

**Project title:** Improving Site-based Coral Reef Management in South Asia: The Identification of Demonstration and Target Sites for Coral Reef Management and Networking for Experience Sharing

**Geographic Scope:** South Asian Seas Region (Bangladesh, India, Maldives, Pakistan and Sri Lanka).

**Implementing Organization :** South Asia Cooperative Environment Programme (SACEP) in association with ICRI National Focal Points: MOE (Bangladesh), MOEF (India), MRC (Maldives), MOE (Pakistan), NARA (Sri Lanka)

**Co-operating organizations:** GCRMN, CORDIO, ICRAN, ICRI, IUCN, UNEP-Regional Seas Unit, UNESCO-IOC, WWF

**Duration:** 12 Months

**Total Cost of the Project: US \$ 59,000**

**ICRI Funding:** US \$ 24, 000 (£15,000)

**Potential Co-Funders:**

UNEP Regional Seas  
ICRAN  
CORDIO  
UNESCO-IOC  
Bilateral donors

**SUMMARY**

The objective of this proposal is to improve site level management of coral reefs in South Asia. The first stage is the identification of good practice demonstration sites, which can serve as valuable case studies for sustainable coral reef management. The management practices of these demonstration sites will be documented to facilitate the promotion and replication of success in integrated coastal management in the region. Target sites (i.e. high-value coral reef sites needing additional management and capacity building support) will also be identified. Pairing arrangements will be developed between the demonstration and target sites to aid transfer of site level experience and to encourage maximum use of national and regional expertise in management and capacity building activities.

This proposal also aims to build upon existing regional level experience sharing mechanisms such as the GCRMN Database and web resources developed by GCRMN-South Asia, ICRI forum, ICRAN, and SACEP. A new web portal will be developed in the SACEP website to provide a central coordination point among the various stakeholders. SACEP Governing Council and Consultative Committee meetings will be used as information and decision making devices at the higher official level.

# ***Improving Site-Based Coral Reef Management in South Asia - The Identification of Demonstration & Target Sites for Coral Reef Management and Networking for Experience Sharing***

## **1. BACKGROUND**

Found only in tropical ocean waters, coral reefs are estimated to contain one-quarter of the undersea world's diverse species while covering less than 0.2% of the ocean floor. South Asia is home to around 6 % of the world's coral reefs and over 250 reef building coral species have been recorded from the region. The major coral reefs of South Asia are found in the Lakshadweep, Andaman and Nicobar Islands of India, and in the Maldivian archipelago. The Indian mainland has two widely separated areas of reef development in Gulf of Kutch and the Gulf of Mannar. In Sri Lanka, 2-3% of the 1,585km coastline has fringing reefs. In the north of South Asia, reef growth is inhibited by the massive freshwater and sediment inputs from the Ganges, and other rivers. Therefore, reef development is very poor along the Bangladeshi coastline and only a small reef area is found from St Martin's Island. Reef development is poor in Pakistan due to heavy sediment load from the Indus, and isolated coral patches have been recorded from the Balochistan coast. Together with the coral reefs, the extensive mangrove and salt marsh ecosystems of the region provide habitats for large number of fish, marine mammals (dugongs, whales, dolphins etc), five species of marine turtles, mollusks, crustaceans and algae.

Reef systems are very valuable to the region's economy, especially in tourism and fishery while they also act as a barrier to protect the precious land resources from erosion. In Maldives 19% of the GDP comes from marine-based tourism. The country earns around US\$ 17.5 million a year through diving alone. Reef fishery contributes to 15% of Sri Lanka's total marine fish production, while in India it is around 10%. In Malé, where reefs have been sacrificed for land reclamation, sea defense is now provided by breakwaters at a cost of US \$ 14 million to protect 1.52 km of shoreline area.

During the severe El Niño event in 1998, between 50-100% of the coral in many shallow waters of India, Maldives and Sri Lanka were destroyed due to extensive bleaching. Human induced threats to the reefs in South Asia include coral mining, destructive fishing practices, increased sedimentation and pollution and tourism related activities. Population growth combined with poverty and unsustainable development practices are the underlying causes for these destructive activities.

According to the 2002 GCRMN Status Report, the need for Marine Protected Areas (MPAs) covering coral reefs has been recognized by all the governments in South Asia, but commitment to the management of existing MPAs and the planning for new areas are still inadequate to ensure conservation of the coral reef resources. Only 15 marine areas with sub-tidal elements and 34 coastal areas have been declared as protected in the region.

Following table gives some of the new initiatives undertaken at the national level.

<b>Country</b>	<b>Major Activities</b>
Bangladesh	In 2001, the Government initiated a project titled "conservation of biodiversity, marine park establishment and eco tourism development at Saint Martin's Island". Presently a comprehensive coastal zone management policy for the country is being developed.
India	In 1999, Ministry of Environment & Forests initiated the Indian Coral Reef Monitoring Network (ICRMN) with the objective of providing a framework to monitor the four main coral reef areas of India. 2001 Amendments of the Wildlife (Protection) Act of 1972, have led to increased protection of the following species: Reef building corals, black coral and species such as sharks, sea horses,

Country	Major Activities
	groupers, sea cucumbers and 52 mollusk species. Research is being carried out on coral culturing rehabilitation of degraded coral reef through transplantation of <i>Acropora Formosa</i> . Two donor-funded projects are being carried out in Gulf of Mannar and Andaman-Nicobar
Maldives	The government has designated 25 reefs as protected areas where only bait fishery and diving are allowed. Aus-Aid funded Marine Protected Areas Project is being carried out with the main objective of establishing a system for developing protected sites at Atoll level and will declare the Addu Atoll as the first pilot protected area. GEF Block B Project on conservation and sustainable use of biodiversity associated with Coral Reefs in the country is now being implemented. The Maldivian Coral Reef Forum was initiated in 2002 with GCRMN-South Asia's assistance.
Pakistan	Presently there is no direct work carried out for coral reef conservation. The countries coastal resources management policy is now being updated.
Sri Lanka	The Hikkaduwa nature reserve was up-graded to a national park from 2003 and Cabinet approval is sought for including the coral reefs of Pigeon Island in the "protected" status. The coastal policy is being updated under the ADB funded Coastal Resources Management Project, where coral reef management at Bar Reef, Rekawa and Hikkaduwa is undertaken. Sri Lanka Coral Reef Forum was initiated in April 2002 as a joint effort of GCRMN-South Asia, SACEP and CORDIO. A report on alternative livelihoods as a management tool for coral reef protection is presently being developed.

The countries are also party to biodiversity-related international conventions such as CBD, CITES, World Heritage Convention, and Man and the Biosphere Programme of UNESCO, and have undertaken several initiatives to address issues under these conventions.

## 2. PARTNERSHIPS

At the regional workshop of International Coral Reef Initiative (ICRI) for the South Asia held in November 1995, the participants recognized the importance of coral reefs and associated coastal ecosystems to their region and the importance of working towards a Regional Policy on coastal environments. The goal of this Policy was defined as: "Sustainable use and management of coastal resources in South Asia Region, achieved through intergovernmental cooperation and the involvement of national stakeholders at all levels". At this meeting, the five maritime countries of South Asia unanimously decided that South Asia Cooperative Environment Programme (SACEP) as the focal point for regional ICRI activities. SACEP is an intergovernmental organization developed by the South Asian Governments for the protection and management of the regions environment. This decision was also influenced by the fact that SACEP is the secretariat for implementing the South Asian Seas Programme under the UNEP regional seas programme. Strengthening of national and regional capabilities and co-operation for the management of protected areas has been identified as one of the activities which would serve to strengthen the ability of the Governments to adopt appropriate environmental policies in accordance with the South Asian Seas Action Plan (SASP), which has been ratified by Bangladesh, India, Maldives, Pakistan and Sri Lanka.

The first breakthrough for enhanced regional cooperation for coral reef monitoring and management was initiated in 1997, with the development of the South Asian Regional Node of the Global Coral Reef Monitoring Network (GCRMN South Asia), with financial and technical assistance from the UK Department for International Development (DFID) and the Intergovernmental Oceanographic Commission. Since early '98, GCRMN South Asia has worked with governmental agencies, universities, NGO's tourist operations, and schools in India, Maldives and Sri Lanka. Up to 2002, 26 training workshops and consultations have been held, enhancing the skills in biophysical and socio-economic survey methods at 7 demonstration sites across the region. In 1999 a second phase of funding was provided to further implement socio-economic monitoring and twelve-month socioeconomic assessments have been undertaken at six reef locations. The GCRMN South Asia has also developed a regional information network, with

a regional coral reef database, regional newsletter and a website to facilitate horizontal (between the information generators) and vertical (from micro to meso to macro levels) movement of information on coral reefs. GCRMN South Asia, in partnership with CORDIO and SACEP, has also facilitated national stakeholder networks, such as the Coral Reef Forums of Maldives and Sri Lanka. It also assisted the Indian Coral Reef Monitoring Network (ICRMN) to achieve increased dialogues between coral stakeholders, NGO's researchers, managers, tourist operations and policy makers. Most recently, the GCRMN South Asia has provided guidance in informing and influencing reef management planning and policy development, including national studies of planning and decision processes relating to coral reefs and coastal development.

The Coral Reef Degradation in the Indian Ocean (CORDIO) Programme was launched in 1999, as a response to the extensive coral mortality through out the Indian Ocean, particularly due to extensive bleaching event of 1998. It supports target studies and monitoring in 11 countries surrounding the Indian Ocean, including Maldives, India, and Sri Lanka, where ecological as well as socio-economic effects are studied. Investigations also focus on natural recovery of reefs. In addition, the program supports alternative livelihoods among local populations affected by the coral mortality.

At the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg, the International Coral Reef Action Network (ICRAN) announced the expansion of its partnership into the South Asian region to work in collaboration with SACEP and other organizations such as GCRMN South Asia. ICRAN is in the process of developing a work programme for the South Asian region.

At the International Tropical Marine Ecosystem Symposium (ITMEMS 2) held at Philippines in March 2003, the South Asia stakeholders stressed the importance of the following:

- Implementing the MPA concept for effective conservation and management of coral reef ecosystem;
- Strengthening of education and awareness programs at all levels to ensure sustainable use of coral reefs;
- Stakeholder participation and identification of viable alternative options, opportunities and resources so as to reduce pressure on coral reef ecosystem;
- The need for strengthening of effective enforcement mechanism and compliance of all treaties, conventions and agreements;
- Enhanced funding for biophysical & socio-economic monitoring, restoration, capacity building, establishment of data base, networking including sharing of information and experiences;
- Establishment of a South Asia Coral Reef Unit to facilitate implementation of various regional and international initiatives within SACEP Secretariat.

Up to now three partner organizations of ICRI; GCRMN, CORDIO and ICRAN are currently working in the South Asian Region in association/collaboration with SACEP. At the National level, MOEF (India), MRC (Maldives) and NARA (Sri Lanka) have been acting as focal points for their activities. A major threat to this regional coordination is the termination of DFID funding support for GCRMN South Asia node at the end of 2002. At the ICRI CPC meeting held in Gland, Switzerland in March this year it was reported that the collaboration between CORDIO, IUCN and the GCRMN was being strengthened with negotiations to establish a joint IUCN/CORDIO/GCRMN office in Colombo, Sri Lanka.

### 3. NEEDS TO BE ADDRESSED

There are several key needs in South Asia in the implementing the ICRI Framework for Action:

- *Improved Site-based management* – According to the GCRMN Status Report for 2002, management of existing marine protected areas and the planning for new areas in South Asia is still “inadequate to ensure conservation of the coral reef resources”. This has very serious implications, not just for the natural resources themselves, but for the thousands of people who directly or indirectly depend on these resources for their livelihoods. There are reef areas that definitely need strengthening of their management practices (referred to as target sites in the following proposal). However, there are also sites in the region where substantial work is currently underway to improve site-based management (eg: GCRMN monitoring sites, site based improvement taking under ADB funded CRMP project of Sri Lanka, Aus-Aid funded project in Maldives). The positive outcomes of these activities can be used to improve site-based management in target sites.
- *Coordinated Information and Experience Sharing Mechanism* – The coral reefs of South Asia affect, and are affected, by a hugely diverse range of stakeholders which means that the issues that managers are facing are highly complex and will not be solved with isolated interventions. There do exist national, regional and international networks that potentially can have significant benefits through coordinated and coherent action. A regional unit that can function as an information conduit between the stakeholders in the coral reefs of South Asia and the international policy makers and donors is widely accepted need within the region.
- *Capacity building and targeted training in Marine protected area management* - Further assistance is required to implement management and capacity building with regard to planning, decision making processes and implementation for national and local level managers and decision makers - Guidance is needed to initiate and follow-up effective reef management interventions, could be a series of workshops.

### 4. PROPOSAL

#### 4.1 Objective

The key objectives of this proposal are:

- Identification of good-practice coral reef management sites in South Asia (demonstration sites) and documentation of these sites in case studies.
- Identification of target sites in South Asia that require additional management and capacity building support.
- Further development of existing experience sharing mechanisms in the region through expanded web-based communications, initiation of a regional level coral reef forum and initiation of pairing arrangements between demonstration and target sites.

Capacity building and training needs documented in the previous section will be further addressed in a subsequent proposal.

## 4.2 ACTIONS

### *Identification of Demonstration & Target Sites*

The selection of demonstration and target sites will be done through a participatory and transparent process, based on agreed selection criteria. The following procedure will be followed:

- Formation of a project steering committee, consisting of representatives from Governments, SACEP, CORDIO, GCRMN, ICRAN, ICRI and IUCN.
- Development of a draft overview of the status of site-level coral reef management in the region using existing information and cases studies (GCRMN-SA and CORDIO studies, on going donor/government funded projects etc.) and by obtaining information from the relevant stakeholders through a questioner.
- Conduct a regional experience-sharing workshop (inaugural South Asia Coral Reef Forum) to bring together a group of experts from the five countries and the international community. Each country will present case studies on their potential demonstration and target sites (In a pre-agreed format to bring out key issues relating to management, monitoring, stakeholders etc.). It is also envisaged that invited presentations of best practice in site-based management from other regional seas areas will also be included (e.g. South East Asia, East Africa or Caribbean). The final selection of demonstration and target sites based on agreed selection criteria will take place at this workshop. The draft overview will also be finalized, after incorporating the comments obtain during the workshop.

### *Building upon the existing information and experience sharing mechanisms*

To facilitate the transfer of information and experiences the following will be undertaken:

- *Web-based communication -*
  - i. Funding assistance for equipment and training to allow selected demonstration and target sites to access the web and to participate in experience sharing activities. Specific needs will be identified and prioritized after the sites are selected.
  - ii. Existing SACEP website ([www.sacep.org](http://www.sacep.org)) will be expanded to include a special section titled “South Asia Coral Reef Coordination Unit”. It will serve as a convenient portal for all web-based resources and experience sharing mechanisms in the region. It will be updated regularly and will be linked with all relevant national and international websites.
  - iii. ICRI Forum will be used as a communication tool between stakeholders of South Asia with other regional partners.
  - iv. Regular updates will be forwarded to GCRMN-SA and ICRAN websites.
- *Experience Sharing Forums/Meetings –*
  - i. Initiation of a South Asia Coral Reef Forum, which will meet once in two years: The proposed workshop will be the first forum.

- ii. The continuation of existing country-level coral reef forums (The forums should meet at least once a year)
  - iii. SACEP Governing Council (GC) Meetings (The GC is responsible for determining policy and programmes of SACEP and it oversees these activities by meeting regularly to review ongoing programmes and to endorse new recommendations put forward by the Secretariat. It consists of one Ministerial-level representative from each of the member states) and Consultative Committee (CC) meetings (The CC comprises of the representatives of the diplomatic missions in Colombo and the Secretary, of Ministry of Forestry and Environment of Sri Lanka is responsible for facilitating the implementation of policies, strategies and programmes approved by the SACEPs Governing Council. The CC meets regularly to provides guidance to the Secretariat in its activities) to be used as information and decision making devices at the higher government level. SACEP will ensure coordination between the regional and country level forums and GC/CC Meetings.
- *Site Pairing* – Pairing of demonstration sites with the target sites. The specific mechanism for pairing will be determined by the two sites at the initial South Asia Coral Reef Forum
  - *Publications* - Good management practices and lessons learned from the demonstration sites will be documented and distributed to key stakeholders in the region through the South Asian Seas Program and through the experience sharing mechanisms to be established by this project.

### 4.3 LINKAGES TO ICRI FRAMEWORK FOR ACTION

This proposal provides for specific, practical and site-based implementation of elements ICRI Framework for Action. These are summarized in the following table:

<b>ICRI Framework for Action (1995)</b>	
<b>ACTION</b>	Develop and/or strengthen national, regional and international mechanisms for gathering and sharing information and expertise on the sustainable management of coral reefs and related ecosystems.
<b>Capacity Building</b>	Establish, strengthen and sustain mutually supportive networks of centers of expertise in management of coral reefs and related ecosystems.
	Encourage maximum use of national and regional expertise in management, research and capacity building activities.
	Support the development, identification and dissemination of materials which address the interests and needs of the regions including...case studies of management, including success stories as well as examples which have not been successful.
<b>Management</b>	Encourage governments to develop and adopt integrated coastal management measures
	Promote the establishment and effective management of coastal and marine protected areas for coral reefs and related ecosystems

<b>ICRI Framework for Action (1995)</b>	
	Promote and replicate successes in integrated coastal management
<b>Review</b>	Review of the state of coral reefs and related ecosystems and of action taken to implement the ICRI Framework for Action should be conducted at national, regional and international level on a regular basis.

## 5. BUDGET

<b>Activity</b>	<b>Estimated time frame</b>	<b>Estimated cost (US \$)</b>	<b>Estimated cost Breakdown (US \$)</b>																		
1. Development, publication and distribution of the report on status of site level coral reef management in South Asia, including good management practices	08 Months	<b>10,000</b>	Consultant fee (including traveling cost) 6,500 Publication 2,500 Distribution 1,000																		
2. Arrange and conduct of the 03 day regional meeting <ul style="list-style-type: none"> <li>▪ Travel cost for 18 people 13,040</li> <li>▪ DSA for 18@ \$86, 5 nights 7,740</li> <li>▪ Lunch/Tea/Brek/@\$15- for 30 2,250</li> <li>▪ Accommodation/allowance for Sri Lankan 6@\$100, 4 nights 2,400</li> <li>▪ Secretariat cost (including communication, documentation, equipment hire) 5,000</li> <li>▪ Field Trip 4,500</li> </ul>	06 Months	<b>35,000</b>	Travel cost (if the meeting is to be held in Sri Lanka) <table border="0"> <tr> <td>Bangladesh</td> <td>3</td> <td>3,750</td> </tr> <tr> <td>India (N'Delhi)</td> <td>4</td> <td>2,600</td> </tr> <tr> <td>India (Chennai)</td> <td>3</td> <td>690</td> </tr> <tr> <td>Maldives</td> <td>3</td> <td>750</td> </tr> <tr> <td>Pakistan</td> <td>3</td> <td><u>2,850</u></td> </tr> <tr> <td></td> <td></td> <td>13,040</td> </tr> </table>	Bangladesh	3	3,750	India (N'Delhi)	4	2,600	India (Chennai)	3	690	Maldives	3	750	Pakistan	3	<u>2,850</u>			13,040
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3. Web-based experience sharing <ul style="list-style-type: none"> <li>▪ Funding assistance for equipment and training for target and demonstration sites <b>10,000</b></li> <li>▪ Modification of existing SACEP website to include "South Asia Coral Reef Coordinating Unit." <b>4,000</b></li> </ul>																					
4. Conduct country level coral reef forums	This activity is not budgeted																				

## 6. ICRI DELIVERABLES

ICRI funding is requested for the web-based experience sharing deliverable and the site-level management status reporting. These two items are focused on site-level implementation of the ICRI Framework for Action. The cost of these two items is approximately equal to £15,000 pounds (approximately \$24 000).

Additional funding will be sought for the workshop activity.

## 7. REFERENCES

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