



# South Asian Seas Programme

South Asia Co-operative Environment Programme (SACEP)



## Colombo Sri Lanka

South Asian Seas Programme (SASP) is a co-operative partnership, formally adopted in 1995 at a Meeting of Plenipotentiaries for the protection and management of the shared marine waters and associated coastal ecosystems by the five maritime SACEP countries – Bangladesh, India, Maldives, Pakistan and Sri Lanka.

The South Asian Seas (SAS) Region includes parts of the Bay of Bengal and the Arabian Sea in the northern Indian Ocean, as well as the seas bordering Bangladesh, India, Maldives, Pakistan, and Sri Lanka. The region is characterized by an extensive system of river deltas and diverse marine and coastal habitats, encompassing mangroves, sea grass beds and reefs, and supporting some of the richest concentrations of biodiversity in the world.



The marine environment is particularly threatened by the physical alterations of the coastal zone, exploitative and depredatory practices and the destructions of vital habitats, which is compounded by a paucity of technical and educational resources for sustainable management.

South Asia Seas coastal countries account for less than 2 percent of the world's total coastline. Yet the low elevation coastal zones of these countries, with an area of about 160,000 km<sup>2</sup>, contain 135 million people – 22.5 percent of the global population living in such zones.

The coastal zones also contain about 40 percent of the economic activities in the region and most of its critical economic infrastructure.



### Genesis of SASP

On interest of South Asian Coastal States in the Regional Seas Programme of the United Nations Environment Programme (UNEP) the "South Asian Seas" has been designated by the Governing Council of UNEP as an area in which UNEP, in close collaboration with SACEP and the Governments concerned, should assist in the formulation of a Plan of Action for the environmental protection of the region within the framework of the Regional Seas Programme, in line with the provisions of Chapter 17 of Agenda 21.

As a response to the concerns voiced over increased degradation of coastal and marine ecosystems of the region, the South Asia Co-operative Environment Programme (SACEP) in collaboration with its member states, initiated the South Asia Seas programme (SASP) as a part of UNEP's Regional Seas Programme.

### SAS Action Plan

Action Plan approved by the member countries includes the promotion of sustainable development and sound management of regional marine and coastal resources by:

- establishing and enhancing consultations and technical co-operation among States of the region;
- emphasising the economic and social importance of the resources of the marine and coastal environment;
- Establishing a regional co-operative network of activities concerning concrete subjects/projects of mutual interest for the whole region.



## State of marine environment in South Asia Seas region

The South Asian Seas Region can be categorised into two distinct geographical groups. While Maldives and Sri Lanka are island nations, Bangladesh, India and Pakistan are situated on the Asian mainland. The region has some of the largest and biologically rich marine ecosystems like Gulf of Mannar, Atolls of Maldives and Mangroves of Sundarbans. Presence of perennial rivers like Brahmaputra, Ganges, Godavari, Indus, Kelani, Magna, etc. have contributed to large network of backwaters, estuaries, salt marshes and mangroves. It is also the habitat for endangered marine turtles like green and olive ridley turtles. Some of the largest coastal lagoons of the world like Chilka Lake in India and Puttalam lagoon in Sri Lanka are located in the South Asian Seas region. The region has one of the world's finest coral ecosystems with the atolls constituting the entire country of Maldives. The Lakshadweep and Nicobar group of islands of India and a few regions of Sri Lanka have fringing reefs.

**Marine Biodiversity:** Due to the diversity of the prevailing hydrographic conditions, the South Asian Seas host a wide variety of ecosystems. Mangroves and coral reefs are the two most important habitats in the regions. The mangrove ecosystem supports important coastal fisheries and provides direct sustenance to coastal communities from timber and other products. It is also endowed with rich biodiversity and wildlife. Major coral reefs in the region are found in the Laccadives Maldives region (coral atolls), Gulf of Mannar/Palk Strait (fringing and patch), in the Andaman and Nicobar Islands (fringing). The numerous estuaries and backwaters found along the coasts provide a range of environmental conditions, serving as breeding grounds for commercially important fish and supporting high biological diversity.

**Mangroves:** The South Asian seas region contains significant mangrove areas, with India alone comprising an estimated 10% of the world's mangrove forests. About 12 genera of mangroves are found within the region (compared with 13 in the Indo-Pacific). Pakistan, and 40-45% of certain mangrove species in the Bangladesh Sundarbans. The area occupied by mangroves in South Asia has declined markedly over recent years with reductions of 34% reported for India, 99% for the Indus delta in Pakistan, and 40-45% of certain mangrove species in the Bangladesh Sundarbans.

**Sea Grass:** The extensive seagrass beds found in Southern India and the estuaries of Sri Lanka account for the largest contribution to primary productivity in coastal waters and support over 50% of the countries coastal fishery production.

**Coral reef :** One critical habitat affected by the physical alteration of coastal zone is the coral reef ecosystem. Found only in tropical ocean waters, coral reefs invaluable resources to both human and marine life. Coral reefs are estimated to contain on quarter of the world's marine biodiversity while covering less than 1% of the ocean floor. The South Asian countries bordering the Arabian Sea and the Bay of Bengal have some of the largest and biologically rich marine ecosystems, and are home to an estimated 6% of the world's coral reefs. All three major reef types (fringing, barrier, and atoll) are represented in the region, and over 250 reef building coral species have been recorded. The governments have taken efforts to protect this marine ecosystem by declaring marine and coastal protected areas



### Marine Biodiversity In South Asian Seas

**Home to around 10 % of the world mangroves:** Sundarbans largest remaining continuous stretch of forest and is a important habitat of endangered Royal Bengal Tiger Mangroves in the Indus delta of Pakistan is an important example of arid mangroves in the world

**Home to 6% of Worlds coral reefs** More than 250 species of coral species, over 1200 reef associated fish species. The Maldives-Chagos-Lakshadweep Atolls are the most extensive coral reef system in the Indian Ocean and the largest atoll system in the world

**Large number of intertidal mud flats,** estuaries and lagoons forming important habitats for hundreds of residential and migratory bird and fish

**Large stretches of sandy beaches** which are important nesting habitats for five species of globally threatened marine turtles

**One third of the worlds cetacean** species occurs in the marine waters of the region and this area falls under the Indian Ocean Whale Sanctuary

**Over 100 Globally threatened species** are recorded from the coastal and marine habitats of the region



**Coastal Population:** The coastal areas of this region are characterized by the location of some of the largest population concentrations in the world (Karachi, Mumbai, Chennai Kolkatta and Dhaka). The entire population of the Maldives can be considered as coastal, while in Sri Lanka more than 32% of population is found in the coastal belt. Located alongside these coastal resources are some of the most densely populated cities in the world (Karachi, Mumbai, Chennai, Calcutta and Dhaka). Demographic and economic changes have increased demands on marine and coastal resources across the region and many people are dependent on these resources to generate at least part of their livelihoods. In addition to food production, tourism, recreation and coastal protection comprise other important goods and services obtained from these ecosystems and they therefore, have great economic, social and cultural importance to individual countries and to the region as a whole.

**Socio economic:** All SASP members are developing countries, of which few are categorized as Least Developed Countries. The region is characterized by very low per capita income and high population growth rates. South Asia contains 1.3 billion people (approx) which is 22 per cent (more than one-fifth) of the world's total population. Nearly half of the world's poorest people live in this region. The land area is 3.5 per cent of the world total, and it generates only 2 per cent of the world's GNP. The average GNP is calculated at US \$ 430 for the region as a whole. The excessive population burden puts serious pressures on the limited natural resources causing adverse impacts on the environment.

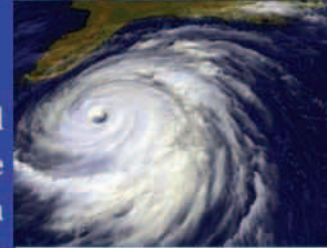
**Natural hazards:** All the countries of the South Asian region are vulnerable to cyclones, storm Surges and tidal waves and devastating earthquakes. Because of geographical contiguity Countries within the region share similar ecosystems. Tsunami has shown the vulnerability of SASP countries and the sever devastation led to focus on preparedness by member countries and necessitated coordination among SASP Countries.

**Sea level rise:** Preliminary inventories of countries vulnerable to a sea level rise indicate that all five coastal South Asian countries are included in the list of United Nations Environment Program's (UNEP) 27 most vulnerable countries with Bangladesh and the Maldives being in the list of the ten most vulnerable nations.

**Monsoon :** Located in the tropical monsoon belt, the region is strongly affected by monsoons, and is vulnerable to storm surges, cyclones, and tsunamis. The unique monsoonal circulation introduces marked seasonality in oceanographic and biogeochemical processes

**Climate Change Risks to Coastal Communities and Infrastructure**

- According to the Intergovernmental Panel on Climate Change (IPCC), Asia will be one of the most severely affected regions of the world as a result of "business-as-usual" global warming.
- South Asia is likely to have increased exposure to extreme events, including cyclones and tropical storms, floods, and severe vector-borne diseases.
- There has also been an increase in the frequency and intensity of extreme weather events. A number of studies in the region have explored linkages among the observed changes in mean climate variables, extreme weather events, and changes in biophysical and human systems.





- The IPCC goes on to estimate that even under its most conservative scenario, sea levels in 2100 will be about 40 centimeters higher than today, which will cause an additional 80 million coastal residents in Asia alone to be flooded.
- The majority of those flooded will be in South Asia, particularly in Bangladesh and India. A 1-meter sea level rise would flood nearly 6,000 km<sup>2</sup> in India alone. By including the effect of ice-sheet dynamics, other studies suggest a 3-5m rise in sea levels by 2100. Such an increase would have a devastating impact on the region.
- In South Asia, large coastal cities such as Dhaka, Chennai, Mumbai, and Kolkata are at average elevations of 2-10 meters above mean sea level. Overall, some 47 million people live in urban areas in low-elevation coastal zones, half of them in cities larger than 5 million in population.
- Significant population movements will likely occur toward other large urban settlements in the interior of the country rather than get dispersed in the hinterland of existing coastal cities. These will put considerable stress on coastal and inland urban areas. Further, the large infrastructure investments in ports, industries, and other facilities are at greater risk due to rising sea levels.
- Sea level rise will affect the coastal zone in multiple ways including the inundation and displacement of wetlands and lowlands, coastal erosion, increased coastal storm floods, increased salinity in estuaries and freshwater aquifers, alteration of tidal ranges, and changes in sediment and nutrient transport.
- The areas protected by mangroves, deltas, low-lying coastal plains, coral islands, sand beaches, and barrier islands are less likely to be impacted by sea level rise compared with the build-up areas. However, these areas and resources are already under stress.
- The most vulnerable communities will include those having maximum exposure to these stresses, as well as those with the least capacity to respond and ability to recover.



**Marine Industry :** Major economic activities are concentrated in coastal areas. These include ports and harbours, fisheries and aquaculture, tourism, and rapidly expanding industrial activities. Agriculture forms a major part of the overall economic activity. In some areas, mining is also important, and although the production of oil and natural gas is limited, a significant volume of crude oil is transported by tankers through the region. Ongoing development has manifested in the form of urban centers, tourist resorts, ports and industrial areas. However, this expansion can have dire environmental consequences for coastal areas.

**Threats** The ecological richness, however, has been subjected to great pressure through over extraction of resources, enhanced pollution, and physical alterations in coastal ecosystems. Mangroves have been exploited for timber, fuel wood, and other purposes. Large mangrove areas have been cleared for agricultural activities particularly in India and Pakistan. Mangroves, coastal wetlands, and other coastal habitats also have been severely affected by discharges of untreated industrial and domestic sewage, freshwater interceptions for irrigation, and dredging and re-suspension of contaminated silts. Oil pollution also increasingly threatens coral reefs, often located in areas where large-scale petroleum industries, tourism, and fishing industries flourish. Most of the shallow water coral reef habitats of Sri Lanka, the Maldives, and India have been severely damaged as a result of bleaching. The northern Indian Ocean is one of the 10 hotspots of the world's threatened coral reef areas.



# SAS Programmes

In order to conserve and protect the marine environment the South Asian Sea countries have joined together by supporting the South Asian Seas programme with Secretariat being located in SACEP

The approved programme are

- 1 Integrated Coastal Zone Management
- 2 Development and Implementation of National and Regional Oil Spill Contingency Planning
- 3 Human Resources Development Through Strengthening Regional Centres of Excellence
- 4 Land Based Sources of Marine Pollution

## Institutional Cooperation MoUs signed by SASP/SACEP

The Institutions associated with SASP activities

UNEP	-	Co-operation in the field of environment
IUCN	-	The World Conservation Union, Asia Region and SACEP on complementary and mutual support
UNEP-GPA	-	Coordination Office and SACEP
UNESCO	-	Cooperation Agreement
TRAFFIC	-	International on Cooperate in the area of sustainable trade in wildlife
	-	An agreement of cooperation between IMO and SACEP on matters of common interest

## Cooperative Arrangements at the Project Level

UNEP	-	Coordination of SASAP activities, development of a regional activity on Marine Litter for the South Asian seas Region and development of a regional activity on the sustainable and environmentally sound management of Persistent Organic Pollutants (POPs) in the SAS region
IMO	-	Organize an IMO/SACEP Regional Workshop on measures to collect, handle, treat and dispose of waste generated in applying the AFS Convention
UNEP	-	Tsunami disaster assessment and response plan
UNEP-Nairobi	-	Facilitate capacity building of MEA negotiators
IMO in	-	Facilitate to build capacities on measures to collect, handle, treat and dispose of waste generated in applying the AFS Convention
UNEP-GPA	-	Strategic planning and developing market based instruments for the medium to long term strategic planning of the implementation of the Sri Lanka national programme of action (MBI/NPA)
NORAD	-	Project outputs SSP1 and SSP2
UNEP	-	MoU on co-operation in the field of environment Draft Memorandum of understanding (MOU) For Co-operation on the response to Marine oil and chemical spills in the South Asia Region.
UNEP	-	Facilitate implementation of the South Asian Seas Action Plan for the Protection and Management of the Coastal and Marine Environment of the region
CORDIO Programme	-	Promote environmental management, conservation and sustainable use of coral reef resources in India, Sri Lanka, and Maldives
UNEP-ROAP	-	Preparation of "South Asian Action Plan for Environmental Education and Training"
UNEP-Regional Seas	-	Support to South Asian Seas Programme: <ul style="list-style-type: none"> <li>• Updating and finalizing the "SAS Regional Oil Spill Contingency Plan"</li> <li>• Development of 7 detailed project proposals for the program cycle 1999-2000</li> </ul>
IMO	-	Support in preparation of national and regional oil spill contingency plans and conducting work shops on IMO conventions (OPRC, MARPOL)



# Projects

UNEP / EU funded project on MCPA of Coral Reef Ecosystem in South Asia

SACEP / SASP has successfully completed a UNEP EU funded project on MCPAs in Coral Reef ecosystem in South Asia in December 2008. The components of the project executed are listed below

## South Asia Coral Reef Task Force (SACRTF)

The South Asia Coral Reef Task Force (SACRTF) has been established under the South Asia MCPA (Marine Conservation and Protected Areas) project, through funding from the European Union, to facilitate coordination in the management of coral reefs and associated ecosystems at a national level, and to promote collaborative action at the regional level, encouraging trans-boundary responses to shared environmental challenges.

The South Asia region was ranked the lowest in the world in terms of declared marine and coastal protected areas in the 2003 United Nations List of Protected Areas. In addition, the inclusion of essential coral reef habitat in MCPA provisions is minimal, making the Indian Ocean, with its wealth of coral reefs, sea grasses, and mangrove forests, perhaps the most poorly protected ocean. As a result, the degradation of coastal and marine resources continues at an unprecedented rate, and despite current protection measures, one third to half of the coral reefs of South Asia are now effectively dead, and a further 30% threatened.

Governments and key regional experts from 5 countries worked together over the preceding months to finalize the role, purpose and structure of the SACRTF. An official ceremony was held on the 27th July 2007, led by the Hon. Minister for Energy, Environment and Water, from the Republic of the Maldives, Mr. Ahmed Abdullah, to formally announce and launch the SACRTF.

## Managing Marine and Coastal Protected Areas: A Toolkit for South Asia.

**Aim:** Prepare a comprehensive toolkit to help managers in South Asia access simple and current information to support MCPA management

Toolkit prepared in consultation with over 40 regional and international experts

International launch at the World Conservation Congress in Barcelona, October 2008

## Capacity Building Training for MCPA Managers

**Aim:** Develop the skills of participants through interactive training scenarios, and provide opportunity for the target audience to review content, structure and usefulness of the South Asia Toolkit prior to finalisation.

~ Regional training workshop conducted in the Maldives, June 4-7 2008.

~ 18 Participants attended Managers Training Programme in Gujarat, India. 30 participants attended from the 5 participating countries.

~ Interactive exercises to build managers skills in project design, planning, monitoring, livelihoods and networking.

~ 70-page Workshop Report prepared. Available from [www.icran.org/action-southasia.html](http://www.icran.org/action-southasia.html)

## Coral Reef Crime Scene Investigation (CSI)

**Aim:** Training for field staff in investigative, forensic and rapid ecological assessment techniques to improve response to impact events, and maximise prosecution and mitigation success

~ 290-page Coral Reef CSI Toolkit prepared to guide resource impact investigations and rapid responses

~ Government of Maldives kindly offered to host a regional South Asia CSI course, 1-5 December 2008

~ Marine Research Centre (MRC) to provide local coordination support

~ Site visit conducted 14-18 Aug 2008, by international CSI trainers to finalise location, dive scenarios, logistics

## International year of Coral Reef IYOR



Recognizing that ten years after the first International Year of the Reef (1997) there continues to be an urgent need to increase awareness and understanding of coral reefs, and to further conserve and manage valuable coral reef and associated ecosystems. IYOR 2008 was a year-long campaign of events and initiatives hosted by governments and non-governmental organizations around the world, with global ownership from the community level upward, to promote conservation action and strengthening long-term constituencies for coral reef conservation. The International Coral Reef Initiative (ICRI), designated 2008 as the "International Year of the Reef (IYOR 2008)" in October 2006. SASP / SACEP successfully conducted these events in this region and the objective of spreading the awareness could be achieved with the support of member countries. The Government of Sri Lanka launched a commemorative First Day Cover on 25th



## REGIONAL OIL SPILL POLLUTION CONTINGENCY PLAN FOR SOUTH ASIA

This exercise has two components firstly regional contingency plan to be endorsed and a MoU to be signed. Pakistan has made amendments in the plan & MoU for which SACEP received approval from Bangladesh, Maldives and Sri Lanka. In order to expedite the matter IMO and SACEP advisory mission is visiting to Pakistan to meet concerned officials from 25 to 27 May 2009. IMO has identified lead consultant Mr. Stainlos for this mission. SACEP is closely coordinating this mission.

## MARINE LITTER

Under this activity SASP/SACEP signed a MoU with UNEP and have completed all activities envisaged. The regional frame work document was prepared and presented in the workshop organized in Colombo with participation of member countries. The 4th Inter Ministerial meeting of South Asian Seas programme identified the following new areas for development of projects, Capacity Building (Training and Awareness), Beach Clean Up – An Approach to Control and Manage Coastal Litter in the SAS Region, Creation of Port Reception Facilities and Solid Waste Management in the SAS Region for Marine Litter Management.

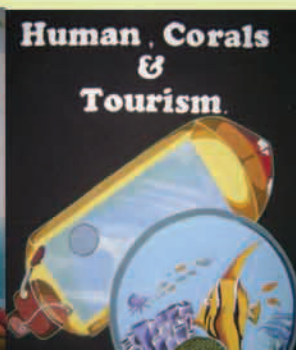
**Coastal Cleanup** The International coastal cleanup Day in third week of September is being successfully conducted by all member countries and data collected on marine debris with participation of government and nongovernment organizations is very successful. The awareness generated among the public and students by organising events such as poster, essay elocution and quiz competitions are found to be very effective. This has become regular national event in India and Sri Lanka The Indian coast Guard and Marine Environment Protection Authority Sri Lanka are spear heading this campaign effectively

## DEVELOPMENT OF REGIONAL STRATEGIC FRAMEWORK ON GLOBAL INVASIVE SPECIES

The project activity is mainly on conducting of a training programme on prevention of entry of alien species mostly due to discharge of ballast water by ships passing en-route, their early detection and rapid response, incursion management, international response, developing a National Strategic Framework and Communication, Education and Public Awareness. The International Ocean Institute, South Africa would be providing part financial and technical assistance for this activity. Even though IOI SA has agreed to provide this training we are not successful in getting funding support from the donors.

## COLLABORATIVE ACTIVITIES BETWEEN UN-DOALOS AND SACEP/SASP

The UN-DOALOS Secretariat has identified SAS as one of the key geographical locations that need to be supported with capacity building on environmental law relating the Marine Protected Areas. A Regional Training Course on this subject is proposed to be organised. The total budget for the Regional Training Course is estimated at US \$ 97,000 of which UN-DOALOS has committed US \$ 33,500/-. SAS and UN-DOALOS are expected to raise the balance funding through partners and other sources. UN DOALOS's initial response is positive and yet to get confirm balance funding support.





**NORAD Funded Projects**  
**PROJECT OUTPUTS – SSP1 & SSP2**

**1. STRENGTHENING OF FRAMEWORK LEGISLATION FOR ENVIRONMENTAL MANAGEMENT**

Special Regional Activities completed are

- Conventions Secretariat Meeting April 1997
- Regional Judges Symposium - July 1997
- Asian Regional Workshop on UNFCCC with Special Reference to the CDM
- Environmental Management Seminar for South Asia - Islamabad - Sept 1998
- Development of the Publication "Handbook of National Legislation for South Asian Countries"
- South Asian Forum on Environmental Co-operation between Government and the Private Sector

National Activities accomplished are

- National Seminar on Environmental Law and Management - Nepal
- National Seminar on Environmental Law and Management - Bangladesh

Special Publications released are

- South Asia Handbook of Treaties and Other Legal Instruments in the Field of Environmental Law
- Compendium of Summaries of Judicial Decisions in Environment Related Cases (With Special Reference to Countries in South Asia )
- Report of the Regional Workshop on Strengthening Legal and Institutional Arrangements for Implementing Major Environmental Conventions in South Asia
- Report of the Regional Symposium on the Role of the judiciary in Promoting the Rule of Law in the Area of Sustainable Development
- South Asian Handbook of National Environmental Legislation
- Proceedings of National Seminar on Environmental Law and Management – Nepal
- Proceedings of National Seminar on Environmental Law and Management – Bangladesh

**2. TRAINING FOR MANAGEMENT OF PROTECTED AREAS AND CORAL ISLAND ECOSYSTEM**

- Preparation of Training Manual on Integrated Management of Coastal and Marine Protected Areas for South Asia with Technical Assistance from Great Barrier Marine Park Authority, Townsville, Australia
- Conduct of the 1st Training Course for the South Asian Seas Countries on Integrated Management of Coastal and Marine Protected Areas with Technical Assistance from Great Barrier Marine Park Authority, Townsville, Australia

**3 PILOT PROJECT - STRENGTHENING ENVIRONMENTAL MANAGEMENT CAPABILITIES IN MALDIVES**

Activities completed with support of Ministry Of Planning Human Resources And Environment, Maldives

- Assembling of a small, catalogued technical library of reports and publications on environmental matters in the Maldives
- Production of a computerised bibliography of the marine and terrestrial environment of Maldives and enhance the quality of the library established
- Increase of capacity for environmental information collection, handling and dissemination
- 4 Determination the future environmental information needs of the section
- Publication of the State of the Environment Report

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