

# ICRAN



International Coral Reef Action Network

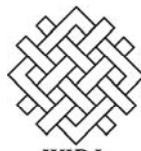
## ICRAN Activities in the South Asian Seas Region



WWF



UNEP



WRI



THE CORAL REEF ALLIANCE



WorldFish  
CENTER



UNEP



WCMC



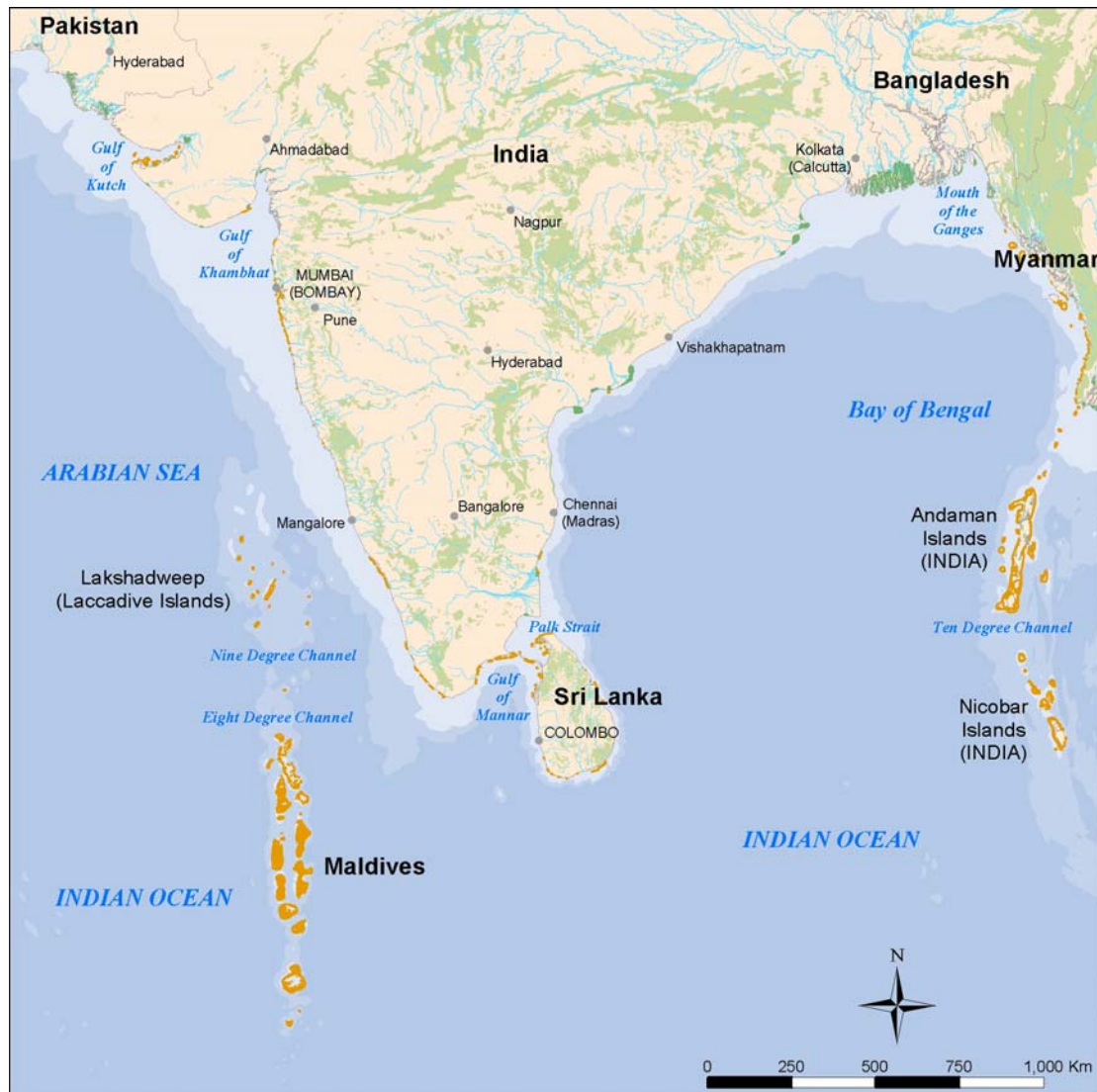
SACEP



## ACRONYMS

ADB	Asian Development Bank
ANET	Andaman and Nicobar Team
CARESS	Centre for Action Research on Environment Science and Society
CARI	Central Agriculture Research Institute
CBD	Convention of Biological Diversity
CCA	Coast Conservation Act
CCD	Coast Conservation Department
CEE	Centre for Environment Education, Ahmedabad
CITES	Convention on International Trade in Endangered Species
CORDIO	Coral Reef Degradation of the Indian Ocean
CRMP	Coastal Resources Management Project
CTA	Chief Technical Advisor
DFA&R	Department of Fisheries and Aquatic Resources
DFID	Department of International Development, UK
DoEN	Department of Environment
DWLC	Department of Wildlife Conservation
EU	European Union
FFPO	Fauna and Flora Protection Ordinance
GCRMN	Global Coral Reef Monitoring Network
GEC	Gujarat Ecological Society
GEF	Global Environment Facility
GEER	Gujarat Environment and Education Research Foundation
GOI	Government of India
GOSL	Government of Sri Lanka
ICM	Integrated Coastal Management
ICRAN	International Coral Reef Action Network
ICRI	International Coral Reef Initiative
ICZM	Integrated Coastal Zone Management
IPCC	International Panel on Climate Change
IUCN	The World Conservation Union
LCRMN	Lakshadweep Coral Reef Monitoring Network
LTTE	Liberation Tigers of Tamil Eelam
MFAMR	Ministry of Fisheries, Agriculture and Marine Resources, Maldives
MOEF	Ministry of Environment and Forests, India
MOEF (ZSI)	Ministry of Environment and Forests (Zoological Society, India)
MSSRF	M.S. Swaminathan Research Foundation, Chennai
NARA	National Aquatic Resources and Development Authority
NAFSO	National Association for Fisheries Solidarity Organisation, Sri Lanka
NGO	Non Government Organisation
NIO	National Institute of Oceanography, India
RBP, IUCN-Asia	Regional Biodiversity Programme, IUCN-Asia
RMP, IUCN-Asia	Regional Marine Programme, IUCN-Asia
SACEP	South Asia Co-operative Environment Programme, Sri Lanka
SACRRCU	South Asia Coral Reef Regional Coordination Unit
SAM	Special Area Management
SCL	Sustainable Coastal Livelihoods
SIO	Scripps Institution of Oceanography
SLED	Sustainable Livelihood Enhancement and Diversification
SPEECH	Society for Peoples Education and Economic Change
UNDP-GEF	United Nations Development Programme – Global Environment Facility
UNEP	United Nations Environment Programme
ZSI	Zoological Survey of India

## INTRODUCTION



Coral reefs represent a vital part of the social and economic environment of coastal communities in South Asia. They provide daily sustenance and are a source of commerce focused on the exploitation potential of the reefs. South Asian coastal communities employ a great diversity of fishing practices, and each reef area has its own characteristic fishery ranging from low-end sustenance fishery to large scale commercial trawling. The collection of other marine products for ornamental purposes and the exotic food market has also become an increasingly popular money earner for local communities and, without adequate laws to control this trade the resulting pressure on the reef fauna remains high.

Demographic and economic changes have increased demands on coral reef resources. More people than ever in the region are generating at least part of their livelihood from activities that directly affect, or are affected by, changes in the coastal environment. Extractive uses of coral reefs for food, income generation, medicines, building materials and non-extractive uses such as tourism continue to degrade coastal ecosystems in many locations. Resource use policy and policy conflicts in the coastal area create conditions that foster environmental degradation and social inequity. In such conditions livelihoods become threatened.

The marine environment in the region is particularly threatened by the physical alteration of the coastal zone, including destruction of habitats of vital importance to maintain ecosystem health.

Estimates indicate that almost 50% of the coasts are threatened by development activities that are leading to the degradation of key coastal habitats.

One critical habitat directly affected by the physical alteration of coastal zones is the coral reef ecosystem. The South Asian Countries bordering the Arabian Sea and the Bay of Bengal have some of the largest and biologically rich marine ecosystems, including some of the world's finest coral ecosystems as well as some of the most used and degraded ones. With increasing pressures on these reefs, due to increasing human population and prevalence of tourism, there is a danger of losing these resources through ignorance and unplanned management.

The sheer multitude of current reef exploitative and depredatory practices, together with the paucity of knowledge on reef ecology, necessitates that a precautionary approach incorporating an integrated course of action be speedily adopted for the sustainable management of South Asian coral reefs. As in many developing countries, education, awareness and law enforcement are greatly needed to preserve coral reefs.

## **India**

In India the major coral reef formations are found in and around the Lakshadweep Islands, the Andaman and Nicobar group of islands, the Gulf of Mannar and a few areas of Palk Bay and the southern part of the Gulf of Kutch in NW India.

The coral reef communities of the Gulf of Kutch are predominantly patchy structures found on sandstone or around the small islands on the southern edge of the gulf. The diversity has been reported to be low due to the extreme environmental conditions of high temperatures, fluctuating salinities, large tidal ranges and heavy sediment loads (Spalding *et al* 2001). There have been a number of disturbances and impacts to the coral reefs in the Gulf of Kutch. Coral sand mining was a significant industry in the early 1980s (up to 1 million tons per year (Wafar 1999)) and chronic oil and industrial pollution (an oil pipeline runs right through the Gulf of Kutch Marine National Park) which was exacerbated by a major oil spill in 1999 (Spalding *et al* 2001). It is estimated that human activities have reduced the coral cover by more than 50% on most reefs here (Rajasuriya *et al* 2000). This was further exacerbated in 1998 when 30% of reefs experienced coral bleaching and subsequent bleaching related mortality (Wafar 1999).

Well developed reef structures with high diversity (around 117 hard coral species recorded) are found adjacent to the Indian mainland, located in the southeast, with fringing reefs occurring in Palk Bay, and on the coasts and islands of the Gulf of Mannar. However, reefs in this region have shown some deterioration since 1971 (Spalding *et al* 2001). This has been attributed to high levels of siltation from careless land use practices, the removal of coral rock and sand mining, and the impacts associated with cyclones. Other threats include the over exploitation of reef fish stocks with certain reef dwelling species targeted such as sea fans, sea cucumbers, spiny lobsters, sea horses, shells for mother-of-pearl, marine turtles and dugongs. During the 1998 coral bleaching event this area of India's reefs reported 60-80% bleaching related mortality (Spalding *et al* 2001).

The Lakshadweep Islands are located 300 km west of the southernmost tip of India. These atolls support a local population of close to 51,000, whose primary livelihood is derived from fishing with particular emphasis on the off-shore stocks. Tourism is beginning to take a more dominant role but is currently below 1000 visitors per year (Spalding *et al* 2001). Similar to other reefs in Indian waters there was extensive bleaching and related mortality in the Laskshadweep (43-87%) (Rajasuriya *et al* 2002).

The Andaman and Nicobar archipelagos are composed of 500 islands whose reefs possess the highest species diversity in India with 219 species of corals and around 517 species of reef fish having been documented (Spalding *et al* 2001). Of this large island group only 38 islands are inhabited but the general population is rising rapidly, largely due to increased immigration. Presently, many of the reefs here are relatively free from substantial human impacts and pollution. However, impacts from increased sediment flows from largely unregulated logging and encroachment into the forestry reserves by settlers has been observed (Rajasuriya *et al* 2002).

In India, 1% of the population (about 140 million people) depends on coastal resources in one form or another constituting approximately 25% of the total marine fish catch (Rajasuriya *et al* 2002). It is estimated that Indian coastal seas receive 4 billion m<sup>3</sup> of domestic sewage, 0.4 billion m<sup>3</sup> of industrial sewage, and around 33 million tons of solid waste. This combined with the thousands of tons of fertiliser, pesticide and detergent residues which have also been recorded increase nutrient levels in the water and make eutrophication a common problem (Wafar 1999).

## **Maldives**

The Maldives is a double chain of coral atolls, 80-120km wide consisting of about 1190 coralline islands. The coral reef area (9000 km<sup>2</sup>) of the Maldives is one of the largest in South Asia and supports the greatest diversity of corals and associated organisms (Rajasuriya *et al*. 2002). In the Maldives, more than 250 species of scleractinian corals (representing over 60 genera) and over 1200 species of reef fishes have been recorded (Pernetta 1993). Tourism, the main economic activity of the country, earning almost 19 % of the total GDP and accounting for about 55% of total government revenue (in 1999), is highly dependent on the reefs. Fishing and fisheries related activities, the second most important economic sector, constitute about 7% of the GDP. Reef fisheries presently comprise only a small percentage of total fishing activity, which is largely focussed on tuna. However its importance is increasing, particularly with the increased prevalence of bait fishery which consist of live bait sprat caught in coral reef lagoons. This is of great significance to the commercial fishing industry which use pole and line to catch tuna. Export of ornamental fish for aquarium trade is another growing activity but as yet remains undocumented.

Though, on the whole, Maldivian coral reefs are in excellent condition, localised degradation has been experienced around those islands with high levels of population and development. About 2-5% of the coral reefs were estimated as irreparably damaged prior to the 1998 bleaching event (Rajasuriya *et al* 1999). Extensive coral mining for construction has been carried out throughout the history of Maldives, with an estimated 95,000m<sup>3</sup> (1975-1988) of coral having been mined in North and South Male' Atolls alone (Brown and Dunne 1988). More recent estimates by the Maldives government suggest that dramatic increases in the mining of coral and coral aggregates (670,000 m<sup>3</sup>) and of sand (560,000 m<sup>3</sup>) in the period 1980-90 occurred (MPND 1999). Dredging and land reclamation appears to be the second most significant human threat to the coral reefs nationally. Pollution, badly engineered coastal constructions, channel clearance, anchor damage and tourist activities are other sources of threats to reefs and subsequently causes for concern over the near and long term. During the 1998 sea surface warming event, about 90% of corals were bleached with widespread high levels of mortality throughout. Recent studies do indicate promising signs of recovery (Rajasuriya *et al*. 2002).

## **Sri Lanka**

Major coral reef formations in Sri Lanka are found within the 30m depth contour, with the dominant reefs structures located off the Jaffna peninsula in the north of the island and from Trincomalee to Kalmunai in the east. Most reefs are fringing reefs that maintain relatively low marine diversity in comparison to the oceanic reefs of the Indian Ocean. Nearshore fisheries are an important economic activity, making up 70-80% of the total marine fishery and it has been estimated that up to 50% of this fish catch is dependent on coral reef ecosystems (Spalding *et al* 2001). An equally important economic activity dependent on coral reefs is the live fish export for the aquarium trade. Over the past two decades around 250 species of reef fish and 50 species of invertebrates have been exported (Spalding *et al* 2001) and the aquarium trade accounts for 40-50% of the total export trade (Rajasuriya *et al* 2002). Coastal tourism is estimated to contribute US\$ 200 million per year (Spalding *et al* 2001).

86% of Sri Lanka's reefs are estimated to be at risk (Spalding *et al* 2001) with the main sources of degradation derived from high levels of sedimentation arising from the erosion of deforested land, and poor agricultural and construction practices. Coral mining has destroyed many reefs on the south and southwest coasts and, though officially banned since 1983, still continues in many areas. Additional threats to the reefs include destructive fishing practices (e.g. dynamite fishing), overexploitation of

reef resources and pollution from sewage and industrial effluent. During the 1998 warming event, up to 90% of corals were bleached to a depth of around 40m (Rajasuriya *et al* 2000).

### **Bangladesh**

In Bangladesh, coral reef formations are reported from St. Martins Island, approximately 6 miles off the mainland of Bangladesh, situated in close proximity to Myanmar. Around 66 species of hard corals and many soft corals have been recorded with reef fish and other invertebrate diversity being low (Rajasuriya *et al* 2001). These reefs are severely threatened and impacted by heavy sedimentation, frequent cyclones, overfishing and anchor damage (Spalding *et al* 2001). There were no reports of bleaching related to the 1998 El Niño event.

### **Pakistan**

In Pakistan, coral reef occurrence is restricted to patchy areas in the coastal and offshore areas of Balochistan. Reef growth is limited by high sedimentation and very turbid sea surface conditions. Information on these coral reefs is almost non-existent.

## **ICRAN and ICRAN Partnerships**

The International Coral Reef Action Network (ICRAN), established in 2000, is a global partnership that is working to halt and reverse the decline of the health of the world's coral reefs. Composed of a number of the world's leading coral reef scientists and conservation groups, ICRAN partners have created a globally integrated action plan to manage and protect coral reefs, based on the International Coral Reef Initiative (ICRI) Call to Action. The International Coral Reef Action Network is a co-ordinated response to ICRI's urgent call to protect coral reefs.

### **The Partnership**

ICRAN is the first alliance of its kind that undertakes coral reef management, conservation and research activities which take into account scientific, cultural and economic perspectives. Building and supporting existing coral reef management, conservation and research programs, ICRAN is designed to act on local, national, regional and international levels. ICRAN provides a strategic network to support coral reef conservation and management by enabling the partners to focus their efforts through communication and shared resources. The variety of threats that coral reefs are facing requires the multi-faceted and complementary approach found in ICRAN.

### **ICRAN components**

There are three main interlinked components of ICRAN:

- Managing coral reefs: sharing experiences to sustain communities
- Coral reef monitoring and assessment: using science to support action
- Communications, education and knowledge dissemination about coral reefs amongst communities

Each ICRAN partner brings unique skills and expertise to implement these coral reef management, assessment and education activities. The current ICRAN partners include:

**Coral Reef Alliance (CORAL)** supports ICRAN through local coral reef conservation initiatives by raising public awareness about coral reefs and using the power of coral reef tourism to keep coral reefs alive.

**Global Coral Reef Monitoring Network (GCRMN)** supports ICRAN through its activities to assess how, where and why coral reef damage is occurring and the effectiveness of management.

**South Asia Co-operative Environment Programme (SACEP)** promotes cooperation among member countries and implements ICRAN activities for the South Asia region.

**Secretariat of the International Coral Reef Initiative (ICRI)** mobilizes governments and a wide range of other stakeholders in an effort to improve management practices for coral reefs and associated ecosystems (i.e. mangroves and seagrasses).

**South Pacific Regional Environment Programme (SPREP)** promotes cooperation among countries and implements ICRAN activities for the South Pacific region.

**United Nations Environment Programme (UNEP)** through its Regional Seas Programme, is responsible for conserving, managing and sustaining marine and coastal ecosystems and implementing ICRAN activities on the ground through its network of demonstration and target sites.

**United Nations Foundation (UNF)** is providing initial support and leverage opportunities for ICRAN as well as on-going communications support.

**UNEP- World Conservation Monitoring Center (UNEP-WCMC)** supports ICRAN through database and research products with an emphasis on the mapping of coral reefs and associated ecosystems and protected areas.

**UNEP Department of Technology, Industry and Economics (UNEP –DTIE)** supports ICRAN through its strategy for sustainable tourism development.

**The WorldFish Center** supports ICRAN through database and information systems, fisheries research products, and socio-economic assessment with an emphasis on the needs of coastal communities.

**World Resources Institute (WRI)** supports ICRAN with analyses of threats to coral reefs, valuation of ecosystem goods and services, and in determining priority areas for management.

**World Wildlife Fund (WWF)** supports ICRAN through a network of site management activities in coral reef and associated ecosystems.

## **ICRAN'S ROLE IN SOUTH ASIA**

At the World Summit on Sustainable Development (WSSD) ICRAN announced the expansion of its partnership into the South Asia region. Through partnership and close collaboration with the South Asia Co-operative Environment Programme (SACEP) a programme of activities for the South Asian region will be developed, to maximise the benefits from the considerable expertise and potential within the region. These activities are not only expected to have a resounding impact for organisations within the region but will also provide valuable input into a lessons learned and experience sharing ethos for ICRAN's work at the regional and global level.

ICRAN has identified a global network of demonstration sites with a proven ability to effectively manage their coral reefs, and facilitates the sharing of knowledge and successful management practices between sites so that others can benefit from their experiences. Demonstration sites have been selected in the Caribbean, East Asian Seas, East Africa and South Pacific regions, along with a number of target sites in each area (those which will directly benefit from interaction with the demonstration sites). The present consultations are expected to lead to the development of similar demonstration/target sites for a project portfolio for South Asia.

In order for SACEP to effectively undertake its role as the leading body to co-ordinate coral reef conservation related activities in the region, including that of ICRAN, an important first step would be to set up a South Asia Coral Reef Co-ordination Unit (SACRCU) within SACEP. Preliminary consultations with the actors and stakeholders in the region have led to the development of a number of project proposals in this regard.

## **Present Activities/Programs in the Region**

### **Coral Reef Degradation in the Indian Ocean (CORDIO)**

CORDIO is a program created to respond to the degradation of coral reefs throughout the Indian Ocean. The program was initiated by the extensive bleaching and mortality of corals that occurred during 1998. CORDIO is supported by Sida (Swedish International Development Cooperation Agency), the World Bank, FRN (Swedish Council for Planning and Coordination of Research), MISTRA (Foundation for Strategic Environmental Research) and WWF (Worldwide Fund for Nature). CORDIO's activities in the region were initially to provide a response to the coral bleaching and resulting mortality experienced in 1998. This included assessment of the extent of damage, socio-economic effects, mitigation of future impacts and recovery of the coral reefs themselves. Projects within CORDIO focus on determining a) the bio-physical impacts of coral degradation as a result of bleaching and other disturbances, and the long term prospects for recovery; b) the socio-economic impacts of coral mortality and options for mitigating these through management and development of alternative livelihoods; and, c) the prospects of restoration and rehabilitation of reefs to accelerate the ecological and economic recovery.



### **The Global Coral Reef Monitoring Network (GCRMN)**

The Global Coral Reef Monitoring Network (GCRMN) is a global, interagency initiative under the stewardship of IOC-UNESCO, UNEP, IUCN and the World Bank. The aim is to raise awareness on their current status and provide data to assist resource managers in coral reef conservation. Since 1997 the UK Department for International Development (DFID) has provided funds to IOC-UNESCO to develop the GCRMN in 3 countries in South Asia - India, Sri Lanka and the Maldives. During the first phase of funding there was a focus on awareness raising and the development of capacity for biophysical monitoring across the region. A second phase of funding begun in 1999 and an emphasis was placed on recognising the importance of socio-economic monitoring for the effective management of coral reefs. Through a series of regional training programmes, held between 1998 and 2000, in biophysical and socio-economic monitoring the GCRMN in South Asia has attempted to equip researchers and managers with the tools to collect information that does effectively represent not only the status of the coral reefs and the reef stakeholders but also the policies, institutions and processes that affect the decisions and actions made by those stakeholders.

To complement the production of this information a database has been developed which in the future is hoped to provide a storage system that will facilitate the horizontal (between the information generators) and vertical (from micro to meso to macro levels) movement of information on coral reefs.

In 2002 the second phase was concluded and a third dimension has been added to the work of the GCRMN South Asia. This was designed to develop the understanding within South Asia of the process of converting information into action. This is in response to the realisation that few attempts at using information to inform and influence reach the right people in the right format to stimulate the kind of change that is needed.

### **The Bay of Bengal Programme (BOBP)**

The Bay of Bengal Programme is a regional United Nations multi-agency programme that works to improve the conditions of communities through sound and systematic fisheries management practices. The Bay of Bengal region has some seven million small-scale fisher-folk. It operates in seven countries around the Bay of Bengal; Bangladesh, India, Indonesia, Malaysia, Maldives, Sri Lanka and Thailand. It is funded presently by Denmark and Japan and executed by the FAO (Food and Agriculture Organisation of the United Nations).

The BOBP started in 1979 and is presently in its third phase. During its first phase (1979-1987), it focused on developing new technologies in fishing craft, fishing gear and aquaculture. During the second phase from 1988-1994, the focus was on extension methodologies relating to credit, non-formal education and people's participation. Information dissemination was a high priority during both phases, with a regular newsletter, technical reports, and video films on project work. The third phase started in 1995 and activities fall into three categories: improving management awareness among fisher-folk and officials of the region; strengthening the management capability of fisheries institutions; and technical assistance toward management solutions. The emphasis is on national execution and BOBP merely facilitates and catalyses the work. In supporting fisheries management the BOBP seeks to build the capacities of local fishing communities and of national fisheries agencies; actively involve fisher-folk in the process of management; integrate the role of women and youth in fisheries management; and enable the many stakeholders in fisheries to come up with well-informed solutions to problems.

### **The South Asian Seas Action Plan – UNEP Regional Seas**

The South Asian Seas Action Plan was adopted in March 1995 with the support of the region's five countries. The South Asia Cooperative Environment Programme (SACEP) serves as the Action Plan secretariat. The plan focuses on (a) integrated coastal zone management, (b) development and implementation of national and regional oil-spill contingency planning, (c) human resource development through strengthening regional centres of excellence, and (d) land-based sources of pollution. A two-year programme on the development and implementation of Integrated Management of Environmentally Sensitive Coastal and Marine Ecosystems is currently underway. SACEP has a central role to play in regional coordination of ICZM. The Action Plan has highlighted the need for

regional cooperation and proposed that pilot activities in ICM should be initiated in individual countries.

### **IUCN Asia- Regional Marine Programme**

In recognition of the severity of the problems posed against the coastal zone in South Asia and the importance and need for immediate ameliorative action, the IUCN – the World Conservation Union and the Governments of India, Maldives, Pakistan and Sri Lanka in partnership with the Asian Development Bank (ADB) have initiated an ambitious effort to address these issues, through an 18 month Regional Technical Assistance project on Coastal and Marine Resources Management and Poverty Reduction in South Asia. The project that commenced in October 2002 is a collaborative initiative between IUCN and the ADB, with IUCN being the implementing agency for the project. Given the regional implications of the work and the importance of effective pro-active Government coordination and action, the South Asia Cooperative Environment Programme is an important partner to the project. In India, focus has been the Kerala State supported by the Centre for Earth Sciences Studies in Trivandrum.

### **Issues in South Asia**

Priority issues that need to be addressed in the region were identified at the Second ICRI South Asia Regional Workshop (1995) and remain just as valid today, if not more urgent. These include the unsustainable extraction of non-living and living resources, unsustainable land-use practices and pollution from land and sea-based sources. More specifically they can be elaborated as follows:

- The South Asian region includes the countries of Bangladesh, India, Maldives, Pakistan and Sri Lanka that collectively maintain an extensive system of diverse marine and coastal habitats. The health of these ecosystems is not only vital for a diverse range of marine and coastal fauna and flora, but is essential to the socio-economic well being of the communities who depend on these resources for their livelihoods.
- The population growth in the South Asian Seas region has been almost unprecedented in comparison with the other regions of the world and a marked percentage of this growth has been concentrated in coastal areas. India's population reached 1 billion in 2000 of which 25% are living in the coastal areas. In Bangladesh, the estimated population in 2000 was 145 million of which 80% inhabit the coastal areas, while Sri Lanka has a population of 18 million of which 50% inhabit the coastal zone. This is causing severe pressures and widespread degradation and loss of some of the most fragile of marine and coastal ecosystems such as coral reefs. Effects of the degradation are typically loss of income leading ultimately to poverty and social tension.
- The general pace of economic development in this region has not been balanced with an equal focus on sustainability and protection of the natural resource base. Only 15 marine areas with sub-tidal elements and 34 coastal areas have been declared as protected in the South Asian region and out of the five coastal countries only India and Sri Lanka have declared sub-tidal protected areas. Consequently, the South Asia region ranks lowest in the world in terms of declared Marine Protected Areas. In addition, the boundaries of areas that have received protection status are not properly determined and the levels of understanding of the reasons for declaration by nearby communities poorly understood.
- Marine and coastal ecosystems in South Asia are under severe threat from a number of different anthropogenic impacts, including over fishing and destructive fishing practices, land reclamation, land-based and marine pollution and general unregulated development in the coastal zone. Most of the countries of the region have prepared or are in the process of preparing national strategies for sustainable management of their respective coastal and marine territories. In most areas however, the trends and status of the current use pattern and possible impacts are still poorly understood. Indeed, most information is communicated only through scientific channels, and in most instances is not reaching decision-makers and the general public to ensure that strategies are being implemented. In certain areas, reliable data on these ecosystems are either lacking or have only been made accessible in recent years.

- In spite of the multiple benefits attained from such ecosystems, much too often these values are not factored into policy-making or daily resource use, usually stemming from a poor knowledge of the functions and inadequate appreciation of current benefits and future potential of maintaining healthy marine and coastal ecosystems. Without proactive planning, awareness and knowledge and with the majority of management interventions based on assumptions rather than facts, degradation and loss of habitats are likely to continue at the current rate.
- It is increasingly recognised that good governance of sensitive marine and coastal resources depends upon a holistic approach. Ocean and coastal resources requires transboundary co-operation at the regional level and intersectoral co-ordination at the national level, as well as the recognition of, understanding and support from resource-dependent communities in the process as critical stakeholders. In some cases, there is a lack of coherence and harmonisation between different government actors, departments and legislation with regard to protection and conservation of coral reefs and marine resources.

### **Needs in the South Asia Region**

- Undertake action-oriented scientific research which directly reflects and addresses current issues and community needs, particularly on coastal communities who represent the poorest sectors of society to improve standards of living.
- Build capacity amongst local communities to utilise the resource base sustainably through raising awareness on the ill-effects of current damaging practices and providing incentives to conserve the resource base, in addition to building ownership values.
- Build capacity amongst government and non-governmental officials working in the area of marine and coastal resources management, including training in ICZM and build their level of expertise so that they are equipped with the necessary science and management skills to fulfil their employment scope.
- Build capacity of people involved in the enforcement of existing trade related laws.
- Build confidence between the stakeholder organisations within South Asia, particularly between governmental and non-governmental organisations.
- Promote a holistic approach for the management of marine and coastal resources by establishing transboundary co-operation at the regional level and intersectoral co-ordination at the national level.
- Establishing a continuous dialogue with the local communities is required, rather than a top-down approach to achieve successful management.
- Mobilise technical and financial assistance to strengthen SACEP's institutional structure to implement ICRI/ICRAN activities by establishing a South Asia Coral Reef Co-ordination Unit;
- Enhance global, regional and local understanding of scientific knowledge about the impacts of and adaptation to climate change and sea level rise on coastal and marine habitats in South Asia.
- Scientifically document the species currently exploited in South Asia and translate this information into an easily accessible form.
- Highlight past and present research and management interventions so that these can be built upon and not simply repeated in the future.
- Encourage the creation and effective dissemination of information across the region.

- Ensure that the international decision making process is grounded in the reality of local conditions.

### **Prospective ICRAN Activities in the South Asia Region**

The International Coral Reef Action Network (ICRAN) and its partners propose to undertake a range of activities in partnership and collaboration with existing initiatives and institutions in the South Asia region to promote the sustainable use and management of coral reef resources. This includes:

- Training programmes and outreach materials to promote sustainable management activities – including a ‘Training of Trainers’ programme;
- Conducting baseline socio-economic and biodiversity assessments at selected sites. The surveys will have a built in element of training at both the community and government level to ensure that continuous capacity for monitoring and assessments are sustained;
- Training workshops for individuals and communities to engage in activities for alternative livelihoods which attempt to minimise the impact on coral reefs and coastal environments;
- Building on and adding to GCRMN’s work in the region, ICRAN will undertake monitoring of reef health and resource use involving local communities and community based projects; as well as;
- Establishing a database which contains the biophysical and socio-economic monitoring data relating to coastal and marine resources and affected coastal communities;
- Identifying critical and vulnerable coastal and marine ecosystems through the assessment of key parameters such as function, values, use, socio-economic benefits and human (e.g. overfishing) and natural threats (e.g. predators, climate change);
- Through a consultative process the identification of impediments, issues and opportunities for management and good governance of coastal and marine resources in each of the demonstration sites;
- Developing management plans which integrate fully with local development activities;
- Facilitating peer to peer exchanges (intra- and inter-regional) that encourage the exchange of best practices and ‘lessons learned’ related to coral reef management;
- Using demonstration sites that exemplify best management practices to share knowledge within the region and for professional exchanges and learning. This builds and strengthens networks within a region as well as encourages communication between, and support for, activities with a common goal of coral reef management;
- Identifying, translating and distributing examples of successful community-based and collaborative management schemes in the region to the key stakeholders in their respective communities;
- Responding to the public need for education and awareness of the value and importance of coral reefs; and
- Developing private sector partnerships (e.g. with the tourism industry) to facilitate innovative financing approaches for coral reef management, conservation and education.
- Working with the private sector (e.g. with the tourism industry) to increase their awareness of environmentally sound practices, improve the efficiency of their business and create marketing opportunities for ecologically sound products. Private sector partnerships may also facilitate innovative financing approaches for coral reef management, conservation and education.

ICRAN is in the process of developing up a portfolio of projects in consultation with institutes and individuals working in the region on coral reef management initiatives, together with inputs from international bodies with a working mandate in this area. These proposals will seek to address priority areas for action which strengthen coral reef management in the SACEP region, address the needs of demonstration and target sites in line with the ICRAN Strategic Plan and which simultaneously attempt to make direct linkages towards the alleviation of poverty.

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