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A Partnership for Coral Reef Protection: A Case Study of the International Coral Reef Initiative

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A PARTNERSHIP FOR CORAL REEF PROTECTION:

A CASE STUDY OF THE INTERNATIONAL CORAL REEF INITIATIVE

BY

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Preface

This thesis is prepared according to the Manuscript Format, whereby the first part of the paper contains the text and footnotes the second part contains the bibliography and appendices.

Abstract

Coral reef are considered the most biologically diverse marine ecosystems on earth. They are a world-wide symbol of the economic and ecological importance of all types of coastal environments. The International Coral Reef Initiative (ICRI) was developed in 1994 to increase the awareness of the human and anthropogenic threats facing reefs. Initially a U.S.-focused Initiative, ICRI now includes over 70 like-minded governments and a growing list of UN organizations, science and academic organizations, non-governmental organizations and the private sector as its partners.

This qualitative case study was developed based on actual participation in the Initiative and hundreds of pages of documents ranging in scope from internal draft documents, meeting notes, to the April 1996 United Nations Commission on Sustainable Development report. The study provides background information as to why and how the Initiative was created and it examines how the four strategies utilized: partnerships, coordination, integration, and capacity-building, contributed to the success of ICRI.

The primary finding is that no single strategy can be credited with ICRI's achievements to-date, but that all the strategies as a whole, along with the political timing of the Initiative, and the host agency (U.S. Department of State), all contributed to ICRI's achieving its goal in year one; to increase global awareness of the fragile nature of reefs, their critical importance to humans world-wide, and encourage actions to address the threats facing them. This study concludes with some of lessons learned that may be useful to similar global efforts.

MASTER OF ARTS THESIS

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Introduction

There are at least two reasons why our generation will bear a heavier responsibility for the future health of our planet than any previous generation.[1] First, having gained access to an unprecedented wealth of new scientific information along with a vastly improved, yet still evolving capacity for analysis of that scientific information and second, having gained sufficient experience, both technological and institutional, we have the ability to take the necessary international actions now.[2] The post cold war era and the world's increasing global economy provide us with unprecedented opportunities to make positive changes in the way we manage our planet's resources and environment.

There is an urgent need for an increased level of globally sustained environmental change. For example, national resources depletion is becoming so severe in some countries that it forces "ecological refugees to flee their own country's borders."[3] Population growth is putting stress on shared resources such as coastal fisheries.[4] In 1991 it was estimated that of the 5.6 billion people living on the earth, 3.5 billion resided in coastal areas and that number is expected to increase through the next century.[5] The environment

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[1] P. H. Sand. Lessons Learned In Global Environmental Governance. World Resources Institute, 1990, p. 4

[2] Ibid.

[3] Ibid.

[4] P. Weber. Net Loss: Fish, Jobs, and the Marine Environment. Worldwatch Paper 120. July, 1994. p. 29

[5] P. H. Sand. Lessons Learned In Global Environmental Governance. World Resources Institute, 1990, p. 4

and its ability to sustain itself also has an increasing affect on the global marketplace. "Economic integration is forcing environmental integration."[6] With an increasing global economy blurring the lines between national and international environmental issues, it becomes clear, that to deal with these problems effectively and intelligently, they should be addressed at the international level.[7]

The International Coral Reef Initiative (ICRI) was developed with a similar goal. Quite simply, to produce actions and results benefiting coral reef ecosystems, States and organizations must form productive partnerships, share knowledge, experiences and work cooperatively to achieve the mutually beneficial goal of sustainably utilizing coral reef ecosystems worldwide.

It is clear that an increasing number of environmental problems will need to be tackled and solved at the international level due to their scope, and transboundary and global economic implications. While consideration of environmental issues is increasing, "there has been surprisingly little discussion about how we can or should undertake institutional and political changes of unprecedented scale and durability."[8] ICRI is an example of one model of a process used by governments and other organizations within an international environmental Initiative, seeking to increase global political will and global action by articulating the plight of coral reefs. This Initiative can also

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[6] Ibid.

[7] Ibid.

[8] P. H. Sand. Lessons Learned In Global Environmental Governance. World Resources Institute, 1990, p. 4

be viewed as a model that was modestly funded and staffed. This study does not claim that ICRI is the best or only model for an international environmental initiative. However, the study does examine the Initiative and identifies useful lessons and experiences that can be shared and hopefully learned from by current and future similar-type initiatives. This study shows that partnerships played a critical role in sustaining the Initiative in year one even though the anticipated funding level was severely reduced.

The formation of ICRI was a result of the need for better protection and sustainable use of coral reef ecosystems. Protection of coral reefs is an environmental concern that has garnered increasing political and general public awareness since the early 1980s. Why is there an urgency to protect global ecosystems like coral reefs? It has been estimated that as much as 10% of the world's coral reefs are degraded beyond recovery, and another 30% could collapse within the next 10 to 20 years.[9] The evidence clearly points out that the combined environmental and economic benefits to the U.S. and international community of protecting healthy coral reefs is substantial.[10] To be effective, an initiative like ICRI must incorporate scientifically-based management techniques, focusing clearly on the trends in ecosystem degradation, to effectively and efficiently move environmental issues to the

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[9] Introduction: Possible Coral Reef Initiative. Internal Memo from the Bureau For Research & Development Office of Environment & Natural Resources, USAID. October 1993, p. 6

[10] Ibid., p. 3

"front and center of the international stage"[11] where policy and decision-making occur. Environmental issues are becoming increasingly global in scope. Initiatives including ICRI can provide the international context that is important for creating political will which may result in increased opportunities for action at the national and community levels.

It was in response to the global crisis facing coral reef ecosystems, that the U.S. Government, along with seven other nations and a multitude of stakeholder organizations, developed and launched the International Coral Reef Initiative. The International Coral Reef Initiative (ICRI) was designed to be a multi-year global effort in which the "*primary objective is to foster innovative cross-disciplinary approaches to sustainable management of coral reef ecosystems through the development of cooperative relationships among various stakeholders.*"[12] In other words, partnerships, integration, and cooperation between levels (international, national, regional, local) of governments, non-governmental organizations, the private sector and development organizations, were the main themes and strategies embodied in ICRI at its inception and remain so today.

This study will examine why ICRI was developed, and the process and strategies used to address global coral reef degradation. The study will conclude with some of the lessons learned.

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[11] Ibid.

[12] The U.S. Coral Reef Initiative: Forging Partnerships For Effective Management, Vision and Strategies Statement. U.S. Department of State, 1994. p. 2

Statement of the Problem

"In identifying a research problem, one moves from general interest, curiosity, or doubt about a situation to a specific statement of the research problem. This is the case with the problem chosen and articulated by the researcher."[13] Discussion with various officials involved with the International Coral Reef Initiative indicates that ICRI has been termed a 'success'. The officials are from the following agencies: the United States Agency for International Development, (USAID); the National Oceanic Atmospheric Administration (NOAA); the United States Environment Protection Agency, (USEPA); the Department of the Interior; the National Science Foundation, (NSF); the Department of Defense; the Department of Agriculture; and the U.S. Coast Guard. The central question examined in the study is: What specific strategies were utilized to achieve ICRI's perceived success at the global level and how did outcomes demonstrate the success of ICRI?

[13] S. Merriam. Case Study Research in Education: A Qualitative Approach, San Francisco: Jossey Bass, 1988, p. 43

Hypotheses

The following are the two hypotheses to be tested in this study:

1) The ICRI was successful because it increased global awareness about the importance of protecting and sustainably using coral reef ecosystems through the utilization of global partnerships.

2) The ICRI's successful use of global partnerships has provided opportunities for increased integration and coordination of governmental and nongovernmental efforts, stimulating increased global commitments to sustainable use of coral reefs and associated environments.

For example, increased interest in coral reef ecosystems leading to the formation of the International Coral Reef Initiative, resulted in the commitment of funds and staff by the U.S. government and other governments; the production and distribution of an award winning documentary focusing on regional coral reef case studies; and the planning and implementation of a global and five regional workshops bringing together scientists, policy and decision-makers and practitioners to define and agree to coral reef strategies at the regional and international levels. Other evidence of ICRI's success in year one include the launching and funding of (year one: US $100,000) the Global Coral Reef Monitoring Network (GCRMN), [see appendix VIIII] and support of the International Year of the Reef (IYOR) [see appendix VII]. The Global Coral Reef Monitoring Network will provide an unprecedented global coral reef network for social and natural scientists to store, access and share coral reef data. The International Year of the Reef will serve as a public

awareness vehicle for the academic, scientific and private sector stakeholders of coral, providing a number of opportunities to educate people through educational programs at aquariums, zoos, tourism sites, diver organizations, and academic institutions.

The following research questions will be addressed:

1) How did the four strategies: partnerships, integration, coordination and capacity-building contribute to the success of ICRI?

2) Why were global partnerships central to the success of ICRI?

3) What were the lessons learned and what generalizations can be drawn from these strategies that might prove useful to other fledgling global initiatives especially during these austere times?

This research requires that certain assumptions be made. The timing of, and the interest in developing the Initiative was due largely to the increased awareness of the importance of coral reefs. This increased attention to the fragile nature of coral reefs and related ecosystems was reflected in the 1992 United Nations Conference on Environment and Development (UNCED).[14] Also, the Clinton Administration included key policy makers with a strong personal interest in coral reef ecosystems and the political timing was correct, especially prior to the November 1994 U.S. Congressional elections.

The study will focus on U.S.-based international strategies used to launch the Initiative in year one, August 1994 through September 1995. This

[14] Earth Summit Agenda 21 The United Nations Programme of Action From Rio, Chapter 17 "Protection of the Oceans, all kinds of seas, and coastal areas and the protection, rational use and development of their living resources", 1992.

study will provide a modest historical background of ICRI and its likely accomplishments through June 1996, when it is proposed that the U.S. Government will turn over the ICRI Secretariat to another partner government during the 8th International Coral Reef Symposium (ICRS) in Panama. The study will examine the four strategies—partnerships, coordination, integration, and capacity-building that were used to build the global initiative and determine how these strategies contributed to the success of ICRI. Since this initiative is a global effort, and relatively few reviews exist on international initiatives, publicizing the lessons learned will be useful to policy-makers researching international initiatives. Applications by other global initiatives may improve success rates, thereby maximizing effort and the value of financial investments. This study will not focus on the research and monitoring or domestic components of the Initiative.

This study was undertaken for four reasons. The first is that the researcher was fortunate enough to actively participate in the launching and the development of the Initiative from August 1994 through September 1995, and thus has a great deal of first hand knowledge and experience regarding this Initiative.

Second, the researcher believes that the lessons learned both from the successes and failures of the implementation of the Initiative could prove useful to other similar endeavors especially given the austere financial climate that environmental protection, and issues now face. Although the researcher

was a full and active participant in the evolution of the Initiative, the current role of the researcher is as an observer and as a source of institutional memory for the new staff members coordinating ICRI's current activities. "An investigator might decide to begin as a complete participant in order to experience what it is like to be initially immersed in the program and then gradually withdraw participation...until finally taking the role of occasional observer."[15] Research problems can arise from personal experience...and current social and political issues (used) as common sources of research problems."[16]

The third reason to study the Initiative is that it is perceived to have utilized an innovative strategy, not observed often in the global policy making arena. As Merriam states, "a case study might also be selected because it is itself intrinsically interesting, and one would study it to achieve as full an understanding of the phenomenon as possible."[17]

The fourth reason is that a thorough literature search revealed an absence of case studies on the ICRI that specifically address the global strategy selected to launch the Initiative. While a few articles discussing the process being used in integrated coastal management (ICM) and management practices in general are relevant, they typically do not discuss international initiatives, but are more likely to provide information on national or

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[15] S. Merriam. Case Study Research in Education: A Qualitative Approach, San Francisco: Jossey Bass, 1988, p. 43

[16] Ibid., p. 42

[17] Ibid., p. 10

localized programs. Therefore, an examination of the strategy used in the International Coral Reef Initiative is warranted. As Dr. Jeremy B. C. Jackson stated in his keynote speech in Dumaguete City, Philippines, May 1995, "*Sustainability of any resource is ultimately a function of numbers of people...organizing and raising political and social consciousness about the limits of reef sustainability and devising viable economic alternatives is what the International Coral Reef Initiative (ICRI) is all about.*" [18]

Methodology

As mentioned above, the qualitative case study method as described in Merriam's Case Study Research in Education: A Qualitative Approach (1988) [19] will be used to test the hypotheses. The case study method is particularly useful "when the objective of an evaluation is to develop a better understanding of the dynamics of a program and in examining contemporary events."[20] The strategic process chosen to implement ICRI has been credited by this researcher to have had a positive effect on the ICRI and it will be demonstrated that it is central to its success to-date. Accordingly, the case study approach is valid as the "how and why questions are appropriate for case study...designs"

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[18] The U.S. Department of State, Partnership Building and Framework Development: Final Report, The International Coral Reef Initiative Workshop, Dumaguete City, the Philippines, 29 May - 2 June 1995. p.1

[19] S. Merriam. Case Study Research in Education: A Qualitative Approach, San Francisco: Jossey Bass, 1988, p. 23

[20] Ibid., p. 25

(Yin, 1984). [21] Since the ICRI is process-driven it is appropriate to utilize a qualitative research methodology such as the case study method since "a case study is an examination of a specific phenomenon such as an event,...a process, an institution or a social group." [22]

The qualitative case study research design method is well suited to this research problem for the following reasons. First, qualitative data derived from a variety of sources are used to test the hypothesis. Second, in order to examine what effect the process had on the ICRI's success, this researcher examined and reviewed a breadth of documents including ICRI steering committee meeting minutes, Executive Planning Committee documents, ICRI workshop documents, newspaper and magazine articles, fact sheets and program updates to reach a fuller understanding of how global partnerships, coordination, integration and capacity-building efforts assisted in achieving success in year one of ICRI. This research is nonexperimental, because the variable cannot be manipulated or controlled. This type of study can only make suggestions and draw conclusions, not prove causal relationships. However, important generalizations can be reached, and as appropriate, could be replicated in future global type initiatives.

The boundaries of the system must first be identified before undertaking a qualitative case study. "The most straightforward examples of 'bounded systems' are those in which the boundaries have a common-sense

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[21] Ibid., p. 9

[22] Ibid.

obviousness, e.g....an innovatory [sic] programme."[23] The study will focus mainly on year one of the Initiative, specifically, August 1994 though September 1995. However, it will provide a modest historical background and conclude with predictions of ICRI's success and impact through June 1996. "The focus of research in a case study is on one unit of analysis...the unit may be an institution, a program, or a process."[24] The study's research focuses on ICRI's four strategies, the process used and the lessons learned.

The International Coral Reef Initiative

In The Context of Global Environmental Protection Initiatives

The symbolism represented by coral reef ecosystems is strikingly similar to that of tropical rainforests. Coral reefs, like rainforests have the ability to capture interest and concern from people in almost every country and culture. Therefore, lessons can and should be learned from earlier global campaigns when forming and launching new global awareness initiatives like the International Coral Reef Initiative. Decision-makers must examine and learn from the accumulated experience and institutional know-how, and to ultimately "identify innovative mechanisms... directly related to some of the decision-making ahead,"[25] especially from similar-type initiatives. One example used by

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[23] S. Merriam, Case Study Research in Education: A Qualitative Approach, San Francisco: Jossey Bass, 1988, p. 23

[24] Ibid. p. 46

[25] Ibid., p.4

ICRI to build on past experience was Forests for the Future,[26] formed to protect and manage tropical rainforests. This U.S. based Initiative was announced during the Rio Earth Summit Conference in 1992. Its objective was to "create effective mutually desirable partnerships for forest conservation and sustainable management."[27] This chapter/section of the paper will ground ICRI in the context of tropical rainforest campaigns and show the similarities and differences in approaches used in the ICRI.

Coral reefs provide a symbol or "flagship" for much broader coastal and marine conservation initiatives in over 100 countries, much as rainforests and large mammals have done for the conservation and management of terrestrial ecosystems.[28] Although much effort and funding has been expended on terrestrial systems, until recently, little action and comparatively little financial support has been dedicated to coral reefs, where "threats may be more insidious and less obvious." [29] Yet in many cases, management and technological solutions and partnership opportunities to address these problems exist, but are not implemented due to lack of awareness, political will, human or financial resources, and/or site-specific information.[30] ICRI was

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[26] Forests for the Future: Launching Initial Partnerships. United States Agencies Task Force Report. January 15, 1993.

[27] Ibid., p. 4

[28] O. Ehrenstrom. R., Lester, and L. Z. Hale, The United States Coral Reef Initiative Statement Of Need, April 1994, The URI Coastal Resources Center, p. 4

[29] Ibid.

[30] Ibid.

developed precisely to address these challenges, by increasing public and political awareness; bringing donor organizations to the same table with decision-makers, scientists and on-the-ground coastal practitioners; and helping to move forward plans for establishing a global monitoring network. These benchmarks will be examined for how they were implemented and if they are considered successful. What mechanism or process did ICRI make use of and was it similar to the approach used by organizers of the tropical rainforest campaigns of the 1970s and 80s? The following section of this paper will address these questions.

The challenge faced by those who depend on coral reefs and tropical rainforest resources is similar. Both groups need to develop a viable mechanism for increased global protection and sustainable use of coral reef ecosystems and tropical rainforests, a mechanism that will both benefit their existence and address outside pressures, like tourism, commercial fishing, bio-medical research, and growing population pressures. As previously stated, in many ways global protection of coral reefs and the resulting initiative, ICRI—launched to provide and encourage increased protection of reefs are similar to the coalitions built in the 1980s to save tropical rainforests and similar in the types of issues which they address. For example, both are tropical-based ecosystems; they are rich sources of biodiversity; both have resources for potentially unlimited medicinal uses; both attract huge numbers of visitors and are considered essential resources for eco-tourism destinations; both provide food and other essential and cultural items for

indigenous peoples; both ecosystems exist in nutrient poor environments, and as a result, recycle huge amounts of bio-mass; both are threatened by increasing populations who depend on their resources and promote over-development. They share a similar and alarming rate of destruction and the time required to repair or regrow damaged areas when that is even an option is often longer than humans realize. Finally, their health or lack thereof, has enormous repercussions for biological processes and organisms including the health and well-being of humans.

As the 1970s and 1980s have become synonymous with tropical rainforest coalition-building and protection, so may the latter part of 1990s be remembered for its focus on the protection of coral reef and other marine ecosystems. The need to protect rainforests was raised in the 1960s by the science community, much like coral reef degradation was brought to the public's attention by coral reef scientists in the 1980s. Massive unchecked rainforest depletion was brought the public's attention by a number of tropical ecologists including Dr. John P. Milton, who began his field work on these ecosystems in the 1960's. Over the next 10-20 years he witnessed first-hand the "complete annihilation of some of the world's most pristine ecosystems."[31] These events spurred Dr. Milton to coordinate a team of 60 scientists, charged with compiling several hundred case studies, detailing "exactly what happens when development projects are implemented in tropical countries."[32] Each

[31] Head, S. and Heinzman, R, editors, Lessons From The Rainforest. 1990 p. 234

[32] Ibid.

time the results were similar—people and their tropical environments were being negatively impacted. The only beneficiaries were the wealthy states and private development firms and development assistance banks, which were turning forests, soil, and minerals into exported resources.[33] This ecological robbery has continued "decade after decade"[34] reaching the point where the ecological balance of the earth is now threatened.[35] Their collection of case studies, clearly demonstrated the overexploitation of rainforests in the 1960s through the 1980s and on into today. It bears great similarity to the global trend of coral reef degradation that also continues today.

By the 1980s the western world's governments were taking notice of the global plight of rainforests. One of the projects the U.S. Government funded following UNCED, was Forests for the Future,[36] an initiative, largely managed by United States Agency for International Development (USAID), which had as of 1993, projects in more than 40 tropical countries.

In 1990, the U.S. government proposed the Enterprise for the Americas Initiative. While it was a U.S. initiative, it was managed and funded quite differently from ICRI. While it also encouraged partnership-building, it had a larger budget and was largely defined by staff from U.S. federal agencies. One

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[33] Ibid., p. 235

[34] Ibid.

[35] Ibid.

[36] U.S. Report of an Interagency Task Force, Forests for the Future: Launching Initial Partnerships. January 15, 1993. Announced at UNCED. 14. pp.

of its objectives was to renegotiate public debt owed to the U.S. by Latin American countries containing tropical rainforests and apply the interest on new debt to environmental protection and conservation projects. Debt-for-nature swaps "provide economic return for nations that want to protect their species and ecosystems while reducing foreign debts that have impeded their economic progress".[37] While debt-for-nature swaps had been encouraged, this was the first time in history that official debt—debt owed to a national government could be purchased at a discounted rate for environmental purposes.[38]

According to a preliminary fiscal review, the U.S. Government is spending $160 million a year on the conservation and management of tropical rainforests.[39] Funding for coral reef projects related to ICRI, by the U.S. Government, pale in comparison. ICRI was funded at a modest US $150,000 and subsequent projects and workshops relating to or as a result of ICRI totaled US $651,814. Having stated that, one of successes of this Initiative has been its ability to leverage funds internationally. For example, as a result of efforts by ICRI staff, partner governments contributed over US$150,000, to ICRI in year one. This money was used to launch the Initiative, support the global workshop, produce consensus policy and scientific documents and outreach

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[37] E. A. Norse, Ed. Global Marine Biological Diversity: A Strategy for Building Conservation into Decision Making. Island Press. Washington D. C. 1993. p.218

[38] Atkins, E.G. Dr. editor, The Plight of The Tropical Rainforest: Vanishing Eden. North American Edition. 1993, p. 292

[39] Ibid.

activities including regional and international print and media press coverage. The difference in money spent will prove to be not the only difference, as will be explored later in this section. (see appendix # I for examples and funding levels of ICRI related projects and programs)

The similarities have been stated showing commonalities of ecological importance, their shared fragile nature, the dependence of both indigenous and northern hemisphere populations and their rate of destruction. The differences in money spent and the focus of those funds has been stated. But, the real difference between the rainforest depletion and coral reef degradation issues and how they were addresses/approached is the process used.

The process used to improve the plight of rainforests world-wide was much different than that used to protect coral reefs. Rainforest campaigns collectively made use of the bottom-up approach and the International Coral Reef Initiative utilized a more top-down approach. The bottom-up approach is largely driven by issues and decisions reached at the local level by local governmental officials, local stakeholders, and locally-based non-governmental organizations (NGOs). The top-down approach utilizes a central government-driven approach where decisions affecting local governments and locally-based non-government agencies are made at the national government and international agency level.[40]

[40] The World Coast Conference.1993. Preparing To Meet The Coastal Challenges of The 21st Century: Conference Report World Coast Conference, 1993.p. 29

Which approach is more effective? Each approach has shown to be effective in certain situations. For example, a discussion involving 23 case studies in the World Coast Conference Report, cites that the majority of countries examined utilized a top-down approach regarding Integrated Coastal Zone Management ICZM efforts within their countries. Most of these countries have market-driven economies, while interestingly, in countries with subsistence economies there are cases of both top-down and bottom-up processes.[41] One of the determining factors was whether the resources being managed were viewed as public or private goods.[42] Public goods refers to resources within a country that are managed by many, for example, the right to fish is viewed as a public good and the right to drinking water is viewed as a private good.[43]

Many factors determine which approach is used and the likelihood of its success or failure. This study will differentiate between the two approaches, defining them in the context of integrated coastal zone management (ICZM), and elaborate on their usefulness within the context of examining the difference between the tropical rainforest campaigns and ICRI.

Leadership is central to both processes, and the source of the leadership is the defining difference between the two approaches. In the case of the bottom-up approach, the source of the leadership and the drive to

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[41] Ibid.

[42] Ibid.

[43] Ibid.

address an issue comes from the local community that is directly dealing with and affected by the issue (i.e., an issue-driven approach). The rights being altered are seen as belonging to individuals.[44] The opposite is true concerning the top-down management approach, where the rights being altered are viewed as collective in nature. Another example provided by the 1993 World Coasts Conference Report, states that "access to fisheries tends to be seen as a collective right, and thus appears more naturally to involve central government leadership as demonstrated in the Philippines and Indonesia."[45]

This study does not make an argument stating one approach is more appropriate or better than the other. The paper will describe how the use of the top-down approach for a collective rights issue like coral reefs and the particular timing of ICRI resulted in successfully building political will and global momentum toward hopefully long-term positive use and management changes for coral reefs.

Coral reefs and rainforest ecosystems were under attack both by activities instituted by wealthy nations and by poor indigenous farmers. And with both coral reefs and tropical rainforests, it was the science community who first voiced concern about coral reef health, collectively through meetings, and documented case studies.

One example of a coordinated effort to protect tropical rainforests began in the 1980s, with Teddy Goldsmith, of the Ecologists Magazine in England and

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[44] Ibid.

[45] Ibid.

Dr. John Milton. They brought together a large number of environmental groups with interest in, and existing or potential projects involving the protection of tropical rainforests. The goal of this gathering was to organize a coalition which would "yield people, ideas and resources"[46] to stop massive, unchecked, thoughtless deforestation.

ICRI works on the a similar premise; it is not a legal instrument, not a binding intergovernmental document, but like the rainforest coalitions of the 1970s and 80s, ICRI has evolved to collectively "yield people, ideas and resources"[47] to promote improved methods of sustainably managing coral reefs and related ecosystems including mangrove forests and seagrass beds. But not all global environmental issues translated actions into a non-legal vehicle like ICRI. Many states negotiate and make use of international legal agreements known as conventions and protocols.

Over the past century the register of international environmental conventions and protocols has grown steadily. Multilateral treaties number more than 100, with many of them aimed at protecting the marine environment.[48] While these mechanisms are effective, they require large amounts of effort, time, diplomatic skill, and funding. With a steady increase in the number, scope, and complexity of environmental issues, one has to ask, what effect will this increase in environmental issues have on the increasingly

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[46] Head, S. and Heinzman, R, editors, Lessons From The Rainforest. 1990. p.235

[47] Ibid.

[48] Ibid.

crowded diplomatic agendas of nations and how will environmental issues be dealt with as they move "from secondary to a primary international concern?"[49] ICRI was designed to be a modestly funded initiative, that would circumvent the formal process of conventions and other international legal regimes and function like an environmental grassroots campaign, (i.e., the global campaigns to protect tropical rainforests).

Thus, the International Coral Reef Initiative status was initiated at the international level, by virtue of its host agency, namely the U.S. State Department. This resulted in high-level national and international recognition. Namely, having the status and international network of a formal high level government agency like the U.S. State Department with the flexibility and access to a broad set of networks much like NGOs build when undertaking an international initiative like the campaigns to save the tropical rainforests. This NGO-like structure allowed ICRI to thrive when many better-funded programs languished. It was at this global level that increasing concern for the health of the planet's coral reefs led to the formation of the International Coral Reef Initiative by the U.S. Government and its partner nations and organizations in 1994. Partnerships and cooperation between governments, non-governmental organizations, the private sector and development organizations, and the integration of the most current scientific knowledge and capacity-building, were the main themes and strategies forming ICRI at its inception and remain so today

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[49] Ibid.

SECTION TWO

Coral Reefs and Their Significance

Coral reefs are limestone skeletons that are built by tiny marine animals, called coral polyps. Reefs marvel our cities' largest buildings, rising above the sea floor, taking hundreds even thousands of years to reach massive proportions.[50] The tiny coral polyp, the architect of these magnificent structures are responsible for "creating the largest structures made by life on earth--big enough in some cases to dwarf even the most ambitious edifices constructed"[51] by humans.

The word coral covers a range of different animals in the group or (phylum) known as Coelenterata. "The name derives from the Greek 'coelenteron', meaning ' hollow gut' and refers to the central tube through which the animal feeds."[52] There are two types of corals: those that build reefs (hermatypes) and those that do not (ahermatypes).[53] The difference between the two is that the hermatypic corals, known as hard or stony corals, contain zooxanthellae and ahermatypic corals do not. Zooxanthellae, microscopic plants, form mutually beneficial partnerships with the coral polyps, whereby the "coral polyp supplies the zooxanthellae with carbon dioxide, and the

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[50] S. Wells, and N. Hanna, The Greenpeace Book of Coral Reefs. Sterling Publishing Co., Inc. New York. 1992. p. 6

[51] Ibid.

[52] Ibid., p. 14

[53] Ibid.

zooxanthellae converts the carbon dioxide, sunlight, its own wastes and additional carbon dioxide from surrounding seawater into oxygen and carbohydrates. The excess carbohydrates are taken up by the coral polyp and used as a portion of its own food and the carbon is used to make calcium carbonate[54] or limestone, the building block of the reefs. This symbiotic relationship explains why coral reefs exist in shallow, clear, low nutrient, tropical coastal areas, "rarely below a depth of forty meters, for without sunlight, the zooxanthellae cannot function."[55]

In addition to their massive size, reefs are probably the oldest ecosystems on earth, existing for 450 million years.[56] Over geologic time, reefs have survived and have evolved based on their location, into either shelf reefs or oceanic reefs. Shelf reefs are found on continental shelves, as in the Caribbean and oceanic reefs are located in deeper waters, as in the Pacific.[57] Within these two divisions, reefs are characterized as either fringing, barrier, or atoll type reefs.

Fringing reefs are found along the edges of continents, or around islands, usually close to shore but often separated by shallow lagoons.[58] Fringing reefs are located in the Caribbean, the Red Sea, and Indian Ocean

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[54] Ibid., p. 14

[55] Ibid.

[56] Ibid.

[57] Ibid., p. 26

[58] Ibid.

and Southeast Asia Sea. Atoll reefs usually begin as fringing reefs and are located around volcanic islands. Once the island begins to sink due to sea-level rise or changes in the sea floor itself, the reefs form a ring around the disappearing island, eventually forming a circular barrier reef enclosing a lagoon. The final structure is called an atoll.[59]

Barrier reefs, like fringing reefs also develop along the edges of continents, or around islands, especially partially submerged islands, but unlike fringing reefs, barrier reefs are separated from the mainland by wide deep lagoons. The fragile species of corals survive and grow inside the lagoon, while the hard or stony corals exist on the outer edge which is prone to violent waves and storms.[60] The best known example of a barrier reef is Australia's Great Barrier Reef, extending for almost 2,000 kilometers along Australia's east coast.

The majority of coral reefs fringe the tropical and sub-tropical shorelines of developing countries.[61]

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[59] Ibid.

[60] Ibid.

[61] J.C. Pernetta, (Comp.) 1993. Monitoring Coral Reefs for Global Change. A Marine Conservation and Development Report. IUCN, Gland Switzerland. vi + 102 pp.

[Global Coral Reef Map to be inserted here]

The Imporance of Coral Reefs to Humans

"Coral reefs are a powerful symbol of the economic and ecological significance of coastal ecosystems, of human dependence on these ecosystems, and of the rapid local loss of marine biodiversity and resources."[62] Reef ecosystems are an integral part of human existence and quality of life. Coral reefs provide sources of food, employment, coastal erosion protection, marine biodiversity, and are increasingly important in the field of bio-medicine. They also play a central role in highly productive coastal ecosystems which include mangrove forests, seagrass beds and beaches.[63] They have been recognized as one of the world's "essential life support systems"[64] by the 1980 World Conservation Strategy.

The following section describes the importance of reefs to humans and their fragile nature. ICRI was devised to address and increase awareness and action about the world's reefs, which are at risk due to the cumulative impact of human activities and escalating population in coastal regions. Today, it is commonly believed that the two greatest threats to coral reef ecosystem health and sustainability are thought to be land-based sources of

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[62] O. Ehrenstrom, R. Lester, and L.Z. Hale, The United States Coral Reef Initiative Statement Of Need, April 1994. The URI Coastal Resources Center, p. 1.

[63] A. T., White, Coral Reefs: Valuable Resources of Southeast Asia. ICLARM, Educational Series 1. Manila, ICLARM.

[64] IUCN/UNEP/WWF. 1980 World Conservation Strategy: Living Resource Conservation for Sustainable Development. International Union for Conservation of Nature and Natural Resources, United Nations Environment Programme, and World Wildlife Fund. Gland Switzerland.

marine pollution and overexploitation, both human induced conditions.[65] The reefs at greatest risk are those located in Southeast Asia, East Africa, and the Caribbean. According to UNCED, it is estimated that six out of 10 people live within 60 kilometers of coastal waters and two thirds of the world's cities with populations of 2.5 million or greater are located near tidal estuarine ecosystems.[66] The "prognosis for the survival of coral reefs in developing countries with expanding economies and large, growing populations is poor and the time frame for these impacts is frighteningly close—one or two generations away--20 to 40 years, during which time the human population will likely more than double."[67] These statistics are not new, but they clearly show an urgent need for solutions to address coastal issues like coral reef degradation.

Reefs provide a home to more species than any other ecosystem in the oceans.[68] Reefs are second only to tropical rainforests in biological diversity, often supporting as many as 3,000 species of various forms of marine

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[81] Ibid.

[83] Earth Summit Agenda 21 The United Nations Programme of Action From Rio, Chapter 17 "Protection of the Oceans, all kinds of seas, and coastal areas and the protection, rational use and development of their living resources", 1992.

[84] Ibid.

[82] Wilkinson, C. R. Proceedings from the 7th International Coral Reef Symposium. 1993,

[68] S. Wells, and N. Hanna, The Greenpeace Book of Coral Reefs. Sterling Publishing Co., Inc. New York. 1992. p. 26

organisms[69] in Southeast Asia reefs, and over 1,000 species in Caribbean reefs.[70] While tropical rainforests are home to a "staggering 30 million insects...reefs contain a larger number of vertebrates (animals with backbones) than rainforests."[71]

Coral reef ecosystems provide critical habitat for commercial, subsistence and endangered marine species. Productivity in Caribbean reefs, for example, is 8 to 220 times greater than found in oceanic waters.[72] The commercial value of reef species in U.S. waters including snapper, grouper, and spiny lobsters was estimated at U.S. $44.6 million in 1983 according to the National Oceanic Atmospheric Administration. Reef fisheries located in the Caribbean employ the majority of the fishermen and are responsible for more than 50% of the fish landed and consumed in the eastern Caribbean Islands.[73] According to The World Conservation Union (IUCN), in 1993, coral reefs provided 10-12 percent of the harvest of finfish and shellfish in tropical countries and approximately 20-25 percent of the fish catch of developing countries.[74] It is believed that the potential sustainable yield of fish,

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[69] A. T., White, Coral Reefs: Valuable Resources of Southeast Asia. ICLARM, Educational Series 1. Manila, ICLARM.

[70] S. Wells, and N. Hanna, The Greenpeace Book of Coral Reefs. Sterling Publishing Co., Inc. New York. 1992. p. 28

[71] Ibid.

[72] USAID Internal Memo on ICRI. October 19, 1993, p.4

[73] Ibid.

[53] IUCN/UNEP/WWF. 1980 World Conservation Strategy: Living Resource Conservation for Sustainable Development. International Union for Conservation of

crustaceans, and mollusks from coral reefs could be as high as 9 million metric tons or 12 percent of the total world's fish catch.[75] In Southeast Asia, up to one quarter of the animal protein consumed by humans is from fish.[76] In the Pacific islands as much as 90 percent of the animal protein consumed by humans is from marine sources.[77] The reefs also provide a remarkable variety of marine species that are consumed by humans. For example, at "Bolinao in the Philippines, over 150 different species are taken from one local fishery and in the Tigak Islands in Papua New Guinea an astonishing 250 reef species are fished,"[78] reflecting the richness and diversity and importance of those reef ecosystems.

When healthy, coral reef ecosystems serve as the most effective natural buffers against coastal erosion. They replenish sand beaches and are responsible for the existence of island archipelagoes. They are an "essential defense against rising sea levels and if they disappear, artificial replacements could cost billions of dollars.[79] "The very existence of coral islands and sandy

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Nature and Natural Resources, United Nations Environment Programme, and World Wildlife Fund. Gland Switzerland.

[54] USAID Internal Memo on ICRI. October 19, 1993, p. 4

[55] S. Wells, and Hanna, N. The Greenpeace Book of Coral Reefs. Sterling Publishing Co., Inc. New York. 1992. p. 94

[56] S. Jameson, McManus, J. W. , Spalding, M. D. State of the Reefs: Regional and Global Perspectives, International Coral Reef Initiative Secretariat Background Paper, May 1995, p. 24

[57] S. Wells, and Hanna, N. The Greenpeace Book of Coral Reefs. Sterling Publishing Co., Inc. New York. 1992. p. 94

beaches"[80] enjoyed by tourists "is heavily dependent on healthy reefs...which are an attraction in their own right."[81] In the Indian Ocean, for example, 77 percent of the isolated islands and island archipelagoes are built exclusively of reef depositions.[82] For example, the Maldives Archipelago alone comprises 20 atolls and about 2,000 coral islands.[83]

Increased global population and trade and improved methods of transportation have led to the increase and intensive harvesting of reefs and subsequent over fishing of reef-related species.[84] With the development of global trade and the steady westernization of coral reef countries and population growth, humans are witnessing a level of coral reef degradation not observed in previous generations.[85] Previously, only local communities made use of reef marine resources and outside trading was limited. Today, "reefs provide food and materials for consumption and use all over the world."[86]

Present estimates suggest two thirds of the world's population lives within 60 Km of the coast and the "progressive aggregation of people in low-lying coastal areas means this proportion will continue to increase for the

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[58] Ibid., p. 6

[59] Ibid.

[60] Ibid.

[61] Ibid., p. 4

[62] Ibid.

[63] Ibid., p. 39

[64] Ibid.

foreseeable future."[87] Unfortunately, many of the countries experiencing increasing coastal populations have followed "unsustainable modes of development in the recent past, relying on unrestrained use of nonrenewable resources and over exploitation of potentially renewable resources including coral reefs."[88]

For example, according to Dr. J. Cortes, of the University of Costa Rica, the number one threat to corals off the coastal states of Central America is siltation from deforestation, poor agricultural practices, road construction, mining, dredging, and rapid, poorly planned coastal development. Corals use "energy to shed the sediments--energy that would otherwise be used to recover from natural storm damage, and for growth."[89] This next example points to positive results of protection of reefs. Dr. T. R. McClanahan of the Wildlife Conservation Society in Kenya states that "about 5% of Kenyan reefs have received protection from fishing and resource use since before the mid 1970s. These reefs have maintained a high diversity of fish and corals. In contrast, overfishing in 80% of unprotected reefs has led to reduced coral and fish abundance and diversity, (with) increases in sea urchins and high rates of

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[65] Ibid.

[66] Ibid.

[89] J. Cortes, (comments provided at) The State of the Reefs and The International Coral Reef Initiative Press Conference at the Eight International Coral Reef Symposium, Panama. 29 June 1996. p. 4.

erosion. Protection has proved useful for understanding the increasing destruction from demands for food and ornamental fish."[90]

These examples show that unsustainable use and lack of protection to coral reefs results in diminished reef resources and a reduced capacity to repair damage due to humans or nature. Protecting reefs has another broad benefit, namely that increased awareness of the threats facing reefs results in an understanding of the value of protection, which along with improved management increases the chance of long-term reef recovery progress.[91]

The high density of coastal populations and resulting inadequate domestic and industrial waste management have further stressed surrounding reef ecosystems. Poorly planned land-use practices-often at inland locations-have resulted in widespread and extensive soil erosion in Africa, Asia, and the Caribbean. These practices cause high levels of suspended sediment in coastal waters,[92] which presents a lethal situation for coral polyps, which require clear water and sunlight to live. Predictions that 70% of the world's coral reefs will collapse in the next 10 to 40 years with the remainder threatened by global climate change threaten the viability of coral reefs as economic components of coastal countries and their quality of life worldwide.[93]

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[90] T. R. McClanahan, (comments provided at) The State of the Reefs and The International Coral Reef Initiative Press Conference at the Eight International Coral Reef Symposium, Panama. 29 June 1996. p. 5.

[91] Ibid.

[67] Pernetta, J.C. (Comp.) 1993. Monitoring Coral Reefs for Global Change. A Marine Conservation and Development Report. IUCN, Gland Switzerland. vi + 102 pp.

[68] Ibid., p. 1

Tourism is another industry which impacts reefs, both in positive terms of local economies and in negative terms of erosion, physical reef damage from divers and boats, pollution and marine resource exploitation. The tourism and travel industry is the world's largest industry.[94] "This industry is expected to double in size in the early part of the next century furthering its role as global industry."[95] In many cases, such as in Caribbean tropical countries, tourism is the "key economic sector, often providing over 50 percent of their Gross National Product (GNP) and still growing".[96] Reefs and associated ecosystems are "uniquely able to produce fish and wealthy tourists from barren sand and water."[97] Recreational divers alone, spend approximately $256,000,000 while vacationing in the Caribbean region and State of Hawaii.[98]

The following figures clearly show a rapid growth in travel and the economic importance of the industry increasing over the last 40 years. In 1950, 25 million tourists crossed international borders while traveling. By 1990, these numbers rose to 25 million and the numbers are expected to climb

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[94] R. Hawkins. "Tourism: Constraints and Opportunities for Conservation and Economic Development". Presentation at the U.S. Department of State, Partnership Building and Framework Development: Final Report, The International Coral Reef Initiative Workshop, Dumaguete City, the Philippines, 29 May - 2 June 1995. p. 38.

[95] Ibid.

[71] S. Jameson, McManus, J.W., Spalding, M.D. State of the Reefs: Regional and Global Perspectives, International Coral Reef Initiative Secretariat Background Paper, May 1995, p. 24

[97] O. Ehrenstrom, R. Lester, and L. Z. Hale, The United States Coral Reef Initiative Statement Of Need, April 1994. The URI Coastal Resources Center, p. 4.

[74] Ibid.

to 637 million by the year 2000.[99] These numbers also have implications for national governments' economies. For example, according to World Travel and Tourism Council's Environment Research Centre, United Kingdom, it is estimated that travel and tourism generate 10% of the gross national product, 10% of the capital investment and 10% of consumer spending world-wide.[100]

While efforts to study and utilize coral reefs for bio-medical purposes are currently increasing, the utilization of reefs for medicinal purposes is not a new phenomena in many local coastal communities. Just as forest plants have been used by local communities for hundreds of years, so have coastal communities made use of coral reefs. The reason reefs, like forest plants, contain medicinal properties is simple. Plants and animals living in densely populated conditions (i.e. rainforests and reefs), often produce toxins to fight off competitors for space and food and as a defense mechanism against predators.[101]

In the Great Barrier Reef, approximately half the sea fans, horny corals, and related coelenterates are toxic to fish.[102] Many reef divers know all too well the results of handling fire corals, stone fish, bristle worms and cone shells

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[75] R. Hawkins. "Tourism: Constraints and Opportunities for Conservation and Economic Development". Presentation at the U.S. Department of State, Partnership Building and Framework Development: Final Report, The International Coral Reef Initiative Workshop, Dumaguete City, the Philippines, 29 May - 2 June 1995. p. 38.

[100] Ibid.

[76] Wells, S. and Hanna, N. The Greenpeace Book of Coral Reefs. Sterling Publishing Co., Inc. New York. 1992. p. 47

due to the various toxic natures and unpleasant side effects.[103] Yet, these very same toxins often contain beneficial medicinal properties and are receiving growing interest world-wide. Some interesting indigenous examples include, malaria being treated in the Philippines using the meat of the giant clam, ground up spines of the pencil sea urchin mixed with vinegar used to treat ear problems, and in China boiled sea fans were used to treat tuberculosis.[104] Two more recent examples of promising medical treatments currently being investigated are "certain reef-dwelling sea fans and anemones, which have been found to possess compounds with antimicrobial, antileukemic, anticoagulant and cardioactive properties" [105] and "a skeletal repair system based on coral growth that in clinical trials promises to save billions of dollars every year in better, including faster, treatment of hip fractures."[106]

While coral reefs are and will continue to provide compounds with antimicrobial, antileukemic, anticoagulant and cardioactive properties, caution must be exercised in the utilization of and selection of reef species and the amount of materials so as not to exacerbate the problem of exploitation and over harvesting of reef resources. ICRI began exploring partnerships with both

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[77] Ibid.

[78] Ibid.

[79] Introduction: Possible Coral Reef Initiative. Internal Memo from the Bureau For Research & Development Office of Environment & Natural Resources, USAID. October 1993, p. 4

[80] S. Jameson, McManus, J.W., Spalding, M. D. State of the Reefs: Regional and Global Perspectives, International Coral Reef Initiative Secretariat Background Paper, May 1995, p. 24

academic and science-based organizations in addition to a top U.S. based cosmetics firm, to begin to look at how to identify and implement a sustainable harvest process that benefits both the indigenous population and the company or agency interested in the coral reef resources. Scientists will have to work cooperatively with policy and decision-makers to produce sustainable guidelines for harvesting the rich resources of coral reef ecosystems.

Examples and statistics provided in this section clearly demonstrate the growing dependence on coral reefs and the resources that they provide. The stresses facing reefs are clearly related to increasing populations in coastal areas and the expansion of the tourism as well as the depletion of fishery stocks and land-based sources of pollution. The International Coral Reef Initiative was developed to begin to globally address many of these issues and threats facing coral reefs. The next section will examine ICRI in the context of a global campaign launched from the grassroots level to protect a similarly biologically diverse ecosystem—tropical rainforests. Section four will examine ICRI and describe its formation and the process used to implement the Initiative.

SECTION THREE

The International Coral Reef Initiative

The International Coral Reef Initiative (ICRI) was designed to be a multi-year global effort whose "primary objective is to foster innovative cross-disciplinary approaches to sustainable management of coral reef ecosystems through the development of cooperative relationships among various stakeholders."[107] The global importance of reefs to humans is clear: coral reefs serve as natural indicators of global environmental change; are valued contributors to economies the world over and their biological richness has led many to observe that coral reefs are the "rainforests of the ocean."[108] It was in response to the pressures being placed on reefs and the increasing global concern for their future survival that prompted the U.S. Government to develop and launch the International Coral Reef Initiative which would strive to meet the objectives formulated in Chapter 17 of Agenda 21 at the United Nations Conference in Environment and Development.[109]

It was an overt decision by the U.S. federal agencies involved—the United States Agency for International Development (USAID); the National Oceanic Atmospheric Administration (NOAA); the United States Environment

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[107] The U.S. Coral Reef Initiative: Forging Partnerships For Effective Management, Vision and Strategies Statement. U.S. Department of State, 1994. p. 2

[108] Ibid.

[109] Earth Summit Agenda 21 The United Nations Programme of Action From Rio, Chapter 17 "Protection of the Oceans, all kinds of seas, and coastal areas and the protection, rational use and development of their living resources", 1992.

Protection Agency (USEPA); the Department of the Interior; the National Science Foundation (NSF); the Department of Defense (DOD); the Department of Agriculture; and the U.S. Coast Guard—not to create a new bureaucracy, but to utilize existing and develop new partnerships with governments, United Nations agencies and non-governmental organizations and the private sector. These partners either had an interest in or were stakeholders in the protection and sustainable use of the world's coral reefs. The ICRI was created to exist for a relatively short period—five years, at which time it would hopefully have accomplished its goals. The developers of the initiative saw it as a vehicle for strengthening existing partnerships and encouraging new partnerships by leveraging the partners' existing resources, and expertise. This cooperative effort was intended to lead to a decrease in the duplication of efforts for fragmented but well intended coral reef projects and programs world-wide and to increase efficiency and effectiveness of the remaining programs.

Early in the planning process, in the fall of 1993, ICRI's developers (the U.S. agencies previously listed on page 47-48) thought the Initiative would largely focus on and shape United States domestic coral reef policy and influence international coral reef activities.[110] At that time, the stated goal of the Initiative was to develop "an integrated U.S. strategy to promote the stewardship and sustainable development of coral reefs and related ecosystems (sea grass beds and mangroves forests) through the coordination

[110] The U.S. Coral Reef Initiative: Forging Partnerships For Effective Management, Vision and Strategies Statement. U.S. Department of State, 1994. p. 2

and improvement of existing activities and the possible establishment of a limited number of new program elements."[111]

The coral reef issues the Initiative would address included: declining fisheries, exploitation of reef resources, loss of biodiversity, land-based sources of marine pollution, and influences of global climate change. In addition to supporting a number of U.S. obligations under a number of international agreements, (see Table 1, p. 54) the Initiative would highlight the problems faced by these ecosystems by increasing public awareness, political-will, with the ultimate goal being increased funding and action.[112]

The Events Leading to the Formation of the International Coral Reef Initiative

In the early 1980's, coral reefs were receiving recognition globally, as one of the world's "essential life support systems" by the World Conservation Strategy.[113] The magnitude of the problems of degradation, exploitation and destruction facing coral reef ecosystems were first formally recognized during the 1982 Third World National Parks Congress in Indonesia.[114] The challenges facing reefs were clear and the motivation existed to take action but

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[111] Original Statement of Purpose: The U.S. Coral Reef Initiative. December 1993, U.S. State Department, p. 1

[112] Ibid.

[113] IUCN/UNEP/WWF. 1980 World Conservation Strategy: Living Resource Conservation for Sustainable Development. International Union for Conservation of Nature and Natural Resources, United Nations Environment Programme, and World Wildlife Fund. Gland, Switzerland.

[114] Ibid., p.2

"workable solutions were still unrefined and unproven."[115] But policy-makers and managers were not the only professionals expressing concerns for coral reefs and related ecosystems.

What recent scientific events prompted increased attention to the global degradation facing reefs including issues of over exploitation, climate change, sea-level rise, and marine pollution? In 1991 through 1993 a number of scientific meetings were held: in 1991, a U.S. sponsored workshop on coral bleaching, coral reef ecosystems and global climate change; in 1992, the Seventh International Coral Reef Symposium took place in Guam;[116] and in 1993, the meeting of experts on Global Aspects of Coral Reefs: Health Hazards and History took place at the Rosenstiel School of Marine and Atmospheric Science University of Miami.[117] It was scientists, followed by policy-makers, who sounded the first global alarms regarding the health of reef ecosystems, which in turn led to global recognition and the promise of the highest political action during the 1992 United Nations Conference on Environment and Development (UNCED) and the international forums that followed as a result of UNCED.

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[115] Ehrenstrom, O. Lester, R., and Hale, L. Z. The United States Coral Reef Initiative Statement Of Need, April 1994, The URI Coastal Resources Center, p. 4

[116] Proceedings of the 7th International Coral Reef Symposium, Guam. 1992. International Society for Coral Reef Studies.

[117] R.N Ginsberg, Comp." Proceedings of the Colloquium on Global Aspects of Coral Reefs: Health, Hazards and History", 1993. Rosenstiel School of Marine and Atmospheric Science, University of Miami. 420. pp.

An important policy event that fed into UNCED was the 1990 Nairobi Preparatory Committee (PrepCom) meeting of UNCED, Working Group II (Oceans and Coastal Areas). The Secretariat of the Working Group II was requested to prepare a number of papers on relevant topics to aid in establishing priorities at UNCED. One of the background papers developed was titled "Coastal Zone Management: Policy Options for the 1992 United Nations Conference on Environment and Development."[118] The paper outlined a mechanism for improving current conditions entitled "protected area management" which included language stating the need for protecting coral reef ecosystems.[119] These policy and scientific events increased and exchanged knowledge, interest and concern for coral reef ecosystems, increasing the political will, which led to their inclusion as a priority issue at the United Nations Conference on Environment and Development.

"In 1992, at the United Nations Conference on Environment and Development, the world community adopted *Agenda 21*. Chapter 17 of *Agenda 21* identifies the importance of coastal issues in the achievement of sustainable economic development and environmental cooperation. It identifies coral reefs, mangroves and seagrass beds as marine ecosystems of high biodiversity and

[118] United States' Policy Papers on Ocean and Coastal Areas, Coastal Zone Management Policy Options for 1992 United Nations Conference on Environment and Development, Geneva, Switzerland, 18 March -5 April, 1991.

[119] Ibid.

production and it recommends that they be accorded high priority for identification and protection."[120]

Many such action statements appear in Chapter 17 "without any clear measures on how to achieve the recommendation, and the identification of potential sponsors or supporters."[121] Along with Chapter 17's recommendations, there are in place a number of international agreements covering issues like biodiversity, climate change, marine pollution, (see Table 1) which echo basic concerns for fragile ecosystems like coral reefs,[122] so the question remains can nations accomplish the task of protecting and sustainably using their environments such as coral reefs without outside cooperation and assistance? The answer is usually no, because often times the sustainable use of coral reef ecosystems is dependent on regional cooperation (e.g., transboundary water quality issues) and related global activities such as monitoring and evaluation. Coral reefs are usually not located conveniently inside states' maritime boundaries. Consequently, individual states may need to address the protection of these fragile resources with regional perspective through cooperative activities with neighboring states. Indeed, the foundation of Chapter 17 is based on broad scale cooperation,

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[120] The U.S. Department of State, Partnership Building and Framework Development: Final Report, The International Coral Reef Initiative Workshop, Dumaguete City, the Philippines, 29 May - 2 June 1995., p.1

[121] Mieremet, R. B., The International Coral Reef Initiative: A Seed From the Earth Summit Tree Which Now Bears Fruit. 1995, p. 2

[122] Ibid.

capacity building by sharing tools and information on which to make sustainable development decisions.[123]

Following UNCED, the Clinton Administration made the decision to explore ways to address global reef degradation. "With jurisdiction over coral reefs in two oceans, extensive experience in integrated coastal and coral reef management, worldwide and world renowned research, and existing partnerships with many coral reef nations the U.S. decided that, as a nation it had much to contribute to a global coral reef initiative." [124]

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[123] Ibid.

[124] Ehrenstrom, O. Lester, R. and Hale, L.Z. The United States Coral Reef Initiative Statement Of Need, April 1994, The URI Coastal Resources Center, p. 2.

Table 1

The international and regional organizations/meetings at which ICRI played a role in shaping policies and increasing public awareness of coral reefs:

- the Conference of the Parties on Biological Diversity, (CoP1) in December 1994;
- the Summit of the Americas, in December 1994;
- the Commission on Sustainable Development (CSD) Intersessional in April 1995;
- the 18th Session of the Intergovernmental Oceanographic Commission, (IOC) in May, 1995;
- the 18th Session of the Governing Council of the United Nations Environment Programme (UNEP) in May 1995;
- the ICRI Global Dumaguete, Philippines Workshop in May-June 1995 and;
- the subsequent ICRI related regional workshops held in November, 1995-March, 1996;
- the XVIII Pacific Science Congress in June 1995;
- the World Bank Marine Protected Areas Workshop in June 1995;
- the Conference of the Parties (CoP2) on Biological Diversity in November 1995;
- the Commission on Sustainable Development (CSD) Intersessional in February 1996;
- the Commission on Sustainable Development (CSD) Conference in April 1996;
- the Conference of Parties of the Ramsar Convention in May 1996; the International Coral Reef Symposium (ICRS) in June 1996, with the announcement of the International Year Of the Reef at Panama culminating
- with the events being planned and occurring during *The United Nations Year of the Reefs in 1997 and the Year of the Oceans in 1998.*

Source: International Coral Reef Initiative Report to the United Nations Commission on Sustainable Development, Prepared by the ICRI Secretariat April 1996.

During the fall of 1993, the White House received a recommendation by the Presidential Review Directive PRD-12, "Oceans, Fisheries and Fresh Water Resources"[125] that the U.S. "undertake an international "Coral Seas" initiative to promote stewardship and sustainable development of coral reef and related ecosystems (mangroves and seagrasses)."[126] The PRD's general objective was to formulate sound, well thought out policies that the Clinton Administration would undertake. The PRD-12 "Oceans, Fisheries and Fresh Water Resources" recommended the U.S. government take a leadership role regarding coral reefs, by setting an example and through technical assistance and international cooperation.[127] Table 2 indicates the basic elements that were proposed at the earliest stages of development of the Initiative and clearly show that the initial focus was based on U.S. activities.

[125] Presidential Review Directives were developed at the request of the Clinton Administration for the purpose of researching and developing strategies on host of issues of interest to the Administration.

[126] Introduction: Possible Coral Reef Initiative. Internal Memo from the Bureau For Research & Development Office of Environment & Natural Resources, USAID. October 1993, p. 3

[127] Ibid., p. 3

Table 2

Possible Elements Of A Coral Reef Initiative: October 1993

The goals of the October 1993 Coral Reef Initiative were the development of an integrated U.S. strategy to promote the stewardship and sustainable development of marine and coastal ecosystems including coral reefs, mangrove forests, and seagrass beds.

Major elements could include:

1. coordinating federal policy more effectively;
2. strengthening a domestic program to better protect U.S. reefs;
3. improving international management of these ecosystems;
4. improving the regional and global monitoring of ecosystem health and
5. establishing an international training program.

Source: Internal planning document titled "Possible Elements Of A Coral Reef Initiative: October 1993" from U.S. Agency for International Development.

The U.S. leadership for the international "Coral Seas" initiative was based on two principles: "healthy marine ecosystems are in everyone's best interest, and these complex systems can only be managed with the collaboration of all interested parties."[128] This Initiative was viewed as important because at the time no integrated U.S. policy or technical assistance existed to protect coral reefs domestically or internationally.[129] On a global scale, the Initiative would serve to strengthen U.S. environmental leadership on global climate change issues, biodiversity issues, land-based sources of

[128] OP-Ed Piece on the Coral Reef Initiative, personal memo, U.S. Agency for International Development. April 12-16, 1995, p. 2

[129] Ibid.

marine pollution issues, coastal zone management efforts, the United Nations Conference on Environment and Development (UNCED); commitments including the U.S. role at the Small Islands Developing States Conference (SIDS); the Commission on Sustainable Development (UNCSD); the Global Environment Fund (GEF); United Nations Environment Programme (UNDP); and the International Oceanographic Commission (IOC).[130]

In December 1993, a process was devised to guide the Initiative. It consisted of an ad hoc subgroup of the Interagency Working Group (IWG) on Global Environmental Issues, with members drawn from the IWG Subgroups on Oceans, Biodiversity, and Climate Change. This ad hoc subgroup would be responsible for approving the process through which the Initiative would be developed. It would establish the objectives of each of the three program components (described below), oversee the development and integrate all three components into a comprehensive U.S. Initiative. The subgroup would also be responsible for ICRI publicity activities, as well as serving as a congressional liaison and any related congressional activities.[131] For example, preparing and presenting regular briefings to congressional staff on ICRI activities.

The three components of the Initiative were: (1) a domestic sustainable management practice component which would address and strengthen U.S.

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[130] Introduction: Possible Coral Reef Initiative. Internal Memo from the Bureau For Research & Development Office of Environment & Natural Resources, USAID. October 1993, p. 3

[131] Ibid., p.3

coral reef protection efforts; (2) a research and monitoring component which would coordinate and strengthen existing efforts to monitor the health of reefs and related ecosystems and research the causes of their decline; and (3) a domestic and internationally focused training and technical assistance component which would provide assistance to other coral reef countries. This third component included developing and implementing both domestic and international activities. It changed and developed to a much greater degree than the other two components. It is the third component which focused on partnerships, coordination, integration, and capacity-building, beginning with the development of the global workshop in Dumaguete, Philippines. This study will focus on the third component.

The three components of the International Coral Reef Initiative were developed by three task groups. These groups were responsible for preparing an inventory of existing programs and identifying proposed activities by government agencies, non-governmental organizations, and the private sector. The formula to be used in developing these inventories contained the following: a statement of the problem, activity description, list of the lead and participating agencies, statement on the linkages between the activity and others currently underway, an estimate of new funds needed, indications of any legal authority required, supplementary information, and evaluation measures—an overlooked but essential step to the viability and success of the initiative. The

task groups could propose activities themselves or solicit proposals from federal agencies, non-governmental organizations, and the private sector.

Leading up to the formal development of the International Coral Reef Initiative, the U.S. State Department and its government agency partners included: the United States Agency for International Development (USAID); the National Oceanic Atmospheric Administration (NOAA); the United States Environment Protection Agency (USEPA); the Department of the Interior; the National Science Foundation (NSF); the Department of Defense; the Department of Agriculture; and the U.S. Coast Guard; identified and compiled the major ongoing coral reef activities relevant to the initiative, both in the United States and to some extent, internationally.[132]

The anticipated results were to be a set of consolidated proposals, with no overlap, that built on previous projects or programs and provided a concrete plan that outlined activities to be taken over the subsequent five years.[133] To accomplish this effort, the ad hoc subgroup and task groups tried to "ensure that each task group encompass a broad range of expertise, experience and perspectives."[134] Relevant experts would be encouraged to attend meetings and provide input into the three component areas. To launch the development

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[126] O. Ehrenstrom, R. Lester, and L. Z. Hale, The United States Coral Reef Initiative Statement Of Need, April 1994, The URI Coastal Resources Center, p. 1.

[133] Ibid., p.4

[134] Ibid.

of the Initiative, a two day consultation was recommended and a one day event was subsequently hosted by the U.S. Department of State in Washington DC.

The Coral Reef Consultation Day held on 10 January 1994, included active participation by 120 individuals from local, state, and federal government agencies, universities, nongovernmental organizations (NGO's) and the private sector. This gathering of cross-sectoral groups and interests clearly set the stage for the partnerships and coordination that would continue throughout the development of the Initiative. The participants reviewed ongoing scientific and management activities and not only offered concrete actions for the developing Initiative, but also began as an informal network and modeled the behaviors of creative problem solving and sharing information. Many of the participants from the various sectors: science, policy, government, and non-government alike gathered for the first time at this high-level yet informal setting and shared ideas, forming new networks that in many cases are even stronger today. Following the Coral Reef Consultation Day, the Initiative was formally endorsed by the Interagency Working Group on Global Environmental Affairs at the U.S. State Department in early 1994.[135]

Following the Coral Reef Consultation Day, a report tilted *The United States Coral Reef Initiative Statement of Need* [136] was prepared by practitioners, scientists and policy-makers and was distributed to the consultation day participants. It contained additional input from participants as

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[135] Ibid.

[136] Ibid.

well as an inventory of current major activities of U.S. government agencies, North-American-based NGOs, key research institutes, universities and international organizations. It also contained the level of involvement, location of activities and overall contribution the U.S. was making in managing and protecting coral reef ecosystems as of the spring of 1994.[137] In addition to providing a comprehensive overview, the inventory provided the U.S. with a clearer understanding of where coral reef program gaps existed, where efforts were currently overlapping, and how the U.S. could improve coordination of activities and funding levels through reprogramming and the creation of new or strengthening of existing partnerships.[138]

Another output of the consultation day was a draft document titled *U.S. Coral Reef Initiative Inventory of Key Institutions*[139] which contains an inventory of a large number of coral reef-related project proposals for both new and expanding projects. The perception was that additional sources of U.S. Government funding would become available once ICRI was formally launched. While ICRI can point to a number of successes that will be covered in a later chapter, it did not receive the anticipated $10 million in new money that in part would have assisted many of these projects. The anticipated new U.S. funds for coral reefs, with the exception of (OES Special Funds), would

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[137] Ibid., p. 2

[138] Ibid.

[139] O. Ehrenstrom, R. Lester, L. Hale. U. S. Coral Reef Initiative Inventory Of Key Institutions. The Coastal Resources Center, University of Rhode Island. Draft, April 19 , 1994.

never materialize because the funds were eliminated from the U.S. Federal budget immediately following the November 1994 Congressional elections.

The November 1994 landslide win of a large number of U.S. House and Senate seats by the Republican party produced environmental budget changes which resulted in major cuts and, in some cases, elimination of parts or all of selected environment agencies and programs. Quite simply, the Republicans did not see the need to fund what were primarily Democratic endorsed environmental programs. The perceived impending budget cuts resulted in the refocusing of ICRI's efforts from primarily coral reef issues within the U.S. to international efforts, placing much emphasis on developing partnerships, sharing expertise and financial resources between like-minded nations and organizations. With the likelihood of little or no new money and the very real threat of cuts in existing budgets relating to coral reef protection program funds, the ICRI Coordinator, staff and the U.S. Interagency Steering Committee faced this reality and made some hard choices. They chose to focus energy and the remaining modest funding on promoting and securing international partners, integration of global science and promoting capacity-building efforts. While not all U.S. federal agencies agreed with the new direction, the decision was made and it was at this point in time that two distinct Initiatives emerged. A strictly U.S. focused Initiative called USCRI and one with international focus, namely, ICRI.

This refocused effort resulted in overwhelming interest and participation by governments, NGOs and the private sector. For example, the ICRI staff sent

out over 100 invitations (demarches) to coral reef states and states with an interest in coral reefs. Out of the 100 plus invitations, over 60 responses came back in the affirmative to joining ICRI. The original intent of U.S.-focused initiative would become almost exclusively internationally-focused. The successes to-date will show that it was likely the most viable option the ICRI staff had available in light of federal cutbacks. ICRI staff, including the interagency working group, reached a unanimous agreement to focus almost all energies, staff, and funds on increasing the number and contributions of like-minded partners. By focusing on partnerships, the U.S. Government was able to keep and expand interest from other states and organizations in ICRI. Ben Mieremet, an ICRI staff person from NOAA , stated that for an initiative to succeed, it needs the support of the highest levels of government as well as broad-based support from many different interests or stakeholders (i.e., the science community, NGOs, international organizations, lending institutions, tourism and private development interests).[140]

Up until August 1994 the coordinator for the ICRI was Granville Sewell, a career State Department officer who left government to pursue a Ph.D. His replacement, Susan Drake, also a career federal government employee, had a distinctly different, more aggressive style, and thus ICRI was launched with an explosion of energy in September 1994.

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[140] Mieremet, R. B., The International Coral Reef Initiative: A Seed From the Earth Summit Tree Which Now Bears Fruit. 1995, p. 4

Immediately upon taking the Department of State assignment of ICRI, Coordinator, Susan Drake, Department of State, John Wilson, USAID; and Arthur Paterson, NOAA IA; made a follow-up visit to Japan on 13-17 September 1994 to build on interest in coral reef issues, which occurred during President Clinton's second visit to Japan under the U.S./Japan Common Agenda. The Common Agenda for Cooperation in Global Perspective was established in July 1993 by U.S. President Clinton and the Japanese Prime Minister Murayama. The goal of this partnership was the "unprecedented cooperation between Japan and the United States...to tackle many of the world's most pressing long-term global issues, including environmental degradation."[141] It was during the September 1994 visit, that the U.S. Government and the Government of Japan formally agreed to form a working group for the International Coral Reef Initiative under the U.S. Japan Common Agenda. The working group would address coral reef issues and develop joint cooperative efforts supporting its three components: research and monitoring, capacity building, and sustainable management of coral reefs. Two examples of proposals for joint consideration presented by the U.S. Government included a sustainable management and capacity-building project in Indonesia as part of the tripartite U.S./Japan/Indonesia Biodiversity Conservation Program, and supplemental funding for the International Oceanographic Commission (IOC) Global Coral Reef Monitoring Network, (U.S. had funded year one). The

[141] The Common Agenda for Cooperation in Global Perspective, Japanese Brochure, p.1(handed out during the September 1994 visit)

Japanese shared their interest in coral reef conservation in the Gulf of Aqaba through the Middle East Peace negotiation, enhancement of a marine research center in the Asia Pacific region, and the formulation of a master plan for sustainably managing coral reefs in the region.[142] This partnership was to become the first of many formed with national governments and other organizations, over the next two years.

The second action was to develop a plan of action for ICRI. The action plan titled the *International Coral Reef Initiative: Conservation and Effective Management of Marine Resources Program Plan* was approved on 13 October, 1994.[143] This blueprint document defined the Initiative and its goals and objectives. The document would become the framework document for the Initiative until the drafting and acceptance of the ICRI Call to Action and the ICRI Framework for Action at the Global Workshop in the Philippines and the follow-on regional workshops in 1995 and 1996. Important elements from the *International Coral Reef Initiative: Conservation and Effective Management of Marine Resources Program Plan* 13 October Program Plan for the International Coral Reef Initiative are listed in the following tables.

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[142] U.S. Japan Common Agenda Memo, U.S. State Department, November 1994. p. 2

[143] U.S. Department of State, ICRI Coordination Office. International Coral Reef Initiative: Conservation And Effective Management Of Marine Resources. Program Plan. October 13, 1994. (announced ICRI and served as the invitation to join ICRI) pp. 7.

Table 3

THE OBJECTIVES OF ICRI

- For governments and international organizations to expand the implementation of local, national, regional and international activities to conserve, restore and sustainable use coral reefs and associated environments.

- For each country and region to incorporate into existing of local, national, regional development plans management provisions for protection, restoration, and sustainable use of structure, processes and biodiversity of coral reefs and associated environments.

- To strengthen capacity for development and implementation of policies, management, research and monitoring programs to ensure efficient use of scarce resources and a flow of information relevant to the management of coral reefs and associated environments.

- To establish and maintain coordination of international, regional, and national research and monitoring programs, including the Global Coral Reef Monitoring Network, in association with the Global Ocean Observing System, to ensure efficient use of scarce resources and a flow of information relevant to the management of coral reefs and associated environments.

Source: International Coral Reef Initiative: Conservation and Effective Management of Marine Resources Program Plan, 13 October 1994.

Table 4

THE APPROACH OF ICRI

The approach of the Initiative is twofold:

1. to raise global and local awareness and obtain national, regional, and global commitments to conserve, restore, and sustainably use coral reefs and associated environments and;
2. to use and better coordinate governmental and regional agency efforts as well as stimulate and facilitate the development of new activities to address coral reefs.

Development of the Initiative will involve coordination with international and regional organizations including UNEP and its Regional Seas Programmes, IOMAC, FAO, UNESCO, and its COMAR and IOC Programmes, UNDP, UNCSD, the GEF, the World Bank, and the regional multilateral development banks. Particular attention will be paid to involving industry in the partnership.

Source: International Coral Reef Initiative: Conservation and Effective Management of Marine Resources Program Plan, 13 October 1994.

Table 5

THE VISION OF ICRI

The long term vision for the Initiative is to build and sustain partnerships with particular emphasis on increasing the capacity of countries and regions to achieve effective management and sustainable use of coral reefs and related environments.

The Initiative will provide for the protection, restoration, sustainable use, understanding and enjoyment of the coral reefs and associated environments of the world, in perpetuity for the benefit of present and future generations.

Source: International Coral Reef Initiative: Conservation and Effective Management of Marine Resources Program Plan, 13 October 1994.

The development of a consensus-based document (shown above) now known as the October 13 Document, contained agreed to-language by ICRI's first three partners; the U.S., Australia and Japan. This document would serve not only as an official invitation to new partners, but would serve as the framework for the next phase of ICRI—namely building partnerships, and coordinating and integrating coral reef conservation efforts. Besides a number of press announcements for the Small Islands Developing States Conference (SIDS) in May 1994 and the Conference of the Parties on Biological Diversity (CoP1) in December 1994, this document was the first document released on ICRI since the Coral Reef Consultation Day January 1994 report.

As stated earlier, the response to the invitation to join ICRI was overwhelming and surprisingly positive. One could argue that such an invitation from the U.S., Japan, and Australia, all developed countries, implied financial or technical support. The document was carefully worded to make it clear that the issue of future financial assistance not be used as an incentive for joining ICRI. It is interesting to note the careful selection and use of words chosen, even when drafting non-legally-binding documents like the ICRI 13 October Program Plan, by various document drafters in federal agencies. For example, using the words assist or support could be interpreted as funding or technical assistance by the entity releasing the document and as such were purposefully omitted from such ICRI documents.

Activities moved quickly during the fall of 1994. Five more national partners joined the U.S., Japan and Australia, including the Governments of the UK, France, Jamaica, Philippines, Sweden. The main methods used to solicit new ICRI partners was through the use of diplomatic channels including demarches and official intergovernmental meetings. (see Appendix XI for a definition of a Demarsh)

In addition to increasing the numbers of partners, ICRI core staff identified and compiled a list of criteria to provide a working framework to determine potential invitees to the global workshop. The list included countries with coral reefs who actively work to protect their reefs at some level, and organizations whose work in more than one country or region is dedicated in part or whole to coral reef protection. The proposed criteria along with strawman documents and recommendations on venues (criteria used included: geographic accessibility, existence as a developing coral reef country, political stability and interest and country host interest and ability to provide assistance) were presented to the U.S. Interagency Steering Committee for discussion and the development of a U.S. position. The revised document, reflecting a politically and financially acceptable U.S. position was presented and discussed at a pre-planning meeting, held in Washington D.C. in October 1994.

Following the U.S., Japan, Australia, Jamaica, meeting in Washington D.C., in October 1994, plans were made and invitations sent out for the first ICRI Planning Meeting, which was held for three days in late November, and

early December 1994. The meeting was considered successful due to the leadership of the U.S. coordination team and the contributions made by the many new partners. Those partners include the following agencies and organizations:

- the United Nations Environment Programme (UNEP), and
- their Caribbean Environment Programme (CEP);
- the Coordinating Body on Southeast Asia (COBSEA);
- the South Pacific Regional Environmental Programme (SPREP);
- the United Nations Development Programme (UNDP);
- the International Union for the Conservation of Nature (IUCN);
- the United Nations Educational, Scientific, and Cultural Organization (UNESCO);
- the World Bank; and
- the eight founding Governments of the Australia, France, Jamaica, Japan, Philippines, the United Kingdom, Sweden, the United States; and
- two non-governmental organization representatives; one from industry and one from the environment: American Society of Travel Agents (ASTA), and Environmental Solutions Inc. (ESI).

These partners collectively reached agreement on a number of decisions including, the choice of the Philippines as the venue for International Workshop. The workshop venue, was agreed to by the ICRI planning committee along with a provisional invitation list. In addition, financial support from partners for the upcoming workshop was tentatively identified.

The most important decision made during the planning meeting was to form an Executive Planning Committee (EPC) whose initial objective was to plan and support costs related to the International Workshop. The EPC would go on and lead the charge for the ICRI and evolve and act much like an NGO board of directors. The EPC was comprised of a core group of the founding partners and other organizations. The EPC was also charged with advising on

arrangements for the global workshop, securing new partners and sources of funding, and increasing the visibility of ICRI and its goals and objectives in various upcoming, appropriate international fora.

Following the ICRI planning meeting, international press coverage on ICRI was received when the Initiative was officially announced at the First Conference of Parties (CoP1) of the Convention on Biological Diversity in December 1994, by U.S. Under Secretary of Global Affairs, Timothy Wirth. He stated that ICRI was to exist as a "partnership consisting of like-minded nations and organizations seeking to implement Chapter 17 of Agenda 21, and other international conventions and agreements, for the benefit of coral reefs and related ecosystems," [144] and went on to say

"We are aware that the one unmistakable ingredient for realizing these objectives is political will, and the United States stands ready to pursue opportunities for on-the-ground practical cooperation on these issues—developed and developing nations working together regionally and internationally."[145]

While ICRI was not designed to work exclusively within the formal diplomatic channels, it made use of the formal channels within the U.S. Department of State, by encouraging relevant partner governments and non governmental organizations to draft and submit agreed to resolutions at various international fora to both forward ICRI's collective goals as well as furthering causes and goals of like minded governments and organizations.

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[144] The U.S. Department of State, Partnership Building and Framework Development: Final Report, The International Coral Reef Initiative Workshop, Dumaguete City, the Philippines, 29 May - 2 June 1995., p.1

[145] Ibid.

Table 6

PROPOSED PLAN OF ACTION FOR THE ICRI IN 1994

I. Develop a planning meeting of key players to establish the program.

II. Promote coral reefs as a priority in international and regional organizations/meetings.

III. Raise awareness and encourage participation from NGO's, universities, and research institutions and the private sector in ICRI.

IV. Develop international workshop on coral reefs.

V. Outcomes of ICRI--within 5 years, governments, international, and regional organizations should promote significant actions in the following areas: ICZM, Capacity Building, and Research & Monitoring.

VI. Evaluate--A decision should be made at the international workshop to have international organizations review and evaluate the ICRI and its implementation progress in the year 2001.

Source: International Coral Reef Initiative: Conservation and Effective Management of Marine Resources Program Plan October 13, 1994.

Table 6 lists The ICRI Plan of Action objectives. One through four are covered in this paper.

Table 7

Outline and timeline of the International Workshop on Coral Reefs

- U.S. Federal Interagency ICRI Steering Committee approved agencies' funds for the ICRI video to be filmed and developed with approval from the Interagency Steering Committee by the United States Information Agency (USIA) in September 1994.
- October 13 Program Plan drafted and approved by the U.S., Australia and Japan in October 1994.
- The Executive Planning Committee (EPC) was formally approved by planning meeting members in November; the EPC charged with planning and funding the global workshop, and assisting the U.S. ICRI coordinator and staff with securing additional partners, press, and focus of and documents for the Dumaguete Workshop in November-December 1994.
- A partnership between the U.S. and the Philippine Government, USAID Manila, Silliman University and ICLARM, all incountry counterparts to develop and implement the workshop in December-January 1995.
- Coordinated efforts between the U.S., ICLARM, and many NGOs who supplied the workshop resources center with a substantial number of publications, videos, and teaching materials in January-March 1995.
- Identification of and agreement to country and NGO invitation list and sponsors in March 1995.
- Coordination and development of Workshop agenda, field trips, and working sessions to conducive to interaction between experts in coral reef science, policy, management, capacity building and public awareness and education in February-March 1995.
- Arrangement and coordination of venue logistics, travel arrangements, and materials for the May-June Workshop in Dumaguete City in February-May 1995.

Source: Karla M. Boreri

The Dumaguete Workshop was considered a success by participating governments, the press, and regional and international organizations, because it brought scientists, policy and decision-makers, practitioners and non-governmental organizations together not only to hear and learn from each other's presentations, but more importantly to interact, and share information. and to form and strengthen partnerships.

The Call To Action and Framework For Action (Appendix II and III) were documents which were drafted and endorsed by all 36 country representatives in attendance at the ICRI Global Workshop. Today, over 73 nations have endorsed and incorporated the themes and ideas into their national coral reef agendas. While documents of this type are often the result of such meetings, these were different in two ways, 1) no pre-prepared draft was offered for acceptance and 2) all three groups (i.e., policy and decision-makers from governments, scientists, and non-government representatives) actively participated in developing these documents instead of a typically select group of government delegates. It was a conscientious decision to not only invite the private sector and environmental NGOs but to provide real substantive opportunities for their active and necessary participation. In many similar-type meetings, due to lack of active participation, NGOs and the private-sector are forced to hold their own side meetings and workshops, either before, during or after the governmental meetings. For example, NGOs meet separately during

the CSD Intersessionals, Climate Change Meetings, and the Biodiversity CoPs.

The Call to Action highlighted the importance of coral reefs as diverse ecosystems, indicators of environmental health, and their economic, cultural and social value to humans.[146] The Framework for Action "builds upon and reflects the principles and processes established by Agenda 21 and advocated in the Call to Action.[147] This document provides guidance for governments and non-governmental organizations for planning effective and efficient ways to mitigate further damage to coral reef ecosystems world-wide.[148]

This inter-sectoral global workshop was not a typical meeting. Every participant had a real role during the workshop. As space was limited, invitees were carefully selected based on area of expertise and the resulting contributions they could make to the workshop and its participants. For example, participants served as group session hosts, facilitators, session secretaries, organizers and leaders of field trips, presenters, and country resource persons. These assignments quickly produced a real camaraderie among attendees. The assignments were planned to purposely pair individuals from developed and developing countries together.

The location chosen, was also a key element in the workshop, as it was not a luxury hotel and conference center, but a modest-sized University in a

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[146] Report to the United Nation's Commission on Sustainable Development on the International Coral Reef Initiative. April 1996. pp. 3-4

[147] Ibid., p. 4

[148] Ibid.

developing country. Silliman University was recommended by the Dr. Alcala, Secretary of Environment, Philippines, because its faculty and students work daily on coral reef issues and had much to be proud of and much to share with the participants. The location also offered actual, ongoing coral reef projects and experiments that the participants related to and learned a great from as well.

Table 8

ICRI Global Workshop Highlights

- Follow-on, and active participation of high level representatives from a number of Middle East countries. Their efforts during the workshop built on talks begun following the signing of the Middle East Peace Accord in October 1994, which included the formation of a Marine Peace Park in the Gulf of Aqaba.
- The active participation of private sector and non-governmental organizations. This participation including making presentations to workshop participants and crafting the ICRI documents and well as ICRI's future direction. Usually NGOs are not invited to participate, but hold side meetings preceding or concurrent with governmental meetings of this type.
- Discussions and follow-up actions between scientists and policy and decision-makers including working towards common and achievable goals regarding coral reef environments.
- Global action consensus documents--The Call to Action and a plan for carrying out those actions-- A Framework for Action.
- Extensive media coverage including, print and television, including CNN, various Philippine newspapers, the Washington Post and the New York Times.
- Formal release of the film, "The Fragile Ring of Life", covering five coral reef case studies: Sri Lanka, Jamaica, Florida Keys, Gulf of Aqaba (Jordan, Israel, Egypt) and Palau. The film illustrated the magnitude of the problems and measures needed as well as those already being used to address the issues. This film was translated into six major languages and broadcast on world-wide television, with the assistance of U.S. Embassies.

Source: Karla M. Boreri

The last two items, listed in table six:

- Outcomes of ICRI—within five years, governments, international, and regional organizations should promote significant actions in the following areas: Integrated Coastal Management, Capacity Building, and Research and Monitoring. See section four which includes a sampling of ICRI successes to-date.
- Evaluate—a decision should be made at the international workshop to have international organizations review and evaluate the ICRI implementation in the year 2001;

are beyond the scope of this paper because indicated time has not occurred.

Summary

To summarize section three of the study it is worth restating that there are a number of similarities between the global campaign waged during the 1970s and 1980s against tropical rainforest depletion and the current initiative being developed to fight degradation of coral reefs world-wide. The main difference was the process used to build the coalitions, namely the NGO driven or bottom-up process used to protect tropical rainforests and the top-down or high level government-driven process used by the ICRI core staff and Interagency Committee and the Executive Planning Committee (EPC) for coral reefs.

One of the early top-down mechanisms was global agreement to protect and sustainably use coral reefs found in Chapter 17 of Agenda 21 at the United Nations Conference on Environment and Development (UNCED). Another relevant attribute of the top-down process is leadership ability and a market-driven economy. These two qualities made the U.S. the perfect government to

devise and launch such an Initiative. It was also good timing and the U.S. ability to motivate and join with other like-minded organizations and states that truly allowed ICRI to become a robust Initiative.

This section of the study provided the background leading up to the formation of the Initiative and the events which provided legitimacy to focusing on issues and threats facing coral reefs. The section outlining the importance and makeup of reefs provided the legitimacy and scope of their importance to local and distant populations alike.

Finally this section described ICRI's development and evolution. ICRI is not a funding agency, it is not a formal United Nations treaty or convention that needs ratification to be legitimized, it is not a new bureaucracy or limited partnership of wealthy states making all the decisions. It is a partnership involving all interested states, developed and developing, NGOs, the private sector, the science community and practitioners. Its first year was successful as it completed the objectives to increase global awareness of the plight and destruction of coral reefs and to bring together all relevant sectors and stakeholders to prioritize regional issues and threats with the hope of reducing duplication of efforts and better sharing of technology and experiences learned both good and bad.

The next section of this study, section four will examine the four strategies used by ICRI to determine if the strategies did in fact contribute to ICRI's perceived success. The final section five will provide lessons learned and examples of ICRI's successes.

SECTION FOUR

The Four Strategies of The International Coral Reef Initiative

The implementation and success of the Initiative depended on four strategies: partnerships, coordination, integration, and capacity-building. This section of the paper will define each strategy and describe its contribution to the overall success of ICRI.

Partnerships

Partnerships have been an integral part of ICRI since its inception in 1993. Especially, as ICRI moved from a domestically-focused Initiative to an international Initiative, it became clear that without international partnerships with like-minded governments and organizations, the Initiative (and its primary objective, to foster innovative cross-disciplinary approaches to sustainably manage coral reef ecosystems through cooperative relationships, among various stakeholders,[149]) had little chance of succeeding. Partnerships between governments and non-governmental organizations are being utilized more often to address many global issues like coral reef protection, deforestation of tropical rainforests, and global climate change.

What does being a partner with ICRI mean and why is it central to ICRI's success? An ICRI partner embraces the goals and objectives of ICRI and

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[149] The U.S. Department of State, Partnership Building and Framework Development: Final Report, The International Coral Reef Initiative Workshop, Dumaguete City, the Philippines, 29 May - 2 June 1995., p.1

according to the consensus reached at the ICRI global workshop in

Dumaguete Philippines;

"Partnership in ICRI is based on: 1) endorsement of the Call to Action; 2) implementation of the Framework for Action; 3) development of a National Coral Reef Initiative or similar national or local action, or assistance to the development of such initiatives; and 4) promotion of the Global Coral Reef Monitoring Network."[150]

The following list contains the objectives ICRI partners are called to undertake

by the U.S. ICRI Secretariat, (comprised of core group from the U.S. State

Department and USAID, and NOAA) from the International Coral Reef Initiative.

Report to the United Nations Commission on Sustainable Development IV.

ICRI's partnership calls on its members to work toward achieving the following objectives:

1. strengthen commitments to and implementation of programs at the local levels to conserve, restore, and promote sustainable use of coral reefs and associated environments;
2. each country and region should incorporate into existing local, national and regional development plans, management provisions for protection, restoration, and sustainable use of the structure, processes, and biodiversity of coral reefs and associated environments;
3. strengthen capacity for development and implementation of policies, management, research, and monitoring of coral reefs and associated environments; and
4. establish and maintain coordination of international, regional and national research and monitoring programs, including the Global Coral Reef Monitoring Network, in association with the Global Ocean Observing System, to ensure efficient use of scarce resources and a flow of

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[150] Partnership Building and Framework Development: Final Report, The International Coral Reef Initiative Workshop. Dumaguete, Philippines. 1995. pp. 61-62.

information relevant to management of coral reefs and associated environments.

Source: Report to the United Nations Commission on Sustainable Development on the International Coral Reef Initiative. Prepared and submitted April 1996 by the U.S. ICRI Secretariat.

The Commission on Sustainable Development Report states that The International Coral Reef Initiative (ICRI), borne of necessity[151] will continue to strive to build successful partnerships across a range of concerned stakeholders currently involved or interested in activities to protect coral reef ecosystems.[152] These partnerships include the following parties; developed and developing countries, international organizations, federal, state, commonwealth, territorial, community government agencies, non-government agencies, universities, scientists, and the private sector. The eight founding international partners are: Australia, Japan, Jamaica, France, the United Kingdom, Sweden, the Philippines, and the United States. Currently, ICRI has involved more than 73 countries in various regional activities and the number continues to grow.

International and United Nations organizations include the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), and its Regional Seas Programmes, including the

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[151] Report to the United Nation's Commission on Sustainable Development on the International Coral Reef Initiative. April 1996. p. 1

[152] The U.S. Department of State, Partnership Building and Framework Development: Final Report, The International Coral Reef Initiative Workshop, Dumaguete City, the Philippines, 29 May - 2 June 1995., p.1

Caribbean Environmental Program (CEP), and the South Pacific Regional Environmental Program, (SPREP) and Coordinating Body on Southeast Seas, (COBSEA), and the United Nations Educational, Scientific, and Cultural Organization (UNESCO), the Intergovernmental Oceanographic Commission (IOC), the World Bank, and the Inter-American Development Bank, (IDB) and non-governmental organizations such as the World Conservation Union (IUCN), the Nature Conservancy, (TNC), the World Wildlife Fund, (WWF), and the Coral Reef Alliance (CRA), the Center For Marine Conservation (CMC), the Cousteau Society, the Sierra Club, and private sector organizations such as the Baltimore Aquarium, the American Zoo and Aquarium Association, (AZA) and the American Society of Travel Agents (ASTA), and the United Kingdom World Travel and Tourism Centre (WTTC).

While many similar activities place most of their efforts attempting to secure funding, ICRI chose a decidedly different route. Simply put, ICRI has and will continue to rely on the formation of partnerships to accomplish its goals. The assumption is if a new entity joins as an ICRI partner, it will embrace existing ideas found in the broad-based developed documents, the Call to Action and Framework for Action. It is also assumed that these new partners will work within their region to share information with other ICRI partners. Through this effort, ICRI partners hope to attract new partners.

Were partnerships central to ICRI's success? Yes, partnerships resulted in renewed global commitment through increased political will,

towards achieving sustainable use of coral reefs. ICRI's visibility, and ability to promote a global coral reef agenda by promoting existing local, regional and national agendas are key to its survival and thus the survival of all individual agendas/programs. A synergistic energy developed as a result of the formation of the partnerships and this revitalized existing efforts, as well as new efforts. Therefore, focusing immediately and solely on additional funding does not always ensure success in a global initiative. In the case of ICRI's vitality and continued existence, it was the increasing number of committed partners and their individual contributions which kept ICRI "robust" to use the words of an Australian colleague, and ICRI partner, Richard Kenchington.[153]

ICRI successfully defined specific external coral reef issues and internal organizational achievable goals, and built an integrated, global partnership that included national governments, non-governmental organizations, United Nations agencies, development banks, the private sector, and academic institutions. This partnership formed the vehicle from which ICRI served as a catalyst for many of the resource users and stakeholders to share experiences, resources and technical information, while building on each others experiments.

In year one also called Phase One, ICRI staff focused efforts on building partnerships with governments, international organizations, non-governmental organizations, the science community and the private sector. In year two

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[153] Personal Conversation with member of Australian ICRI partnership, Richard Kenchington, Senior Director of External Services Section Great Barrier Reef Marine Park Authority. Townsville Australia.

referred to as Phase Two, ICRI will have to translate the political will at the global scale to the local and national levels. ICRI, through the global workshop in Dumaguete and the 5 regionally-based follow-on workshops has increased awareness and begun to build a global partnership for coral reefs.

Coordination

The Initiative will strive to coordinate existing and new activities among all partners so resources and expertise are used as effectively and duplication of efforts are minimized.[154] ICRI will serve to enhance existing networks between common entities or sectors, and equally as important, serves a vehicle for differing sectors, (i.e., scientists and policy/decision-makers, and managers to meet, discuss mutual issues and determine opportunities for collaborations that will result in mutual successes within each entity's perspective fields/area of expertise/area of work.

The activities ICRI developed as vehicles for coordinated efforts included: the ICRI Global Workshop in Dumaguete City, the Philippines, and 5 follow-on ICRI Regional Workshops. The regional workshop participants used the Call to Action and Framework for Action, two global consensus documents resulting from efforts at the ICRI Global Workshop in Dumaguete City, to further define regional and national issues, and efforts underway and remaining efforts required to adequately and effectively address the identified issues--region by region. (for full texts see Appendix II and III) This coordinated effort resulted in new and in some cases, renewed partnerships, resulting in

[154] Ibid.

regionally shared expertise and hopefully clearer identifiable issues and goals for countries and funders to address.

The International Year of the Reef (IYOR) campaign is an example of a coordinated efforts between the scientific community, policy-makers and managers. It was initially a small unknown scientific-based effort, developed by scientists at the 7th International Coral Reef Symposium in Guam in 1993. Once brought to the attention of ICRI staff, it was promoted and two ICRI partners (Stephen Colwell, Executive Director of Coral Reef Alliance and Sue Wells, with World Wildlife Fund's Marine Programmes in Gland Switzerland) were designated co-chairs the global campaign following the ICRI Global Workshop in Dumaguete City, the Philippines.

Recently, at the Panama International Coral Reef Symposium, IYOR was formally adopted as a public relations and educational awareness vehicle by ICRI. A pledge to support IYOR efforts was signed by more than 1400 leading coral reef scientists, managers, and policy-makers. IYOR presently has an electronic page dedicated to sharing current available information from scientists, managers, the private sector, including dive operators and tourism facilities with school children, aquariums and the general population. Coordinated efforts over the next year or more will be IYOR's hallmark for success and existence as well. For a current update on IYOR's scope and activities see Appendix VII and for a current update on a regionally organized IYOR campaign in the Pacific Region see Appendix VIII.

Another example reaching final stages of completion is the Global Coral Reef Monitoring Network (GCRMN), (see Appendix VIIII for a complete description). The concept of this network has been discussed amongst the science community for a number of years, with little action or funding coming forth to implement the network. The concept was discussed amongst ICRI and staff and was endorsed, resulting in the commitment of start-up funding in the order of US$100,000.00. The GCRMN concept was widely promoted by ICRI at international fora in 1995 to the present. The results of this effort to integrate science into policy is the identification of a global site Australian Institute of Marine Science (AIMS) and a technological partnership with International Center for Living Aquatic Resources Management (ICLARM) to utilize its global DataBase, ReefBase. ReefBase was developed in response to a growing demand for summary information and maps on coral reefs world-wide.[155] This will truly result in a globally-coordinated effort linking coral reef data collection and monitoring nodes world-wide. This effort will also develop data collection and monitoring protocol that results in information sharing across the many collection nodes.

Integration

The Scientific Community

One of ICRI's objectives is to ensure that critical ecosystem components and linkages are recognized, and appropriate elements of problems and their

[155] J. McManus, B. Vallejo, Jr., L.A.B. Menez, G. U. Corondo. ReefBase: An International DataBase on Coral Reefs. ICLARM, Manila, Philippines. 1995. P. 1.

solutions, including research, assessment, monitoring, and management, are considered in a comprehensive manner when making new decisions affecting coral reefs.[156] So it is not surprising that science and scientists played a central role in the formation of the ICRI. The scientific community did and continues to be instrumental in bringing the issue of degrading coral reef ecosystems world-wide to the attention of the public and as a result to the policy makers through increased interaction with policy-makers and managers.

But scientific theories and discoveries alone, were not sufficient to influence existing international coral reef policy. As a result, the best scientists and the most advanced technological resources had to be brought together in a cooperative effort to build an international scientific consensus that could be clearly articulated by scientists and understood by decision-makers.[157] But as is often the case, scientists and decision and policy makers do not communicate in the same language or travel and interact in the same professional circles. Therefore, it was critical that close collaboration between scientists and government officials begin to occur and that scientists be encouraged to actively participate in the negotiating process and share responsibility for the policy implications of their scientific findings.[158] "For their part, political and economic decision makers needed to understand the

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[156] The U.S. Department of State, Partnership Building and Framework Development: Final Report, The International Coral Reef Initiative Workshop, Dumaguete City, the Philippines, 29 May - 2 June 1995., p.3

[157] Ibid.

[158] Ibid.

scientists, to fund the necessary research, and to be prepared to undertake internationally coordinated actions based on realistic and responsible assessments of risk."[159] This premise was the foundation of ICRI and began with the collaborative efforts of the Coral Reef Consultation Day in January 1994.[160] This event brought the scientists, policy makers and managers together to frame the issues, identify current U.S. programs and projects addressing coral reef issues and future proposed projects and desired funding levels. The scientific community was involved during the identification of issues, and Initiative objects were discussed and defined. Scientists produced the State of Reefs Report,[161] which was used to frame scientific coral reef issues at all six ICRI workshops by participants from over 73 countries. The report provided current updates on all reef regions worldwide.

Scientists continue to remain involved and active within ICRI as members of the ICRI Steering Committee which was comprised of task groups, made up of representatives, some with scientific training, from various U.S. federal agencies. Science experts served on the research and monitoring task group, providing technical assistance and advice on both U.S. coral reef issues and international issues addressed by ICRI. For example, NOAA's coral reef scientists provided invaluable help on the development of *The Fragile Ring*

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[159] Ibid.

[160] O. Ehrenstrom, R. Lester, and L. Z. Hale, The United States Coral Reef Initiative Statement Of Need, April 1994, The URI Coastal Resources Center.

[161] S. Jameson, McManus, J.W., Spalding, M. D. State of the Reefs: Regional and Global Perspectives, International Coral Reef Initiative Secretariat Background Paper, May 1995.

of Life, a video documentary of a select number of coral reef case studies world-wide. Scientists were also helpful with deciphering the many scientific reports, and scientific requests received by the ICRI coordinator and staff.

But the main success was the formation, design (and currently, nearly completed) global monitoring network designed to connect and share data from the many existing but often unconnected monitoring nodes or stations world-wide. A coordinator is being hired to maintain this global monitoring network. The coordinator would also work to increase the number of nodes and strengthen the capabilities of the existing monitoring stations. Just as the scientists collectively provided proof of global coral reef degradation, they now were assigned the equally formidable task of providing proof that such a coordinator's position was warranted and that funding it would produce useful long-term data collection and resulting trends.

To date, the only commitment of assistance inkind (a donation of time, expertise, or supplies as opposed to financial support) or financial has been from the United States (U.S. $100,0000 and Australia will provide a venue). In addition to producing clear scientific evidence of need for the coordinator's position, there are a number of political and boundary battles yet to be fought regarding who oversees and houses the coordinator (who is Dr. Clive Wilkinson) and should the coordinator's office location change every 2-5 years so that there is equity in all coral reef regions world-wide.

As evident by a recent GESAMP report No. 161, (in press) titled *The Contributions of Science to Integrated Coastal Management*, scientists will be increasingly important to the overall success of Initiatives such as ICRI. The reasons are clear and simple. As data collection and the technology used to monitor areas like coral reefs, increases and improves respectively over time, science will play a critical role not only in the collection of such data, but also in the interpretation of the data. In addition both natural and social scientists must be involved in the whole process, from issue identification, development of the process to address the problem or issue, identifying the gaps in the process and the scientific information needed to fill in those gaps and lastly, looking at both the natural and human forces impacting coral reefs,[162] when making policy decisions. Examples of current efforts include Dr. Richard Pollnac, a University of Rhode Island anthropologist working to develop a technique called Rapid Assessment Monitoring Project (RAMP). For more information on Rapid Assessment Monitoring Project (RAMP), and the related publications (in press), contact the Communications Unit of the Coastal Resources Center at the University of Rhode. This method utilizes data collected at local sites to determine the health of reefs and of the humans who depend on their resources. This technique collects data in shorter periods of time, making it more cost effective to implement. Often, under time constraints and modest budgets, a rapid assessment is a useful and perhaps the only tool

[162] GESAMP (IMO/FAO/UNESCO-IOC/WMO/WHO/IAEA/UN/UNEP. Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection). 1996. The

policy-makers have to build a case (for public acceptance) for addressing an issue. Scientists, both social, and natural, play a key role in designing, undertaking, and interpreting the results from such an assessment. While not comprehensive in nature, they along with existing data can provide useful information for decision-makers.

Another example of social science and natural science being integrated is ICLARM's ReefBase, originally an "international database on coral reefs of the world"[163] focusing on reef ecology, will now as a result of ICLARM's partnership with ICRI, will be incorporating social science information into the evolving database. For more information on ICLARM's ReefBase, contact Dr. John McManus at ICLARM, Makiti, Metro Manila the Philippines.

It is critical, for the global success of any Initiative such as ICRI, for the scientists and decision-makers to work collaboratively from the beginning, to identify the type and amount of data required to make the best possible decision to address the problem of reef degradation. The luxury of data collection for its own sake and lack of honest and clear communication between scientists and decision-makers is no longer economically or ecologically feasible if coral reef degradation issues are to be addressed effectively.

Contributions of Science To Integrated Coastal Management.(in press) Rep.Stud. GESAMP. (61) p. 1

[163] J. W. McManus, B. M. Vallejo, Jr. L. A. B. Menez and G. U. Coronado. ReefBase: An International DataBase on Coral Reefs. International Center for Living Aquatic Resources Management, Makati, Metro Manila, Philippines. 1995. p. 1

Although this study does not cover domestic coral reef activities, the ICRI's research and monitoring task group did devote time, energy and expertise to advancing ongoing U.S. coral reef projects. The ICRI science experts worked with other colleagues to identify promising research projects that with ICRI's blessing or approval would be considered valid for funders to assist and while ICRI was not a funding agency of the U.S. Government, it was provided one-time access to a modest source of funding in the spring of 1995, which it distributed upon review and approval of newly submitted proposals. See appendix 1 for a list of funded research and monitoring projects.

Non-governmental Organizations

Other efforts to integrate various groups concerned about coral reefs included non-governmental organizations and the private sector, primarily the dive and tourism components. Efforts included presentations to dive organizations including a national meeting of Dive Equipment and Manufacturing Association (DEMA) and the inclusion and Coral Reef Alliance (CRA), a non-profit organization promoting diver education of ecologically sound dive practices, here in the U.S. and worldwide. The U.S. has the largest number of recreational divers in the world, numbering some 600,000, who spend $300 million dollars each year in the Caribbean and State of Hawaii.[164]

For example, another effort involving ICRI and integration was with the U.S. aquariums, museums and zoos. One example of a successful

[164] O. Ehrenstrom, R. Lester, and L. Z. Hale, The United States Coral Reef Initiative Statement Of Need, April 1994, The URI Coastal Resources Center, p. 4.

partnership was ICRI's involvement with the Baltimore Aquarium. The aquarium recently renovated its coral reef exhibit, using artificial coral instead of coral rock. Not only did it avoid damaging and destroying live coral for its exhibit, it also educated the public on this increasing threat to reefs. Salt water aquariums are growing in popularity and putting additional stresses on tropical reefs. Since "over 30 million people visit the nation's aquariums and zoos,"[165] ICRI utilized this partnership to educate the public on this and other reef-related issues. Incidentally, the Baltimore Aquarium, installed coral reef meters. Much like a street parking meter, aquarium visitors can deposit coins while visiting the exhibits. The meter concept has been successfully used for tropical rainforest protection in similar settings.

Another important partner is the Smithsonian Institution. With financial assistance from ICRI's donor countries, (US$ 40,000) the Smithsonian is building an educational traveling ocean and coral reef exhibit. The traveling exhibit will be displayed world wide beginning in 1997, the Year of Oceans. The Smithsonian ICRI partnership also resulted in a incorporation of an ICRI policy session at the 8th International Coral Reef Symposium, (sponsored by the Panama office of the Smithsonian) which recently concluded in Panama. The Symposium usually consists of mostly scientists discussing scientific coral reef issues. The ICRI session shows that integration is increasing among scientists policy-makers and managers regarding coral reefs.

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[165] Ibid., p. 8

Healthy coral reefs are often the showpiece for tropical tourism destinations. As a result, organizations such as the World Travel Tourism Centre (WTTC) in England and American Society of Travel Agents (ASTA) have joined with ICRI to both share their ongoing efforts to sustainably use reefs as well as to work more closely and collaboratively with local communities, dive organizations and non-governmental organizations working in tropical coral reef countries. The latest discussions taken place under ICRI have been several major airline and hotel chains including American Airlines.

Communications Media

Integration of efforts would not be effective if the experiences were not shared beyond governmental and scientific reports. So engaging the press was vital to ICRI's increasing visibility. These efforts included soliciting over 100 carefully chosen print sources and providing written briefings, pictures and often interviews to them. Articles were generated in a variety of these print mediums, including; Tropical Coasts, an Integrated Coastal Management Newsletter for practitioners, the New York Times, the Washington Post, and a number being developed for various dive magazines and the Cousteau Society Magazine. In addition to worldwide coverage in the print media, CNN provided comprehensive coverage during the week of the global meeting in Dumaguete City, Philippines, May-June 1995.

Capacity Building

Capacity building is described by preparatory documents to UNCED as a country's ability to follow a path to a sustainable society.[166] This is determined to a large extent by the country's ability to make independent and equitable decisions that are compatible with sustainable development.[167] "Sustainable development is characterized by economic and social growth that does not exhaust the resources of a host country; that respects and safeguards the economic, cultural, and natural environment; that creates many incomes and chains of enterprises; that is nurtured by an enabling policy environment; and that builds indigenous institutions that involve and empower the citizenry."[168]

Capacity building is primarily developed at the community or local level. ICRI is currently a global Initiative. While it has accomplished its primary goal of increased awareness at the global level, it has not fully achieved the four goals agreed to at the Global Workshop in Dumaguete City. They are:

1. Establish regional networks to share knowledge, skills and information.
2. Develop and support educational and informational programs aimed at reducing adverse impacts of human activities.
3. Establish information exchanges with stakeholder communities.

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[166] UNCED, Geneva. April 1992. The Global Partnership For Environment and Development. United Nations. p.109.

[167] Ibid.

[168] USAID. Strategies for Sustainable Development. U.S. Agency for International Development. March 1994. p. 3

4. Improve developing nations' access to bilateral, multilateral, and other forms of financial and technical support for coral reef management.

These four action items are being addressed at various levels. One example that is addressing number one and three is the Global Coral Reef Monitoring Network (GCRMN). This network is currently being established in the host country of Australia under the direction and coordination of Dr. Clive Wilkinson, and will establish and strengthen regional networks for social and natural scientific information relating to coral reefs. Another example is the International Year Of the Reef (IYOR) , which addresses number two and is aggressively planning and implementing an education campaign to reach a number of audiences including children through school programs, the general public through aquarium and zoo programs, and tourism facilities and recreational divers through relevant member organizations. An example of financing selected small projects by the U.S. government have occurred in year one and new projects are being reviewed as this study is being completed for year two. (see Appendix I for examples).

Year two (Phase two) will need to begin address fulfilling the capacity building component of ICRI. The key to achieving successful capacity-building efforts will require the decentralization of global momentum currently maintained by ICRI. National and local governments will need to embrace ICRI's Call to Action and Framework for Action and incorporate the ideas and goals of these two documents into their own thinking, planning and implementation of coastal management. This will not be easy. It will require increased cooperation, local political will and commitment, and partnerships

between local and national governments, the private sector, UN agencies and non-governmental organizations working in local communities.

The ultimate success will be achieved when donors and developing and developed countries realize the benefits that can be achieved only by working together, taking the necessary actions, that builds on previous actions, that is coordinated, effective, efficient and is documented so lessons can be learned.

SECTION FIVE

Lessons Learned

Although success in the international policy arena is hard to quantify, it can be argued that based on the forgoing, ICRI was successful in reaching its Year One goal: to raise global awareness of the threats facing coral reefs world-wide. The successful approach utilized four strategies (covered in the previous chapter), namely; partnerships, integration, coordination and capacity building. ICRI has built on past global efforts, while continuing to improve and define ways to better utilize diplomacy, scientific information, and local experiences resulting in a robust coalition. The following lessons learned will hopefully prove insightful to new initiatives and reinforce existing strategies in similar-type efforts.

1) Linking scientists and decision-makers made a powerful robust Initiative.

Scientists and relevant science, must be integrated with policy-makers throughout the global, regional and national decision-making process regarding coral reefs. Effective management decisions, cannot be regularly assessed without the most current scientific analysis and knowledge.[169] Since coral reefs are part of a living ecosystem, and are subject to human-induced impacts, it is therefore logical, that to address comprehensively, the problems facing reefs. social and natural scientists must be involved with decision-makers.

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[169] GESAMP (IMO/FAO/UNESCO-IOC/WMO/WHO/IAEA/UN/UNEP. Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection). 1996. The

It is becoming increasingly accepted, among policy-makers and scientists, that decisions must be made now, that will have long-term consequences and that those decisions need to be made in the absence of complete, unrefutable scientific supporting evidence.[170] This is known as the Precautionary Principle (#15) .[171] To make decisions in a limited time frame, social and natural scientists will need to be intimately involved in coral reef issue(s) identification, assessment of the problems, all the way through the development of a program plan or policy.[172] The enormous task of sorting through acceptable, relevant scientific data and interpreting it can only be accomplished by trained scientists working collaboratively with and educating decision-makers.

[start] While the science community often does a poor job publicizing potentially useful results or data outside their peers, they usually do a better job interacting with scientists from other countries, forming bonds by finding common ground from which to address issues and problems of mutual

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Contributions of Science To Integrated Coastal Management.(in press) Rep.Stud. GESAMP. (61) p. 1

[170] Benedick, R. E. Ozone Diplomacy: New Directions in Safeguarding The Planet. World Wildlife Fund, The Conservation Foundation, and the Institute for the Study of Diplomacy, Georgetown University, 1991. p. 204

[171] UNCED. The Global Partnership for Environment and Development: A Guide to Agenda 21. April, 1992. A Proposal of the Chairman of the Preparatory Committee for UNCED on the Rio Declaration on Environment and Development. p.3

[172] GESAMP (IMO/FAO/UNESCO-IOC/WMO/WHO/IAEA/UN/UNEP. Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection). 1996. The Contributions of Science To Integrated Coastal Management.(in press) Rep.Stud. GESAMP. (61) p. 7

interest. They can serve as models to policy-makers, sharing resources, data and expertise to reach conclusions to common challenges.

2) *Mobilizing political will is essential for creating and sustaining an initiative like ICRI.*

Success depends almost as much on the timing as it does the relevance and interest afforded a particular issue. The timing was right in the fall of 1993 when the U.S. Government began organizing a modest conference that would result in the formation of ICRI. The global need to address coral reef degradation issues existed in both the scientific and political communities. The interest existed to tackle coral reef issues, because of UNCED and the public's identification with reefs, (much as they had sympathized with seals, dolphins and rainforests two decades before). Issues affecting coral reefs transcend national boundaries, regions and economies. Finally, winnable battles were in sight for protecting pockets of reefs, but the issues needed global recognition and action on a global scale to build momentum for long-term benefits and sustainability to be realized at the local and national level.

3) *Strong and consistent leadership by a single respected and relatively wealthy nation like the U.S. increases interest, and ability to leverage many sources of limited funding for a global effort to protect coral reefs.*

"Strong leadership by a major country can be a significant force for developing international consensus."[173] This was a lesson learned from the

successful results of negotiating a global agreement on ozone, the Montreal Protocol in 1989.[174] Unlike ICRI, the process used to reach ozone agreement was formal and legal. ICRI's 70 plus country consensus is not legally binding, but seems to provide a viable voluntary agreement. The U.S. provided leadership and a host site for ICRI and staff for the first two years. The resulting U.S. international leadership, also renewed interest, focus and research on international and domestic reef issues. For example, the first year funding by the U.S. for the GCRMN coordinator position is leveraging additional funds from ICRI partners.

4) *Early, long-term involvement in the policy process by non-governmental and private sector organizations with a stake in coral reef health is essential to increasing the limited financial and technological capacity of most national governments.*

The non-government organizations comprising environmental NGO's, coastal related business, and research facilities often work where governments making global decisions do not have sufficient capacity for action. Often, positive relationships with local stakeholders have been developed by NGO's. Since these relationships take, time, effort and funds to develop, it is prudent to make use of existing relationships to educate local populations

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[173] Benedick, R. E. Ozone Diplomacy: New Directions in Safeguarding The Planet. World Wildlife Fund, The Conservation Foundation, and the Institute for the Study of Diplomacy, Georgetown University, 1991. p. 205

[174] The Montreal Protocol on Substances That Deplete the Ozone Layer, 1987 [to the Vienna Convention on Protection of the Ozone Layer.1985]

about how they can become involved and hopefully benefit from ICRI's network of resources.

Private business, is dependent on healthy coastal areas, has a vested interest and economic incentive to sustainably use reefs. The private sector is taking advantage of opportunities to work with scientists and decision-makers, providing funding, when the benefits to their businesses are clearly defined, and when goodwill measures are required to ensure this process to sustain reefs and related ecosystems continues or in some cases just begins.

Conclusions

ICRI successfully utilized an incremental approach to managing the Initiative. An incremental approach to management involves defining a set issues, and achievable goals, building a constituency, with interagency and stakeholder linkages along with increased public awareness and political will. Starting with a well thought through yet finite number of issues, ICRI developed a set of corresponding goals and objectives to address those issues. This effort was not accomplished in a vacuum, but made use of the many partners' expertise and networks. The strong partnerships created professional linkages that not only strengthen interagency goals and objectives but agency goals alike. The solid groundwork created will provide momentum in the Initiative's and other program's next generations, to address future related coral reef and coastal management issues, both more complex and broader in scope. This momentum should also benefit coral reef efforts as they trickle

down to the regional, national and local programs already ongoing. Often, funding, renewed interest and technical assistance accompanies increased political will and the resulting momentum.

ICRI is not a new bureaucracy and did not create a new agenda. It identified common global goals and secured partners to address these goals through coordinated efforts. This Initiative brought together the stakeholders from high level positions to community-level practitioners. It provided a vehicle for improved coordination between nations, non-governmental organizations, UN organizations, private sector, industry and between U.S. federal agencies. "Any integrated management strategy requires cooperation among multiple, often competing/conflicting units and interest groups to achieve a common objective."[175] Coordinated efforts will be central if global goals for protecting and sustainably using coral reefs are to be achieved.

ICRI's coordination and focused early successes and achievement of mutually beneficial goals, created a bond between various stakeholders and resources user groups, often with competing agendas. These relationships provide a mechanism for future collaborative efforts. Often these efforts increase in scope and complexity as second generation programs. The global coordination of efforts will also reduce duplicative programs, and will facilitate the building on the experience of first generation efforts or experiments. While ICRI began primarily as a top-down Initiative, it is hoped that the political will

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[175] A. T. White, L.Z. Hale, Y. Renard, L. Cortesi, Collaborative and Community-Based Management of Coral Reefs, 1994, Kumarian Press, p. 78

and momentum created will bolster existing regional, national and local efforts and create opportunities for new and badly needed coral reef and coastal management efforts and programs.

Sustainable political will exists where there is sufficient public awareness and interest in an issue or cause and resulting concern for the issue or cause. A major accomplishment for ICRI was its ability and good fortune to capture both high level international political interest along with interest from NGO's, private sector, and academic institutions. The focused interest on coral reefs made the process of constituency-building possible. The issues and goals identified by ICRI were widely accepted for two reasons; 1) the broad-based number/variety of sectors were involved with identifying and determining the finite number of issues ICRI focused on and 2) these sectors along with a continually growing number of others participated in ICRI's continued evolution even today.

The success of ICRI will ultimately be tested by the level of acceptance of ICRI and its goals at the national and community levels. As year two and (Phase Two) begins, all eyes will be focused on ICRI to see if it can truly transfer the immense global and regional political will and interest by donors, NGOs, and the science community to coordinated, effective and efficient long-term action on the ground. For if policy and decision-making efforts made in local communities working to protect coral reefs reflect ICRI's goals and objectives then and only then can ICRI can truly claim success.

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APPENDICES

Appendix I

U.S. - ICRI Program Activities
National Oceanic and Atmospheric Administration Office of the Deputy Assistant Secretary for International Affairs

General Activities	Description	Participants	US$ Support
US/Japan Common Agenda	In conjunction with the government of Japan, support the formation of an international coral reef research center in the Asia Pacific region.	The Department of Interior, NOAA, TNC, the State Department, and Japan	50,000
Caribbean Queen Conch	Sponsor a regional meeting to develop a common management strategy to restore queen conch populations.	US (Caribbean Fishery Management Council	40,000
Coral Conservation and Military Operations	Work with the U.S. Department of Defense (DOD) to formulate a manual of preferable military conduct around coral reefs, and have the U.S. DOD share the manual with counterparts in other countries.	The U.S. Department of Defense, the State Department, NOAA	20,000
Traveling Coral Exhibit	Design/ develop the narrative text for the exhibit to be presented at the Panama Reef Symposium in 1996. serve as the prototype for regional exhibits.	Smithsonian Tropical Research Institution (STRI)	11,500
ICRI Video titled "Fragile Ring of Life"	Produce video for international distribution using case studies in five regions and countries (Jamaica, U.S., Sri Lanka, Egypt, Palau) to introduce ICRI priorities	EPA NOAA State Department, USAID	90,000
Legal Regimes Study for Marine Ecosystems	Analysis of International Instruments and Legal Regimes affecting Marine Biodiversity	IUCN	15,000
Support ICRI Workshop	Global Philippines	ICRI EPC members	123,814

CAPACITY BUILDING			
Activities	Description	Participants	US$ Support
Bilingual Educational Material Program for Western Countries	Compile existing educational materials on coral reefs, translate into Spanish, produce camera ready materials, and a teacher's manual	EPA OIA office NOAA Sea Grant University of Southern Mississippi's Gulf Coast Research Laboratory	30,000
Study of Trade in CITES-Listed Corals	Compile trade information on Appendix II listed species of CITES. Survey amount of coral products US and other countries import	TRAFFIC USA, CITES Secretariat and Animals Committee, IUCN, and others	40,000
Fisheries Management Options for the Galapagos	Review Galapagos fisheries and policies that guide them, examine alternate sustainable management strategies	Ecuador, NOAA, State Department Univ. Delaware	25,000
Electronic Archive for Coral Reefs	Establish an electronic depository for information and conservation status of coral reefs and on-line conference via Internet for information sharing and training of policy makers	IUCN	22,500

RESEARCH &	MONITORING	US$279,000	
Activities	Description	Participants	US$ Support
Coral Reef Surveying training and Application	SPREP organized on-site training of islanders in 4 Pacific Island States	SPREP, UNEP, ADB	45,000
Global Coral Reef Monitoring Network (GCRMN)	Support for long-term global monitoring network, administered by IOC in association with GOOS	IOC, UNEP, WMO, IUCN	100,000
CARICOMP			100,000
Regional Systems of MPA's	4 Volume publication documenting biogeographic and ecological characteristics of 18 marine regions	IUCN, GBRMPA, WB, USG through IUCN	N/A
Year of the Reef (IYOR)	Support to IYOR activities, assessing reef conditions and promoting NGO involvement & activities	Indonesia, Tanzania, Philippines, Bahamas	15,000
South China Sea Biodiversity Project	The transfer of U.S. governmental data to Indonesia in support of a biodiversity project	NOAA	2,000
Coral Reef Directory Update	Update and make electronically available, the Coral Reef Researchers of the Pacific Directory	The Pacific Science Association	10,000
Publication of Coral Bleaching Report	Provide financial assistance for publication & lunch lecture opportunity	Dr. Goreau	7,000

Source: "U.S. - ICRI Program Activities." : National Oceanic and Atmospheric Administration Office of the Deputy Assistant Secretary for International Affairs, (internal NOAA document, permission received from Arthur Paterson, of the NOAA IA office) 1996.

Appendix II

Prelude to the Call to Action

BACKGROUND: ICRI ORGANIZATION AND PARTICIPATION

As of 1991, of the 5.6 billion people on Earth, 3.5 billion lived in coastal areas. Many of the world's densest population clusters are found on tropical coasts bordered by coral reef ecosystems. Intensification of coastal zone use is a consistent trend.

Coral reefs rank among the most biologically productive and diverse of all natural ecosystems. They are a powerful symbol of both the economic and ecological significance of coastal ecosystems, as well as the rapid loss of marine biodiversity and resources around the world.

Coral reefs provide basic sustenance for a large but unquantified number of economically marginalized communities. The fishing and tourism associated with reefs are a source of jobs and revenue. Reefs protect tropical coasts from storm damage, and provide recreation and enjoyment to residents and visitors. In addition to serving as the habitat for numerous species and offering unique materials for education and scientific research, reefs support the social fabric of many coastal communities. World-wide research and monitoring have produced compelling evidence that coral reefs and coastal ecosystems generally are at risk from both natural and human impacts.

"In 1992, at the United Nations Conference on Environment and Development, the world community adopted Agenda 21. Chapter 17 of Agenda 21 identifies the importance of marine and coastal issues in the achievement of sustainable economic development and environmental cooperation. It identifies coral reefs, mangroves and seagrass beds as marine ecosystems of high biodiversity and production and it recommends that they be accorded high priority for identification and protection.

The International Coral Reef Initiative (ICRI) is a partnership consisting of like-minded nations and organizations seeking to implement Chapter 17 of Agenda 21, and other international conventions and agreements, for the benefit of coral reefs and related ecosystems. Founded by eight governments - Australia, France, Japan, Jamaica, the Philippines, Sweden, the United Kingdom, and the United States of America - the ICRI was announced at the First Conference of the Parties (COP) of the Convention on Biological Diversity in December 1994, and at the high level segment of the U.N. Commission on Sustainable Development (CSD) Intercessional Meeting in April 1995. Since then, the ICRI has come to encompass the participation and support of additional governments, U.N. organizations, regional environmental organizations,

multilateral development banks, environmental and developmental NGO's, and the private sector.

As ICRI became more active, it became clear to the partners that a coordinating body should be established. In January 1995, the eight founding ICRI partner governments, as well as representatives from other interested entities, met in Washington and established an ICRI Planning Committee from which an Executive Planning Committee (EPC) was derived. The Planning Committee is composed of the eight founding partner governments as well as representatives from the International Union for the Conservation of Nature (IUCN), Inter-American Development Bank, the World Bank, United Nations Environmental Programme (UNEP) and UNEP's CEP, the United Nations Development Programme (UNDP), the Coordinating Body on Southeast Asia (COBSEA) and the South Pacific Regional Environmental Programme (SPREP). The EPC is composed of the same eight founding partner governments and representatives of the IUCN, UNEP, and the World Bank.

In practice, the EPC has become the working level coordinating body for ICRI. It meets periodically to provide guidance to the ICRI Secretariat and to facilitate planning and decision making. For the sake of continuity and consistency, the Planning Committee has agreed to retain the present composition of the EPC meeting in April of 1996.

One of the first decisions of the EPC was to recognize the need for, and give its concurrence to, the establishment of an ICRI Coordinating Office/Secretariat. Presently, the United States of America hosts the Coordinating Office.

A second early EPC decision was to sponsor an international workshop focusing on coral reefs. In anticipation of the workshop, the ICRI Secretariat and the EPC worked to produce a "Call to Action." The purpose was to provide the broad principles which could be used to unify the participants in a partnership and to set the direction for the workshop. The Call to Action reflects a concern over the continuous degradation and damage to coral reef and related seagrass bed and mangrove communities or ecosystems); the difficulty of determining the threat spectrum (direct, indirect, potential) to the ecosystems; their significance to the world community as well as individuals; measures which can help to reduce the threats; and what types of actions under those measures the ICRI might best collectively focus its attention upon through encouragement or direct activities.

Participants of the Dumaguete workshop provided additional insights, leading to changes to the draft of **the Call to Action** approved by consensus at the workshop.

The international ICRI workshop was held at Dumaguete City, the Philippines from May 29 through June 2, 1995. The intent of the workshop was to enable nations, donors and funding agencies, development organizations, NGOs, the research community and private sector to work together in order to develop a "Framework For Action" for coral reefs. The Framework, which appears in its entirety in [the report (see Chapter 4) and in Appendix 2] and which was developed from the collective deliberation and wisdom of the participants, will serve as a comprehensive guide to mobilize national, regional, and international actions on behalf of coral reefs.

Source: Partnership Building And Framework Development: Final Report The International Coral Reef Initiative Workshop, Silliman, the Philippines. Chapter 1. The International Coral Reef Initiative

THE CALL TO ACTION

The following Call to Action was approved by the EPC and the participants of the International Planning Workshop on Friday, June 2, 1995 in Dumaguete City, the Philippines.

International Coral Reef Initiative Call to Action - June 2, 1995

The nations and organizations supporting the International Coral Reef Initiative (ICRI) urge attention to the following:

The Global Problem

Coral reefs are in serious decline globally, especially those near shallow shelves and dense populations. It has been estimated that 10 percent of the earth's coral reefs have already been seriously degraded and a much greater percentage is threatened. If allowed to continue, this decline is likely to lead to the loss of most of the world's reef resources during the next century.

The Threats to Coastal Ecosystems

The reasons for the decline in reef health are varied, complex, and often difficult to accurately determine. While natural events—such as storm damage, predator infestations, and variations in temperature have some impact on reef ecosystems, human activity is a primary agent of degradation. Contributing factors include:

Direct impacts from activities such as resource extraction, in-filling, over harvesting, and diving and boating activities, as well as nutrient enrichment and toxic pollution;

Inadequate planning and management of coastal land use, including upland activities;

Potential adverse effects of climate change, including temperature and sea-level changes, alteration of natural patterns of precipitation, tropical storms, and ocean circulation; and

Population growth, increasing pollution and increased uses of the fragile resources will accelerate the decline in coral reef ecosystems, with societal and ecological effects extending beyond reef environments.

The Significance of Coral Reef Ecosystems

Coral reef ecosystems offer benefits to humankind beyond those realized for food production, tourism, recreation, aesthetics, and shoreline protection. Capable of sustaining innumerable coastal communities worldwide, these ecosystems also have great economic, social, and cultural importance to nations and to entire regions. As competition among multiple uses of reef resources increases, so too will their significance to the human populations that depend on them.

Coral reef ecosystems are among the most biologically productive and diverse in the world; they also serve as indicators of environment health. These facts were recognized at the 1992 United Nations Conference on Environment and Development, where coral reefs and associated systems were accorded a high priority for protection in Agenda 21.

Reducing the Threats

Threats from human-related impacts can be minimized or eliminated through:

- Improved and sustained management practices;
- Increased national and local capacities for coral reef ecosystem management;
- Increased political support for managing coral reef ecosystems; and
- The sharing of existing important and new information related to maintaining the health of these ecosystems.

The ICRI governments endorse the following measures, to be implemented through global, regional, and national actions:

Coastal Management

- Incorporate integrated coastal management measures into local, national, and regional coastal development plans and projects and support their long-term implementation.
- These measures will serve as the framework for achieving the sustainable use of, and maintaining the health of, coral reefs and associated environments.
- Develop coral reef initiatives (regional, national and/or local). These should use an ecosystem-based, integrated approach that encourages participation and includes programs for community-based management or co-management of reef resources.

Capacity Building

- Establish regional networks to share knowledge, skills, and information.
- Develop and support educational and informational programs aimed at reducing adverse impacts of human activities.
- Establish information exchanges with stakeholder communities.
- Improve developing nations' access to bilateral, multilateral, and other forms of financial and technical support for coral reef management.

Research and Monitoring

- Use regional networks to achieve better coordination and cooperation among national research programs.
- Promote linkages between regional and global research and monitoring networks, such as CARICOMP (Caribbean Coastal Marine Productivity), PACICOMP (Pacific Coastal Marine Productivity), and GOOS (Global Ocean Observing System).
- Support research and monitoring programs, projects, or activities identified as essential to managing coral reef ecosystems for the benefit of humankind.
- Promote the development and maintenance of a global coral reef monitoring network.

Review

- Periodically review the extent and success of implementation of actions identified in the Initiative.

The Nations and organizations supporting ICRI call upon all other relevant, international entities, governmental and non governmental organizations, including the private sector and scientific communities, to undertake the actions above.

Appendix III

Prelude to the Framework for Action

DEVELOPMENT OF THE FRAMEWORK FOR ACTION

The ICRI Framework For Action was drafted by the Philippine workshop participants, reflecting a unique partnership of governments, UN agencies, donors, scientists, NGOs, and industry. The Framework will launch much more detailed regional and national priority setting in the next 8 months, and therefore was deliberately focused on actions at the global level.

The participants developed the Framework For Action so that it would directly address the measures identified in the Call to Action to achieve improved coastal management, capacity building, research and monitoring and review. The drafting process took account of the issues raised in the preliminary discussions and key note addresses as well as the workshops which were organised initially in relation to the four themes to the Call to Action and, secondly, in relation to the perspectives of the regional groups. This approach enabled participants to address issues and priorities drawing on their experience as practitioners and paying particular regard to creating a framework which would address the range of regional requirements and would have regard to the feasibility of actions in a range of regional and developmental settings.

The results of the workshop discussions in the two sessions were then considered by an open-ended drafting group which included the EPC members, Chairs of the working groups and others who expressed a particular interest in being involved in the drafting of the Framework.

The ICRI workshop participants reviewed the initial draft of the Framework in a plenary session. A revised draft was considered and adopted, with minor amendments taking place at a subsequent plenary session on June 2nd.

Source: Partnership Building And Framework Development: Final Report The International Coral Reef Initiative Workshop, Silliman, the Philippines.
Chapter Four: Framework For Action - A Foundation On Which To Build

FRAMEWORK FOR ACTION

PREAMBLE

Maintaining the biological diversity, condition, resources, and values of coral reefs and related ecosystems is a matter of global urgency. While the majority of countries which have coral reefs are developing countries, there are many reefs in the waters of developed countries. This unites the developed and developing countries and should command the attention of the international community. Coral reef survival depends upon the world community acquiring and maintaining the knowledge and capacity to conserve and sustainably use coral reefs and related ecosystems. This requires that all uses and impacts be brought within and maintained at levels which do not exceed these systems' natural capacity for production and regeneration.

The International Coral Reef Initiative (ICRI) Workshop was held at Silliman University in Dumaguete City, Philippines in May 1995 to enable countries, donors, development and funding agencies to work with coral reef managers, private sector representatives, Nongovernmental organisations and scientists to develop this Framework as a basis for achieving sustainable management of coral reefs and related ecosystems.

The ICRI Framework For Action builds upon and reflects the principles and processes established by Agenda 21, the UN Commission on Sustainable Development, the Convention on Biological Diversity, the UN Framework Convention on Climate Change, the Global Conference on Sustainable Development of Small Island Developing States, the UN Convention on the Law of the Sea, Convention on International Trade in Endangered Species of Wild Flora and Fauna, Global Program of Action to Protect the Marine Environment from Land-Based Activities and other relevant international programs. It has been developed as a succinct statement which should be read and interpreted in light of these documents.

This Framework addresses the four elements of the ICRI Call to Action, which are:

- Management;
- Capacity building;
- Research and monitoring; and
- Review.

FRAMEWORK PURPOSE

The purpose of this Framework For Action is to mobilise governments and the wide range of other stakeholders whose coordinated, vigorous and effective actions are required to implement the Call to Action.

PRINCIPLES

The ICRI recognizes the following principles:

Achieving the ICRI's purpose requires the full participation and commitment of governments, local communities, donors, NGOs, the private sector, resource users and scientists; therefore true partnerships, cooperation and collaboration exemplify the ICRI activities.

The over-riding priority is to support actions that will have tangible, positive and measurable effects on coral reefs and related ecosystems and on the well-being of the communities which depend upon them.

Human activities are the major cause of coral reef degradation; therefore, managing coral reefs means managing those human activities. Individuals whose decisions and actions affect coral reefs - from board rooms to beaches - need to become aware of and committed to the conservation and sustainable use of coral reefs and related ecosystems.

The diversity of cultures, traditions and governance within nations and regions should be recognized and built upon in all the ICRI activities.

Integrated coastal management, with special emphasis on community participation and benefit, provides a framework for effective coral reef and related ecosystem management.

Developing national capacity to conserve and sustainably use coral reefs and related ecosystems requires a long term (decadal) commitment. Improvement of coral reef management requires a permanent commitment and an adaptive approach.

Strategic research and monitoring programs should be an integral part of the ICRI because management of coral reefs and related ecosystems should be based on the most relevant scientific information.

Actions promoted under this Framework should take account of, and fully use, the extensive body of international agreements and organisations that address issues related to coral reefs and related ecosystems. The ICRI will facilitate the

leveraging and channeling of existing resources among all sectors for the benefit of coral reefs and related ecosystems.

ACTION

All those committed to supporting the ICRI and this Framework For Action are called upon to take account of and to act on the following at the international, regional and national levels.

Support national and regional efforts to establish and coordinate strategies, priorities and programs to implement the ICRI Framework For Action, starting with regional workshops to be held by early 1996.

Ensure that sustainable management of coral reefs and related ecosystems is considered at future relevant international meetings.

Develop and/or strengthen national, regional and international mechanisms for gathering and sharing information and expertise on the sustainable management of coral reefs and related ecosystems.

Promote improved access to financial and technological resources to enable institutions, regional centres and networks to assist and inform governments, industries and communities.

Addressing conservation and sustainable use of coral reefs and related ecosystems requires activities in the following areas:

- Integrated coastal management;
- Public awareness, education and training;
- Ratification of or accession to relevant international instruments;
- Stakeholder participation at all levels;
- Training policy makers and private sector decision makers in the development and implementation of coral reef management;
- Marine science and technology;
- Environmental law, particularly environmental impact assessment regulations; and
- Assessing the potential for micro-enterprise development and facilitating access to financing on a small to medium scale.

Management

Encourage governments to develop and adopt integrated coastal management measures, including:

- Protection of the marine environment from land-based sources of marine pollution;
- Environmentally sound land-use practices, zoning where appropriate;

- Measures to protect the marine environment from the adverse effect of maritime activities;
- National and regional disaster strategies;
- Measures to prevent illegal fishing practices, achieve sustainable fisheries and protect the ecological systems that support them;
- Tourism management and planning;
- Cultural aspects of resource use; and
- Enforcement of regulations.

Encourage governments and funding agencies to consider the ICRI Framework in project and program design and implementation.

Encourage, where appropriate, an intersectoral systems approach to planning and management.

Encourage improved coordination among international organisations, donors and NGOs to provide more effective programs at the regional and national level.

Encourage prompt implementation of the outcomes of FAO Code of Conduct for Responsible Fisheries and the Global Program of Action to Protect the Marine Environment from Land-Based Activities.

Promote awareness and action by the global tourist community to minimize individual and collective impacts of tourism on coral reefs and related ecosystems.

Promote the establishment and effective management of coastal and marine protected areas for coral reefs and elated ecosystems, within the framework of customary international law as exemplified by the UN Convention on the Law of the Sea. This will contribute to the development of the Global Representative System of Marine Protected Areas as proposed by the World Bank, IUCN and Great Barrier Reef Marine Park Authority.

Promote the regulation of international trade in endangered and threatened reef-associated species through the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), and improve its implementation where required.

Encourage governments to develop and promote mechanisms for regulating international trade in species that are illegally harvested.

Encourage governments to develop legislation, policy and institutional capacity to apply environmental assessment to development activities.

Promote appropriate technologies, including voluntary programs and economic incentives and best management practices, for control of land-based causes of marine pollution.

Promote and replicate successes in integrated coastal management, including community-based management, as appropriate.

Support management measures to improve the socio-economic condition of local communities through such means as retraining and sustainable alternative livelihood development.

Capacity Building

Capacity building includes establishing and strengthening human resource and institutional capabilities for coastal management, science, training and education.

Encourage regional organisations to assist countries and communities implementing ICRI, for example through measures including:

- Preparation of project proposals
- Implementation of small grant programs.

Establish, strengthen and sustain mutually supportive networks of centres of expertise in management of coral reefs and related ecosystems.

Base human resource development strategies on needs assessments and ensure that they address:

- The diversity of cultures traditions and governance structures;
- Increased community awareness and involvement;
- Improving the capacity of today's managers;
- Providing for the education of tomorrow's managers;
- Coverage of coral reef management issues in the training of all professionals whose work involves decisions which affect coral reefs and coastal resource management;
- Technical training needs for people at the field level;
- Training and supporting trainers to work at the community and field level;
- Evaluation of the effectiveness of training; and
- The need to target children in awareness raising.

Improve coordination and targeting of the education and human resource development programs provided by development partners.

Support formal and informal environmental education programs for all levels of the community on the subject of coral reefs and related ecosystems, with

curricula and materials tailored to the interests and needs of the regions and end-users.

Encourage maximum use of national and regional expertise in management, research and capacity building activities.

Support the development, identification and dissemination of materials which address the
interests and needs of the regions, including:

- The value of coral reefs and related ecosystems;
- Practical monitoring and management techniques;
- Inventories of formal and on-the-job training opportunities;
- Case studies of management, including success stories as well as examples which have not been successful; and
- Case studies of human impact and natural variation in coral reefs and related ecosystems.

Increase the relevance to ICRI of existing donor scholarship programs by:

- Devoting a proportion of scholarship awards to environmental studies; and
- Encouraging thesis and dissertation studies carried out in home countries.

Encourage the private sector's role in management of coral reefs and related ecosystems through:

- Use of appropriate technologies;
- Development of a trained and educated workforce; and innovative approaches to better environmental operating standards.

Research & Monitoring

Research and monitoring are needed to assess the status of coral reefs, evaluate the success of management and conservation actions and develop more effective management practices. As tropical ecosystems, coral reefs and related ecosystems are subject to dynamics which are generally less well understood than temperate systems. Therefore, without evidence it
should not be assumed that they will react to natural and human disturbances in the same way as temperate systems.

Research and monitoring programs should address biological, physical, social, cultural and economic studies and should be carried out over time periods appropriate to their objectives. They should be supported by information management, interpretation and dissemination. In the collection of data for both research and monitoring, resource users should be involved to the maximum extent practicable.

Promote the involvement of managers in the development, conduct, interpretation and application of research and monitoring programs.

Promote and assist the development and application of resource assessment methods that:

- Allow for rapid assessment to establish baselines and initiate management
- Can be used in Geographic Information and Decision Support Systems

Promote the development of a Global Coral Reef Monitoring Network under the Coastal Zone Module of the Global Ocean Observing System by incorporating and, as necessary, establishing or strengthening regional nodes.

Encourage studies of coral reefs and related ecosystems which:

- Address priority management issues in individual countries or regions;
- Address the synergy's between human effects and natural variations as causes of stress and degradation in coral reefs and related ecosystems;
- Involve interdisciplinary research into human impacts with initial priority on fisheries and tourism;
- Integrate traditional knowledge;
- Quantify the socio-economic impacts of conservation and habitat destruction;
- Address the scales and linkages of the biological communities; and
- Develop methods for impact mitigation and reef restoration.

Develop programs to involve communities, resource users, the private sector and others in monitoring the condition of coral reefs and related ecosystems.

Encourage regional and international forums which bring together managers and scientists to identify priority information requirements for management of coral reefs and related ecosystems.

Review

Review of the state of coral reefs and related ecosystems and of action taken to implement the ICRI Framework For Action should be conducted at national, regional and international levels on a regular basis.

The four yearly cycle of the international coral reef symposia provides an excellent opportunity to discuss the ecological condition of coral reefs. This should be matched by an equivalent program to review the effectiveness of implementation of actions in accordance with the ICRI Framework For Action. At the international level, the UN Commission on Sustainable Development provides an appropriate forum for review of international actions taken at all levels by governments, international organisations and agencies. The 1996 session of the Commission on Sustainable Development, with its focus on Chapter 17 (Protection of Oceans) of Agenda 21 will deal, inter alia, with coral reefs and related ecosystems.

UNEP should be encouraged to review the implementation and success of the ICRI Framework For Action through relevant programs including the Regional Seas Programmes.

Similarly the IOC through the Global Coral Reef Monitoring Network, should be encouraged to produce reports on the ecological condition of coral reefs and related ecosystems for discussion at the quadrennial International Coral Reef Symposia and other relevant international forums.

Approved 3 JUNE 1995

Appendix IV

Resolution of Governing Council
of the United Nations Environment Programme (UNEP)
Eighteenth Session -- Nairobi, 15-26 May 1995

International Coral Reef Initiative UNEP/GC.18/33 Approved 25 May 1995

The Governing Council,

Noting that many of the world's coral reefs are severely degraded or destroyed due to human activities,

Recalling that chapter 17 of Agenda 21 identifies coral reefs, mangroves and seagrass beds as marine ecosystems of high biological diversity and production and recommends that they be accorded high priority for identification and protection,

Noting the report of the United Nations Environment Programme-Intergovernmental Oceanographic Commission-Association of South Pacific Environmental Institutions-World Conservation Union Global Task Team on the implications of Climate Change on Coral Reefs,

Also noting that coral reefs have been designated as the coastal system chosen as the first to be developed within the coastal zone module of the Global Ocean Observing System,

Recognizing the initiative of Australia, France, Jamaica, Japan, the Philippines, Sweden, the United Kingdom and the United States to sponsor a workshop to promote an international coral reef initiative in the Philippines from 29 May to 2 June 1995,

Noting that the initiative builds upon and reflects the processes established by the Commission on Sustainable Development, which will address chapter 17 of Agenda 21 in 1996, the United Nations Convention on Biological Diversity, which will address marine biological diversity in 1995, the 1995 intergovernmental meetings on protecting the marine environment from land-based activities, the United Nations Framework Convention on Climate Change, the 1994 Global Conference on the Sustainable Development of Small Island Developing States, the United Nations Convention on the Law of the Sea, and other relevant international programmes,

1) Welcomes the international coral reef initiative, which is a partnership of Governments, international organizations (including lending institutions), and Nongovernmental organizations to address capacity building, research and monitoring and sustainable management and use of coral reefs and associated ecosystems;

2) Supports the establishment of a global coral reef monitoring network, as proposed as part of the coastal zone and shelf module of the Global Ocean Observing System by the United Nations Environment Programme, the World Conservation Union, the Intergovernmental Oceanographic Commission, the World Meteorological Organization and International Geosphere-Biosphere Programme, within existing resources, to monitor the status of reefs and enhance their management;

3) Encourages the regional programmes of United Nations Environment, particularly the regional seas programmes, to incorporate recommendations of the coral reef initiative workshop, as appropriate, into relevant United Nations Environment Programme activities and, whenever appropriate, to translate them into concrete supporting measures on protection and conservation.

Appendix V

Resolution of the XVIII Pacific Science Congress

INTERNATIONAL CORAL REEF INITIATIVE

Whereas coral reefs are one of the most important ecosystems in the Asia/Pacific region, especially for their natural resources, biodiversity, and socio-economic values, and

Whereas coral reefs and their resources are under substantially greater pressures from increasing human populations, urbanization, and economic development, and

Whereas an International Coral Reef Initiative has been launched by several nations and international organizations and an international meeting was convened at which a Framework For Action was developed as a basis for achieving the sustainable development of coral reefs and associated ecosystems;

Be it resolved that the Pacific Science Association endorse the Framework For Action of the International Coral Reef Initiative, and

Be it further resolved that the Pacific Science Association encourage all of its member organizations, member institutions, and their governments to participate in the implementation of the Framework For Action.

Appendix VI

Resolution XVIII-12 of The Intergovernmental Oceanographic Commission

INTERNATIONAL CORAL REEF INITIATIVE

The Intergovernmental Oceanographic Commission,

Being concerned that many of the world's coral reefs are severely degraded,

Recalling that Chapter 17 of Agenda 21 of UNCED identifies coral reefs, mangroves and sea-grass beds as marine ecosystems of high biological diversity and productivity and recommends that they be accorded high priority for identification and protection,

Noting the report on "Global Climate Change and Coral Reefs: Implications for People and Reefs" published by IUCN in 1994 on behalf of UNEP, IOC and ASPEI,

Considering that the Global Coral Reef Monitoring Network has the potential to be a significant component of the coastal module of the Global Ocean Observing System, as acknowledged by the IOC-WMO-UNEP Committee for GOOS at its Second Session (Document IOC-WMO-UNEP/I-GOOS-II/3S),

Noting with satisfaction the initiative of Australia, France, Jamaica, Japan, the Philippines, Sweden, the UK and the USA, to convene a workshop to promote the International Coral Reef Initiative (ICRI) held in the Philippines from 29 May to 2 June 1995,

Endorses the International Coral Reef Initiative (ICRI) Call to Action and Framework For Action which promotes the development of a Global Coral Reef Monitoring Network (GCRMN), emphasizes the important of strategic research and monitoring to address key management issues, and call on the IOC, through the GCRMN to report every four years on the ecological condition of coral reefs and related ecosystems;

Decides to support the establishment of a Global Coral Reef Monitoring Network and the appointment of a Coordinator;

Instructs the Executive Secretary of IOC: (I) that the Global Coral Reef Monitoring Network (GCRMN) Coordinator establishes close contact with I-GOOS and the Joint Scientific and Technical Committee for GOOS (J-GOOS) to define the potential contribution of this network to the GOOS Coastal Module, (ii) to support the participation of GCRMN experts in the coral reef workshops in 1995 and the 8th International Coral Reef Symposium in 1996, subject to

available resources, (iii) to explore extra-budgetary funding through international and regional funding agencies;

Invites UNEP, IUCN, UNESCO, WMO and ICSU (IGBP/LOICZ) to join the IOC in the participation and co-sponsorship of proposed Global Coral Reef Network, subject to available resources, and urges Member States to make direct and in-kind contributions to the IOC to support this endeavour.

Financial implications: Implementation of the actions proposed has been funded to some extent by extra-budgetary funds from Member States; additional contributions from Member States and International Organizations will be required in order to ensure the implementation of the GCRMN. About US$40,000 will be required from IOC to support participation of the experts from the Indian and Pacific Oceans in the Eighth International Coral Reef Symposium in 1996.

Appendix VII

An update on the International Year of the Reef (IYOR)
from Stephen Colwell, Executive Director of Coral Reef Alliance
and co-chair of IYOR
9 August, 1996

It is divided into several categories:
1. Background on IYOR and Frequently Asked Questions
2. Brief description of formal launch of IYOR at the Panama ISRS Symposium
3. Coming Events (by country/region) and Resources
4. Contact addresses for further information.

As always, we encourage (constructive) comments, revisions etc. Please remember to use the listserver only if you message is of general interest (otherwise send individual messages).

NEWS OF THE INTERNATIONAL YEAR OF THE REEF, 1997

For those not familiar with the goals of IYOR, this is a major effort in capacity building for reef management, outreach and education, research on reef degradation and its causes, assessment of reef condition and sustainable reef management. It will provide a global context for national and regional efforts and will promote collaboration between organisations and programmes with common interests, providing an umbrella for a wide variety of reef-related activities in research, education, management, tourism etc.

IYOR is not a top-down organisation with a large central office; it is instead a grass-roots effort with emphasis on regional and local initiatives, and
is relying on individuals and groups to achieve its aims. Groups are encouraged to establish their own committees and develop initiatives appropriate to their locations. IYOR groups have been formed or are being formed in several parts of the world already (see below). Suggestions for organizing a committee appear in the current issue of Reef Encounter.

Updates on IYOR activities will be provided from time to time on relevant List Servers. At this time, IYOR does not have a full-time resource person to answer all inquiries, but our volunteer leaders will do their best to answer questions and provide advice. Most of us will be away for extended periods during August and thus there will be delays in responding. The IYOR Web page is being updated and hotlinks to other relevant Web pages are being created; contact Stephen Colwell for further information (address below).

FORMAL ANNOUNCEMENT OF IYOR IN PANAMA

IYOR was formally announced at the 8th International Coral Reef Symposium in Panama, at the end of June this year. Almost all of the 1400 participants, from numerous countries, including most of the world's leading reef scientists signed the IYOR Pledge of support for conservation, education and assessments of reef condition.

An IYOR booth attracted continuous attention throughout the meeting, and distributed a range of materials. A press event attracted television stations, magazines and newspapers and IYOR received good coverage in Latin
America and the Caribbean. Copies of the press release are available from Stephen Colwell. The handsome IYOR logo designed by the Scripps Institute was a big hit with participants as it appeared on buttons and a T-shirt. Organisations wishing to use the logo in connection with IYOR activities should ask for an application form from one of the people listed below. An English leaflet on IYOR has been produced and is being distributed. Further print-runs in other languages, as well as country- and region-specific versions, are being planned.

IYOR was designated a sanctioned activity of the International Coral Reef Initiative (ICRI) and assigned responsibility for public awareness of the Initiative's 1997 Program.

The all-day IYOR Symposium on rapid assessments of benthos and fishes and various impacts was well received. Some 20 researchers from around the Western Atlantic met during the symposium and enthusiastically endorsed the idea of assessing the condition of reefs remote from centres of population. Information on this initiative, termed WARRS (Western Atlantic Remote Reef Survey) will be posted on the Coral List Server.

Two meetings of those interested in education were well attended and the participants voiced strong support for developing a clearing house with information on all available teaching aids (see below).

IYOR-related activities also promoted at Panama included:

ReefBase, the global database on coral reefs, now available from ICLARM on CD-Rom together with a comprehensive manual. For information contact John McManus, J.MCMANUS@CGNET.COM

The Global Coral Reef Monitoring Network (GCMRN) was launched and is developing plans for a network of monitoring sites worldwide. Information brochure available from Clive Wilkinson: C.Wilkinson@pearl.aims.gov.au

A poster map of the world's coral reef and mangroves, prepared by the World Conservation Monitoring Centre, is available in English or Spanish from Alastair Grenfell: a.grenfell@wcmc.org.uk

COMING EVENTS

INTERNATIONAL
October, 1996 Montreal: A special session on IYOR, ICRI and coral reefs is being organized at the World Conservation Congress by IUCN - The World Conservation Union. Further information from Paul Holthus, IUCN Marine Program, e-mail: PFH@HQ.iucn.ch

PACIFIC:
The Pacific Year of the Reef (PYOR) will be launched on 11 February 1997. It is being led by the South Pacific Regional Environmental Program and to date 17 countries are participating; others are expected to join. The PYOR slogan is "Coral Reefs: Their Health, Our Wealth". National campaign plans are being developed. An artwork competition is being held to design a logo, the deadline for entries being 1 October 1996. Plans are also being made to produce a video for the campaign. Further information from Lucille Overhoff e-mail: lucille@pactok.peg.apc.org

The 8th Pacific Science Association's Intercongrress to be held in Fiji July 13-19,1997 will feature a full report on the status of coral reefs in the Pacific and the results of resurveys of reefs after some decades, both of which are central themes of IYOR Additional papers on IYOR themes are being solicited. For information contact Dr. Charles Birkeland, UOG Marine Laboratory, Mangilao, Guam 36923 birkelan@uog9.uog.edu or Dr. Richard W. Grigg, Department of Oceanography, University of Hawaii at Mana, 1000 Pope Rd. Honolulu, Hawaii, 96822 rgrigg@soest.hawaii.edu

UNITED STATES
A wide variety of projects have been planned by government and non-governmental participants in IYOR. A recent meeting sponsored by NOAA and the AZA in Washington DC explored common themes for IYOR and allowed networking of many of the interested groups. A summary of that meeting will be made available over the IYOR listserver when it is edited by NOAA. These are a few of the events currently planned.

Please describe your own plans on the IYOR listserver so that they can be added
to the calendar of events that will be displayed on the IYOR Web Site:
www.coral.org/iyor/

September 1996: Hawaii launch: How zoos and aquariums can best participate in IYOR will be discussed at the AZA Annual meeting, sponsored by

the Waikiki Aquarium. A preview of the IYOR Coral Reef Photography Exhibition - organized by CORAL - will be presented at the Waikiki Aquarium.

November 1996: Press Club - background briefing for science writers. IYOR activities will be highlighted and information on the need for coral reef conservation will be distributed to correspondents from major newspapers, magazines and television stations to prepare them for IYOR; sponsored by NOAA and Baltimore Aquarium

January 1997; Inauguration of IYOR with a Gala (plans underway in Miami and San Francisco - other sites encouraged)

January 1997: The IYOR them will be included at the DEMA dive show, in Orlando Florida

1996/97: ongoing activities at National Aquarium, Baltimore; information from Chris Andrews e-mail: candrews@clark.net

Other Aquariums: a number of aquariums are focusing on coral reef education and conservation during IYOR. Individual aquariums (and zoos) are invited to discuss their plans on the IYOR listserver.

Color calendar for 1997 IYOR produced by CORAL (Coral Reef Alliance) is available for immediate distribution; information on availability from Stephen Colwell address below.

IYOR Coral Reef Photography Exhibition - a collection of underwater photographs by the world's top underwater photographers - will travel to major zoos and aquariums throughout 1997-98 - organized by CORAL

Public Service Announcements - on radio and television are planned throughout 1997 to raise the public awareness about IYOR and coral reefs.

IYOR Poster contest for children will be held throughout the United States during IYOR. It will be coordinated by the AZA, The Waikiki Aquarium and other participating zoos and aquariums.

UNITED KINGDOM
September-November 1997: Natural History Museum/Coral Cay Conservation joint exhibition on coral reefs and children's educational weekend

February 1997: UK launch at London Zoo, in conjunction with Sea Life Centres, with David Bellamy

1997: BP/Birdlife International/Fauna and Flora International special award for coral reef expeditions

BBC programme on coral reefs as part of forthcoming 'Oceans' series

Other activities are being developed by the UK IYOR Committee. Further information (as well as copies of the UK-IYOR newsletter) from Vanessa Guest e-mail 101341.16@CompuServe.COM and Liz Wood e-mail ewood@mail.globalnet.co.uk

WESTERN INDIAN OCEAN:
An IYOR-affiliated Program to develop research and conservation initiatives for the Western Indian Ocean is being established in Kenya by Tim McClanahan with support from the Pew Charitable Trust. It will be headquartered in Mombassa under the Coral Reef Conservation Project of The Wildlife Conservation Society and will focus on education-outreach and coordination of activities in the region and research on ways to restore degraded reefs and the effects of multiple anthropogenic impacts.

GERMANY
October 1996: German Research Foundation meeting on 'Global and Regional Controls on Biogenic Information'; IYOR information will be distributed. Further information from Felix Gunkel e-mail: fgunkel@gwdg.de

AUSTRALIA
Programs being developed through Great Barrier Reef Marine Park Authority, Australian Marine Conservation Society, and University of Sydney.

MEXICO
Various activities underway, and plans for establishment of IYOR Mexican Committee.

COLOMBIA
Plans for establishment of IYOR committee underway.

EDUCATION MATERIALS

Several initiatives are underway to assemble information on existing materials and to produce new education and outreach materials through Steve Ladd, Coral Forest and the UK IYOR Committee. This information will be made available through one of the Listservers shortly, and will also be distributed at the World Conservation Congress.

SCIENTIFIC ACTIVITIES

Re-survey of reefs previously impacted by excess sediment -El Nido/Bacuit Bay, Philippines; September, 1996 led by Gregor Hodgson.

Initial assessments of coral community condition, Bahamas Barrier Reef (Andros Island); July-August, 1996 led by William Kiene.

Re-survey of coral community condition off Abaco Island, Bahamas studied some 30 years ago; September 1996; Robert Ginsburg and RSMAS colleagues

A Workshop on research and conservation of coral reefs in the Western Indian Ocean will be held in late February, 1997 in Mombassa, Kenya. Further information from Tim McClanahan, Coral Reef Conservation Project, The Wildlife Conservation Society, PO Box 99470, Mombassa, Kenya FAX: 254 (11) 472215.

Further information about IYOR from:
Robert N. Ginsburg, Rosenstiel School of Marine and Atmospheric Science, University of Miami, 4600 Rickenbacker Causeway, Miami FL 33149; Phone: (305) 361-4875; FAX: (305) 361-4094 or 4632; rginsburg@rsmas.miami.edu

Stephen Colwell, CORAL, 809 Delaware St., Berkeley CA 94710, Phone 510-528-2492, Fax 510-528-9317; e-mail: IYOR1997@aol.com

Vanessa Guest, IYOR-UK, Fax (44) 1326-316-836; e-mail: 101341.16@compuserve.com

Appendix VIII

Information on the 1997 Pacific Year of the Coral Reef (PYOCR) Planning Meeting

Source: Original Text From: Lucille Apis-Overhoff, PYOCR Coordinatorlucille@pactok.peg.apc.org on 7/26/96

A Draft of the Regional Campaign Plan which the SPREP member countries in the meeting came up with. There were actually over 30 participants from 17 countries, including 15 non government agencies. The plenary developed a campaign slogan (Coral Reefs: Their Health, Our Future!), key messages, key audiences, the Regional Campaign Plan (attached) and Draft/NGO Campaign Plans which will be finalised in country according to each country as respective needs and priorities [require]. There was also a media training module in which participants learned how to interact with and use the media for campaign activities. The level of interest and commitment displayed by the participants made the meeting a success. The plenary then agreed on the 11th of February 1997 as the launching date for the PYOCR.

At the moment we are trying to identify sources of funding for regional campaign activities. Experience from our success 1995 Year of the Sea Turtle campaign has shown that such a campaign is practical and worthwhile but rather costly. Hence, we are now sending out feelers for possible funding sources.

"1997 Pacific Year of the Coral Reef"

Regional Campaign Plan

"Coral Reefs: Their Health, Our Future!"

Background

The ICRI Pacific Regional workshop (Suva, 27 Nov. - 1 Dec. 1995) was called to give direction and life to ICRI at the regional and local levels by fulfilling its objectives and developing an ICRI Pacific Regional Strategy which is realistic and clearly defined. Two of the important results of the Strategy are Action 4.2.2 which nominated SPREP to host the ICRI Coordinator for the Pacific region and Action 5.1.1 which recommended 1997 to be the Pacific Year of the Coral Reefs. The endorsement of these two actions by SPREP member countries paved the way for the Planning Meeting for the 1997 Pacific Year of the Coral Reefs. In this Planning Meeting, more than 30 representatives from 17 countries including 15 non government agencies participated in working groups to formulate a campaign slogan, key messages, key audiences and the Pacific Year of the Coral Reef Regional Campaign Plan. The framework of this Campaign Plan is made of 6 components: 1) Support to national and NGO plans; 2) Communication initiatives; 3) Policy initiatives; 4) Resource production; 5) Reporting, monitoring and evaluation; and 6) Interaction with the International Year of the Reef (IYOR). These framework components will drive the Regional Campaign Plan to give life and direction to the 1997 Pacific Year of the Coral Reef (PYOCR) in the region.

Campaign Slogan

"Coral Reefs: Their Health, our Future!"

"Coral Reefs: Their Health, Our Future!" is the campaign slogan that the meeting agreed on for the 1997 Pacific Year of the Coral Reef. This slogan will be utilised regionally by SPREP and also by SPREP member countries in their National/NGO Campaigns. However, member countries may come up with their own local slogans for National/NGO Campaign activities. Local translations for the slogan has been requested from participants.

Key messages:

The following key messages should be used in drafting messages for education and awareness activities. Coral reefs are in danger! Healthy coral reefs are living communities - corals are living animals. Healthy coral reefs provide food for our families. Healthy coral reefs build beaches and islands and protect our homes from the sea. Pollution kills our coral reefs. Using fish poison kills our coral reefs. Dynamiting kills coral reefs and blows up our families' future. Soil is precious on land but kills life on coral reefs. Taking too much from the reef today steals from our children's future. Together our coral reefs, mangroves and seagrasses protect and support each other: we need them all. Protecting our coral reefs helps secure our future and is everyone's responsibility. Local translations for the key messages have been requested from member countries.

Key Audiences:

The meeting agreed that the following key audiences should be taken into consideration when planning campaign activities. In addition, careful consideration on how to reach these key audiences should be made a priority. planners, politicians, government officials, subsistence and commercial fisher people, school children and educators, developers, traditional leaders, tourists, farmers, military, press and media, tour operators, mining industry, shipping industry, religious leaders, parents,

logging industry, and resource owners.

Framework

1. Support to national and NGO campaign plans.

It was agreed that SPREP is to coordinate PYOCR campaign network and:

1.1 Actively seek new and additional funding, technical assistance and in-kind support for PYOCR, especially to support the implementation of national/NGO campaign plans.

1.2 Disseminate information about level and availability of funding (including a format/guidelines for application).

1.3 Provide expert and timely advice for national/NGO campaign plan development.

1.4 Support local and national workshops that are part of national/NGO campaign plans.

1.5 Act as a clearing house for information and contacts. Collate information and/or provide [information].

1.6 Contact information on resource persons that can respond to specific issues e.g. bleaching, marina development, starfish outbreaks, marine protected areas, monitoring, EIA's, bio-monitoring, best management practices, water quality monitoring, model legislation.

1.7 Encourage Heads of Government/Ministers to launch national campaigns.

1.8 Encourage national/NGO campaigns to have a patron.

2. Communication Initiatives.

Scheduled activities:

2.1 Regional media launch of the 1997 PYOCR will be on the eleventh (11th) of February 1997. The launch will utilise the information from the Status of the Reefs report, and the ICRI Pacific Regional Strategy etc.

2.2 Launch of documentary video and companion advertisement (30 second clip, including audio tape for radio) and promotion of its use on TV, in schools, airlines and other media outlets.

2.3 Presentation of the PYOCR at 1996 and 1997 Pacific Island News Association Conference.

2.4 Use every opportunity to promote the campaign at relevant regional/ international meetings e.g. Pacific Science Association Inter-Congress, Fiji Oceans Promotion, SPC, TCSP, SOPAC, Forum meetings.

2.5 Integrate and promote the campaign in the development of the Sixth Conference on Nature Conservation and Protected Areas (Federated Sates of Micronesia, 1997).

2.6 Provide media based campaign wrap up (11 February 1998) at the official end of the PYOCR.

Unscheduled activities:

No dates have been assigned to the following activities as they should be continuing and on-going activities.

2.7 Use every opportunity to promote the campaign and its work to journalists (TV, radio, newspaper, print).

2.8 Establish dialogue and provide information to the Pacific Council of Churches on the campaign.

2.9 Promote use of campaign information in magazine feature articles e.g. Island Business, Pacific Islands Monthly and women's magazines etc. and other organisation's newsletters.

2.10 Promote news coverage of national campaign achievements at the regional and international levels.

2.11 Promote news and campaign coverage on airline in-flight entertainment programmes (TV and magazine) including translation Japanese and other languages for incoming tourists. Information should focus on tourists interactions with coral reefs and unsustainable/illegal practices e.g. coral/shell trade, collecting, damaging and touching corals etc.

2.12 Provide information on the campaign to travel agents and tourist agency networks.

2.13 Hold a regional art competition in 1996 to highlight the forthcoming campaign. Entries to be returned to country campaign focal points. Competition to have three section: primary school, secondary school and adult.

2.14 Support to use village based theatre, including puppet groups, as part of national/NGO campaign plans.

2.15 Encourage commercial producers of tourist items e.g. tee shirts to

use the PYOCR theme.

2.16 Encourage and provide information to Philatelic Bureaus to produce PYOCR stamps in partnership with national/NGO campaigns.

2.17 Internet - if possible SPREP or a campaign network member to link with the website and the IYOR Internet mailing list and see that information about activities in the Pacific make it to this page and that information relevant to the region feeds back to those in the region who do not have the Internet.

2.18 Hold regional workshop for national curriculum developers to focus on coastal marine conservation.

3. Policy initiatives. The following are the agreed upon policy initiatives that member countries decided were needed to be pursued for the PYOCR campaign.

3.1 Seek endorsement for the PYOCR campaign for the SP Forum, SPC in 1996. Prepare 1997 briefing paper with key actions for Heads of Government (Forum, SPC) in 1997. SPREP to bring to the attention of the Forum & SPC Heads of Government for its recognition/endorsement the following:
* importance and endorsement of Integrated Coastal Management (note that this has been endorsed by Convention On Biological Diversity - includes 11 Pacific Parties), in particular the importance of a legislated EIA process,
*need for a ban on the international trade in live non cultured coral, and the use of cyanide/poisons for the live coral reef fish trade,
*importance of coral reefs and associated ecosystems and the lack of information/understanding/research.

3.2 Promote interaction (and accession if appropriate) with relevant conventions e.g. CITES (international trade issues e.g. for live corals, turtles, giant clams etc.), CBD, Ramsar. Provide information to the PYOCR campaign network on relevant international agreements and how they can support campaign objectives. Emphasize SPREP input on priority campaign issues with international aspects to decisions made under these conventions in 1996/7/8.

3.3 Support and focus attention on the Global Coral Reef Monitoring Network in its efforts to establish a regional node in the Pacific and help secure resources to support this.

3.4 Encourage and assist countries wishing to develop legislation for the management, conservation and wise use of coral reefs and related ecosystems, including Marine Protected Areas. Where appropriate promote community based management and customary laws in advice to government departments.

3.5 Encourage scientific and technical organisations to provide resources and assistance to both regional and national campaigns and initiate programmes in response to identified management issues.

3.6 Encourage and support management, research and capacity building proposals to address problems and issues identified in the ICRI Pacific Regional Strategy (e.g. USP, UPNG, UOG, SPC, FFA, GBRMPA, Unitech, SOPAC, Univ. Hawaii, AIMS, SPREP).

3.7 Collaborate with the relevant population agencies and programmes to highlight impacts of increasing population pressure on coastal resources for the purpose of strengthening policies and actions of these programmes.

3.8 Encourage governments/NGO to use Environment Week/Days or similar to focus on the Year of the Reef campaign.

4. Resource Production

The following are campaign resources that member countries have decided that SPREP should provide for in-country and regional activities.

4.1 SPREP to produce regional campaign - HIGH: poster, video, t shirt, fact sheets, sticker, MEDIUM: radio audio tape, calendar (based on art competition), children's colouring book/comic book LOW: slide show (use existing SPREP slide show as basis and add examples showing human induced impacts and activities).

4.2 SPREP to provide logo that may be use for national/NGO campaigns to produce tee shirts, caps.

4.3 Joint production of the Wan Smol Bag On the Reef video as part of package to schools.

4.4 Develop a school PYOCR campaign resource information kit which will include copies of campaign resources e.g. posters, videos but also to develop specific school activities through lesson plans and teacher training.
Encourage and help develop ongoing curriculum based lessons and material covering coral reef, mangrove etc.. conservation and wise use.

4.5 Guam video to made available as a resource to other member countries.

Guiding Principles:

Encourage and assist reproduction of existing materials useful to the

campaign. Encourage and produce local language versions to meet specified needs in national/NGO campaign plans. Use materials to show good and bad examples coastal management in the Pacific or from other areas to example key issues..[Attention is drawn to an ICLARM Solomon Islands study of fish in protected and unprotected areas.] In developing information tools e.g. fact sheets ensure that relevant information in the scientific literature in scientific jargon but relevant to sustainable management practices could be translated into plain English and disseminated. Note: Campaign Resource form is attached in Annex 1.

5. Reporting, Monitoring and Evaluation
It was agreed upon that SPREP is to provide the following to member countries for reporting, monitoring and evaluation of the PYOCR.

5.1 Every two months provide fax/e-mail update on campaign progress and upcoming events, including news from national/NGO campaigns, to the campaign network.

5.2 Quarterly campaign update PEACESAT session.

5.3 Prepare a campaign report for a Review and Evaluation meeting scheduled for early 1998.

5.4 Secure funding and prepare for a campaign review and evaluation meeting in 1998.

Pacific YOCR campaign network members to:
Provide by the 15th of every second month a campaign update (i.e. 15 February, 15 April, 15 June etc.). SPREP to provide format for reporting progress and distribution to other countries. Reporting during year about progress should be brief and not onerous. National/NGO campaign

coordinators to: *keep a log of feedback and response to all initiatives undertaken in the campaign, *prepare a campaign report for a Review and Evaluation meeting scheduled for early 1998.

Ensure SPREP has copies of locally produced materials for campaign review meeting.

Note that those campaigns receiving funding will be required to provide a comprehensive report as part of the Letter of Understanding.

6. Interaction with the International Year of the Reef (IYOR) SPREP should be a coordinating link feeding back and forth information about the IYOR to the Pacific YOCR campaign network. This should include accessing and disseminating information from IYOR to the network, sending Pacific campaign information to IYOR, and helping Pacific YOCR members access IYOR contacts and initiatives.

Appendix VIIII

The Global Coral Reef Monitoring Network (GCRMN)

One example is the proposed Global Coral Reef Monitoring Network (GCRMN). This network's goal is to develop a global coral reef monitoring network, designating a global coordinator, and devising and implementing a series of consistent data collection and storage guidelines, allowing not only easy central data storage, but access for all collection nodes, world-wide of that data. Scientists and policy-makers alike could access the data, interpret it and utilize it for improved, informed decision-making.

The GCRMN is awaiting additional funding (currently funded by the U.S. for year 1 for $100,000) from other ICRI partner governments. It will likely receive additional contributions from the ICRI donor partners including the governments of Australia and Japan. It will be hosted by the government of Australia and a coordinator has been chosen, named Dr. Clive Wilkinson.

Update on the Global Coral Reef Monitoring Network (GCRMN)

Memorandum to Members of GCRMN Steering Committee

Following is the text of a Progress Report written as part of the contract with UNESCO for the Coordinator of the GCRMN.
Clive Wilkinson, Coordinator GCRMN

IOC-UNEP-IUCN GLOBAL CORAL REEF MONITORING NETWORK
PROGRESS REPORT OF GCRMN COORDINATOR JULY 1996

COMMENCEMENT OF GCRMN

The first contract between the IOC (UNESCO) and the Australian Institute of Marine Science was signed on 18, March 1996. The contract nominated Clive Wilkinson as the initial coordinator, paid under the IOC Trust Fund using money allocated by the US State Department.

CO-SPONSORS

Three agencies are providing assistance to the GCRMN as Co-sponsors: IOC; UNEP; and IUCN. These bodies have indicated their willingness to provide financial and logistic support and assistance in contacting their constituent bodies. Hosting of the Coordinator position is shared between 2 institutes, AIMS and ICLARM. Both have offered similar support, as well as communications and database assistance. The Secretariat of the International Coral Reef Initiative will provide the principal political contact to major government and donor agencies supporting the ICRI Call to Action and Framework for Action. Representatives of these 6 bodies will provide high-level guidance for the GCRMN and Coordinator as the GCRMN Management Group.

GCRMN STEERING COMMITTEE

The major source of scientific and resource management advice will be provided by the IOC-UNEP-IUCN GCRMN Steering Committee. Membership on the Committee was decided by the Management Group, but is not regarded as fixed or permanent (Appendix 1). Representation is intended to cover natural and social sciences and coastal management and be representative of the major coral reef regions and the principal donor agencies. Additional persons can be added as required to advise on specific regions or problems. The Steering Committee will only meet on an opportunistic basis, as no funding will be requested for meetings. Contact will be made electronically through e-mail and facsimile.

REGIONAL NODES

Both ICRI and the GCRMN will operate through Regional Nodes, with two categories: a 'political' Node, representing countries of each region on the Coordination Planning Committee of ICRI; and technical Nodes to implement monitoring for the GCRMN. These Nodes may or may not be coincident, but there must be close working communication. The GCRMN Nodes will take over functioning of the Network as soon as possible, with the role of central coordination diminishing.

The Western Indian Ocean (WIO) and South Asian (SAS) Regions have selected Nodes. For the WIO, the political Node will be in the Seychelles supported by the Intergovernmental Secretariat of the Convention for the Protection and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention). There will be 2 technical sub-nodes: Mauritius for the island countries (Comoros, Madagascar, Mauritius, Reunion, Seychelles) based within the Indian Ocean Commission (COI); and the Kenya Marine and Fisheries Research Institute in Mombassa, for mainland countries (Kenya,

Mozambique, South Africa, Tanzania and other countries when applicable). The latter sub-node will work closely with the Tanzania Institute of Marine Science in Zanzibar. For the SAS Region, the political node will be in the South Asia Co-operative Environment Programme (SACEP) in Sri Lanka, with decisions on technical nodes pending.

Nodes will provide countries with training and advice on monitoring and database application. Node staff will train in coral reef assessment and gather basic socioeconomic data. Staff should preferentially be supported by institutes experienced in coral reef monitoring and management. Funding for these technical Nodes will be requested from participating countries and donor agencies in ICRI.

ICRI REGIONAL WORKSHOPS

ICRI Regional Workshops for the Tropical Americas, Pacific, South Asia, East Asian Seas and Western Indian Ocean have all endorsed the need for monitoring coral reef resources and the establishment of databases to assemble information. Some meetings specifically endorsed the GCRMN and called on countries to participate.

The Coordinator attended the East Asian Seas (Bali, Indonesia, 18 to 22 March 1996) and Western Indian Ocean Workshops (Mahe, Seychelles, 29 March to 02 April 1996) to provide briefings on the concepts of the GCRMN and develop regional networks of contact persons and institutions.

FUTURE SUPPORT FOR REGIONAL NODE ACTIVITIES

During the East Asian Seas Workshop, it was acknowledged that Cambodia, Myanmar/Burma, and Vietnam had little expertise in monitoring. A recommendation for training at a comparable level to the 5 ASEAN countries in the ASEAN-Australia Living Coastal Resources project is being considered by the Asian Development Bank, within development proposals for those countries.

The Government of Japan has offered: to host the second ICRI East Asian Seas Regional Workshop in Okinawa in February 1997; to host a Regional Node in Japan; and support Pacific regional activities out of a coral reef conservation center in Palau.

The Indian Ocean Commission, funded by the European Union, has offered to support methods familiarisation and training to Western Indian Ocean countries. They will host the technical sub-node in Mauritius.

GCRMN STEERING COMMITTEE MEETINGS - PANAMA

Two meetings of the IOC-UNEP-IUCN GCRMN Steering Committee were held during the 8th International Coral Reef Symposium in Panama (Sunday 23-JUN-96 from 09.30 to 17.30, and Tuesday, 25-JUN-96, 19.30 to 22.30). The meetings were attended by 16 members of the Committee, 4 observers and the Coordinator. The meeting elected Dr Bernard Salvat as the Steering Committee Chair for the initial period.

The meetings decided that:

- the Objectives and Activities listed in the Draft Strategy Discussion Paper should be redrafted to correspond with United Nations proposal guidelines;
- membership of the Committee should be expanded to include representatives from major donor agencies and the social sciences;

- most meetings of the Committee would be held electronically and all agreed to assist decision making through these means;
- the Chairman and Coordinator would maintain regular contact and report every 3 months to the Committee;
- a Internet web site for the GCRMN would be established through ICRI;
- the Regional Node and Sub-Node strategies outlined by the Coordinator were the most effective mechanism to implement the GCRMN globally;
- that a sub-group be formed to determine the principal socioeconomic parameters to assess, where practicable, in parallel with biophysical monitoring;
- it is essential and urgent to identify regional technical nodes and organisations that are willing to assist the GCRMN.

For this last point, interim sub-groups of the Committee were formed to list potential sites, agencies and existing monitoring programmes for each Region and these will be reported in the Minutes.

A draft of the Minutes is circulating with co-sponsor representatives at the meeting to confirm statements and decisions, before the minutes will be circulated to the Steering Committee for ratification and action.

ICRI EXECUTIVE PLANNING COMMITTEE MEETINGS

The Coordinator reported on the GCRMN concept and progress to two ICRI EPC meetings (Washington D.C. 22-23 February 1996, and Panama City 26 June 1996). Both meetings reported strong support for the GCRMN and representatives of Governments and Agencies offered considerable assistance.

UNESCO-IOC LONG-TERM MONITORING WORKSHOP - PANAMA 1996

This workshop, organised by UNESCO-IOC and chaired by Professor Joe Connell, presented lessons from previous coral reef monitoring programmes as a guide for the GCRMN. The afternoon session featured people from developing countries sponsored by the IOC, who outlined problems of implementing coral reef monitoring in different regions. Many of the problems involved solving problems of providing basic training in scuba diving, simple monitoring methods and basic equipment. A separate report on this Workshop is being prepared by the Coordinator.

GLOBAL STATUS OF CORAL REEFS SYMPOSIUM - PANAMA

The Chair of the Steering Committee (Dr Bernard Salvat) and the Coordinator co-chaired a Symposium on the Global Status of Coral Reefs (24 June 1996) at the 8th International Coral Reef Symposium in Panama. The reef status reports presented will be edited, condensed and published as a separate volume constituting a baseline report for the GCRMN.

OTHER ACTIVITIES

Visits were paid by the Coordinator to ICLARM and Asian Development Bank, Manila in March 1996. Dr Meryl Williams, Executive Director of ICLARM endorsed the GCRMN and indicated that their major contribution would be in developing cultural, sociological and economic criteria for coral reefs. Dr Robert Dobias (ADB) is considering incorporating GCRMN training in resource assessment projects in Cambodia, China and Vietnam COMEMIS) as well as participating in the COREMAP project in Indonesia.

SURVEY MANUAL FOR THE GCRMN

The second edition of the Survey Manual for Tropical Marine Resources (from the ASEAN-Australia Living Coastal Resources project, published by

AIMS) is being revised and will be printed in 1996 for distribution by the GCRMN. Funding is being sought to distribute copies free to developing countries.

FUTURE ACTIVITIES

Planning documents are being prepared to implement the GCRMN in two smaller regions as test cases: the Western Indian Ocean and South Asia. For both regions, financial assistance has been indicated to develop the network.

A sub-committee is being assembled to develop socioeconomic criteria to be collected, where possible, in parallel with biophysical monitoring. Dr Richard Pollnac of the University of Rhode Island is contacting potential members and collecting socioeconomic criteria applicable to monitoring coral reefs. Consideration is being given to organising a workshop of experienced personnel to select criteria for global, regional, and local use.

A database for data entry and analysis by countries participating in the GCRMN is being developed jointly by AIMS and ICLARM. This will be discussed further when the Coordinator next visits Manila.

Clive R. Wilkinson
Coordinator, GCRMN

MEMBERSHIP

IOC-UNEP-IUCN GCRMN STEERING COMMITTEE MANAGEMENT GROUP

Bernard Salvat	Representing IOC, and Chair
Ian Dight	Representing UNEP
Paul Holthus	Representing IUCN
Russell Reichelt	AIMS, Delegate Will Oxley
Meryl Williams	ICLARM, Delegate John McManus
Richard Kenchington	ICRI Secretariat

INDIVIDUAL MEMBERS

Charles Birkeland	University of Guam, Guam
Barbara Brown	University of Newcastle, UK
Chou Loke Ming	National University of Singapore
Mark Eakin	NOAA, USA
Lynne Hale	University of Rhode Island, USA
Marea Hatziolos	The World Bank
Eric Jordan-Dahlgren	Cancun, Mexico
Graeme Kelleher	CNPPA, IUCN
Olof Linden	Stockholm University, Sweden
Nyawira Muthiga	Kenya Wildlife Service, Kenya
John Ogden	Florida Inst. Oceanography, USA
Richard Pollnac	University of Rhode Island, USA
Peter Thomas	US State Department, USA
Tetsuro Uesugi	Environment Agency, Japan
Meriwether Wilson	Global Environment Facility

SECRETARY TO COMMITTEE

Clive Wilkinson	Coordinator, GCRMN

Appendix X

General Background on Coral Reefs and Scientific Monitoring Activities

The scientific community was also voicing similar concerns about coral reefs and the issues facing them and had studied and monitored reefs long before they came to the global attention of policy-makers and managers. As early as the 16th century, reefs were believed to actually be plants and are often still referred to collectively as "coral gardens".[176] That idea changed in 1752, when a French Biologist named Jean Andre' Peysonnel described coral reefs as animals, but only ten years earlier, thought his idea too dangerous to publish.[177] Others during the same period attributed the coral skeleton's honeycombed appearance to be the work of "industrious insects."[178]

By the 19th century, expanded maritime trade and the invention of the diving suit resulted in increased activity on reefs by western scientists.[179] In 1904, Alfred Mayor founded the first reef laboratory on Dry Tortugas Island, on the end of the Florida Keys, United States, for the Carnegie Institute in Washington.[180] But the watershed event that forever changed research and recreational capabilities on reefs was the invention and continued improvements of the Self Contained Underwater Breathing Apparatus

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[176] Wells, S. and Hanna, N. The Greenpeace Book of Coral Reefs. Sterling Publishing Co., Inc. New York. 1992. p. 43

[177] Ibid.

[178] Ibid.

[179] Ibid.

[180] Ibid., p. 44

commonly known as SCUBA. Jacques Cousteau and Emile Gagnon developed the device more than 50 years ago.[181] While technology and laboratory techniques continue to improve, and ready access to reefs increased, much remains to be learned from and about coral reefs and their ecosystems.

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[181] Ibid.

Appendix XI

A Diplomatic Communication Tool -- Demarsh

The two most common means of formal diplomatic communications are the use of cables (a typed document originating from secure computer systems installed in all embassies and state departments) and personal high-level contacts initiated at various related international environmental meetings.

Cables or telegrams are used by all embassies, state departments, and other federal agencies, like USAID, NOAA, as the official form of communication between one capitol and another. Cables are used when two capitals agree to language in the text of a cable being sent are called demarches. Tripartite demarches, are used when three capitols develop and agree to language in the text of a cable that is then delivered to a four or more capitals for a response or action.

Appendix XII

Capacity-Building

The challenge facing the Initiative in year two is how to assist national governments with building national Coral Reef Initiatives (CRIs). This enormous will take skillful coordination between all interested parties including governments, scientists, and donor agencies. The most efficient vehicle will be the use of existing organizations, ICRI partners, including UNEP's Regional Seas Programme, IUCN and its member organizations and Commissions, regional, local NGO's working within interested partner nations and the private sector with a vested interest. Can this monumental undertaking be accomplished in the next three years (ICRI's remaining existence)? Time will be the judge of that, but if the global recognition of the issues and the interest of governments, scientists, and donor agencies, the private sector and international organizations are any indication, ICRI does have a chance to make real progress against coral reef degradation. The realization must be made that we can no longer afford to simply react to the world-wide destruction of reefs, but must change our behavior to sustainable use and protect them for future generations. ICRI has successfully built many partnerships and strengthened existing ones, now it must provide assistance to those new partners in need of technical and financial assistance to the next and most important step---national and locally-sustained protection of reefs.

Appendix XIII

The Fragile Ring of Life -- An ICRI Documentary

The Fragile Ring of Life won several film awards including the 1996 Earthwatch Film Award, CINE Golden Eagle Medal of National Association of Government Communicators, and the World Bronze Medal, the New York Festivals.

(Source: B. Mieremet. (unpublished) The International Coral Reef Initiative: A Seed From the Earth Summit Tree Which Now Bears Fruit. p. 19.)

Appendix XIIII

International Coral Reef Initiative Acronym List

CEP - Caribbean Environment Programme

COBSEA - Coordinating Body on South East Asia

COMAR - The Coastal Marine Programme of UNESCO

CORAL - The Coral Reef Alliance

CRI - Coral Reef Initiative

CSD - The Commission on Sustainable Development

DENR - The Department of Environment and Natural Resources

EPC - (ICRI) Executive Planning Committee

FAO - Food and Agricultural Organization

FFA - Framework For Action

GCRMN - Global Coral Reef Monitoring Network

GEF - Global Environment Fund

GOOS - Global Ocean Observing System

ICLARM - International Center for Living Aquatic Resource Management

ICM - Integrated Coastal Management

ICRI - International Coral Reef Initiative

ICRS - International Coral Reef Symposium

ICZM - International Coastal Zone Management

IOC - Inter-governmental Oceanographic Commission

IUCN - International Union for the Conservation of Nature

NGO - Non Governmental Organization

OCA/PAC - Oceans and Coastal Areas Programme Activity Center

OES/ETC - Bureau of Oceans and International Environmental and Scientific Affairs and Ecology Terrestrial Conservation

PACICOMP - Pacific Coastal Marine Productivity

RAMSAR - Convention on Wetlands of International Importance especially on Waterfowl Habitat

SIDS -	Small Island Developing States
SPREP -	South Pacific Regional Environment Programme
STRI -	Smithsonian Tropical Research Institute (Panama)
TNC -	The Nature Conservancy
UN -	United Nations
UNCED -	United Nations Conference on Environmentally Sustainable Development
UNDP -	United Nations Development Programme
UNEP -	United Nations Environment Programme
UNESCO -	United Nations Educational, Scientific and Cultural Organization
URI CRC -	University of Rhode Island Coastal Resources Center
USAID -	United States Agency for International Development
WG -	Working Group
WIO -	Western Indian Ocean
WTTC -	World Travel Tourism Centre
WWF -	The World Wildlife Fund

Source: Partnership Building And Framework Development: Final Report The International Coral Reef Initiative Workshop, Silliman, the Philippines. 1995.