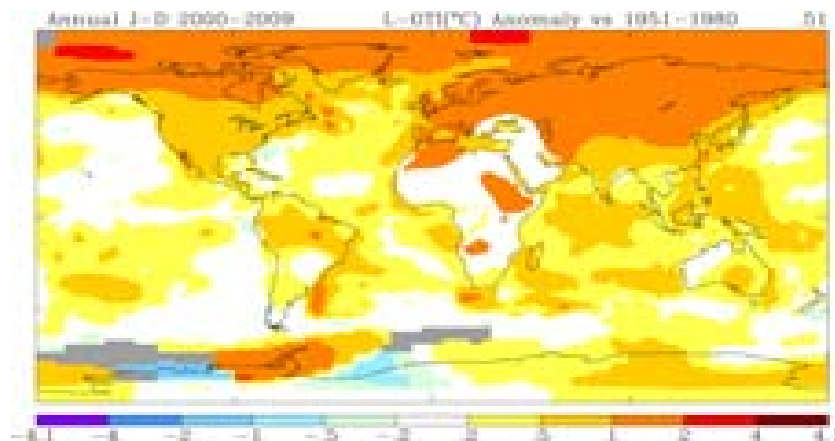


Figure I. The mean temperature changes 2000-2009 relative to the mean 1951-1980

Accelerated sea level rise as a consequence of climate change is a substantial issue that has important ramifications for the AIMS islands. Many are low-lying Island States, where entire countries are formed only of low lying atolls that are likely to either become uninhabitable or disappear during the course of the next century. Prominent in this group of countries is the Maldives. The impact of the sea level rising would have serious consequences for many of the countries. For atoll islands it is unlikely that coral growth will be able to overcome the stressors to which it is currently subjected and this will lead to increases in flooding, a decreasing ability of the islands to sustain human populations and eventually places like the Maldives could potentially become entirely submerged.

Sea level Rise (SLR) has been accelerated in the past years. Sea level in the Indian Ocean has risen by 9 mm in the period 2004-08. In most of the AIMS islands, SLR has been accelerating and it is almost 3 mm annually in many of them. In Mauritius, an accelerated rise of 3.1 mm per year has been observed from sea level tide gauge station from the Port Louis tide gauge during the last 5 years. The same upward trend has been noted in Hulhule (Maldives) - Figure II- and Rodrigues (Mauritius) - Figure III.

108 HULHULE 04 11N 073 32E Republic of Maldives 1989-2009 02

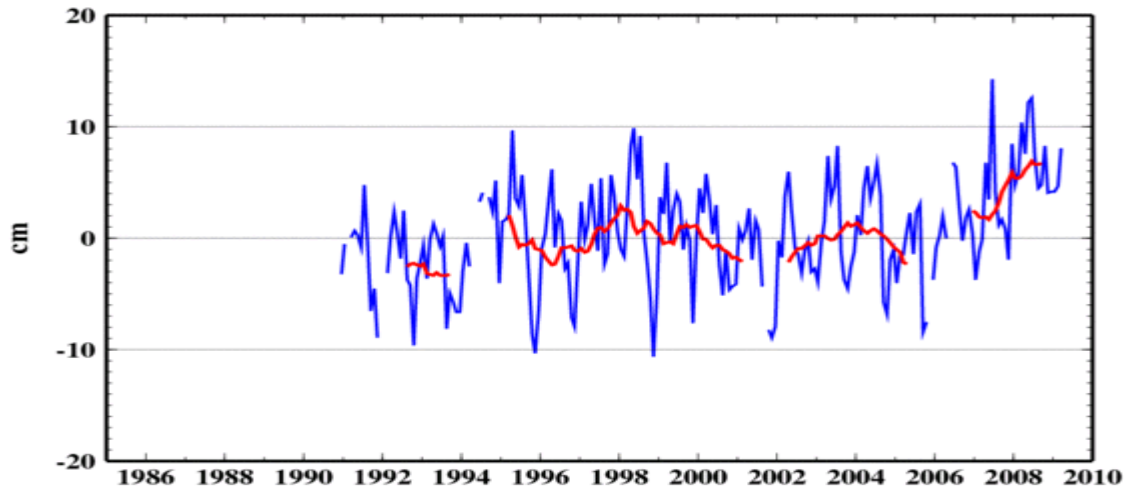


Figure II. Sea Level Trend at Hulhule (Maldives)

105 RODRIGUES 19 40S 063 25E Mauritius 1986-2009 019

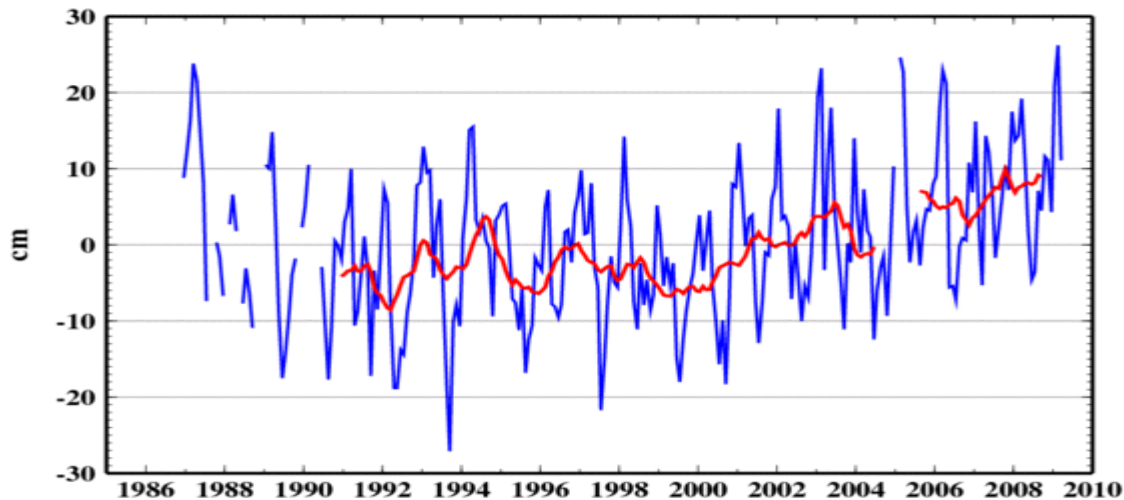


Figure III. Sea Level Trend at Rodrigues (Mauritius)

A change in pattern has also been observed in some climate systems. For example, the Indian Ocean Dipole (IOD), an oscillation of sea surface temperatures in the Indian Ocean, has become a major influence on the weather variations in the Indian Ocean region. Before 1924, the IOD occurred approximately every 10 years, but since 1960, IOD events have been occurring approximately 18 months to 3 years apart.

Global climate models are projecting a temperature rise of 2.0 and 2.1 deg C for the Atlantic and Indian Ocean for the 2050's and approximately 3.0 and 3.3 deg C for the 2080's. A marginal decline in rainfall is projected for the two regions suggesting the possibility of reduced water availability. A global mean sea level rise of 0.09 – 0.88 mm/yr is expected as a result of global warming by the year 2100.

The challenges facing AIMS, associated with climate change, are important. The sector, which is most vulnerable to climate change in AIMS, is the coastal zone. A vulnerability assessment needs to be undertaken in this sector in order to develop adaptation strategies, which are the most appropriate option for the sub-region.

The main challenge to address climate change issues is to develop and implement a plan to adapt to climate change and sea level rise. Technologies for adaptation are available. However, shortage of skilled human resources and lack of funding is a major constraint. Lack of reliable observations and studies of vulnerability assessment of AIMS countries is compounding the problem.

Many steps have been taken to address climate change issues. Data collection and their analysis to monitor changes are underway in many AIMS countries and some impacts studies have been conducted (e.g. Mauritius, Seychelles and Maldives). Tide gauges have been established to monitor sea level (e.g. Mauritius, Rodrigues and Seychelles) since 1986. Though these data are too short to identify a trend, they indicate a sea level rise comparable to global sea level change (1-2 mm/yr) up to 2004, but acceleration is now occurring. This monitoring exercise should continue and should be extended to other countries in the region. Every effort should be made for the active participation of AIMS in the implementation of GOOS-Africa projects - Regional Operating, Observing, Monitoring and Forecasting System in Africa (ROOMFSA) - within the Action Plan of the environment initiative of the New Partnership for Africa's Development (NEPAD).

The sector, which is most vulnerable to climate change in AIMS, is the coastal zone. A vulnerability assessment needs to be undertaken in this sector in order to develop adaptation strategies, which are the most appropriate option for urgent actions for the region.

Adaptation measures to reduce vulnerability and benefit from new opportunities need to be an integral part of national programs or action plan in the AIMS for combating climate change and for complying with the UNFCCC. Public and political understanding of the potential impacts of climate change should be improved. Focus on capacity building in vulnerability and adaptation assessment is required.

Most of the AIMS are contracting Parties to the UNFCCC and many have already signed and ratified the Kyoto Protocol. Most countries have already submitted their Initial National Communication, which include national inventories of human induced emissions by sources and removal by sinks of all greenhouse gases, a general description of steps taken or envisaged to implement the convention and prepared Climate Change Action Plan. Countries are now in the process of preparing their Second National Communication. Seychelles and Mauritius are expected to complete it in 2010. Financial assistance should now be sought to implement the plan. Countries, which have not taken this initiative, should do so.

International action is critical to develop Integrated Coastal Zone Management Plans and provide improved access to financial and technical resources for monitoring climate variation and change and sea-level rise in order to assess the impacts of climate change and for developing and implementing response adaptation strategies in a timely manner.

In Mauritius, there is currently a strong political will regarding climate change issues. The "Maurice Ile Durable (MID)" concept was developed to making Mauritius less dependent on fossil fuels. In June 2008, a MID fund was established to finance the implementation of projects for the preservation of local natural resources, promotion of renewable energies, encouragement of waste minimisation and

recycling, and for energy conservation and efficiency. It is also taking bold measures by integrating climate change issues and adaptation into new development strategies.

The following actions are proposed to address climate change issues in the AIMS region:

- Support actions being taken by AOSIS, in all international fora, to enhance recognition of the Social, economic and security threats caused by the adverse impacts of climate change and sea level rise to the SIDS;
- Continue to support advocacy that SIDS are at the forefront of climate change though they are countries with the least amount of GHG emission;
- Develop and strengthen observations network of individual AIMS countries to obtain long term series of data in order to identify trends to take appropriate actions with additional financial and technical resources to do this work;
- Intensify efforts to obtain a good share of the Copenhagen Launch fund for climate change action particularly to develop and implement strategies on adaptation and mitigation;
- Mainstream adaptation strategies in National Development Plans;
- Strengthen awareness campaign among local communities and industries to promote energy efficiency and conservation which is within the reach and capabilities of the AIMS countries to reduce energy consumption;
- Increase investment to move towards alternative and renewable energy sources with support from the international communities;
- Continue to assess the impacts of climate change on socio-economic sectors including on agriculture, water resources, coastal and marine resources, health and capacity to deal with extreme events such as tropical cyclones, storm surge, flooding and droughts which are becoming more frequent and develop response strategies to minimize the impacts;
- Incorporate adaptive strategies into the national sectoral planning of the countries.

Natural and Environmental Disasters

The AIMS countries remain prone to a variety of environmental and natural hazards of meteorological, oceanic and geological origin including flooding, landslides, drought, strong winds, high waves, volcanic eruption and tsunamis. Many are located in the tropical cyclone belt of the South West Indian ocean where on average 10 formations occurred annually. Climate change and Sea Level Rise is projected to worsen the problem. The Western Indian Ocean is a major sea route for oil tankers and a major oil accident can occur any time. Frequent epidemic outbreaks due to vector and water borne diseases are also a major constraint

The main constraint and challenge identified is lack of trained personnel, institutional capacity and infrastructure as well as limited investment and coordination among stakeholders related to natural disasters. In Guinea Bissau, there is still no national coordinating system to address all potential hazards in spite of the establishment of the “Protection Civile et de la Plateforme Nationale” for risk management.

Though cyclones and other natural disasters cannot be controlled, their impacts on lives, livelihoods, crops and infrastructure can be minimized through adequate preparation and efficient warnings. The effect of droughts and floods can be mitigated through early warnings. Enhancing disaster preparedness and management could do much to reduce damage. Most of the countries have developed a Disaster Preparedness and Disaster Response Strategy Plan. A public awareness has been put in place.

Weather observations and telecommunication systems are being upgraded in the AIMS region through the IOC meteorological enhancement programme. All the IOC countries have recently been provided with new communication equipment. Equipment for the Meteosat Second Generation numerical high-resolution imageries has been received for enhanced monitoring of weather systems through the AMESD programme. This programme is being extended to IOC pilot countries to cover ocean monitoring to generate ocean products for the benefits of marine users. Other countries in the AIMS region should take advantage of the programme.

Efficient exchange of data and information to support vulnerability assessment and the issuing of early warning of emergency issues and threats is critical for disaster prevention and mitigation. UNEP is developing the African Environment Information Network Initiative (AEIN) in response to political and technical needs expressed by the African Ministerial Conference on the Environment (AMCEN). Phase I (2003-2004) has focused on capacity building and preparation of implementation strategies at sub-region levels. AIMS is one of the sub-regions where IOC is co-coordinating the AEIN activities. Implementation of Phase I has been enhanced in the two pilot countries - Mauritius and Seychelles. Other AIMS should also follow progress and participate eventually in the programme.

International assistance in the development of natural mitigation preparedness capacity and the creation of appropriate insurance and re-insurance schemes for AIMS should be pursued. The following actions are proposed:

- Strengthen further meteorological and oceanographic networks to increase the density of observations to monitor and follow better the evolutions of weather and oceanographic system for more effective warnings;
- Reinforce the regional frameworks for better exchange of data and information as well as transfer of knowledge and technology to improve forecast;
- Invest with assistance from overseas to improve early warning systems using up to date technology and appropriate tools to save life and property;
- Modernize and enhance communication system for rapid and timely dissemination of warnings; and
- Intensify awareness raising programmes on natural hazards to build preparedness to respond better to natural disasters.

Waste Management

Solid and hazardous/toxic waste is one of the greatest environmental challenges due to rapid growth in population, limited land area and lack of suitable land for landfill sites as well as the wide dispersed nature of small inhabited islands in some AIMS countries. On the other hand, land is intensely used for housing, industries, water catchments and recreation and proper waste disposal management has become a real problem. As a consequence, illegal dumping and littering in forests, roadsides and wetlands continues to be widespread in many countries. Open burning to reduce the volume of waste owing to the lack of other disposal options has become widely common, for example, in Maldives. Incineration has been proposed as a solution in countries such as Mauritius but the disposal of the toxic ash has so far deterred its implementation.

Invasive marine species from shipping in particular ballast water but also hull fouling is a major threat. The AIMS countries depend heavily in imported goods and big cargo ships call frequently at the major ports. Ballast water, carried on empty ships to provide balance and stability, when discharged, often introducing alien species from the port of origin. Many MPAs are located adjacent to ports and

shipping lanes. MPAs are also at risk from species carried on the hulls of yachts which visit frequently the countries and fishing boats.

The passage of ships carrying toxic and hazardous waste, chemicals and radioactive materials and tankers carrying oil to the region is of priority concern. Though some AIMS countries (e.g. Mauritius) have established national oil spill contingency plans and IOC, a region oil spill contingency plan, the region will unlikely cope with a major waste ship/oil tanker accident. In this respect, international assistance will be required to deal with such a disaster in case it occurs.

The safe management of solid and liquid wastes is vital to protect the population and the environment. The main constraints include:

- Weak legislative and regulatory framework which hinders monitoring and regulatory functions;
- Inadequate level of public education and lack of awareness raising amongst the public;
- Lack of sustainable financing for waste and sanitation projects, waste management infrastructure and equipment;
- Lack of provision of waste collection services.

Most AIMS have ratified the Basel Convention on the control of trans-boundary movements of hazardous wastes and their disposal, the convention on the Prevention of Marine Pollution by Dumping of Wastes as well as regional conventions. The disposal of ballast water from ships in the open sea and in the port should be closely monitored. Port reception facilities for the collection of waste according to the International Convention for the Prevention of Pollution for Ships should be established.

Since long-term disposal options are limited, there is a need to look for ways of minimising and/or converting wastes such as sewage into a resource (e.g. fertilizer for agriculture). This will include action ranging from limiting impacts of non-biodegradable and hazardous substance to changing attitudes to the disposal and use of sewage. Mauritius has already taken the initiative to ban the use of non-biodegradable plastic bags.

Marine litter is also a major source of pollution and following the assessment report on the WIO-Lab project, the recommendations below were made:

- Marine litter arising from sources on land should be tackled separately from litter arising at sea because different laws and approaches would apply in many instances;
- To control marine based sources of litter, all coastal States in the Western Indian Ocean Region and all other Flag States should be encouraged to ratify and adhere to existing international instruments, particularly MARPOL Annex V with respect to ship generated garbage and the London Convention concerning dumping at sea;
- Most importantly, the appropriate regional mechanism for implementing recommendations about land-based sources of marine litter is considered to be the Nairobi Convention which offers an appropriate regional framework law;
- Solid waste management/ marine litter abatement strategies should also be brought into focus in all foreign funded programmes that governments are allowing in their countries, to assist with development;

- To help with capacity building and awareness raising, Western Indian Ocean countries and regions within countries, could draw on the numerous existing sets of guidelines for marine litter and solid waste management, and adapt them to their own specific circumstances;
- The region and each participating country, needs to consider standardized monitoring methods;
- Ensure that the management of waste is prioritized and waste strategies and plans of actions are developed and implemented.

Coastal and Marine Resources

Coastal and marine resources remain a key driver for sustainable economic growth for most of the countries in the region. However, land and sea based pollution, overexploitation and illegal and uncontrolled fisheries activities from foreign vessels in the open sea are depleting these resources and causing destruction of coastal habitats, including coral reefs and sea grass beds. Proliferation of algae on the shores in some regions, due to fresh water ingress loaded with contaminants from upstream, represent non point sources of land based pollution. Sand, coral and stone coastal mining for construction and mangrove destruction in many countries such as Comoros, Guinea Bissau is causing enhanced coastal erosion. Accelerated rate of coastal erosion resulting from poor coastal planning and development is jeopardizing the tourism industry. Climate change and related sea level rise is exacerbating the problem.

Coral bleaching due to global warming is also a major problem. Models have shown that even if the world halved its greenhouse emissions as from today, coral reef degradation would still continue for the next 20 to 30 years. In fact, it is predicted that as from 2050, coral bleaching will take place on an annual basis, with the tropics worst-affected. It has been shown that a rise of just half a degree can upset the symbiotic relationship between coral and algae, resulting in the expulsion of the algae and the death of the coral, and its gradual breakdown over two to three years. Following the 1998 coral bleaching particularly in Seychelles, this problem continues after 2005. The monitoring at the world's largest raised atoll, Aldabra, in the Seychelles shows devastating effects on coral reefs as a consequence of global warming.

The development and management of programmes designed to achieve the ecologically and economically sustainable utilization of coastal and marine resources are major challenges. The lack of an integrated approach to coastal and marine area management has limited the effectiveness of past and present measures.

Most of AIMS have signed the 1985 Convention for the protection, management and development of marine and coastal environment of the Eastern African region. Most of them are also parties to the UNEP's Regional Seas programmes for Eastern Africa, which paid particular attention to assessment of causes and impacts of coastal and marine environmental degradation and adoption of financial arrangements for successful and sustained implementation. The Indian Ocean Commission has implemented a Regional Environmental programme in the five IOC members, which includes a development programme in the coastal zone.

The African process has developed through UNEP/GEF Medium Sized projects, a project entitled "Development and Protection of the Coastal and Marine Environment in sub-Saharan Africa. These are relevant to the management and integrated development of the coastal zones. Effective actions for AIMS to participate actively in these programs have yet to be taken.

The NEPAD has identified the following projects in the sub-Saharan Africa, which are relevant to AIMS:

- Prevention of pollution from shipping activities and strengthening of national and regional oil spill management system
- Mitigation of coastal erosion and restoration of degraded areas
- Mangrove management
- Improving the protection and stability of coral reefs and associated communities
- Strengthening management, monitoring, control and surveillance capacities in fisheries management organisation
- Supporting the development and implementation of Integrated Coastal Area Management
- Impact of global climate change on key marine and coastal ecosystem
- Integrated watershed and coastal area management of SIDS in Africa.

The AIMS should follow progress in the development of these projects.

Most AIMS countries (Seychelles Mauritius, Maldives) have produced National Environmental Action Plans (NEAP), which highlight gaps and recommend project proposals to address coastal and marine issues, including Integrated Coastal Zone Management (ICZM). Capacity building in these countries should be enhanced to implement relevant components of the NEAP. A methodology appropriate for the AIMS region should be developed.

Comprehensive monitoring programmes for coastal and marine resources, including wetlands in order to determine shoreline and ecosystem stability should be designed. Active participation in the Western Indian Ocean Marine Application Programme (WIOMAP), a regional contribution to the WMO/IOC/UNEP Global Ocean Observing System (GOOS) and the regional programme of the Intergovernmental Oceanographic Commission of UNESCO should be envisaged.

The following actions are proposed:

- Participate in all the regional programmes on coastal and marine resources including SWIOP, ASCLME, AMESD, WIO-Lab and ReCoMaP to reinforce regional integration for the sound management of coastal and marine resources and address trans-boundary issues;
- Develop and strengthen programmes at regional levels to conserve and manage more effectively the migratory fish stocks including tuna;
- Develop and manage coastal/inshore fisheries and aquaculture to support food security in a sustainable way;
- For countries exporting fish e.g. Mauritius and Seychelles, take necessary action to ensure compliance with sanitary and phyto-sanitary measures of the respective;
- Strengthen capabilities to defend claims of extended continental shelf submitted to the UN Commission on the Limits of the Continental Shelf.

Freshwater resources

The AIMS countries face severe constraints in terms of quality and quantity of freshwater due to variable rainfall and high runoff. The lack of adequate storage facilities and effective delivery system in some countries, though rainfall is abundant, imposes an additional constraint. In Seychelles, 98% of rainfall is lost through runoff and evapo-transpiration, due to steepness and length of catchment. Rainfall in Sao Tomé and Cape Verde is irregular, causing periodic drought and famine. Climate

change will worsen the situation and result in reduced availability of freshwater through reduction in rainfall as well as salt intrusion in ground water.

Pollution from a variety of sources is contributing to restricted availability of water for the increasing domestic, agricultural and industrial consumption. Heavy use of chemical fertilizers in agricultural practices (sugar cane in Mauritius) increase silt load, higher salt concentrations and human waste are significant contributors to pollution of groundwater.

Though rainfall is plentiful to satisfy the demand requirement for freshwater in almost all the AIMS countries, retaining and conserving the water pose a big challenge on account of their geographical setting. Very steep terrain accelerates run off and most of the rainfall water is lost toward the sea. In many atolls, there are no surface water sources and the limited ground water is in the form of shallow lenses worsening by salt intrusion due to over-exploitation and sea level rise. Financial means and technical resources are also lacking in many countries to improve the water distribution network. Global warming is worsening the problem.

Other constraints and challenges include:

- Salt water intrusion in coastal aquifers;
- Defective network and lack of financial and technical resources to provide efficient water distribution infrastructure;
- Lack of effective enforcements and control of onsite disposal of domestic wastewater into the environment and soil and water resources are adversely impacted;
- Heavy use of water for irrigation and the increasing demands from industry and tourism, place growing stress on water resources;
- Lack of technical expertise to deal with the increasing network and maintenance issues.

Desalination plants have been introduced in some countries (Seychelles, Maldives) to produce freshwater from seawater drawn from the lagoon. However, it is energy-intensive and an expensive process. The construction of rainwater tanks, promoted in recent years, has helped to ensure safe drinking water in some countries.

The amount of water from rainfall will remain unchanged, if not reduced or become unevenly distributed as a consequence of climate change. Hence, conservation and more effective water management to improve quality of available water are the only solutions. These could be achieved through:

- Projects for increasing reservoirs where this is possible and sewage treatment works to recycle domestic wastewater for commercial users;
- Legislation for environmental and water protection;
- Education and sensitization programmes with schools and the media;
- Development and implementation of integrated water resources plans including resource allocation and management and rehabilitation of watersheds; and
- Building up an endogenous capacity relating to water management and conservation and appropriate catchment systems.

In Mauritius there will be a need for substantial investment in the rehabilitation and renewal of old main pipes in towns and for some provision of new resources, treatment capacity, storage facilities and water mains to provide an acceptable year round service to all population particularly those at the

extremities of the current system, in the east and west of the island and to properties on higher ground. Unclear responsibilities of enforcement, overlapping functions have to be resolved, proper coordination among responsible agencies has to be established. A Master Plan to assess the water resources of the island to be completed in mid-2011 will set the road map for future integrated strategies for the water sector as a whole.

The following additional actions are proposed for the AIMS countries:

- Increase investment to replace old water pipes and extend water networks in some countries to provide regular water supply to rural areas;
- Develop and strengthen national capacities for hydrological services in terms of stream flow measurements, carrying out regular simple, reliable water sampling and analyses.

Land resources

Land is a scarce resource in all AIMS countries. Proper land management is fundamental for its optimum use in residential, industrial and agricultural planning. Land degradation, on account of soil erosion as a consequence of cleaning of forest and more frequent heavy rainfall episodes represent a major challenge. Agricultural land, already limited, is decreasing. Loss of prime agricultural land for other uses- residential and industrial projects and tourist hotels – is imposing additional stress. The heavy pressures on land have resulted in the degradation of or the conversion of natural vegetation, clearing of forest, loss of productivity and soil erosion. Lack of erosion of control techniques exacerbated by frequent severe tropical cyclones leaves the soil exposed and vulnerable to extensive erosion. In these small islands, the coastal zone is greatly threatened by soil losses of this magnitude and affects fragile and economically important habitats such as coral reefs and mangroves.

A further issue of concern is the extensive use of inorganic fertilizers, herbicides and pesticides to increase agricultural production. Average annual fertilizer application in the region have been estimated at 600 kg/ha more than five times the world average.

Competing demands for the use of land resources must be resolved. More effective and efficient ways of using these natural resources developed and adopted. The establishment of urban planning regulations, waste management and the raising of public awareness are improving the situation in some parts of the AIMS. But more needs to be done, especially in islands where urbanization and population are growing rapidly. These include:

- Prepare and/or review land use plans in conjunction with agricultural, forestry, tourism, traditional land use practices and other land-use policies with a view to formulating comprehensive land use plans and zoning;
- Increase attention to national physical planning in both urban and rural environments focusing on training to strengthen physical planning offices;
- Develop and improve national databases for land use planning and management along with appropriate decision-making tools such as land/geographical information systems; and
- Support appropriate afforestation and reforestation programmes with the participation of land owners, in order to reduce land degradation.

The following actions are further proposed:

- Public, private and local communities need to work together for national land reform to address food security;
- Ensure a higher priority in national budgets and regional programmes towards developing agriculture and forestry, in order to secure the financial and human capacity necessary to respond to changing needs; and
- Recognize the potential benefits of greater involvement of youth and women in the agriculture sector.

Energy resources

The AIMS countries depend almost entirely on imported fossil fuels. In the poorest countries, poor electricity network, ineffective policies and master plan for the energy sector, lack of financial resources for increasing energy production and rehabilitation of electricity stations and weak and inefficient power system management skills coupled with a lack of specialized utility financial managers has led to high rate of electricity. Electricity demand during peak hours cannot be satisfied. In Guinea Bissau, mangroves forest is being exploited for firewood. In Sao Tome et Principe, firewood remains one of the most important source of energy giving rise to the exploitation of forest.

Though substantial renewable sources – wind, sun and ocean and geothermal in some countries – are available to produce energy, the cost of production is a serious barrier. There is also lack of skilled engineers and technicians for planning, design, construction, supervision, operation and maintenance. To attain energy independence and move away from fossil fuel will really takes some time. Applied research, intensive financial resources and transfer of technology are required to take advantage of these unlimited renewable sources. Efficient exploitation of renewable sources of energy will feasible only through appropriate support of the International Community.

The current uses of those fossils tend to be highly inefficient. Hence, an immediate action, which will reap both financial and environmental benefits, is to increase energy efficiency through appropriate technology and national energy policies and management measures. These could include a public awareness campaign to save and conserve energy, the use of low energy lighting bulb and utilisation of public transport.

In the longer term, renewable energy resources, including wind, solar, biomass energy, wave and Ocean Thermal Energy Conversion, represent the greatest potential for AIMS countries. Mauritius is successfully making use of biomass (bagasse) from sugar cane plants in combination with coal for energy production. However, small-scale application of solar and wind energy (Mauritius, Seychelles, Maldives) has been up to now sporadic. Several constraints to the large-scale exploitation of renewable resources remain including technology development, investment costs, available indigenous skills and management capabilities. Technology transfer and capacity building will be required to further exploit renewable energy resources. Massive investment will be required for technologies to exploit areas such as wave energy and Ocean Thermal Energy Conversion (OTEC).

Research capabilities in the development and promotion of new and renewable sources of energy and in the efficient utilisation of non-renewable sources of energy should be established and/or strengthened.

The following actions are proposed:

- Increase investment in sustainable renewable energy technologies- wind, solar, hydro and ocean and geothermal in some countries - and in energy efficiency and energy conservation initiatives;
- Strengthen national capacity in energy data and information gathering and collation, management; dissemination and, analysis on economics, social and environment to better inform national and regional energy planning and policy choices;
- Incorporate into national energy policy and action plans, and regulatory frameworks priority actions to encourage private and individual participation in renewable energy production that can be connected to the national grid at a guaranteed rate; and
- Encourage support for the further development of biofuels production and bagasse from sugar cane.

Tourism resources

The tourism industry is a major source of foreign earnings for many countries – Maldives, Mauritius, Seychelles, and Singapore. However, it is quite fragile as it depends on many internal and external factors, such as weather conditions and global crises. It also puts much pressure on natural resources such as water and scarce land. Climate change and sea level rise is threatening important infrastructure including loss of beaches, coastal inundation, and degradation of coastal ecosystems, saline intrusion and coral bleaching. Many tourism establishments have high ecological footprints regarding energy, water use, waste production and reliance on imports. Few local organisations have tried or marketed programs for tourists to offset the carbon generated through their holiday.

The poor countries have also much potential to develop the tourism industry. However, they face many challenges and constraints including:

- Inadequate basic infrastructure- road, sea and air ports, energy supply;
- Very few regional and international air routes and high air tickets rate;
- There is a shortage of human resources at all levels of the tourism industry;
- High rate for water, energy and communication;
- Inadequate hotel room capacity;
- Inadequate services at seaport and airport;
- Very high rate for visa entry;
- Little transparency in the allocation of land for tourism development to private sector;
- Inadequate training for tourist personnel;
- Sites for touristic development are numerous but lack of capacity for development is hindering the process.
- Poor marketing and no tourism office;
- Difficulties to raising investment finance to meet development targets.

The international financial crisis has had adverse impacts on the local tourism industry. Mauritius enjoyed a flourishing tourism industry before the global crisis hit its shores. It expanded by an annual average rate of 7.8% from 2006 to 2008 with a peak of 15.2% in 2007. However in 2009, the sector showed a negative 7.6% growth. As a long haul destination far from its source markets, the financial crisis placed the AIMS countries at a competitive disadvantage compared to other destinations. Europeans, who constitute the predominant tourist clientèle, chose holiday destinations closer to Europe thus resulting in a fall in tourist arrivals. A shift in publicity and a repositioning of AIMS countries with regards to tourism need to be promoted. This has been done in Mauritius. Carrying

capacities of areas for tourism should be assessed. One of the special tourist attractions of AIMS is their distinctive of their cultures. Cultural tourism represents great potential opportunities.

Eco-tourism, linking areas of high ecological value to low-impacts tourism may also present important and environmentally sustainable opportunities for tourism development.

Other actions, policies and measures include:

- Adopt integrated planning and policies with particular attention to land-use planning and coastal zone management;
- Ensure that tourism development and environmental management are mutually supportive;
- Adopt measures to protect eco-tourism attractions and the cultural integrity of the countries;
- Promote the recognition by the international community of the fragility of the resources on which tourism depends and the resulting need for international support to encourage its sustainable development; and
- Plan and manage tourism development effectively in order to ensure sustainability.

Biological Diversity Resources

The AIMS countries are rich in both terrestrial and marine biodiversity. However, loss of biodiversity is a serious concern. Poor conditions in many countries are leading to overexploitation of natural resources and habitat destruction. Due to the small size, isolation and fragility of island ecosystems, their biodiversity is among the most threatened in the world. Coral reef deterioration, increasing demand for biological resources, due to increasing populations and economic development, pollution and soil degradation, deforestation and the introduction of certain non-indigenous species are the most significant causes of loss of diversity. Additional threats stem from natural processes such as coastal erosion, bush fires and seawater intrusion. Grazing by introduced species of animals such as deer (Mauritius), goats and cattle have also diminished species of plants not adapted to grazing and has led to a predominance of exotic grasses. The table below shows the number of species which are threatened in some countries.

Table VII. Number of threatened species

Comoros	Guinea Bissau	Maldives	Mauritius	Sao Tome & Principe	Seychelles
89	37	55	219	66	155

As a result of these pressures, a significant number of plant and animal species are threatened with extinction or have become extinct. Mauritius and Seychelles are ranked second and third in the world in terms of percentage of native plants threatened.

Most of the countries have prepared National Biodiversity Strategic Action Plans (NBSAPs). The following common challenges have been identified:

- Lack of fund to implement other alternative measures to reduce pressure on biological resources;

- Lack of financial resources and capacity in terms of infrastructure and human resources to reduce the impact of threats on its biodiversity without international support;
- Recent developments in the tourism sector and the population density are increasing pressure on biodiversity resources;
- Ongoing urbanisation, land degradation, natural calamities, soil erosion, chemicals are cumulative threats on ecosystems and biodiversity;
- Limited awareness of biodiversity among the population at large and there is limited development of conservation as a profitable venture;
- Freshwater biodiversity is not given sufficient attention despite the fact that they have a significant role in freshwater ecosystems;
- Invasive alien species pose the most serious threat to native species and are now overrunning the indigenous species;
- Wetland areas and sea grass beds poorly studied and the variety of life in these areas little known;
- Habitat destruction and over exploitation due to activities like harbour development and land reclamation, land clearance for housing and coral mining for construction of buildings;
- Effects of increased sea temperatures, due to global warming on the health of the coral reefs are a major concern;
- Loss of biological diversity due to increased demand on the limited natural resources and rapid economic development;
- Enforce of policies and regulations on biodiversity are minimal and little coordination among various sectors in the process;
- Climate Change is an important threat to biodiversity resources (habitat destruction, loss of biodiversity, land destructions).

The conservation and sustainable use of biodiversity needs to become an integral component of sectoral economic development, which would require correcting policy and market facilities. In response, the AIMS countries have established protected areas inland and in the coastal and marine zone - marine parks in Seychelles, Maldives, Mauritius; World Heritage sites in Seychelles and Madagascar and protection of the Aldabra Tortoise through an Australasian species management programme. In Mauritius, the pink pigeon has successfully been conserved; in Seychelles, the threatened Brush Warbler, has now grown to 200; in Rodrigues (Mauritius) the flying fox has successfully recovered under survival plan and now 350 foxes survive in the wild. Such conservation of enhanced species and management-protected area should be pursued and strengthened.

Most of the AIMS countries have ratified the biodiversity-related conventions. The majority of them has submitted their national report to the conference of the Parties to the UN Convention in Biological Diversity and are preparing, finalising and implementing their biodiversity strategies and action plans. Technical and financial assistance should be made available to prepare follow-up national reports and in implementing the national and sub-regional bio-diversity conservation programmes.

NEPAD has suggested the establishment of a trust fund to complement and coordinate support from multilateral agencies for conservation of biodiversity through protected areas and to enhance African ownership and partnership. The objective is to establish a co-funding facility that will provide funding in a predictable and timely manner for capacity building, strengthening the capacity of related Institutions and improve networking among Institutions. A trust fund with an initial capital of US\$250 m is being proposed to support African countries to make long term commitment in biodiversity protection. The AIMS should take keen interest in this initiative and follow actively its development to ensure that they are taken on board in the process.

The following actions are proposed:

- Encourage the involvement of the local communities, public and private sectors and regional and international organisations to support effective increased biodiversity conservation efforts at a local, national and regional levels;
- Enhance capacities at all levels and make provision for more funding to develop and manage protected areas;
- Develop further sensitisation campaign and education to preserve biodiversity; and
- Reinforce surveillance at control points – sea and airport- to prevent alien species to enter AIMS countries

Transport and Communication

Many countries comprise numerous islands (e.g. Maldives, Seychelles, Mauritius, Sao Tomé et Príncipe), which are dispersed thousands of kilometres far apart. Connectivity, either by air or sea, among those islands requires substantial resources and facilities both in terms of human, financial and infrastructure. Internet has virtually shortened the distance.

However, major challenges still persist to provide an efficient air, maritime and Land transport, particular in the poorer countries. These include:

- Inadequate maintenance of transport infrastructure;
- Legislation on transport not properly enforced;
- Degradation of roads and airport runway. Lack of financial resources to develop an effective land, maritime and air transportation network to stimulate socio-economic development;
- The air transportation port sectors very vulnerable due to the volatility of fuel prices and recent world economic crisis;
- Density of vehicles increased and traffic congestion worsened along the major roads;
- Widely spread population across vast distances over many islands in some countries rendering connection difficult and expensive;
- High cost of network and services due to economies of scale;
- Private investors are reluctant to invest in inter-island transport due to the lack of a transparent legal framework for the sector;
- Inadequate capacity of qualified and competent technical staff in the Civil Aviation Department (CAD) for an effective oversight organization;
- Scope to expand road network is limited to maintain a good environment.

In the poorest countries, internet facilities are yet to be developed and strengthened properly and the speed of connection improved. High topography makes telecommunication difficult. In the telecommunications sector, new companies cannot compete with existing major players as investment costs are exceedingly high, thus constituting a major constraint in promoting liberalisation.

Devising innovative approaches to resolving transport and communication problems such as the development of low cost - high tech methods are major challenges.

The following actions are proposed:

- Upgrade domestic communication facilities including radio and telephone coverage to remote rural and outer island communities and improve international telecommunication links;
- Continue effort to strengthen transport services and facilities at both the national and local levels, paying particular attention to environmental protection, safety and innovative energy-efficient and low cost transport solution;
- Promote improved international communication at the lowest possible cost while recognising the need to create an environment conducive to investment in telecommunications infrastructure and services to benefit local business and people;
- Reinforce security to fight against piracy in the region;
- Ensure affordable domestic and international connectivity in AIMS; and
- Make use of ICT technology to better respond to disasters.

Chapter 6: Recent Trends and Emerging Issues

Since the Mauritius conference in 2005, AIMS-SIDS has been confronted with new challenges, which have threatened the sustainability of the countries. These include: accelerated impacts of climate change that have resulted in sea level rise, coral bleaching, extreme weather events; food security problems; piracy; increased drug trafficking; new pandemics such as swine flu, H1N1, as well as vector-borne diseases like chikungunya. These have had negative impacts on SIDS' economies, in particular the tourism and transport sectors.

The AIMS-SIDS is a net food and net energy importing countries due to the scarcity of land and water and soil characteristics, as well as heavy reliance on fossil fuels. The global food crisis and volatility of food prices have aggravated the threat to food security and increased pauperization (burden) of their population. Agricultural biodiversity has been recognized as emerging issues for the region.

The principle new concerns identified by the AIMS countries include:

- Climate change and accelerated Sea level Rise
- Extreme weather events
- Food security problems
- Piracy
- Drug trafficking
- New pandemic and water borne diseases

6.1 Climate Change and Accelerated Sea level Rise

The most serious environmental threat to most AIMS countries is Climate Change and accelerated Sea Level Rise. It is priority area in Sao Tomé et Príncipe and Seychelles. All the countries have experienced warmer temperature during the last decades. For example, in Mauritius, temperature has been 0.74 to 1.2 deg. C above the long term mean of 1961-1990. It has been observed that the rainfall pattern too is changing. In Seychelles, annual rainfall trend is increasing with frequent flash floods worsening soil erosion. However, in Guinea Bissau and Mauritius, a downward trend has been noted in the annual rainfall pattern with, nonetheless, frequent heavy downpours with high runoff towards the sea.

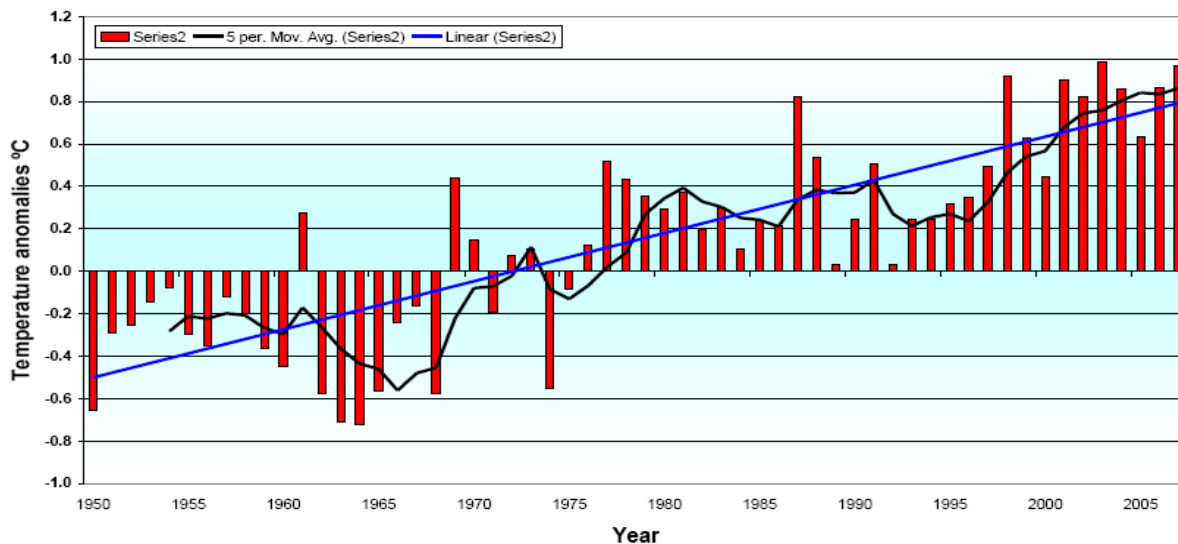


Figure IV. Mean annual temperature variation in Mauritius

(Source: Meteorological Services, March 2009)

From available reliable data from sea level gauges, it has been observed that sea level rise has accelerated in the past 5 years. The rate has increased from 1.2 mm/yr to 3.0 mm/yr causing enhanced coastal erosion in all countries, jeopardizing the tourism industry which is mainly coastal-based. In the Maldives to protect the island from Sea level rise, a breakwater has been constructed around the capital Malé costing around 30 million US Dollars. The SLR coupled with over-exploitation of ground water had led to the shrinking of fresh water lenses both in quality and quantity.

The degradation of coral reefs and mangroves as a consequence of global warming is another issue of great concern. They both act as barriers to impounding waves and protect coastal resources. It has been found that the threat of Sea Temperature Rise (SST) is more serious than SLR. With large stretches of coral reefs occurring at or close to their upper temperature thresholds in the AIMS countries mainly during the summer months, steadily increasing SST will create hostile conditions for many coral types. Increased coral bleaching is seen as the most likely outcome. It is recalled that during the EL-Nino event of 1998-1999, near surface temperature increased by 1-2 deg. C in the equatorial and tropical Indian Ocean nearly 98% of coral bleaching occurred in the region of Seychelles.

Outputs from climate models are projecting that temperature rise will be of the order of 2 to 3 deg C by the end of this century. Sea level rise is expected to increase to nearly 1 m by 2100. Such changes will have profound impacts on both terrestrial and marine ecosystems causing immense socio-economic and environmental loss. The intensity of tropical cyclones which occasionally affect AIMS countries in both the Indian and Atlantic Oceans are projected to increase.

Climate change is occurring in the region and will continue to occur even if global GHGs emissions were to be stabilized near the current level. Atmospheric concentration would increase throughout the 21st century and would continue to increase slowly for several years afterwards Sea level will continue to rise beyond this century and for several decades beyond. It is most likely that the impacts will be consequential and, in some cases irreversible, if no actions are taken. Adaptation to climate change and sea level is the only option for AIMS countries. Hence, it is wise to develop and implement policies and plans that will ensure timely adaptation that reduce or even prevent the adverse effects of climate variability and change. The existing Regional Sea level Monitoring Network should be

enhanced and properly maintained to obtain long term series of sea level data to enable trends to be identified for negotiation purposes at regional and international levels.

The UNFCCC and its related protocol and procedures provide important and effective means to address climate change. The Barbados Plan of Action and its related Mauritius Strategy is the most important framework for determining strategies and policies.

6.2 Extreme Weather Events

The main weather events affecting the AIMS are flooding, drought, storm surge, strong winds, landslides and in many countries, tropical cyclones. There is some evidence that the frequency of these weather events has increased and economic damage as a result of extreme weather events has dramatically worsened over the last decades. A storm with record wind speed over 100 km/hr hit the island of Praslin, Seychelles in 2002. The landslides resulting from torrential rain which occurred a few years ago in the island of Rebordo in the north of the island of St. Thomas, Sao Tomé killing and burying an entire community is a warning of the danger that some countries may face in the future.

The IPCC has stated that in the short term the increase in frequency of extreme weather events as a consequence of global warming is the worst threat to socio-economic development. Climate modeling has demonstrated the increased probability of the occurrence of short-term extreme events under global warming. The possible changes in wave and swell direction and incidence and their potential impacts on coasts of small islands have also been shown. With an increased number of people living close to the coast, the low-lying characteristics of some islands –e.g. Maldives and Seychelles islands- deep ocean swell generation and its potential modifications as a consequence of climate change is clearly an issue that needs attention alongside the more intensively studied topics of changes in sea level and temperature.

Many countries are located in the cyclone belt of the South West Indian Ocean and East Atlantic oceans. With global climate change, a possible change in the occurrence and behaviour of tropical and extra-tropical cyclones may be expected. It is projected that the number of intense cyclone is likely to increase and maximum cyclone winds could increase by 5 to 10% by around 2050. Peak precipitation rates are likely to increase by 25% as a result of increases in maximum tropical cyclone wind intensities. Data is suggesting that the cyclone belt may be shifting northwards to eventually encompass Seychelles, resulting in possible damage to coastal infrastructure which has not been constructed to cyclone-proof standards.

Many infrastructure construction and physical development in the AIMS countries have not taken into consideration the increased frequency of the occurrence of extreme weather events. Return periods of climate parameters, an essential input in the planning stage, are based on past datasets. However, consideration should be given to recalculate the return periods of extreme parameters – winds, rainfall, waves and swells, temperature- incorporating climate change risk for development purposes. This is termed “climate proofing”. This will entail an increase in cost but it has been shown that it is most cost effective. The AIMS countries will need assistance to adopt the concept of climate proofing.

Many countries lack basic equipment, skills and financial resources to improve the Early warning systems to save life and property. For certain hazards such as Tsunami, they are even non-existent. The dissemination of warnings and building preparedness should be improved to respond to remote communities, in some countries, scattered over large ocean surface.

6.3 Food Security Problems

On account of the small surface land area which characterizes the SIDS, agriculture is quite restricted. Consequently most food for local consumption is imported. In the majority of the AIMS countries the staple food is rice and wheat which are imported. Many attempts have been made in the past (e.g. Mauritius) to change the eating habit of the population to consume locally produced food such as potatoes without success on account of the legacy of culture and traditional of ancestors. The economy of Sao Tomé is based mainly on agriculture but it is quite a fragile sector with more than 90% is focused on export earnings from cocoa monoculture. Seychelles, on the other hand, is capable of producing a large amount of food for its local population but the country is highly dependent on food imports, mostly because of consumer preference for imported staple foods such as rice, rather than staples that are available locally. It is not actual lack of food availability but rather a lack of recognition of the richness of locally available resources that creates a situation whereby a high proportion of the local population are at risk of food security. This made the countries very vulnerable to external shocks and global price increases.

Sharp increases in the price of wheat and rice have occurred since 2005. Over the one-year period to March 2008 the world wheat price rose by 130% and for rice 98% which had a major impact on consumer price indices. In Seychelles, the cost of many basic imported food items such as milk, rice and wheat products more than doubled. In Mauritius subsidies provided by the Government to keep the prices of staple food at a reasonable price to make them affordable to poor communities have been reduced significantly. In addition to this, the costs of many local food items have risen sharply in recent years due to increase in the production cost. The prices of fuel, foods and many other imported goods had come down significantly by the end of 2009, but still remain much higher than pre-crisis prices.

In response to the food crisis, Seychelles introduced a new Food Security Strategy in 2008 to find ways of becoming more self-sufficient in basic foods which can be produced in Seychelles such as fish, poultry, pork, fruits and vegetables. Part of this plan also involved ensuring that farmers were actually using land allocated to them for cultivation - if not; the land would be taken back from them.

Household expenditure on food represents a substantial amount of the income particularly among low income households. As food prices increase, their situation will further deteriorate. This would divert expenditure away from such important items as education and health care towards food making it difficult for most of the countries to realize the MDGs goals by 2015.

Fish is an important source of protein for many islanders and many countries like Maldives it is main source of protein. However, due to over fishing and climate change the fish stock is diminishing.

Heavy consumption of imported food has had some impacts on the health of the AIMS countries. Rates of obesity and diabetes are amongst the highest in the world. In Mauritius, in 2008, diabetes and cardiovascular diseases taken together, accounted for 57.8% of all deaths. The prevalence of diabetes in Mauritius is one of the highest in the world; it was 19.5% in 1998, 19.3% in 2004 and 24% in 2009. The current crisis could lead to further deterioration if consumers respond by switching to cheaper, lower quality food items. However, the current food crisis also presents an opportunity to diversify food habits. Increased production of some local foods such as potatoes and maize could help to limit the impact of rising prices. Campaigns to promote home gardening to enable people to grow some of their own fruits and vegetables should be promoted.

Local food production is extremely vulnerable to climatic conditions such as drought, heavy rains, and flooding, all of which are expected to increase with climate change. Research should be enhanced to develop crops which can adapt to new conditions and promote several climate change adaptation measures to the local farming population including low-volume irrigation and resistant to high winds.

6.4 Drug trafficking

Many AIMS countries have become transit points for drug trafficking. This has increased recently. The Tourism industry has been blamed for this trend. While some measures to control illegal drugs coming in by air can be taken, the illegal drug trade by sea remains extremely difficult due to limited resources of National Coast Guard.

In many countries too, the consumption of drugs has increased. In Mauritius, the number of babies born HIV positive have tripled (from 7 to 21) from 2000 to 2008. However all these cases were from mothers who were Intravenous drug users and/or sex workers and who had failed to follow the prophylactic antiretroviral treatment free of user cost during antenatal care. Drug related problems are on the rise in Seychelles. The numbers of hard drug related offences are on the rise, and substance abusers are increasingly younger. The past five years have seen a notable shift from smoking of cannabis and hashish to intravenous heroin use and addictions. Current policies and laws do not seem to be effective, and authorities lack capacity and resources to deal with the problems.

More effort is needed to ensure that all stakeholders participate in a well coordinated and planned campaign against drugs and substance abuse.

6.5 New pandemic and water borne diseases

The emergence of new highly communicable and vector borne diseases has impacted both the social and economic welfare of the AIMS countries. New pandemics such as swine flu, H1N1, as well as vector-borne diseases like chikungunya have had negative impacts on SIDS' economies, in particular the tourism and transport sectors. In Mauritius, the outbreaks of occasional epidemics such as chikungunya, dengue, malaria and influenza pose a major challenge. With climate change and its related effects, these can be expected to be more frequent. An increasing trend has been noted in the case of water borne diseases as shown below. The A (H1N1) caused much havoc in the country with several deaths in 2009, an efficient Epidemic Alert and Response system to control the resurgence of communicable diseases has been set up. The first wave of AH1N1 pandemic and Chikungunya has successfully been contained as well as the outbreak of dengue fever and control Malaria. In Singapore, the control of dengue and chikungunya poses a challenge. As a business/tourism hub in an endemic region for many such diseases, it could be vulnerable to the introduction of new infections through travel and trade, and receptive to outbreaks because of the presence of mosquito vector species.

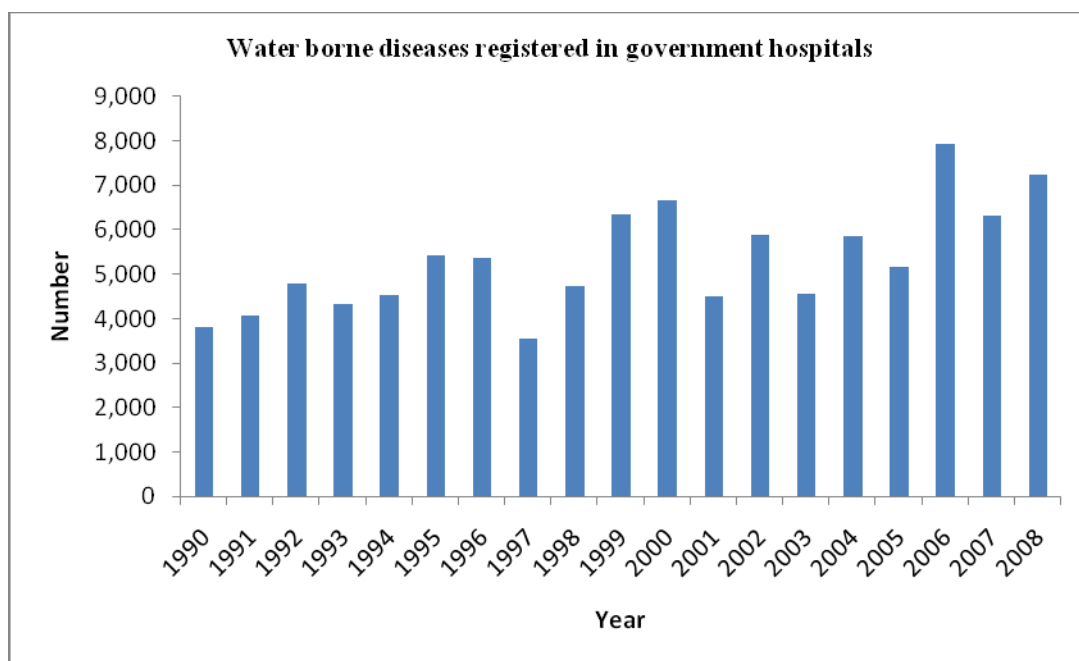


Figure V. Water borne diseases in Mauritius

Chikungunya was first reported in 2005 in Mauritius and accounted for 1,381 cases. In 2006, 11,165 cases were reported. National clean-up campaigns, massive and continuous public sensitization campaigns, regulatory measures to avoid accumulation of stagnant water (e.g. on roof tops), fogging and distribution of mosquito repellent were undertaken. Only one case of chikungunya was reported in 2007 and none in 2008.

Influenza A (H1N1) did cause much concern in the region when it was first reported in other countries. Some countries like Mauritius took promptly the following measures:

- Enhanced surveillance at ports of entry i.e. Harbour and Airport;
- Follow-up of all incoming passengers from countries at risk;
- Stockpiling of antiviral drugs and purchase of personal protective equipment; and
- Sensitization of the population through the Media (Radio, TV and press).

Though the level of HIV/AIDS is reported to be below the levels of countries in general in the Sub-Saharan Africa, the potential for the spread of the disease in the region is a becoming a serious concern. In Seychelles, the number of AIDS cases has tripled in the last 20 years, but it is believed that as many as half of the actual cases go unreported. The increase in AIDS is attributed family instability, early sexual activity, unprotected sex and increased substance abuse. With respect to Malaria control, Maurice once a country with wide spread malaria has eradicated the disease with selected targeted use of DDT and systematic monitoring for imported cases. Malaria is not endemic in the Seychelles but a number of imported cases are identified each year. For some countries, malaria is still a problem like in Guinea Bissau.

Many countries are short of specialists, equipment and knowledge. With their high level of immigrants tourists and in some countries large population of immigrants workers like in the case of Mauritius, Seychelles and Maldives, the countries should be alert to the introduction of infections from abroad and the arrangements of screening and follow up to reduce the risks of newly emerging infections on

small vulnerable population. In Mauritius, concerns are also high for communicable diseases with HIV AIDS requiring particular attention. The AIDS prevalence is estimated at about 1.8%.

With climate change, health problems such as malaria will be aggravated and more outbreaks of water diseases such as diarrhea and non-vectors infectious diseases like cholera are expected. HIV/AIDS is the communicable disease requiring most attention, whereas chikungunya, dengue, malaria and Influenza A being ad-hoc, imported. However, the situation should be monitored very closely and under strict control exercised to avoid recurrence of certain new pandemics and the spread of vector borne diseases.

They need to further strengthen their preparedness by:

- Developing/ strengthening national pandemic preparedness plan;
- Taking measures for early detection and reporting;
- Training of health personnel in specialized treatment.

6.6 Piracy

Piracy in the Western Indian Ocean has developed and escalating as a major security concern for AIMS countries in the region. Confined initially to the region off Somalia, it is now extending further south of the equator. It represents a serious threat to the sustainable development of the countries. All the oil tankers supplying fuel as well as cargo ships bringing imported goods to the region usually ply along the potentially dangerous routes. Fishing activities of migratory species, a mainstay to the economy of the countries are being threatened. Attacks on ships are increasing.

In Seychelles fishing activities alone are reported to have declined by 54% from January to August 2009 due to the risk of piracy. Some tourism activities such as boat charters to outlying islands have also been severely affected. By July 2009, increased military presence closer to the Horn of Africa resulted in the pirates shifting closer to the Seychelles and using more sophisticated weaponry. In the last half of 2009, Seychelles responded to this crisis by becoming a hub for anti-piracy action in the region.

The AIMS countries in the threatened region have no capabilities to address the piracy issue. Facilities available to National Coast Guard to patrol their vast EEZ are extremely limited to lack of appropriately equipped vessels and trained human resources. The Seychelles has signed agreements with the EU and the USA in 2009 allowing the deployment of anti-piracy troops and equipment on the islands. The US military is now operating P-3 Orion aircraft and unmanned aerial vehicles from Seychelles in an effort to improve maritime surveillance in regional waters.

All countries have obligation under the UN Security Council Resolution 1373. They need financial and technical assistance from the international community to meet their obligations under the resolution and towards the implementation of other new international maritime security regime. Mutual agreement with friendly countries with increased surveillance from foreign vessels should seriously be considered.

Chapter 7: Progress with the Millennium Development Goals (MDGs)

The Millennium Development Goals (MDGs) are a planning tool for action. According to an updated set of small states economic and social statistics available from the Commonwealth Secretariat Publications Division, the following provides an extent of selected needs across the AIMS region:

Goal 1 Poverty and malnutrition

Action: reduce by 25,000 the number of undernourished children

Goal 2 Gender equality

Action: Increase by 262 the number of parliamentary seats held by women

Goal 4 Child health

Action: reduce infant deaths by a further 7,500 a year

Goal 7 Environmental sustainability

Action: restore 222 square kms of forest cover lost since 1990

Action: reduce by 9.1 million metric tonnes CO2 emission per year









Action: Increase by 50,000 the number of persons with safe water

























































Action: Increase by 279,000 the number of people with safe sanitation.

A 2006 review by IOC of progress with MDGs in the AIMS group of countries shows substantial progress and achievement. Across all the 8 goals, the AIMS countries have made progress towards 40% of the indicator targets. 24% of the targets have already been achieved and 16% are on track. On 11% the countries are off-track moving away from the target values. But assessment is seriously affected by missing data in 49% of cases.






Several national reports provide numerical information on progress towards the MDGs. The table and the text give below a summary of the achievements in the various AIMS countries.

Table VIII - Summary of Status on the 8 Millennium Development Goals (MDGs).

							
Eradicate Extreme Poverty and Hunger	Achieve universal primary education	Promote gender equality and empower women	Reduce child mortality	Improve maternal health	Combat HIV/AIDS, malaria and other diseases	Ensure environmental sustainability	Develop a global partnership for development

								
Cape Verde*								
Comoros*								
Guinea-Bissau*								
Maldives*								
Mauritius*								
Sao Tome and Principe*								
Seychelles⁺	Seychelles has met the targets for most of the 8 MDGs.							
Singapore	Statistics indicate that ongoing measures to meet the targets of the MDGs have been highly successful							

Source: * www.mdgmonitor.org, + Seychelles MDGs Report, 2004

-  Achieved
-  Very likely to be achieved, on track
-  Possible to achieve if some changes are made
-  Off track
-  Insufficient information

7.1 Some details on the MDGs and Sustainable development in the AIMS countries.

Strategies and approaches to achieve the MDGs differ from country to country. In Bahrain, discussions on the MDGs have centred on the quality and sustainability of these achievements. This dialogue has resulted in an agreement with the national authorities to update the MDG-related data and to prepare the second national MDG report. It has made progress towards achieving the Millennium Development Goals (MDGs) and is potentially on track on most of them.

Cape Verde did its first MDG progress report in 2004. According to the report, the country is on track to achieving the MDGs overall. In 2007, the United Nations system supported Cape Verde in the

elaboration of its second MDG progress report. This report highlights the situation of the MDGs at the local level.

For Comoros, for achievement of the MDGs, the main challenges are to broaden the production base; build national capacity; resolve the problem of heavy debt and reverse the continuous decrease of the ODA, reduce gender inequalities; and halt the degradation of the environmental heritage. The authorities are attempting to overcome these shortcomings through implementation of capacity-building programmes, efforts to direct the country toward gaining access to the Heavily Indebted Poor Countries Initiative, more diversified partnerships, and the promotion of school enrolment for girls.

Mauritius released its first national Millennium Development Goals (MDGs) status report in 2000. An updated version is being finalized. Mauritius is one of the few countries in Africa on track to meet all but one of the Millennium Development Goals (MDGs) by the year 2015. The only MDG that Mauritius is unlikely to meet is the reduction by two - thirds in child mortality. Mauritius infant mortality rate currently stands at 14 deaths per 1,000 births. Bringing the rate down from 14 to 6 (below the level the USA has today) is considered unlikely given Mauritius level of income, and in view of the persistence of pockets of poverty.

The Maldives' first Millennium Development Goals (MDGs) Report (2005) showed that the country had either met or was on track to achieving the MDGs, with the exception of Goal 3 - promoting gender equality and empowering women, and Goal 7 - ensuring environmental sustainability.

In Guinea Bissau, the delays in achieving the Goals were thrown into relief by the first report on the national MDGs, published in 2004, and the 2006 National Human Development Report focusing on the theme 'Reforming policies as to achieve the Millennium Development Goals in Guinea Bissau.

In Sao Tomé, during the last years, the macroeconomic environment is generally favorable, with average GDP growth of over 6% and a substantive reduction of the public debt with completion of the Highly Indebted Poor Countries-initiative (HIPC) and some bilateral write-offs. However, inflation peaked at 27.6% last year. In this situation, most of the MDGs will likely or possibly be achieved until 2015; exceptions being poverty eradication (MDG 1), gender equality (MDG 3) and a sustainable environment (MDG 7), which are not likely to be achieved.

Seychelles MDG status report released in 2004 concluded that Seychelles had met most of the 8 Millennium Development Goals. The major challenge at that time was the need for capacity building, recognizing that human resource shortages could undermine gains in health and social welfare. Emerging challenges identified at the time of the MDG report: pockets of poverty, particularly among women, increasing trends in teenage pregnancy and households headed by single women, infectious and communicable diseases such as HIV/AIDS and leptospirosis, and lifestyle related diseases - all continue to be a concern today. One of the challenges mentioned in was the lack of an official and accepted "poverty line", which is still in development today.

7.2 Level of achievements of MDGs Goals in the AIMS countries

In general the level of progress since 2005 has been satisfactory for most countries. Some details for each goal are provided below.

7.2.1 Poverty Eradication

Poverty is of special concern to most of the countries though it is of different magnitude from country to country. In Cape Verde, the population living under the poverty threshold was estimated at 37% in 2002 and since then the figure has not changed. In 2006, according to MDG's report, the poverty perception rate was estimated at 78%. The Government elaborated a Poverty Reduction Strategy Paper (PRSP) in 2004 to fight poverty by focusing on economic growth through the promotion of the tourism sector.

On the other hand, Bahrain has high levels of human development and is free from extreme poverty. It has no poverty reduction programme.

In 2003 the Comoros prepared a Poverty Reduction Strategy Paper (PRSP), and a 2005 update was complemented by an action plan for the period 2006-2009. Among the indicators for monitoring the PRSP are: the percentage of the population living below the national poverty line; the rate of unemployment among young people of 25-34 years; the proportion of children who are underweight or who show insufficient growth for their age; the net primary school enrolment ratio; the ratio of maternal mortality; the rate of infant mortality; and the proportion of women in paid non-agricultural employment. The proportion of the population living below the poverty line went down from 54.7 per cent in 1995 to 44.8 per cent in 2004.

The Comoros shows its best results in education and health and, to a lesser degree, in the level of income poverty. The prevalence of HIV/AIDS has been kept under 1 per cent. The proportion of the population living below the poverty line went down from 54.7 per cent in 1995 to 44.8 per cent in 2004. These results have been achieved largely because of investments made in the health and education sectors through programmes supported by the international community. The promotion of microfinance and programmes for microenterprise has helped in poverty reduction, by broadening the access of the population to credit to overcome excessive debt.

The reduction of poverty is limited in Guinea Bissau because of the lack of vigorous economic growth. However, the government has given an important place to the MDGs in its National Strategy Document for the Reduction of Poverty (DENARP in its Portuguese acronym). The DENARP, finalized in 2004, was revised in 2005 and again in 2006 to better integrate the MDGs, enhance the consistency of sectoral policies, and ensure a correct prioritization of interventions. The Multiyear Action Programme, and the 2006-2008 Public Investment Programme have been revised accordingly. The round table for Guinea-Bissau Development Partners (November 2006) made it possible for the country to mobilize \$279.38 million to finance the new MDG-based DENARP.

The seventh National Development Plan is the policy document of the Government of the Maldives, which lays down its policies and strategies for the development of the nation for the period 2006-2010 and paves the way for achieving the MDGs. It meets all the requirements of a Poverty Reduction Strategy Paper.

Two local projects can be used as examples of poverty alleviation and increase in community participation by vulnerable groups (women and youth). The first is UNDP's Atolls Development for Sustainable Livelihoods, which has been implemented in six atolls. This project has contributed towards achieving the poverty eradication goal by building the capacity of island communities to raise their standards of living through income-generating activities.

In Mauritius, the incidence of absolute poverty is relatively low, although pockets still prevail in some suburban and coastal regions in Mauritius and on the island of Rodrigues. In the case of Mauritius, based on the two Household Budget Surveys of 2001/02 and 2006/07, the proportion of people living in extreme poverty in Mauritius is estimated to be less than 1 percent. Some 12% of the population is estimated to be poor, based on a poverty benchmark calculated at 50% of the median monthly household expenditure. The incidence of poverty is relatively higher among female-headed households (33.8%) than among male-headed households (8%). On the island of Rodrigues, the poverty rate is 30.2%. The incidence of poverty in rural areas is more than three times that of urban areas.

Sao Tomé et Príncipe has adopted the first Poverty Reduction Strategy Paper (PRSP) in 2002, which was reviewed in 2005 to better align it with the MDGs. On account of high inflation rate – 27.6 % in 2008- it is most likely that the goal of poverty eradication will not be reached. Poverty thus remains a concern. In 2001, 53.8% of the population lived in poverty, 15.1% lived in extreme poverty. The situation is especially dire in rural areas, aggravating the rural exodus.

For Seychelles, figures are not available to show how the reforms have influenced the level of poverty, but a household budget survey conducted in 2006/7 just prior to the major economic reforms indicated that 30% of households at that time were below the Basic Needs Poverty Line. It can be expected that more families are living below the poverty line now than there were at the time of the previous BPOA national assessment in 2003. The Social Welfare system is currently being reviewed by the UNDP and it includes the development of a system for measuring and monitoring poverty line.

7.2.2 Education

All the countries have given focused attention to primary education. Bahrain, Mauritius and Singapore have 100 per cent enrolment in primary school. Mauritius has a literacy rate estimated at 95 percent for 15-24 year olds. In Cape Verde, primary schooling is around 96% at the national level. This indicator has been even higher in some municipalities.

The Comoros shows its best results in education in the level of income poverty. In 2003, the net enrolment rate for primary school education rose to 73 per cent, and the number of children reaching the fifth year of school increased to 62.1 per cent.

In Guinea Bissau, universal education was slow to materialize, as was gender parity in education. The result of the Census 2001 showed that only 38.3% have primary education, 23.8% secondary level education, 6.1% pre-university and 0.7% university level. However, according to the National Report on the Follow up to the MDGs, the education system has undergone some improvement in its performance, particularly in enrollment.

The literacy in Sao Tomé et Príncipe was at 84.4% of adults in 2005 and primary school enrollment is at 84.3%, with little difference between girls and boys. Nevertheless, there is still a long way to go, especially in terms of the quality education. There is still concern that while Sao Tome and Principe does fine in terms of quantity, the quality of education is low, resulting in high drop-out rates. On average, only 60% of enrolled students finish primary education.

In Seychelles, public expenditure on education has remained at about 4% of the GDP over the last decade. It enjoys a high literacy rate and school attendance, although underperformance of boys and limited interest in pursuing post-secondary studies are a concern. Public schooling is free but private education is also available. Generally, the quality of public education is considered to be in need of

improvement. The Ministry of Education has responded by instituting several reforms to be implemented in 2010.

Environmental education for sustainable development in Seychelles has been a priority since the first EMPS in 1990-2000. Although environmental education was not identified as a core thematic area in the current EMPS, it was considered a cross-curricular theme. The Ministry of Education, MENRT, parastatals and NGOs all work closely to promote environmental education through both formal and informal education. The University of Seychelles has just become operational in 2009, and the degree to which they institutionalize the principles of ESD and sustainability in their programs and operations remains to be seen. The current Education Policy identifies sustainable development as one of the goals of the formal education system

7.2.3 Gender equality and women empowerment.

It is generally recognized in the AIMS countries that women should be involved in all development activities and that there should be no discrimination against them in terms of salary, promotion opportunities and right to education and other socio-economic benefits. During the RIO Summit, the empowerment of women was identified as a matter of concern for sustainable development. The AIMS countries are striving to reach gender equality in most areas.

The MDG target for gender equality in literacy for those aged 15-24 has already been achieved in Bahrain, Maldives and Singapore. Mauritius, however, has more literate females than males and there is no gender disparity in primary, secondary and tertiary education. However, share of women who are paid in the non-agricultural sector (35.7 percent in 2007) is still low. The current economic empowerment programme is meant to widen opportunities for women in Mauritius and engage them positively in the socio-economic activities of the country.

Representation in parliament, however, remains very unequal in all countries. In Mauritius, for example, the proportion of seats held by women in parliament is now only 17.1 percent. In 2008, in Sao Tomé et Príncipe, only 4 of 55 seats in the national assembly were held by women.

In Cape Verde, closing gender disparities is progressing very well and the country is expected to achieve the target before 2015. Commendable improvement has been made in terms of reducing the illiteracy rate of people aged 15-24 years in 2005. 96.5% of women are literate. The situation varies considerably from one municipality to another. However, the rate of unemployment is still high and that of youth, aged 15-24, was estimated at 33% in 2006. The unemployment rate of girls (41.8%) is greater than that of boys (25.1%) of the same age.

In Comoros, the National MDG Report (2005), showed mixed results on gender equality. The government requested UNDP to devote a National Human Development Report (2006) to Gender and Human Development in order to promote a national debate on this very sensitive subject.

A challenge in the Maldives to achieve gender equality is the distance between the islands and the difficulties in creating work opportunities for women on some of the remote islands. UNDP is working with the government to create jobs that are suited to the local environment and focused on women and youth (handicrafts projects, and public-private partnership to encourage women's employment in the resorts).

Gender equality largely prevails in the educational system in Sao Tomé et Príncipe. Girls even show higher rates of success as boys. Discrimination against women persists in the workplace and the family as well, largely due to cultural factors.

7.2.4 Reduction in child mortality

Improvement in the health sector has brought about improvement in the number of child mortality. Bahrain is on the way to meet the 2015 target of reducing child mortality. Cape Verde has done much progress in this area and target to decrease infant mortality (under 5) has been achieved. In 2005, according to the Ministry of Health, the mortality of under-five-year olds was estimated at 22‰. In Comoros, too the under-five mortality rate went down from 130 to 74 per 1,000 live births from 1990 to 2000

In Guinea Bissau, the rate of infant mortality, under-five mortality ratio diminished, but not enough to meet the targets set for 2015.

Mortality rate for children under five (per 1000 live births) in Mauritius has decreased from 23.1 percent in 1990 to 17.0 percent in 2007, and infant mortality rate (per 1000 live births) has decreased from 20.4 percent in 1990 to 15.4 percent in 2007. The coverage rate for immunization against measles was 90.5 percent in 2007.

In Sao Tomé et Príncipe, significant efforts to improve health care have borne fruit, resulting in a sharp drop in child mortality, which fell from 138 to 52 per 1000 births for children under five and from 89 to 43 for children over five in the period of 1995-2006. Furthermore, about 74% of families have access to health services within 30 minutes walking distance.

7.2.5 Maternity health

The maternity health has also improved much in most of the countries. Bahrain will be is on target in 2015 to reduce maternal mortality. In Cape Verde, with regard to maternal mortality, the rate was estimated by the Ministry at 14.5 ‰. The ratio of maternal mortality went from 517 to 381 per 100,000 live births between 1991 and 2003. In Guinea Bissau, the rate of maternal mortality ratio diminished, but not enough to meet the targets set for 2015.

In Comoros, the ratio of maternal mortality went from 517 to 381 per 100,000 live births between 1991 and 2003.

Mauritius has made great strides in improving maternal health: nearly 100 percent of births were attended by a trained doctor or a midwife in 1999. This number still holds. The maternal mortality rate was estimated around 36 per 100,000 live births in 2007 compared to 17 per 100,000 live births in 2006.

In Sao Tomé and Príncipe, maternal mortality at 75.7 for 100.000 births is still high, despite significant efforts to increase prenatal care.

7.2.6 HIV/AIDS, Malaria and other diseases

The level of HIV/AIDS is well below the levels of countries in the Sub-Sahara region except Guinea Bissau. HIV/AIDS, malaria, and tuberculosis continue to spread in the country. The provision of drinking water and sanitation, and access to decent housing are still lacking in many communities. The

targets are being revised. The new targets are realistic and reflect the need to improve the rate of MDG achievement.

Cape Verde is expected to achieve the MDGs related to health in all municipalities before 2015 and these goals have already been achieved at the overall country level. The prevalence of HIV/AIDS has been kept under 1 per cent. The death rate from tuberculosis is estimated 2.72°/oooo.

In Comoros, the prevalence of HIV/AIDS has been kept under 1 per cent and has generally improved. These results have been achieved largely because of investments made in the health and education sectors through programmes supported by the international community. The promotion of microfinance and programmes for microenterprise has helped in poverty reduction, by broadening the access of the population to credit to overcome excessive debt.

Malaria in Guinea Bissau is widespread all over the country and is responsible for 57% of death. Cholera occurs seasonally and the last epidemic in 2008 affected 14,229 people, causing 225 deaths. The rate of HIV/AIDS is 5.6%, the highest in West Africa. According to UNICEF (2009), 7.9 % of pregnant women are affected and the number of sero positive women who give birth each year is estimated to be about 5000.

In Mauritius, for the first time in 2007, the HIV prevalence rate among pregnant women aged 15-24 years declined to 0.25 percent from 0.31 percent in 2006, a notable success given that the rate had been steadily increasing from 2000 to 2006. The Government is currently carrying out public awareness campaigns on HIV and AIDS, along with instituting preventive measures.

In Sao Tomé et Príncipe, the fight against major diseases has shown promising results. Malaria has seen a spectacular decline, with a drop in deaths of 78% percent from 2005 to 2006 alone. There is considerable room for improvement as regards HIV/AIDS and tuberculosis, though. The HIV/AIDS epidemic is still below the dimension reached in other countries. 1% of the population was found HIV-infected in 2001; newer figures will be available after the conclusion of a nation-wide survey. Tuberculosis is on a slow downward trend.

In 2006, 20.4% of public expenditure in Seychelles went to health (4.6% of the GDP) and this has remained relatively constant. The macroeconomic situation has been putting the health and social welfare system under pressure over the last half of the decade, and social service delivery has been negatively affected. Despite these constraints, general health care indicators such as low infant mortality, long life expectancy remain quite impressive although emerging threats include the macroeconomic instability, the ageing population, increases in unhealthy lifestyles, substance abuse, crime and violence and the increase in sexually transmitted infections. The number of AIDS cases has tripled in the last 20 years, but it is believed that as many as half of the actual cases go unreported. The increase in AIDS is attributed to family instability, early sexual activity, unprotected sex and increased substance abuse.

7.2.7 Environmental sustainability

Awareness to preserve the environment has been enhanced since the Rio Summit in 1992. Many countries have since established Ministries of Environment or Divisions on Environment within relevant Ministries. Many countries have achieved the MDG goal. Reforestation programme has been implemented in Cape Verde, Maldives, Sao Tomé & Príncipe, Seychelles and Singapore. Countries with decreasing CO₂ emission are Comoros, Guinea Bissau, Sao Tomé & Príncipe and Singapore.

However, limited land area in Mauritius imposed considerable pressure on its use for development purposes. The proportion of land area covered by forests has decreased from 30 percent in 2000 to 25 percent in 2006. A computerized land information system has been put in place to monitor and better manage land use. Appropriate control mechanisms are also in place to protect the environment, as evident from the decreasing trend in the consumption of ozone-depleting chlorofluorocarbons (CFCs), from 19.3 metric tons in 2000 to only 4.07 metric tons in 2003. It is worth noting that the CFC use was almost negligible in 2004 and 2005. The whole population of Mauritius enjoys sustainable access to clean water and sanitation.

Bahrain too needs to take appropriate measures to meet the MDG target on environment including carbon emission, marine life protection and coastal areas management. In Cape Verde, 85% of the population has access to drinkable water while 30% have access to sanitation.

In Sao Tomé et Príncipe, environmental degradation is persisting. While the legal framework as regards protection of species and natural reservoirs is adequate, its enforcement is not. Weak law enforcement and poverty in rural areas thus pose a grave danger for the environment. This is especially worrying as the country's potential for tourism could thus be compromised.

A challenge in achieving Goal 7 on environmental sustainability is the lack of provision of safe and affordable drinking water to the small island communities of Maldives. The need to establish standards for rainwater collection storage and use and to increase harvesting and storage capacity has been identified.

7.2.8 Global Partnership for Development

Many countries depend heavily on global partnership for their socio-economic development. All the countries have increased their capacity for communication – increase in land line and mobile telephone, increase in the number of computers and use of internet.

However, some countries still face some problems to meet the MDG goal. For example, in **Guinea Bissau**, the instability of the country and resource constraints makes it extremely difficult for the country to build its efforts on longer-term foundations. To address the issue, the UN country team together with the national actors has formulated the United Nations Framework Programme for Development Assistance, covering the period 2008-2012 to respond to national priorities on the human development issues particularly the acceleration of the MDG's achievement.

Mauritius is involved in a number of partnership programmes with friendly countries including France, India, Japan and China. In 2006, it undertook a bold economic reform programme to address major issues relating to national output, budget deficit, debt, unemployment and the business environment in the country. There are already clear signs of recovery with higher GDP growth and investment, and lower budget deficit and unemployment in 2007. Unemployment, although relatively high at 8.5 percent in 2007, is constantly being monitored and a series of measures are underway to widen opportunities for the whole population, and women in particular. Modernization of the economy is apparent from the increasing use and availability of telephones (28.6 per 100 people in 2007 compared to 23.5 per 100 people in 2000), mobiles (72.4 per 100 people in 2007 compared to 15 per 100 people in 2000), and internet subscribers (11.9 per 100 people in 2007 compared to 7.3 per 100 people in 2000). A vibrant private sector is playing a major role in the production of goods and services. The Government lowered taxes to boost trade and investment. Mauritius is moving fast towards becoming a duty-free island and is working jointly with other countries towards establishing a free-trade area in the region.

Sao Tomé et Príncipe is heavily dependent on trade, with a markedly negative trade balance and relies on foreign aid for the great majority of its public spending. Questions of global partnership and the way in which this aid is delivered are therefore vital. Even though the capacity of the country to absorb aid is indeed weak, attaining this goal first and foremost requires increased efforts on the part of the development partners. The sharp drop in the price of cocoa on the world market has worsened the economic situation.

The outlined perspectives do not yet take possible petroleum exploitation into account, which is officially expected to begin in 2013. This could lead to considerable increase in government revenues and a larger capacity for public spending in the future. Furthermore, it might increase local employment and attract investors. It could thus significantly contribute to Sao Tome et Principe achieving the MDGs.

Chapter 8.

The Way forward in the region

The global economic crisis has slowed down the socio- economic development of the AIMS countries and, as consequence, reduces investment and effort to address effectively environmental degradation. Hence maintaining sustainable development will be a great challenge. With most of the donor countries in recession, this would imply a diminished amount of aid to the AIMS countries. For many of the countries, lower levels of aid would not only impede further progress but could even reverse some of the gains already made.

Climate change and sea level rise is expected to exacerbate the problems. Many countries are already experiencing warmer temperatures with frequent heat waves putting much stress on labour output. Flooding and drought are becoming more frequent with far-reaching consequences on agricultural output and water resources. Coastal erosion is ubiquitous and worsening threatening the tourism industry. However, global warming this should not be seen as a real threat but as an opportunity to take bold actions and “no regret” measures to move towards maintaining sustainable development. These should include developing more “green” technologies and make the structural changes needed that will contribute to sustainable growth. Every effort should be done to take advantage of the Copenhagen Launch Fund starting in 2010 whereby 10% of the US\$10 billion will be allocated to SIDS countries particularly in developing and implementing adaptation strategies.

There is no doubt that the right decisions and actions backed by political commitments can yield results. The purpose of this chapter is to provide some guidance for AIMS/ SIDS delegations during upcoming MSI+5 review meetings to develop and strengthen ongoing and new commitments from the international community to assist AIMS with further implementation of the MSI, at all levels in region, and with particular emphasis at the national level.

Some measures and recommendations to enhance development of renewable Sources of Energy, strengthen an education system for all, improve sanitation and preserve of natural resources are provided in the previous chapters. Some additional ideas are provided below to chart a road map for the way forward.

8.1 Special case of SIDS

Agenda 21 of UNCED recognized that Small Island Developing States (SIDS) are a special case both for environment and development. They are ecologically fragile and vulnerable. Their small size, limited resources, geographic dispersion and isolation from markets, place them at a disadvantage economically and prevent economies of scale. They are considered extremely vulnerable to natural disasters including sea level rise, with certain small low-lying islands facing the increasing threat of the loss of their entire national territories like in the case of the Maldives. These are causing major setbacks to their socio-economic development. This was further highlighted during the WSSD conference in 2002 in Johannesburg.

Being given that SIDS options are limited, SIDS faces special challenges for planning and implementing sustainable development. Consequently, they will not be able to address these challenges and meet the objectives of the MDG goals without the cooperation and assistance of the international community.

At the time of UNCED, it was estimated that the average total annual cost (1993-2000) of implementing sustainable development related activities, about \$130 million would be needed. The amount required has now increased by many folds. It was highlighted in various regional and international fora that International Organizations, whether subregional, regional or global, must recognize the special development requirements of Small Island developing States and give adequate priority in the provision of assistance, particularly with respect to the development and implementation of sustainable development plans.

MDG Goal 8 - **Develop a global partnership for development** – and Target 14 particularly address the special needs of Small Island developing States through Programme of Actions for their Sustainable Development. It is instrumental that special financial needs of SIDS are considered and appropriate measures taken enable them to access dedicated financing or enjoy special concessionary conditions.

The special requirements of SIDS should be raised whenever the opportunity arise in the context of international governance review processes. The United Nations Conference on Sustainable Development (Rio +20) is scheduled to take place in 2012 in Rio de Janeiro with the aim to renew the commitment of world leaders to the sustainable development of the planet, twenty years after the United Nations Conference on Environment and Development (Rio-92). It will discuss further the contribution of the “**green economy**” to sustainable development and elimination of poverty, and touch upon the question of structure of international governance in the area of sustainable development. This will represent a golden opportunity to reiterate the plight of SIDS and made an appeal to obtain access to financial mechanism for their sustainable development.

8.2 International Aid Delivery

In most cases the following criteria are used to calculate the vulnerability profile of a country to assess its eligibility to international aid:

Income criterion, based on a three-year average estimate of the gross domestic product (GDP) *per capita* or gross national income (GNI) per capita;

Human capital criterion, involving a composite *Augmented Physical Quality of Life Index* based on indicators of nutrition, health, education, and adult literacy; and

Economic vulnerability criterion, involving a composite *Economic Vulnerability Index (EVI)* based on indicators of the instability of agricultural production, the instability of exports of goods and services, the economic importance of non-traditional activities, the handicap of economic smallness.

Based on these criteria, some vulnerable countries in the region are not entitled to international aid. For example Seychelles with a GDP per capita estimated at US 8000 is ranked as a high income country and thus a contributor to regional and international organizations. This has resulted in Seychelles being pulled out of some international and regional organization since it cannot afford to pay its contribution or participate meaningfully due to limited human capacity.

The above criteria do not take into consideration the following:

- Specificities and characteristics of SIDS in general and AIMS in particular;
- Degree of defenselessness against hazards, and the difficulties faced in coping with them;
- Emergence of new diseases such as chikungunya and swine flu;
- Backward technologies results in undue pressure on natural resources and lead to chronic vulnerability;
- Environmental degradation;
- Impacts of climate change and sea level rise on small economies; and
- Other internal and external factors which characterize the fragile economy of SIDS countries.

The AIMS countries are prone to natural hazards. Many of them will experience tropical cyclone with greater intensity as a consequence of global warming, more frequent flooding and drought and enhanced coastal erosion due to higher waves and swells jeopardizing the tourism industry which is mainly coastal-based.

Consequently, the criteria currently governing the international aid delivery system i.e. GDP or GNI per capita, disqualifies some SIDS from accessing concessionary financing. This criterion is misleading and does not reflect the multifaceted challenges associated to their economic, social and environmental vulnerabilities. Hence the criteria used for SIDS eligibility to soft loans should be reviewed so as to better reflect their structural handicaps. The following is recommended:

- Work to be urgently undertaken on the development of country vulnerability profiles. Such country specific vulnerability profiles should be based on joint efforts by relevant UN agencies, of which UNCTAD, and other intergovernmental bodies like the Indian Ocean Commission and Commonwealth Secretariat, reflecting their respective competencies and experiences;
- The countries' vulnerability profile should clearly document the sources and impacts of the SIDS economic, social and environmental vulnerabilities and be used as a document supporting SIDS' request for development assistance.

8.3 Climate Change Adaptation

All the AIMS countries are vulnerable to climate change and Sea Level Rise. It is occurring and its influence will be felt for decades, if not centuries, even if GHGs emission globally is stabilized. For Seychelles and Maldives, it is greatest threat to sustainable development. For others, it is the overall economy which will be crippled if no actions are taken. Adaptation is the only option. However, in spite of the urgency to develop policies and measures to address climate change issues, progress has been slow owing mainly to lack of capacities and a proper regional framework. Countries have yet to mainstream the impacts of climate Change and Sea Level Rise in National development Plans.

It is appropriate to point out that the Caribbean and the Pacific SIDS compared to the AIMS countries have benefitted much from international assistance. These include:

- A SPREP managed Pacific Adaptation to Climate Change (PACC) project approved by the GEF with access offered to US\$13.125 million for adaptation work in the region;
- National Adaptation Programmes of Action (NAPA) developed for Kiribati, Samoa, Tuvalu and Vanuatu under the GEF LDCs Fund, with the Solomon Islands NAPA nearing completion. There has been a request to extend the NAPA process to non-LDC Pacific SIDS;

- The Kiribati Adaptation Project (Phase 2 Implementation) supported by the World Bank and New Zealand continued to develop and demonstrate the systematic diagnosis of climate-related problems and the design of cost-effective adaptation measures, and integrate climate risk awareness and responsiveness into economic and operational planning;
- An SPC-German Technical Cooperation (GTZ) project ‘Adaptation to Climate Change in the Pacific Islands Region’ (ACCPIR) commenced work in Fiji, Tonga and Vanuatu;
- The Global Environment Facility Pacific Alliance for Sustainability (GEF-PAS) programme with focus on climate change adaptation (US\$30.39 million) and mitigation measures (US\$14.7 million);
- Australia is to invest US\$137 million over three years from 2008-09 to meet high priority climate change adaptation needs;
- The Sea level Monitoring Network in the Caribbean enhanced with international assistance to obtain long term series of data to identify trends in sea level rise;
- Much progress in the Caribbean region in adapting to climate change achieved through improved knowledge base; increased access to improved technology, improved collaboration with regional mechanisms; and collaboration with international mechanisms providing necessary support.

In the Western Indian Ocean, the IOC has just initiated a 3-year programme on adaptation to climate change with funding from France and EU for the benefit of IOC members. However, more funding is needed from the international community to assist the AIMS countries to face the inevitable climate change impacts.

Many countries, in particular Maldives, Seychelles and Mauritius in the region, have been active on the international scene to attract attention on the plight of SIDS. In this connection, President Gayoom of Maldives initiated the process by addressing the UN General Assembly, Commonwealth Heads of State, and the SAARC summit in 1987. A recent cabinet meeting underwater in Maldives is a laudable initiative. However, in order for AIMS countries to play a more prominent role in international climate change negotiations, it is vital that a regional AIMS position is developed to complement the general AOSIS position and increase synergies with the G77 and China within the ambit of the UNFCCC as the sole forum for climate change negotiations.

In this context, an AIMS regional implementation programme on Adaptation to Climate Change could be developed. The establishment of such a regional climate change adaptation program for the AIMS participating States, would be based on and benefit from the past and current adaptation programmes that have been implemented in the Caribbean and the Pacific SIDS, and would primarily focus on the:

- (i) Identification and establishment of an AIMS Regional Center of Excellence for Climate Change Adaptation; and
- (ii) Implementation of pilot adaptation programs at the national and local levels

8.4 Aid for trade initiative.

Small economies like the AIMS countries face specific challenges in their participation in world trade, for example lack of economy of scale or limited natural resources. There is a strong interest in ensuring that global trade is based on a strong rule- based multilateral trading system where good and services can flow freely with minimum impediment. Trade-related measures should be taken to improve the integration of small economies.

The Aid for Trade initiative has been developed to help developing countries, to strengthen the trade-related skills and infrastructure that is needed to implement and benefit from WTO agreements and to

expand their trade. In February 2006 the WTO established a task force with the aim of “operationalizing” Aid for Trade. The Aid for Trade work programme issued in November 2009 aims to keep an on-going focus on Aid for Trade, which will generate continued impetus to resource mobilization, mainstreaming, operationalization and implementation. The progress achieved will be reviewed during the Third Global Review of Aid for Trade in 2012.

However, due erosion of trade preferences affected the AIMS countries; there is the need for urgent operationalization of the Aid for Trade initiative, without awaiting the conclusion of Doha Development Round.

8.5 Regional Mechanism to address AIMS issues

The AIMS region covers all SIDS which are not located in the Caribbean and Pacific Ocean. Members are scattered over a vast geographical area in the Western Indian Ocean, East Atlantic Ocean, Mediterranean and south China Seas. They differ in geographical setting, size, population, resource base and development constraints. This represents a special challenge in terms of coordination and intra-regional cooperation. The countries have adhered to various regional groupings.

The Mauritius Strategy acknowledges the important role played by regional organisations in the implementation and monitoring of the Strategy. In the South West Indian Ocean, the organization which coordinates regional cooperation is the Indian Ocean Commission (IOC). The members are Comoros, Madagascar, Mauritius, Seychelles) and Reunion, an overseas department of France. Set up in 1984, the IOC is one of the first formal experiences of regional cooperation in the region. The objectives are to strengthen links between the peoples of its member states, promote sustainable development and improve their standard of living, promoting cooperation in a number of areas: diplomacy, economy, trade, agriculture, fishing, the conservation of resources and ecosystems, culture, science and education. It is funded mainly by contributions from member states and is the implementing agency of a number of regional projects with funding mostly from the European Union. Fast-increasing levels of globalisation, the emergence of new regional groups and changes in the situations of member countries have meant that regional cooperation has taken on a new dimension. It is being encouraged to develop projects in association with other regional economic groupings in the region including IGAD, EAC, SADC, and COMESA.

Singapore is a member of the regional Association of Southeast Asian Nations (ASEAN) which is implementing various regional programmes for the sustainable development of the region. It has trained 6,200 SIDS officials in various sustainable development fields through their South-South cooperation (SIDSTEC). Sao Tomé & Principe is part of the WACAF convention and is also a member of the Community of Portuguese Language States.

The Nairobi and Abidjan Conventions offer good examples of appropriate regional frameworks and platforms. The Nairobi Convention provides a mechanism for regional cooperation, coordination and collaborative actions, and enables the Contracting Parties to harness resources and expertise from a wide range of stakeholders and interest groups towards solving interlinked problems of the coastal and marine environment. Five of its 10 members are island States in the Western Indian Ocean namely Comoros, France (La Reunion), Madagascar, Mauritius and Seychelles. The Abidjan Convention promotes co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region was adopted in 1981. It covers the marine environment, coastal zones and related inland waters falling within the jurisdiction of the States of the Western African Region. SIDS in the Atlantic has not yet ratified the convention.

The two Conventions are coordinated by a Joint Secretariat hosted by UNEP under the Division of Environmental Policy Implementation (DEPI). The Joint Secretariat is supported by Regional Coordinating Units in Seychelles and Cote d'Ivoire, a forum of national focal points, and thematic and technical task forces. The Secretariat also works closely with collaborating partners such as regional NGOs and various national and research institutions. It has recently successfully catalysed the establishment of the "Consortium for Conservation of Coastal and Marine Ecosystems in the Western Indian Ocean" (WIO-C). This is a consortium between major NGOs in the Western Indian Ocean which have developed marine programmes. The aim is to enhance collaboration, exchange of information and synergy towards a joint programmatic approach in addressing marine and coastal environmental issue in the region.

On the initiative of Mauritius, a regional multidisciplinary centre of excellence (RMCE) has been established to encourage trade and investment flow in sub-Saharan Africa and collectively negotiate an effective Free Trade Area (FTA) with EU and ultimately promote horizontal and vertical integration within Africa. The RMCE will be called upon to drive the Programme with a view to improving the overall investment climate in Africa. The 'Maurice Ile Durable' concept which provides a framework for sustainable development could also be replicated in other SIDS.

In the Pacific region there is an UN System to coordinate regional development activities. It has three Sub-regional Offices in the Pacific located in Fiji, Samoa and Papua New Guinea, led by UN Resident Coordinators who are representatives of the UN Secretary General in country. The UN Development Assistance Framework (UNDAF) for the Pacific Sub region 2008-2012, estimated at around US\$310 million, represents the first region-wide response to the UN operational reform process, and is a product of several partnerships in development, including between the Fiji and Samoa offices covering a total of fifteen UN agencies, offices and programmes, and between the UN and fourteen Pacific SIDS.

The UNDP Pacific Centre currently with a staff of 16 advisers became operational in early 2006 and specifically focuses on the fifteen Pacific SIDS while two Regional Centres in Bangkok and Colombo focus on a range of thematic areas and cover all countries in Asia and the Pacific. The Centre's programmes are structured around three core thematic areas: (i) MDG Achievement and Poverty Reduction; including support for HIV and AIDS response and environment and energy; (ii) Democratic Governance; and (iii) Crisis Prevention and Recovery. The International Strategy for Disaster Reduction (ISDR) Subregional Pacific Office established in 2008, a Subregional Pacific Office which is co-located with the UN Office for the Coordination of Humanitarian Affairs (UNOCHA) in Fiji.

However, though there is some mechanism and framework for regional coordination in other regions, there is currently not a devoted region-based UN or non-UN organization in the AIMS regions to address the issue of proper regional coordination to promote the sustainable development of the countries. There is an urgent need to develop further and strengthen regional support mechanisms for intra-regional cooperation, partnerships and exchange, as well as regional centres of excellence for research, training, advisory services and strategic planning and advocacy at the regional and international level.

8.6 Development of a Monitoring and Evaluation mechanism

Monitoring and Evaluation is essential to follow progress in the implementation of sustainable development programmes. New mechanism is being developed for the purpose as donors' community concern with effectiveness of aid is increasing. It is now increasingly being focusing on outcomes

rather than inputs and processes Lessons learned that contribute to more transparent and accountable systems.

In order to assess progress and guide development, it is important to obtain a clear picture of strengths and weaknesses and ultimately where and how assistance should be channeled when implementing projects. The lack of reporting from a number of AIMS countries have hampered efforts to assist in planning, coordination and ability to provide clear and consistent advice on needs and priorities, both current and emerging. It is essential that the Indian Ocean Commission in collaboration with UN-DESA work out a monitoring and evaluation mechanism. This mechanism should be extended to cover all SIDS.

8.7 Revitalizing SIDSNet and the University Consortium of the Small Island States

The SIDSnet project is a direct outcome of the 1994 United Nations Conference on Sustainable Development in Barbados. It is a global Internet project linking 42 small island states in the Pacific, Indian Ocean, African and Caribbean regions. The site and its news wire cover various themes such as trade, biodiversity and climate change and search engines allow users to search popular websites. It addresses two issues pertinent to SIDS - those of isolation and of small, fragmented markets. The SIDSnet program has been highlighting success stories from small island states and also acting as a catalyst for specific initiatives. In some countries it is the only means of obtaining development news from island countries.

The importance of information and information technology in the process of achieving sustainable development has been underscored on many occasions. The SIDSnet has provided an appropriate platform for a global information network to link the SIDS communities to exchange knowledge and information and promote networking. It is an important tool contributing to the implementation of the BPOB and Mauritius. SIDSnet is undergoing a complete redesign and revitalization as part of a new project generously funded by the Government of Spain, entitled "Capacity Development through Education for Sustainable Development and Knowledge Management for Small Island Developing States." The project will redevelop SIDSnet, creating a much-needed central knowledge management system to facilitate information sharing and collaboration. The AIMS countries should fully support the initiative.

The mission of the University Consortium of Small Island States (UCSIS) is to enhance the capacity of graduate education institutions in small island states by facilitating the development of the institutional and systemic capacity needed to implement the Barbados Programme of Action. The University of Mauritius is currently a member from the region and the University of Seychelles expressed interest to join the consortium.

Its objectives are:

- To improve information flows among members on course offerings, facilities, student needs and relevant documents;
- To encourage cooperative curriculum development, research, indigenous knowledge management and outreach in the key areas of sustainable development of SIDS by supporting resilience building for sustainable development;
- To share research findings and reference materials;
- To use the results of SIDS-focused research and field work to assemble curricula relevant to island development;
- Recommend standards and procedures for inter-institutional accreditation among Members;

- Ensure the sustainability of the Consortium by seeking and securing appropriate funding to support the activities of the Consortium.

The UCSIS is expected to promote education for sustainable development and its development should be enhanced.

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