



# STRATEGIC PLAN

MAY 2003

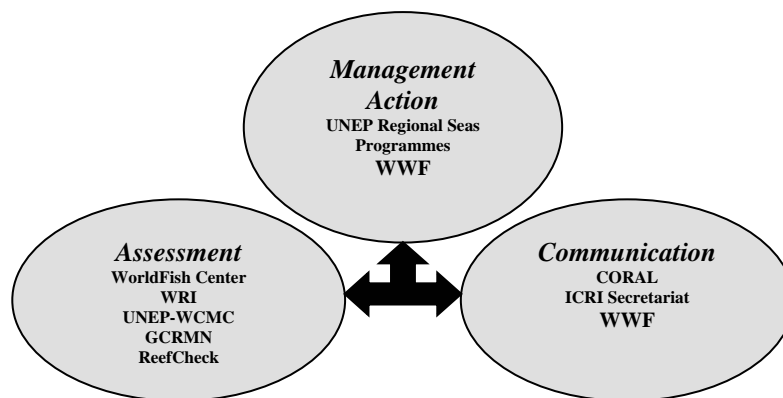
# The ICRAN Strategy

The International Coral Reef Action Network (ICRAN<sup>1</sup>) is a global, action-oriented partnership with the express goal of *reversing the decline in health of the world's coral reefs*. Through this network, ICRAN supports local communities around the world to raise awareness, share lessons, and to proliferate good coral reef management practices. ICRAN also works with local communities to develop the financial support needed to protect and sustain these important natural assets, and the livelihoods that depend upon them.

ICRAN is a catalytic effort that, up until its founding, has never before been attempted on a global scale. As part of the International Coral Reef Initiative (ICRI), this Action Network is a public-private response to ICRI's "Framework for Action", the internationally agreed blueprint for coral reef conservation. Strategic on-the-ground action is combined with assessment and information to accelerate, and replicate, the sustainable management of coral reefs worldwide.

ICRAN represents a unique collaboration with some of the most important international organizations in coral reef management and conservation. It is not simply a continuation of its partners' works in progress. Rather, the Network's strength lies in synergy—by effectively integrating key information with good management practices, to foster increased awareness through the sharing of lessons and information, and to address specific needs locally by transferring knowledge and experience.

ICRAN's operations are based on three main components— Management Action, Assessment and Information Dissemination, and Communication (see Figure 1). This Strategic Plan presents ICRAN's vision and outlines the steps it is taking to reach its goal.



**Figure 1. Three Spheres of ICRAN's Operations and Partner Areas of Expertise**

1 The ICRAN founding partners include the WorldFish Center, the United Nations Environment Programme (UNEP), The World Resources Institute (WRI), the UNEP-World Conservation Monitoring Centre (UNEP-WCMC), the Global Coral Reef Monitoring Network (GCRMN), the ICRI-Secretariat, The Coral Reef Alliance (CORAL), and the United Nations Foundation. The World Wildlife Fund and ReefCheck joined ICRAN in 2002. Detailed information on ICRAN can be found at <http://www.icran.org>.

## Background

Within less than one percent of the ocean, coral reefs house more than one quarter of all marine life. Healthy coral reefs are delightful, visually stunning environments, and they are one of the most complex and diverse ecosystems on Earth. For the ocean realm, coral reefs are a focal point of biodiversity. Thirty two of the 34 known animal phyla live within coral reefs. Compared to tropical rain forests with only nine phyla, coral reefs are a bastion of myriad plants, animals and secrets still to be discovered. Coral reefs are home to *at least* 93,000 different species known to science, with many more remaining to be described. And although coral reefs may exist just out of sight, below the water's surface, they provide many services to people<sup>2</sup>.

In more than 80 developing countries, communities rely heavily on coral reefs for income and food security. Currently, twenty percent of the world population relies mainly on coral reefs and their products. One square kilometer of healthy coral reef can produce up to 15 tons of food per year – enough for more than 1,000 people. Coral Reefs are conservatively estimated to cover approximately 284,000 square kilometers of the Earth's surface.

As the largest living structures on Earth, coral reefs provide coastal protection from storm events, the erosional forces of waves, and provide the source material for many beaches. Recreation and tourism rely upon these features for a range of activities and revenues, and coral reef tourism in particular has reached the status of a major tourism industry. Fisheries and other products from coral reefs also provide food, jobs, and livelihoods. At least 10% of the world's fishing harvest comes from coral reef systems.

But as human populations continue to grow, pressures mount within coastal environments around the world, and impact the carrying capacity of ecosystems like coral reefs and their connected communities. By the year 2008, the world population will exceed 6 billion people, with 4.5 billion living within 100 kilometers of the world's coastlines. This demography clearly places a disproportionate stress on coastal and nearshore marine environments. And coral reefs in particular are proving to be harbingers of rapid global change.

Over the past half century, coral reefs have suffered serious decline around the world. There is general consensus that in every region, these important ecosystems are at increasing risk from a range of insults and environmental change, especially within the last twenty years. Sediment from run-off, and land-based sources of pollution are chronically stressing near-shore coral reefs. The effects of climate change may have profound implications for the future of coral reefs, but such impacts are compounded by human abuse, such as over-harvesting of fisheries, tourism overuse, and destructive fishing practices, like dynamite and chemical poisoning.

During the 1992 United Nations Conference on Environment and Development (the Rio Earth Summit), the rapid global decline of coral reefs was recognised and accorded a high priority for protection under Agenda 21, the *Rio Declaration on Environment and Development*. In direct response to this declaration, governments, non-governmental organizations (NGOs), academic institutions and the private sector convened in 1994 to establish the International Coral Reef Initiative (ICRI). ICRI developed a "Call to Action" and a "Framework for Action", laying a formal blueprint of the management actions needed to protect coral reefs and to foster sustainable, coastal development.

With catalytic support from the United Nations Foundation, ICRAN was established in 1999 to develop an on-the-ground, action agenda founded within ICRI's Framework, but that is focused within key regions where practices, experiences and lessons can be duplicated to benefit other communities around the world.

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<sup>2</sup> There are many current information resources that describe both the services that coral reefs provide and the threats to them. Refer to the following reference materials for more detailed information. Bryant D, Burke L, McManus J, and M. Spalding 1998. *Reefs at Risk: A Map-Based Indicator of Potential Threats to the World's Coral Reefs*. WRI, Washington, DC. 56 pp. (<http://www.wri.org/wri/reefsatrisk>.) Spalding M.D., Ravilious C., and E.P. Green 2001. *World Atlas of Coral Reefs*. Prepared at the UNEP World Conservation Monitoring Centre, Univ. of California Press, Berkeley, USA. 424 pp. (<http://www.unep-wcmc.org/marine/coralatlas/introduction.htm>.) Cesar H, Burke L, and L Pet-Soede, 2003. *The Economics of Worldwide Coral Reef Degradation*. ([www.panda.org/coral](http://www.panda.org/coral).) Wilkinson C, 1998, 2000, & 2002. *Status of the Coral Reefs of the World*. Global Coral Reef Monitoring Network and the Australian Institute of Marine Science, Townsville, Australia. (<http://www.coral.noaa.gov/gcrmn>.) Risk, M.J. 1999. Paradise Lost: how marine science failed the world's coral reefs. *Mar. Freshwater Res.*, 1999, **50**, 831.7

To meet ICRAN's goal of *reversing coral reef decline*, the Network has defined the following major objectives and outputs as part of its Strategic Plan:

1. *A global network of demonstration sites for Integrated Coastal Management (ICM) and Marine Protected Areas (MPA) in which selected target communities will learn from good examples.* (see Figure 2). The sites will serve as models in demonstrating how good environmental management, with the full involvement and integration of local communities, can lead to better protection of coral reef environments combined with social and economic development.

### International Coral Reef Action Network

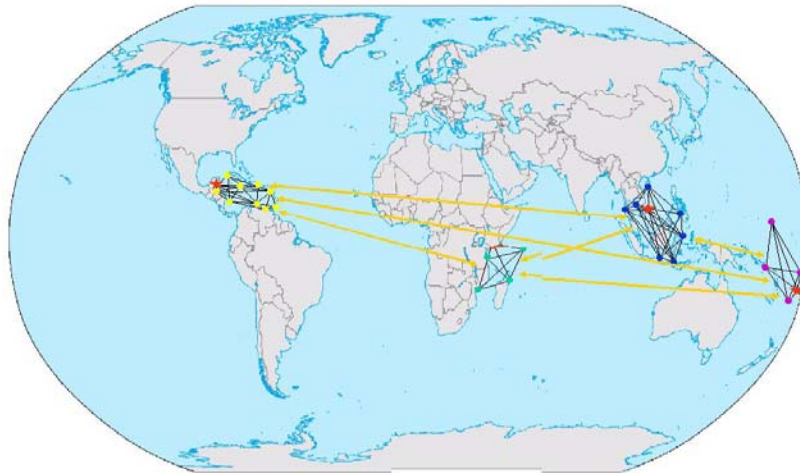


Figure 2. ICRAN is working toward a network of good practices and expertise that can be routinely shared among a global community.

2. *A Network of Marine Protected Areas strategically established to protect the large-scale integrity of coral reef ecosystems (WWF)*
3. *Training opportunities and workshops at local levels* provided to ensure that coastal communities near coral reefs can learn from the models and implement similar management efforts. *Training materials* tailored to the needs of coral reef managers in all regions, and a global network of trained coastal management trainers.
4. *A set of public information materials* published as independent reports, and as part of a compiled global atlas for coral reef management. These information materials will be aimed at increasing interest and improving knowledge about coral reefs world-wide. The atlas will include *good-practice guidelines* for coral reef management, and will address the following topics:
  - o Establishment of Integrated Coastal Management and Marine Protected Area sites
  - o Country-by-country analyses of coral reef locations, status, threats and management priorities
  - o Economic and societal value of coral reefs
  - o Policy changes necessary to ensure the lasting future of coral reefs
  - o Production and employment associated with coral reef fisheries and mariculture, *and other sustainable practices*
  - o The analyses of coral reef health and the quality of life of reef-dependent people, based on analyses of data in ReefBase.
5. *A series of high profile regional Reefs at Risk publications*, released specifically for each region. These are prepared by ICRAN partners in close collaboration with local expertise. They will be released with a major press and publicity campaign in the regions, serving to raise awareness.
6. Enhanced awareness of coral reef conservation and proper management through a worldwide public information campaign, including both mass media and the provision of materials to NGOs and schools. The campaign will use the Internet, videos, pamphlets, posters, booklets and the

media. It will capitalize on materials already in existence as well as creating new materials linked closely to work of the other ICRAN partners, and will further seek to work in close collaboration with existing NGOs and networks operating at local levels.

7. Enhancement of *ReefBase* as the global repository for data on coral reefs, published on CD-ROM and the Internet, providing access to all information assembled and generated under ICRAN—and other initiatives to monitor and conserve coral reefs.
8. Enhancement of the Global Coral Reef Monitoring Network (GCRMN) *and ReefCheck* to provide critically needed data on coral reef health and on the status of reef-dependent peoples, and to empower a wide range of people to understand and protect their coral reef resources.
9. Further enhancement of the International Coral Reef Initiative Secretariat's capacity to specifically promote and affect policy reforms around the world and encourage the commitment of governments and international agencies to protect coral reef resources for future generations.
10. Establishment of a *Coral Reef Fund* and sustainable financing mechanisms (from local to global scales) to support coral reef management and conservation activities for the Action Phase and beyond the project period.
11. Through the combined activities outlined in this Strategic Plan, demonstrate *a documented improvement in the management practices leading to reduced threats to coral reefs and measurable improvements in coral reef health.*

In working toward each of the above objectives and products, the ICRAN partners bring specific expertise to one or more of the following operational components. ICRAN's strength and comparative advantage lies in leveraging the skills of its partners for each of these components, and in working to integrate the results on the ground.

## ***I. ICRAN Components***

### ***1. Management Action***

A significant part of ICRAN's effort supports on-the-ground implementation of coral reef management. Through UNEP's Regional Seas Programmes a global network of effective coral reef Marine Protected Areas and Integrated Coastal Management sites are being established.

In most developing countries, inadequately planned coastal and maritime development combined with a lack of financial resources and trained personnel, and a strong dependency of local communities on fisheries and tourism, has resulted in the unsustainable use of coral reefs. Extensive study throughout tropical coastlines over the last two decades has clearly established the importance of Integrated Coastal Management (ICM) and Marine Protected Areas (MPAs) as effective tools for improving management. The Convention on Biological Diversity (CBD) identifies ICM as a primary tool in the conservation of biological diversity, and the International Coral Reef Initiative (ICRI) *Framework for Action* identifies the designation of ICM/MPA sites as a central theme and priority action.

In the past, ICM/MPA sites have been developed on an *ad hoc* or opportunistic basis, leading to clustering of sites within limited regions (or among certain ethnic or language groups) and sparsely in others. Furthermore, funds have been inadequate to bring groups of villagers or officials to visit sites, thereby preventing effective outreach in demonstrating good practices. ICRAN offers the chance to strategically establish a network of demonstration sites that can be replicated as good practice within and between regions, and encourage local communities to share knowledge and experience among themselves.

ICRAN's initial aim within the Regional Seas Programmes is knowledge transfer between "demonstration sites" and "target communities" through a series of demonstration sessions. Demonstration sessions will have a clearly defined sequence of objectives and outputs, including identification of needs and actions required within target communities to apply the lessons learned. These are reported to the Regional Seas Coordinating Unit and ICRAN and used to encourage follow-up activities and to focus funding. The system will focus on regional ownership and networking, with coordination from the Regional Seas Coordinating Units.

ICRAN priorities and specific actions for each region involve the following:

1. Review the effectiveness of existing management practices of MPAs and ICM sites encompassing coral reefs currently in each region, resulting in production of case studies and recommendations for best practices
2. Work with existing and newly selected ICM/MPA sites to improve their capacity in demonstrating the principles of effective coral reef management
3. Provide training at the demonstration sites with regionally adapted training material and case studies developed in the Start-up Phase, primarily directed at MPA managers, NGOs, project and government staff, to illustrate the processes of successful management
4. Support dissemination of information to villages, fishers, policy makers and other stakeholders from surrounding areas to learn from the experiences gained at the demonstration sites within and outside of each Regional Seas Programme
5. Promote pilot programs to reduce harvest pressure on coral reefs, improve equity in support of participatory management and improve living conditions for local communities, taking into special account the role of women and lessons learned from previous programs via:
  - o Small grant programs for communities dependent on coral reefs
  - o micro-credit programs, small business development, and marketing programs.

Demonstration sites are the critical pillars within each region and provide support to the network of practitioners. The selected sites are well-established and capable of sharing good practice in one or more particular themes relating to management and sustainable use (refer to the following tables). Over the course of the Action Phase, multiple demonstration sites will be identified and utilized based on specific themes. These themes will follow priorities set by ICRAN and the ICRI Framework For Action, and include: community based MPA designation; user fees; sustainable fisheries; use of ICM; multiple user conflicts; habitat restoration; Land-Based Sources of pollution; Government-NGO partnerships, and Public awareness - outreach activities and materials.

A subsequent aim is strengthening new sites and target communities in follow-up to their training and empowerment. This will be achieved through a determined effort at networking between communities. Target communities may be sites, government bodies, NGOs, local or indigenous communities which are identified as potential beneficiaries. Target communities are being identified by external awareness of a need (e.g. Reefs at Risk), or by their own expression of interest. Measurement of achievements will be in terms of new activities in target communities following the demonstration sessions and documented improvements in coral reef conservation in these sites.

At the onset of ICRAN's Action Phase, four Regional Seas have been identified to establish demonstration sites and target communities. These are the Caribbean, Eastern Africa, Southeast Asia, and the Pacific. During the 2002 World Summit on Sustainable Development in Johannesburg, South Africa, additional regions have been accepted into ICRAN's planning, subject to the availability of funds to support actions. These include the PERSGA and ROPME Regions of the Middle East, and the South Asia Co-operative Environment Programme (SACEP). However, demonstration site and target communities have yet to be identified for these locations. The locations and the basis for selection of current ICRAN demonstration sites and target communities (defined to date) are listed by region as follows:

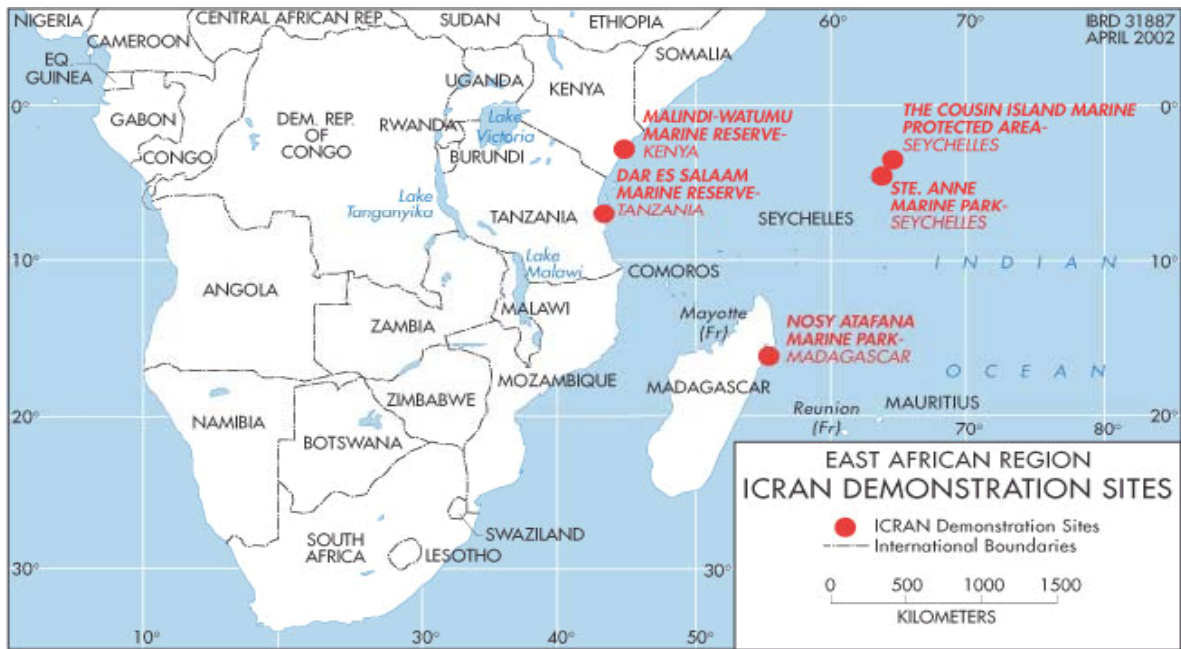


**Caribbean Demonstration Sites**

Site Name	Country	Attribute
Hol Chan Marine Reserve	<b>Belize</b>	<b>User Fees; Coastal Zone Management</b>
Bonaire Marine Park	<b>Bonaire</b>	<b>Implementation of MPA user fees through local dive operator participation</b>
Sian Ka'an Biosphere Reserve	<b>Mexico</b>	<b>Planning and Regulation for Public Use.</b>
Soufriere Marine Management Area	<b>St. Lucia</b>	<b>Stakeholder participation in MPA boundary demarcation; Communication and information dissemination</b>

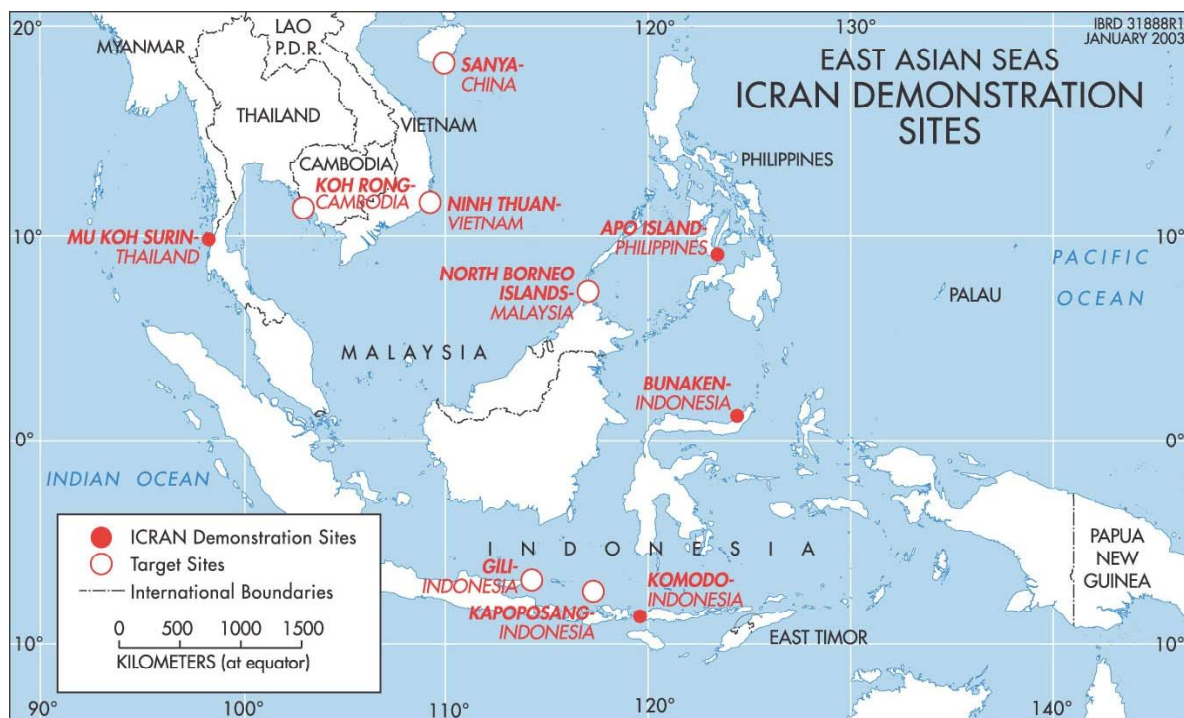
**Target Sites**

Providencia	Colombia	----
Punta Frances	Cuba	----
Parque del Este	Dominican Republic	----
Portland Bight and Negril	Jamaica	----
Bucoo Marine Park	Tobago	----
Los Roques	Venezuela	----



**Eastern Africa Demonstration Sites**

Site Name	Country	Attribute
Malindi and Watamu Marine National Park and Reserve	<b>Kenya</b>	<b>management plan that was developed jointly with stakeholders</b>
National Reserve	<b>Kenya</b>	----
Nosy Atafana Marine Park	<b>Madagascar</b>	<b>participatory management</b>
The Cousin Island Marine Protected Area	<b>Seychelles</b>	---
Ste Anne Marine Park	<b>Seychelles</b>	----
Dar es Salaam Marine Reserve (DMRS)	<b>Tanzania</b>	---

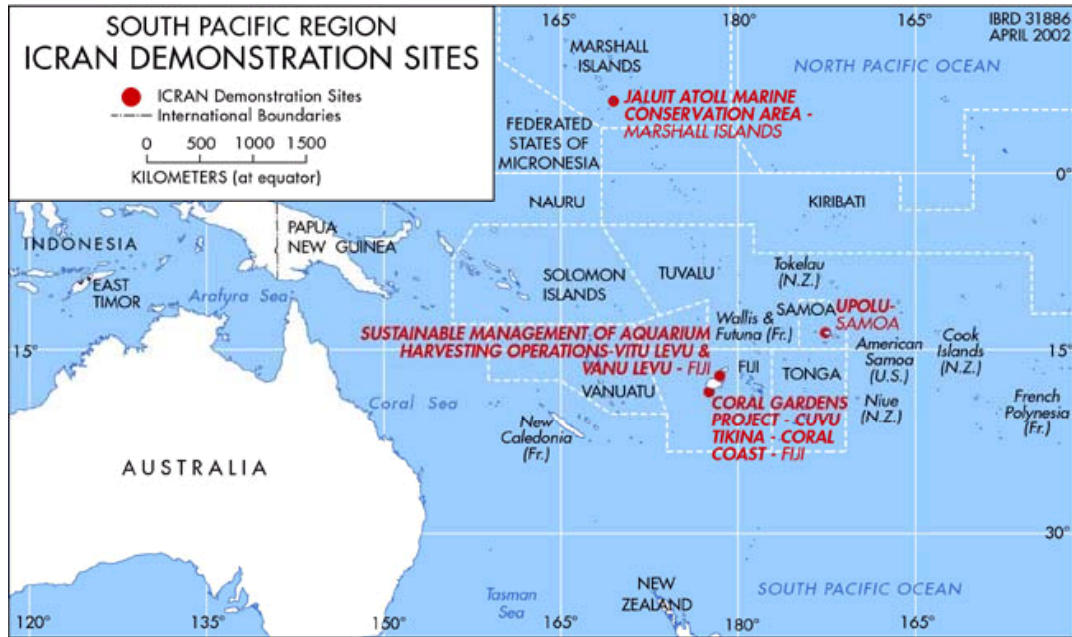


East Asian Seas Demonstration Sites

Site Name	Country	Attribute
Bunaken Island	<b>Indonesia</b>	<b>Zoning Strategy</b>
Mo Koh Surin	<b>Thailand</b>	<b>Regulatory enforcement, visitor control, minimal degradation of site and communication with indigenous people to alter attitudes. Resource management and comprehensive zoning</b>
Komodo Island	<b>Indonesia</b>	<b>Rapid ecological assessment, socio-economic assessment and conservation planning. Legal ban on destructive fishing in place.</b>
Apo Island Marine Reserve	<b>Philippines</b>	<b>Apo's resources have been managed successfully for approximately 20 years, with involvement of community, structured according to the national framework.</b>

**Target Sites:**

Sanya	China	----
Koh Rong	Cambodia	----
Kapoposang Islands	Indonesia	----
Gili Islands	Indonesia	----
North Borneo Islands, Sabah	Malaysia	----
Ninh Thuan	Vietnam	----



**South Pacific Demonstration Sites**

Site Name	Country	Attribute
Coral Gardens Project	<b>Cuvu Tikina - Fiji</b>	<b>Replication - Project is being replicated in other parts of Fiji.</b>
Sustainable management of aquarium harvesting operations	<b>The islands of Vitu Levu and Vanu Levu, Fiji</b>	
Jaluit Atoll Marine Conservation Area	<b>Marshall Islands</b>	<b>community ecotourism -- Tokelau Marine Conservation Area is the "target" partner for this site.</b>
MPA Project	<b>Savai'I and Upolu Islands, Samoa</b>	
Target Sites:		
Coral Gardens Project -	<b>Langa Langa Lagoon, Malafe Island, Solomon Islands</b>	<b>Link to the demonstration site: Coral Gardens Program in Fiji</b>
Tokelau Marine Conservation Area		<b>Link to a demonstration site : Jaluit Atoll</b>

**2. Assessment and Dissemination of Information**

*An integrated series of selected global assessment activities to enhance management of coral reef areas by providing essential information*

Effective management of coral reefs and the people visiting or living near them can only occur through supportive policies, enhanced capacity, sustainable financing and significant on-the-ground actions that are based on appropriate information, knowledge and awareness. The second emphasis of ICRAN focuses on supporting the Management Action component and its ICM and MPA management programs—aimed at municipal, provincial, national and regional levels. Detailed assessments and information assists policy makers, managers and the general public in being fully aware of the location, extent, fisheries production, value—social, economic and cultural—and the status of coral reefs, and of

the legislative changes necessary to ensure their survival. For most coral reef countries of the world, this information has never been assembled or is unknown.

ICRAN's assessment work is directly linked to the Management Action component by focusing on the priority locations identified, the potential threats to these priority regions and sites, and the value and importance of coral reef resources to their communities. The resulting information is assembled and provided to each of the sites and members of the ICRAN Network to strengthening the capacity to better manage impacts on coral reefs, and to foster village-to-village transfer of knowledge and good practice.

### **Risk Assessment**

The World Resources Institute (WRI) in collaboration with the WorldFish Center, the World Conservation Monitoring Centre (WCMC), and UNEP produced the first global assessment<sup>2</sup> of coral reefs to determine areas at risk from overfishing, coastal development, and other human activity. **Reefs at Risk** is a threat-based indicator of the world's coral reefs, and uses the power of a Geographic Information System to model risk factors. The global Reefs at Risk found that nearly 60 percent of the earth's coral reefs are threatened by human activity ranging from coastal development and overfishing, to inland and marine pollution, placing much of the world's marine biodiversity at risk. In addition, the report concludes that while reefs provide billions of people and hundreds of countries with food, tourism revenue, coastal protection and new medications for increasingly drug-resistant diseases, which together are worth about \$375 billion each year, they are among the least monitored and protected natural habitats in the world.

As a global assessment, Reefs at Risk is an important first step, but by focusing on a regional level, Reefs at Risk can use more refined information in addressing smaller scale phenomena, and in refining its predictive modeling. This will significantly enhance both the scale and analysis of risks to coral reefs, contributing enhanced information to local communities, and will greatly improve the value of revising any future global assessment.

Key findings of the original global analysis determined that the coral reefs of Southeast Asia were the most species-rich on earth, and the most threatened of any region (more than 80 percent are at risk, primarily from coastal development and fishing-related pressures). Consequently, an in-depth, regional Reefs at Risk analysis has been conducted in the Southeast Asia Region as part of the ICRAN Start-up Phase, with a report produced in 2002. As with the global analysis, this highly collaborative work is shared between WRI and its other international partners (especially WCMC, WorldFish, UNEP and the GCRMN), but also with national partners within the different regions, including governmental, university, and NGO representatives. It is through these partnerships, and through the open sharing of data that such work develops the sense of regional ownership and importance to be effective.

Regional Assessments are also underway or planned for the Caribbean, East Africa and the Pacific, with possible expansion to include the seas of the Middle East and South Asia. The final year of the ICRAN's Action Phase is reserved for synthesis and a revised global analysis based on the improved information.

### **Mapping**

For any business to succeed, it has to understand and manage its inventory. While there is standard agreement among scientists and managers that decline in the health of the world's coral reefs is underway, a comprehensive understanding of the location and extent of the world's coral reefs in any detail remains a significant problem. Basic inventory maps that show the aerial extent and features of coral reefs are practically non-existent for most regions. This information is crucial for managers, especially in determining sensitive areas, or to establish multiple-use zoning schemes. A set of standard maps of the world's most significant reefs at selected scales will be produced for ICRAN to eliminate this gap in our knowledge. For the past five years WCMC has been developing a global map of coral reefs, which already gives the ICRAN project a considerable lead in much of its map-based work. Although this represents the majority of the world's reefs, the working scales of the source materials used in the development of this map are highly varied, as is the quality of many of the source materials. Under ICRAN support, WCMC is bringing the base level of its maps up to a minimum standard, with a base scale of 1:250,000 for at least 80 percent of the world's reefs. This work is being undertaken on a region-by-region basis, in parallel with the regional Reefs at Risk Analyses conducted by WRI.

Coral reefs within Marine Protected Areas are being mapped at scales appropriate to the management regime and size of the MPA. Additional efforts are focused on improving existing regional maps to include increasingly available information on subsurface reefs and other ecosystems, such as seagrass beds (which have ecological connections to coral reefs but are poorly understood). Satellite remote sensing is a new source of global data for coral reefs, and is being incorporated into mapping efforts as the technology becomes more useful.

UNEP-WCMC also maintains the global database of marine protected areas (MPAs), including World Heritage Sites, for the World Commission on Protected Areas (WCPA). This database is being combined and analyzed in conjunction with the UNEP-WCMC coral reef maps to produce the first assessment of the role of MPAs, including World Heritage Sites, in the protection of coral reefs. Recommendations on reef sites suitable for protection under the World Heritage Convention will be made.

The reef mapping work is fully collaborative within the ICRAN partnership. WCMC is managing activities, but working closely with other ICRAN partners, regional and national organizations and space agencies to develop the best possible data sets, and to encourage the free flow of information to all interested parties.

### **Policy and Economic Assessments**

Most governments prioritize their governance in terms of the economic importance of resources and activities to the country, provided they have the information on such values. In fact, the argument of a nation's "natural capital" emphasizes the interest in assigning some legitimate, quantifiable value to its resources. A comprehensive understanding of national policies and the enabling legislation to protect coral reefs is also lacking in many countries. Only a few countries have made estimations of the economic value of their coral reefs, and rough estimates have been made for the value of reefs globally. In all cases, the methods have varied tremendously as the field of resource valuation and knowledge about coral reefs has evolved. Estimates useful at the national level are available for only a few countries, all using different (and in many cases, incompatible) methods.

Policy analysis and economic valuation are two of the most important activities for ICRAN given the need to help managers and policy makers gain a better understanding of both use and non-use values that can be assigned to coral reef resources, and the legal instruments needed to protect them.

One of the significant values of coral reefs often cited is the fisheries production and protein provided to local communities. But research has shown that coral reefs are limited in the level of sustainable harvests that can be provided, especially if commercial fisheries are also involved. Furthermore, very little is known about the origins, sources and sinks of larval recruitment and genetic heritage that drives coral reef fishery populations. Very few countries keep reliable records of harvests from coral reefs, and current estimates are based on a limited number of studies from individual coral reefs.

Fisheries data are a foundation of any reliable economic valuation for coral reefs because they are a significant component in determining use values (those values for which purchase prices can be documented). Improved knowledge of all components of coral reef fisheries is key to establishing harvest limits that can be sustained over time. Therefore, estimates of the numbers of coral reef fishers, employees of mariculture operations, market and handling personnel and related dependents, harvests, annual dispersal and recruitment patterns and the socioeconomic importance of fisheries is crucial in determining realistic, sustainable levels.

Proper estimations of coral reef fisheries and mariculture variables need to be analyzed, highlighting the social and economic importance, and the environmental, social and economic implications of coral reef degradation to society. This analysis should be based on a combination of direct information, proxy variables, indicators and knowledge, and requires examination on a country, government and NGO basis.

ICRAN is gathering relevant information on policies within the countries of its demonstration sites, is developing guidelines, and is identifying the variables important for estimating and standardizing economic value.

## Monitoring

The GCRMN/*ReefCheck* monitoring and assessment network is instrumental in providing data to support other ICRAN assessment activities, such as the Regional Reefs at Risk and coral reef mapping. The GCRMN uses ReefBase as the final repository for data arising from local and national level monitoring. The GCRMN completed its 2002 status report on the World's Coral Reefs, and the information constitutes a baseline for ICRAN to assess effectiveness in reversing coral reef decline. *ReefCheck published its first five-year global report, based on its volunteer monitoring program in more than 60 countries.*

## Information management and dissemination

ReefBase is the global database on coral reefs that serves as a repository for data from many sources, including the GCRMN. Established in 1993 and supported by the WorldFish Center, this widely disseminated system involves a team of coral reef experts that extract quantitative data from articles and reports, and convert data from computer files to complete both biophysical and socioeconomic data tables. The system also provides a range of graphic products including aerial photos, space shuttle and satellite imagery and maps of coral reefs provided by the WCMC. The database has played key roles in many recent studies, including the 1995 State of the Reefs Report (on behalf of ICRI), the 1998 Reefs at Risk Report, and the 1999 report on the acidification of the world's oceans as a result of climate change. A GIS-based version of Reef Base will be available in 2001.

ReefBase will host all ICRAN's information products, including all data and reports. The data will be available through the Internet and CD-ROMs in a user-friendly information system. ReefBase will also allow users to co-analyze data from different sources, such as the health of reefs and the economic status of reef-dependent people. Current operations will double in intensity, so that virtually all existing information on coral reefs will be rescued from loss and deterioration, consolidated, permanently archived and repatriated—and made available to people in the countries from which it was obtained.

## 3. Communication

The third emphasis of ICRAN will be to effectively communicate the value and importance of the world's coral reefs, the threats to their sustainability and the actions needed to protect them. This communication component will ensure that the information obtained from the other ICRAN components will be widely available and put to the best possible use in support of ICRAN's implementation, as well as coral reef management and conservation in general. The public information network developed as part of this component operates at global, regional and local levels. Outreach and education efforts are using the power and cost-effectiveness of the Internet and electronic messaging whenever possible to minimize the expense of linking communities and sharing information and lessons learned; low-tech alternatives are employed where electronic communication is impractical.

Information collected or generated for ICRAN, including all learning experiences from the ICM and MPA work, is incorporated into ReefBase and will be widely disseminated in a series of professional-quality reports aimed at policy makers and the general public. ReefBase is also tied to a range of Internet websites so that information products can be readily available to the global community of practice.

In order to achieve ICRI's goals of sustainable protection for coral reefs and related ecosystems, an integrated system of public information distribution is necessary to enhance the effectiveness of coral reef conservation efforts. The International Coral Reef Information Network (ICRIN) is designed to fill this need, acting as a central reference source of information on coral reef outreach and education materials and techniques, and a catalyst for more effective public awareness activities.

ICRIN's primary objectives are to effectively communicate to the public the value and importance of the world's coral reefs and the threats to the reefs' sustainability, and to motivate target audiences to take action to protect coral reefs.

ICRIN includes:

- i. the **core program** which uses a broad range of media, the Internet ([www.coralreef.org](http://www.coralreef.org)), videos, advertisements and press releases to educate the general public, draw attention to coral

- reef issues of global importance, and to promote ICRAN coral reef conservation, research and monitoring projects;
- ii. **targeted outreach efforts focused on specific audiences** - initially the tourism sector, fishing, and key decision-makers in the public and private sectors; and
  - iii. **community-level public awareness initiatives** which includes region-specific educational packages for use by local NGOs, schools and community groups in developing countries to educate local populations about coral reefs.

ICRIN is building on the success of the International Year of the Reef 1997, the Pacific Year of the Coral Reef and other public awareness campaigns. Whenever possible, ICRIN is acting as a reference for existing materials and programs rather than developing new ones. ICRIN will also facilitate the production and distribution of new information resources when there is an identified need.

ICRIN is working in close cooperation with the other ICRAN partners, and is incorporating data from GCRMN reports, the *Reefs at Risk* studies, WORLDFISH's economic valuation studies and other ICRAN outputs to create public awareness materials. ICRIN will also help support the representative sites selected by the Regional Seas Coordinators by providing public awareness materials, using the media to publicize progress at the sites, and helping to create a network that allows site coordinators to share lessons learned. Additional ICRIN functions include: web site development and management, media relations training, maintaining a celebrity spokesperson list, translating public awareness materials into other languages, and other communications services for ICRAN partners.

### *Target Audiences*

While ICRIN's core programs (such as the coralreef.org website) provide general information about coral reefs and ICRAN that will be useful to a number of audiences, ICRIN is currently focusing its outreach efforts on specific audiences:

#### a. Tourists and the Tourism Industry

A public awareness strategy to address tourism and its impacts (positive and negative) on coral reefs is an initial focus of ICRIN activities. A variety of stakeholders have been identified within the tourism sector including the dive-tourism, hotel, cruise and airline industries and associations, tourists to coral reef areas, and local communities, businesses and government agencies. Specialized approaches are being targeted for each of these stakeholders. CORAL and UNEP-Tourism are taking the lead in assessing existing materials and developing any new materials and activities for this focus area.

#### b. Key Decision-Makers/Opinion Leaders

In every sector and region, there are key individuals (such as company presidents, government ministers and other public figures) whose opinions and decisions have a broad impact on their sector and the public. ICRIN will work with regional partners to identify key decision-makers and opinion leaders and help design messages to reach them. Information on the economic value of coral reefs and the predicted impact of coral reef destruction on specific industries and communities will most likely be a prominent part of reaching this audience.

#### c. Fishers and the Fishing Industry

Fishing's impact on coral reefs and methods to mitigate the negative impacts of fishing will be another sectoral focus of ICRIN. Because of the vast differences among the approaches needed to reach artisanal, recreational, and small-scale commercial fishers and international fishing fleets, materials and techniques will need to be tailored to each of these major stakeholder groups with careful attention to language, culture and educational differences among different groups of fishers. Programs to reach the fishing sector will rely on the input of regional partners with existing relationships with the fishers.

### Template Documents for Marine Protected Areas (MPAs)

Many coral reef protected area managers lack sufficient time and resources to produce outreach materials to be distributed to visitors. ICRIN is producing a packet of generic materials that are easily adapted by

MPA managers to explain coral reef ecosystems and rules for MPA visitors. Included in the packet are elements of other ICRAN projects such as materials for educating visiting government officials or journalists as well as posters, videos and educational brochures. Substantial input from MPA managers will be solicited at the outset of this project.

#### Reaching the Communities

Reaching the human communities that live and work near coral reefs and providing information that will allow and encourage these communities to make informed resource management choices is fundamental to ICRAN's conservation goals. To address this need, ICRAN's public awareness program has adopted as one of its two top priorities creating and making available dramatic presentation packages for use by NGOs and government organizations to inform coastal villagers about coral reef conservation and management.

## ***II. Integration of ICRAN Components and Products***

One of ICRAN's main strengths lies in its coordination among partners and the integration of its three components and supporting activities. The Assessment and Communication components have been developed to provide some critical information at a broad scale. For example, a major part of the communication component serves to raise global awareness about the importance of coral reefs. And certain Assessment activities, such as the continued global mapping of coral reefs and ReefBase, will help to strengthen our knowledge base. Each of these broader efforts will provide crucial information to help guide ICRAN's Strategic Plan over the long term.

However, most of the proposed activities within the Assessment and Communication component are structured to provide immediate to moderate-term assistance to ICRAN's Management Action component within each of the selected regions, and specifically the demonstration sites and target communities. Communication and Public Awareness is developing materials for use within each of the regions, demonstration sites and target communities. Information generated from the activities in the Assessment component (such as analyses and reports) are being staged so that each demonstration site and the collection of target communities can benefit from the information generated. For example, economic valuations, fisheries studies, and more localized coral reef mapping can directly benefit demonstration sites with improved information for knowledge sharing. This same information will also help strengthen the modeling capability of the Regional Reefs at Risk effort for each region, to help assess and predict threats.

These tools are being combined in working with demonstration sites and target communities to strengthen their capacity to share information and lessons. The delivery of this assistance and information is being coordinated as demonstration sites are brought on-line as training centers within the Network.

Also, ICRAN partners are working with strategic alliances in helping to develop programs from the ground up. In particular, ICRAN is working with USAID to develop an integrated set of activities within the Mesoamerican barrier reef region to help compliment and strengthen ongoing conservation and sustainable management initiatives.

### ***The ICRAN Partners***

Each of ICRAN's partners have specific responsibilities in supporting the partnership; however, as ICRAN makes progress in establishing its peer-to-peer network, increasing opportunities are being found to leverage partner expertise, integrate activities and strengthen effectiveness. Each of the partner's roles and activities within ICRAN are as follows:

### ***UNEP and the Regional Seas Programmes***

The primary focus of the *United Nations Environment Programme* is working through the framework of its Regional Seas Programmes to ensure that a global system of model sites is established, its coral reefs are effectively protected and sustainably managed through use of Integrated Coastal Management activities

and Marine Protected Areas. UNEP is coordinating training and exchanges to bring representatives of other communities to the model sites to encourage proliferation of ICM and MPAs principles. Activities will include the reduction of stress on the environment through the establishment of alternative livelihoods via small business enterprises and micro-credit systems.

UNEP's Regional Seas Programmes include the Caribbean, Eastern Africa, Southeast Asia, PERSGA and ROPME (the middle East), and coordinates Pacific-based Regional Seas activities with SPREP (below).

The UNEP Coral Reef Unit is working to coordinate various partners and core functions, such as financial and grants management, organizational support and communications. The CRU is also providing leadership for coral reef action within the United Nations system.

### ***SPREP – The South Pacific Regional Environment Programme***

The South Pacific Regional Environment Programme (SPREP), based in Apia, Samoa, was established in 1982 to confront threats from human impact in coastal areas in the South Pacific. SPREP is the primary regional organization concerned with environmental management in the Pacific, and promotes cooperation among countries and implements ICRAN activities for the South Pacific region. SPREP is working with UNEP's Regional Seas Programme to identify and establish the demonstration sites and targeted communities for the Pacific. SPREP's priorities are to maintain the environment to support the sustainable development of the islands for the benefit of current and future Pacific island communities.

In the pursuit of environmentally-sound sustainable development throughout the Pacific, particular attention is paid to the challenges of trade liberalization, globalization, tourism development, population growth, and urbanization and settlement patterns. Another priority is to strengthen environmental education and awareness, so that the region's people will be empowered to safeguard their natural resources, lifestyles and economic development.

### ***WorldFish Center***

The *World Fish Center* (formerly ICLARM—the International Center for Living Aquatic Resources Management) focuses on expanding the scope of ReefBase. In addition to coordinating information with WRI and UNEP-WCMC in conducting the Reefs at Risk analyses, WorldFish is conducting a global assessment of reef value and fisheries and mariculture production, evaluating national policies influencing reef management, and is developing a training-of-trainers program in support of ICM and MPA development on behalf of ICRAN. WorldFish is also conducting an analysis of the probable source-sink linkages by which populations of reef organisms are interdependent among groups of reefs.

Using information from ReefBase, Reefs at Risk and other ICRAN partners, WorldFish is working with countries within prioritized Regional Seas Programmes for assessments and analyses. In each selected country, a range of government and non-government personnel are being contacted and involved in the estimation based on a combination of direct information, proxy variables, indicators and knowledge from previous experiences.

### ***The ICRI Secretariat***

The International Coral Reef Initiative (ICRI) and the ICRI Framework for Action provide the contextual framework for ICRAN. ICRAN has been identified by the ICRI Coordination and Planning Committee (CPC) as an operational network, and is working to implement specific elements of the Framework for Action. The ICRI Secretariat has an important role in providing guidance on intergovernmental dialogue and related fund raising, and is well placed to increase awareness about coral reefs among government officials and other decision-makers. The ICRI Secretariat is providing support to ICRAN through contacts with Government representatives, other partners and donors.

### ***GCRMN***

The *Global Coral Reef Monitoring Network* is also an operational unit of ICRI and provides data and information on the status and trends in coral reefs to the international community to improve conservation. The GCRMN operates through regional nodes, based on and coordinated by the UNEP Regional Seas Convention coordinating units and equivalent agencies, that provide countries and

regions with the capacity to monitor their coral reefs and to link them into an international network of cooperating countries and agencies. Monitoring is a powerful awareness-raising tool that demonstrates to both the person monitoring and the government the problems facing reefs and the need for management. Since 1998, this information has been published in biennial reports assessing the status of the world's coral reefs (see footnote #2). The GCRMN is coordinating the further development of the global system of coral reef monitoring that has been established previously to ensure that empirical information will be available in support of national, regional and global assessments. The GCRMN is working through ICRAN to address effective monitoring within each of ICRAN's demonstration sites and target communities.

### ***UNEP-WCMC***

The *UNEP World Conservation Monitoring Centre* is the major international data center holding biodiversity information for the world. In 1988 WCMC produced the highly acclaimed 3-volume *Coral Reefs of the World*, and most recently published the *World Atlas of Coral Reefs* (see footnote #2). Through the 1990s WCMC has been compiling and developing the most detailed global maps of the world's coral reefs in its Geographical Information Systems. At the same time it has been collaborating with many of the other ICRAN partners in activities such as *ReefBase* and *Reefs at Risk*, and has also been compiling other critical data sets on threatened species, marine protected areas, coral trade and coral diseases. Since July 2000, UNEP-WCMC has been incorporated into the UNEP system as its global biodiversity information and assessment centre. UNEP-WCMC will continue to produce digital maps of the world's coral reefs and associated habitats in support of management and analysis efforts, and will further support site-based mapping for the demonstration sites, and into enhancing existing regional maps using remote sensing. These maps will provide a critical base for regional seas work, *Reefs at Risk*, and *ReefBase*. UNEP-WCMC will also continue to maintain the global marine protected areas database on behalf of the World Commission of Protected Areas, and manage this data on behalf of ICRAN. It is closely collaborating with WRI in the *Reefs at Risk* analyses, and will liaise closely with *ReefBase* and other ICRAN partners in other ongoing coral reef work, including work relating to coral diseases and trade in corals and other marine ornamental species.

### ***WRI***

The *World Resources Institute* plays the leading role in conducting the regional *Reefs at Risk* analyses. In particular, it supervises the geographic information system (GIS) analyses of potential threats to coral reefs, and assists in determining priority areas for management action. In the final year of the Action Phase, WRI will combine results of the regional analyses into a revised global assessment. WRI is also working with ICRAN to look at potential watershed models for coastal lands adjacent to coral reefs.

### ***CORAL***

The *Coral Reef Alliance* is leading ICRAN's public information campaign in support of the improved management of coral reefs. This includes the mass-media campaign directed toward the general public, and activities designed to assist other groups to inform local residents in coral reef areas about conservation and management. CORAL is ensuring that the results of the ICRAN activities are being widely disseminated to the public, policy makers, funding agencies, reef managers and reef stakeholders.

### ***The United Nations Foundation***

The United Nations Foundation promotes a more peaceful, prosperous, and just world through the support of the United Nations and its Charter. Through its grantmaking, UNF works to build new and innovative public-private partnerships to address pressing health, humanitarian, socioeconomic, and environmental challenges of the 21st century. As part of its mission, the UNF Board of Directors has identified biodiversity as an environment priority. Recognizing the need to take a focused programming approach, UNF developed a strategy outlining specific potential leverage points. These leverage points — determined in close consultation with UN experts, leading NGOs, scientific institutions, and others — include UN-designated World Heritage biodiversity sites and coral reefs. Consequently, the UN Foundation has provided catalytic support for ICRAN. Furthermore, it has

provided extensive in-kind contributions in helping the program develop, and is hosting the Coral Reef Fund in partnership with ICRAN.

### ***WWF***

Over the past decade, WWF has initiated and supported field work in more than 100 corals projects around the world, investing the equivalent of tens of millions of US dollars. As part of ICRAN WWF has launched a three year advocacy initiative to support national and regional efforts to greatly increase in the area of coral reefs and mangroves under formal protection, and enhance both awareness and support for this protection. WWF's site-based experience also brings assistance to ICRAN in helping to share lessons and experiences throughout the Network.

### ***ReefCheck***

ReefCheck trains teams of volunteer scuba divers and snorkelers in over 50 countries to monitor the health of coral reefs by performing Reef Check surveys. ReefCheck's survey results are used to produce an annual report on the state of the world's reefs. Its global network of teams educates the public about the value of coral reefs, threats to their health, recommends management solutions, and provides tools for local communities to manage and protect their coral reefs. Many of ICRAN's demonstration sites are using ReefCheck methods to monitor their coral reefs.

### ***SACEP-The South Asia Co-operative Environment Programme***

South Asia Co-operative Environment Programme (SACEP) is an inter-governmental organization, established in 1982 by the Governments of South Asia to promote and support protection, management and enhancement of the environment in the region. Eight countries, namely; Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka, have ratified the Articles of Association of SACEP.

At the World Summit on Sustainable Development (WSSD), Johannesburg 2002, ICRAN announced the expansion of its partnership into the South Asian region to work with SACEP countries. In collaboration with SACEP and other organisations such as GCRMN South Asia, ICRAN is developing a work programme for the South Asian region. This programme is hoped to act as a catalyst to maximise the benefits from the considerable expertise and potential within the region and to strengthen the role of SACEP in coordinating regional coral reef activities.

The ICRAN expansion to the South Asian region was presented for endorsement at the Special Session of the Governing Council of the South Asia Cooperative Environment Programme (SACEP), 20-21 January in Colombo, Sri Lanka. The partnership between ICRAN and SACEP has been formally accepted and SACEP are fully committed to coordinating ICRAN's work in the South Asian region with other organisations, government bodies and local communities.

### ***III. Indicators of Success***

ICRAN's effectiveness requires a set of tangible indicators to evaluate progress. The following indicators are being developed and refined by ICRAN's Steering Committee:

#### ***A. Output Indicators***

- o Human resources capacity built by the project (e.g. number of managers and government/project staff trained in Marine Protected Area management)
- o Legislative changes (institutional and legal arrangements proposed)
- o Atlases with high-quality coral reef maps with assessment data

#### ***B. Outcome Indicators***

- o Improved efficiency in management of coastal resources (e.g. management plans developed and implemented)
- o Public awareness created
- o Coral reef protection high on the agenda of the RSP (regional Action Plans)
- o Establishment of new Marine Protected Areas with coral reefs

#### ***C. Impact Indicators***

- o Improved stakeholder involvement in decision-making (e.g. stakeholder consultation meetings)
- o User conflicts minimized or resolved
- o Improved living conditions in coastal communities (evidence of socio-economic benefits)
- o Improved health of coral reefs (only measurable at longer term, after 5-10 years or more)
- o Reduced die-off of coral reefs
- o Additional financial support from national governments/external sources.

These previous sections form the basis of ICRAN's vision. A partnership of this scope and complexity requires both time and resources—key factors for which our global community cannot afford to waste in achieving its laudable goal. The other sections of this Strategic Plan outline the details of the ICRAN program. These are:

- ***ICRAN Operations:*** the specific activities that are underway and progress within each of ICRAN's regions, and the plans to expand activities once ICRAN's initial objectives are met,
- ***ICRAN Governance:*** a carefully designed structure to address ICRAN's functioning and growth as it develops over time, and as it builds its financial base beyond the Action Phase. This section describes the ICRAN Steering Committee, the ICRAN Board and the ICRAN Coordinating Unit, and the terms of reference and management functions for which each of these bodies and their representatives are responsible.
- ***ICRAN Financial Status and Forecasts:*** current budgets and projections based on the actions and needs specified in ICRAN Operations.