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EAST ASIAN SEAS ACTION PLAN

Workshop on the International Coral Reef Initiative (ICRI)
Regional Workshop for the East Asian Seas

Denpasar, Bali, 18 - 22 March 1996

**REPORT OF THE
INTERNATIONAL CORAL REEF INITIATIVE (ICRI)
REGIONAL WORKSHOP FOR THE EAST ASIAN SEAS**

Prepared in cooperation with:



Ministry of State for Environment, Indonesia

MENTERI NEGARA
LINGKUNGAN HIDUP

UNEP
Bangkok, 1996



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**KANTOR MENTERI NEGARA
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PREFACE

This document is the report of the *International Coral Reef Initiative (ICRI) Regional Workshop for the East Asian Seas*. The Government of Indonesia formally hosted this regional workshop in Denpasar, Bali, during 18-22 March 1996. Under a Memorandum of Agreement with UNEP, the government of Indonesia also provided support and cooperation during the organization and convening of the workshop. The funds for the workshop were generously provided by the Governments of Denmark and Japan, with partial funding from the resources of UNEP's Environment Fund and additional counterpart contribution from the government of Indonesia. UNEP's Regional Coordinating Unit for the East Asian Seas (EAS/RCU) coordinated the organization and convening of this workshop within the framework of the project: "*ES/1100-96-14: International Coral Reef Initiative (ICRI): East Asian Seas Region*". Many individuals and organizations assisted in the organization of workshop. Particular mention should be made of assistance provided by Dr. Peter Thomas, ICRI Coordinator and Mr. Richard Kenchington, Senior Director, and other staff of the Great Barrier Reef Marine Park Authority.

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INTRODUCTION

1. The International Coral Reef Initiative (ICRI) was launched in 1994 as a partnership of developing and industrialised governments, non-government organisations (NGOs), international organisations, multilateral development banks and private sector aimed towards conservation, sustainable use and effective management of coral reefs and their associated ecosystems. The key to its success is seen in global and regional cooperation augmenting national initiatives.

2. The initial countries who launched the initiative were soon joined by many others. In addition to UNEP as one of the international organization partners, three of the UNEP's Regional Seas Programmes, the Caribbean Action Plan, South Pacific Regional Environment Programme (SPREP) and the East Asian Seas Action Plan through its Coordinating Body on the Seas of East Asia (COBSEA), were among the original supporters of ICRI when it was launched in 1994.

3. At the invitation of the Government of the Philippines, ICRI held its first international workshop in May 1995 at Dumaguete with over 120 participants from around the world. The Dumaguete workshop adopted a *Call to Action* and a *Framework for Action* which provide the basis for future international and regional action and cooperation.

4. In its subsequent phases ICRI aims to implement the *Framework for Action* at the regional and national levels. As an initial step, regional workshops covering all countries with coral reefs were planned and held. These regional workshops were based loosely on the areas covered by UNEP's Regional Seas Programme.

5. At the invitation of the Government of Indonesia, the ICRI Regional Workshop for the East Asian Seas was convened at the Sahid Bali Hotel, Denpasar (Bali), during 18-22 March 1996.

6. Representatives of Australia, the Kingdom of Cambodia, Indonesia, Japan, the Republic of Korea, Malaysia, Myanmar, the Philippines, Singapore, Thailand and the Socialist Republic of Vietnam attended the workshop. In addition, representatives from the Intergovernmental Oceanographic Commission (IOC/UNESCO), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the International Coral Reef Initiative Secretariat, the World Conservation Union (IUCN), the International Centre for Living Aquatic Resource Management (ICLARM), Wetlands International (Indonesia), the Association of Southeast Asian Marine Scientist (ASEAMS), the Siam Environment Club and the Marine Science Institute of the University of the Philippines also participated. The list of the participants is attached as Annex I of this report.

7. The workshop was organized by the UNEP Regional Coordinating Unit for the East Asian Seas Action Plan (RCU/EAS) with the financial contribution and cooperation of the Governments of Indonesia, Japan and Denmark and the cooperation of the ICRI Coordinator.

8. This document and its annexes constitute the record of the proceedings of the ICRI Regional Workshop for the East Asian Seas (Bali, 18-22 March 1996).

OPENING OF THE MEETING

9. Mr. Reza Amini on behalf of Ms. Elizabeth Dowdeswell, Executive Director of UNEP, welcomed the participants. In his remarks he expressed UNEP's gratitude to the Government of Indonesia, Japan and Denmark for their contribution and support for the organization and

convening of the workshop. He specifically thanked H.E. Mr. Sarwono Kusumaatmadja, Minister of State for the Environment, for the Government of Indonesia's offer of hosting the workshop and for lending it invaluable support in agreeing to open the workshop personally. The text of Mr. Amini's statement is attached as Annex II of this report.

10. On behalf of the Government of Japan, Mr. Zenji Kaminaga, Minister, Japanese Embassy (Jakarta), addressed the meeting. While stressing the importance of ICRI as a global initiative, with Japan as one of the original partners, Mr. Kaminaga reiterated the commitment of his Government to ICRI. He also thanked H.E. Mr. Sarwono Kusumaatmadja for the Government of Indonesia's offer of hosting the workshop and expressed his appreciation to UNEP and UNEP's Regional Coordinating Unit for the East Asian Seas Action Plan (EAS/RCU) for their efficient arrangements. The text of Mr. Kaminaga's statement is attached as Annex III to this report.

11. Mr. Reza Amini informed the workshop participants that he was requested by H.E. Mr. Michael Sternberg, Ambassador, Royal Danish Government (Jakarta), who due to a previous engagement was unable to attend, to read the Royal Danish Government's statement. H.E. Mr. Sternberg referred to the commitment of the Royal Danish Government to ICRI and underlined that coral reefs are a valuable heritage in the custody of all people and nations. He also expressed his Government's appreciation and thanks for all the support the Government of Indonesia provided to this workshop and thanked UNEP and its EAS/RCU for the organization of the workshop. The text of H.E. Mr. Sternberg's statement is attached as Annex IV of this report.

12. The Secretariat requested H.E. Mr. Sarwono Kusumaatmadja to address the workshop participants and formally declare it open.

13. H.E. Mr. Sarwono Kusumaatmadja, Minister of State for Environment, Indonesia, in addressing the workshop stressed that Indonesia, as the world's largest archipelago and as the country with the world's longest coast line has an outstanding range of coastal and marine ecosystems which includes various types of wetlands, mud-flats, mangroves, seagrass beds and coral reefs of international significance. He referred to Indonesia's major initiatives to ensure sustainable use of its coral reefs and specifically mentioned that the efforts within the framework of ICRI could be considered as a follow up to the Jakarta Mandate Agreement reached in the Second Conference of the Parties to the Convention on Biological Diversity held in Jakarta in November 1995 where the importance of marine biodiversity was clearly stated. He mentioned that these efforts of ICRI were also in line with Indonesia's National Development Theme of this year as declared by the President of the Republic of Indonesia, "The Year of Aerospace and Marine". After reiterating his Government's support for ICRI, H.E. Mr. Sarwono Kusumaatmadja wished for a successful meeting and formally declared the workshop open. The text of H.E. Mr. Sarwono Kusumaatmadja's statement is attached as Annex V of this report.

ELECTION OF THE CHAIRPERSON/FACILITATOR

14. The Secretariat requested the participants to elect a chairperson/facilitator.

15. The workshop unanimously elected Mr. Richard Kenchington (Australia) as the facilitator.

ORGANIZATION OF THE WORKSHOP AND ORIENTATION

16. The facilitator stated that the workshop was essentially an "experts" meeting and in the interest of better interaction requested the participants to consider:

- (a) allowing some flexibility in their provisional programme/agenda; and
- (b) rather than a single rapporteur, agree to assign the task to a team from the Secretariat, resource persons and the rapporteur of the Working Groups (to be named at a later stage) to draft the report of the workshop.

17. To orient the workshop, the Facilitator, referring to the list of documents, briefed the participants on the objectives of the workshop, the proposed agenda/programme to achieve these objectives, and proposed sessions (plenary and five Working Groups) that were envisaged to finalize a comprehensive strategy for the East Asian region.

18. The Facilitator stressed that the objectives of the workshop were:

- (a) an endorsement of ICRI's *Call to Action*;
- (b) development an East Asian Seas Regional Strategy for supporting the national implementation of the ICRI's *Framework for Action*, including, but not limited to :
 - * regional priorities for management, capacity building, and research and monitoring related to the conservation and sustainable use of coral reefs and associated ecosystems;
 - * identification of country issues, programmes and priorities;
 - * coordination and linkages with relevant international and regional agreements and programmes;
 - * identification of mechanisms and funding sources to support country implementation of the ICRI East Asian Seas Regional Strategy.

19. The programme/agenda agreed to is attached as Annex VI of this report.

INTRODUCTION OF THE GOALS OF ICRI, CALL TO ACTION, FRAMEWORK FOR ACTION AND THE REPORT OF THE ICRI WORKSHOP, DUMAGUETE, PHILIPPINES

20. Mr. Peter Thomas, the ICRI Coordinator, after thanking the Governments of Indonesia, Japan and Denmark as the sponsors of the workshop made a presentation on the goals of ICRI. He commended Indonesia's strong efforts after last year's Second Conference of Parties of the Convention on Biological Diversity on the promotion of the conservation and sustainable use of marine and coastal biodiversity, which was then followed by hosting the ICRI regional workshop. He also expressed thanks for the contribution of UNEP and for the efficient manner in which UNEP's EAS/RCU had coordinated and organised the workshop.

21. He then referred to the background of the ICRI and its launching by eight partner governments as a response to the issues addressed by UNCED and its Agenda 21, including the Convention on Biological Diversity, the Framework Convention on Climate Change and the Conference on Small Island Developing States. He noted that since its launch, ICRI partners have increased to include many other countries, UN Organizations, regional environmental organizations, multilateral development banks, NGOs and the private sector.

22. Mr. Thomas then referred to the 1995 Global Workshop held in the Philippines (Dumaguete) which adopted the *Call to Action* and developed the *Framework for Action* in order to serve as a comprehensive guide to mobilize national, regional and international resources to address the environmental problems and issues related to coral reefs and associated ecosystems. He noted that the two documents focus on efforts in four primary areas: management, capacity building, research and monitoring and review. At the global workshop particular attention was paid to integration of science and management, e.g., through the creation of a Global Coral Reef Monitoring Network. Furthermore, community based management or co-management in the context of Integrated Coastal Zone Management was identified as a vitally important approach to conservation and sustainable use of coral reefs and associated ecosystems.

23. He stressed that the regional workshop was intended to provide a mechanism to translate the general principles and actions embodied in the two documents into concerted regional and national actions. Therefore, he urged the participants to consider the future activities of ICRI within these parameters.

INTRODUCTION TO THE REVISED DRAFT OF THE EAST ASIAN SEAS REGIONAL REPORT ON THE STATUS OF CORAL REEFS AND RELATED ISSUES AND ACTIVITIES

24. Ms. Kim-Looi Ch'ng, Programme Officer, UNEP's RCU/EAS, presented the revised draft of the East Asian Seas Regional Report on the Status of Coral Reefs and Related Issues and Activities which was originally prepared for the ICRI Philippines Workshop. In presenting the draft she stressed that the document should still be considered as a draft and hoped that the participants of the workshop could provide additional input and amendments, if necessary. The final draft would then be sent for the clearance of the National Focal Points.

25. Ms. Ch'ng informed the meeting that the revised draft included inputs gleaned from national country reports and from other sources, including the original draft presented by the Japanese representatives to the Dumaguete workshop. She went on to give an overview of the status of coral reefs and related ecosystems, the key issues and summaries of the regional priorities under the *Framework for Action* with respect to the areas of management, capacity building, and research and monitoring. It was pointed out that coral reefs and the related ecosystems cannot be managed in isolation from other areas. Rather, the issues faced need to be considered within the broader context of integrated management of watersheds, the coastal zone, the adjacent large marine ecosystem of the territorial waters, and the exclusive economic zone (EEZ).

26. She outlined the regional report's priorities in the areas of management, capacity building, and research and monitoring that could address priority issues facing coral reefs and related ecosystems, pointing out that it was important for the meeting to establish a comprehensive programme of activities to support national action plans for the conservation and sustainable use of coral reefs and associated ecosystems.

27. In conclusion, she referred to and emphasized the sections in the report where the need for establishing appropriate mechanisms for coordination in planning and implementing national resource management plans, vertically between governments and horizontally between sectors, and planned activities to address the sustainable use and management of coral reefs and associated ecosystems are stressed.

INTRODUCTION TO REEFBASE

28. Mr. John McManus, ICLARM, discussed the future of coral reefs in the face of global change, including needs for research, information exchange and meta-analysis. He emphasized the need to determine more about the extent and location of subsurface shelf reefs, which, while constituting most of the reefs of the world, are generally not charted. He outlined a basic strategy for developing criteria for reef health. He then discussed ReefBase, the global database on coral reefs and their related resources, and emphasized the need for regional and local mechanisms of data exchange to enhance the capacity to effectively manage the coral reefs of the world. He informed the meeting that ReefBase is a database designed to summarize information on the uses, ecological status and management of coral reefs globally, regionally and nationally. The information was planned to be made available in user-friendly form on CD-ROM to those involved in reef management. In conclusion Mr. McManus outlined the current status of the programme, the expected outputs and the long-term perspective of the ReefBase. The text of Mr. McManus's statement on ReefBase is attached as Annex VII of this report.

INTRODUCTION TO THE GLOBAL CORAL REEF MONITORING NETWORK: GCRMN

29. Mr. Clive Wilkinson, Coordinator of the Global Coral Reef Monitoring Network (GCRMN), introduced the programme. He mentioned that the GCRMN was an important component of ICRI, providing data on the status of reefs and trends over time in order to advance sustainable management of coral reefs and associated ecosystems. The GCRMN is planned to function as a series of Regional Nodes that will interact directly with participating countries and institutes and provide data for the ReefBase programme of ICLARM.

30. Mr. Wilkinson informed the meeting that the programme was co-sponsored by the Intergovernmental Oceanographic Commission (IOC/UNESCO), UNEP and IUCN and supported by the Government of the United States of America. The GCRMN will obtain advice from a Steering Committee of scientists and resource managers. The major component of the GCRMN will be to train resource users on methods of assessing coral reefs and assembling data so that these can be used to enhance management.

PRESENTATIONS BY COUNTRY REPRESENTATIVES

31. The Facilitator invited representatives of the participating countries to give a brief overview of the status of their reefs and associated ecosystems, with specific reference to the management issues, constraints, and priorities.

32. The representatives of Australia, the Kingdom of Cambodia, Indonesia, Japan, the R. of Korea, Malaysia, Myanmar, the Philippines, Singapore, Thailand and the Socialist Republic of Vietnam outlined key national coral reef-related issues and priorities of their countries respectively.

PRESENTATIONS BY INTERNATIONAL ORGANIZATIONS

33. Ms. Margarita Astralaga, Special Projects Officer of the CITES Secretariat, gave a presentation stressing CITES objectives and mentioning the importance of considering trade in corals as an issue to be included in the strategy for coral reefs management in the Region. She provided some general information on CITES, informing the workshop participants when corals were included in Appendix II to the Convention. She presented several tables showing the amounts of raw and live corals exported from 1989 to 1993 by major countries of origin and the coral taxa most frequently reported in trade during those five years. She also made a set of recommendations on better trade reporting systems, and factors that should be taken into account by the capacity building and research working groups, during the ICRI workshop.

34. Ms. Astralaga concluded her presentation by informing the meeting about the project on the status of corals and the impact of the coral ban which is being carried out in the Philippines with CITES support.

35. Mr. Will Oxley, representing the Australian Institute of Marine Science (AIMS) spoke of the commitment of AIMS to lend support to the region in the implementation of the ICRI Framework for Action by continuing to assist in capacity building in the region to provide scientific information on the marine and coastal resources for the establishment of appropriate policies and management measures. AIMS over the last twenty years has conducted long-term research into complex marine ecosystems in the tropics and has used this experience to conduct training and help build the capacity of countries in the region to undertake research and monitoring of their own marine resources. This training which has increased the number of trained people in the region was made possible in part through the ASEAN-Australian Marine Science Programme. Mr. Oxley stressed that the momentum established by this programme must be maintained and extended to other countries in the region where there is a paucity of trained people in monitoring and management techniques of marine and coastal resources. He further went on to emphasize that the long-term goal of any training programme should be to produce a pool of personnel throughout the region who are trained to gather data in a consistent and standardised manner, and, to interpret these data to assist decision-makers in the establishment of appropriate management policies and programmes to ensure the sustainable use and management of coastal and marine resources.

36. Mr. Paul Holthus of the IUCN Marine and Coastal Programme informed the meeting that the conservation and sustainable use of biodiversity, including coral reefs, is at the core of the IUCN mission and that IUCN was one of the founding partners of ICRI, the only partner representing the non-government community. He outlined how IUCN, the World Conservation Union, contributes to the conservation and sustainable use of coral reefs through its three components, which are:

- The Members - over 850 organisations, government agencies and governments. In the Asia-Pacific region this includes a wide range of international, national and local NGOs; key agencies addressing coral reef issues (e.g., GBRMPA); and many governments (e.g., Japan).
- The Secretariat - global, regional and country programme offices. The global Secretariat includes the Marine and Coastal Programme as well as other programmes addressing aspects of marine biodiversity (e.g. biodiversity policy and economics, protected areas, species conservation and sustainable use, wetlands conservation and sustainable use). IUCN's efforts are increasingly focused at the regional and country level and there are offices in most coral reef regions (e.g. an Asia regional office in Bangkok; country

offices in Vietnam, Cambodia).

- The Commissions - global networks of specialists. Several of the commissions contribute to the conservation and sustainable use of coral reefs, especially the Marine Protected Areas portion of the Commission on National Parks and Protected Areas (CNPPA) which is focused on implementing the recently completed report "A Global Representative System of Marine Protected Areas".

37. Mr. Holthus highlighted the role of the IUCN Marine and Coastal Programme which facilitates and coordinates efforts in the conservation and sustainable use of marine biodiversity with the IUCN Members, Secretariat and Commissions. The overall themes of the Programme are: conservation of marine biological diversity, sustainable use of living marine resources, integrated coastal and marine management, and marine protected areas. He indicated that the Programme works in collaborative partnerships with key international marine and coastal programmes, e.g. the World Bank, UNEP (especially the Regional Seas programmes), IOC (especially on the Global Coral Reef Monitoring Network), Unesco, and the World Conservation Monitoring Center. The Programme works to ensure that marine biodiversity conservation and sustainable use is addressed in international conventions and programmes, e.g., the Convention Biological Diversity, the international agreement on Land Based Activities, and the International Year of the Reef (IYOR). Mr Holthus invited the participants to the triennial IUCN World Conservation Congress (Montreal, October 1996), particularly the Marine and Coastal Workshop which will develop future directions for the World Conservation Union regarding marine and coastal biodiversity and to the special Coral Reef Session which will be convened in support of ICRI and IYOR. The text of the statement of Mr. Holthus is attached as Annex VIII to this report.

38. Mr. Suraphol Sudara, Head, Department of Marine Science, Chulalongkorn University cum President of the Association of Southeast Asian Marine Scientist (ASEAMS) and the Siam Environment Club, spoke on the roles of local and regional NGOs. He stressed the necessity of involving local people in decision making with respect to conservation and use of natural coastal and marine resources and that local NGOs should act as a catalyst to ensure this involvement. In this respect, all stakeholders: local authorities, investors, academia and the local community should work together to ensure that natural resources are used and managed on a sustainable basis. He also called for the establishment of a network among the NGOs in the region with the objective of sharing experiences.

39. Mr. Sudara then spoke of the potential role of ASEAMS in support of the ICRI Framework for Action in the region. ASEAM has worked closely with the ASEAN-Australia Marine Science Programme on Living Coastal Resources in the ASEAN region and has established, through this cooperation, expertise among its members with respect to the study of coral reefs and related ecosystems, such as mangroves, seagrass beds and benthic communities. ASEAM has also developed a database located at the Department of Marine Science, Chulalongkorn University. He stated that ASEAMS could assist the region in the implementation of the ICRI Framework for Action in providing assistance to train scientists in the region in research in marine science, in particular with respect to coral reefs and related ecosystems. He also proposed the linking-up of the database established under the ASEAN-Australia Marine Science Programme with Reefbase and other databases in the region. He further added that "LAUT", which is a regular newsletter of ASEAMS could be used to disseminate the results of various investigations on the marine and coastal environment in the region.

40. Mr. Prianto Wibowo, representative of Wetlands International (WI) Indonesia, introduced the role of WI in the region. He informed the workshop that WI was established in 1995 with the merger of 3 organizations: the Asian Wetlands Bureau (AWB), the International Waterfowl and Wetland Research Bureau (IWRB), and Wetlands for the Americas (WA) to promote the conservation and wise use of wetlands on a global basis. In Indonesia, WI in collaboration with the Directorate General of Forest Protection and Nature Conservation (PHPA), undertakes programmes on wetland assessment and monitoring, information dissemination and training, and in the provision of advice to the Indonesian Government with respect to the establishment of the National Wetland Policy and Management programmes. WI also conducts training courses and awareness programmes with respect to the conservation and sustainable use of coral reefs and related ecosystems.

MEETING OF THE WORKING GROUPS 1-5

41. The Workshop participants were divided into 5 working groups according to the following topics:

Working Group 1	Management: identify issues, priorities and action plans (Chairman: Mr. Tommy H. Purwaka; Facilitators: Mr. Ab. Rahim Gor Yaman and Mr. Paul Holthus)
Working Group 2	Capacity Building: identify issues, priorities and action plans (Chairman: Mr. Porfirio Alino; Facilitators: Mr. Graeme Beech and Mr. Jeffrey K.Y. Low)
Working Group 3	Research and Monitoring: identify issues, priorities and action plans. (Chairman: Prof. Kiyoshi Yamazato; Facilitators: Mr. Clive Wilkinson and Mr. Wilfredo R.Y. Licuana)
Working Group 4	Mechanisms for Coordination, monitoring, evaluation and reporting of ICRI related activities in the East Asian Seas region (Chairman: Mr. M. Hutomo; Facilitators: Mr. Peter Thomas and Mr. J. McManus)
Working Group 5	Mechanisms and funding resources to support country implementation of the ICRI East Asian Seas Strategy (Chairman: Mr. P. Alino; Facilitators: Ms. M. Astralaga and Mr. Robert Jara)

42. These working groups met to discuss the topics assigned to them. They identified the issues, priorities and action plans pertaining to: management; capacity building, research and monitoring, mechanisms for coordination, monitoring, evaluation and reporting of ICRI related activities in the East Asian Seas region; and mechanisms and funding resources to support country implementation of the ICRI East Asian Seas Strategy.

PRESENTATION OF THE REPORTS OF THE WORKING GROUPS 1-5 TO THE PLENARY

43. The chairman of Working Group 1 and the Facilitators of Working Group 2, 3, 4 and 5 presented their reports to the plenary. The plenary deliberated intensively for several hours on the details of these reports. The Workshop discussed the possible role of the East Asian Seas Plan as the coordinating mechanism for follow-up activities and implementation of the ICRI Regional Strategy for the East Asian Seas. The Workshop agreed that the UNEP Regional Coordinating Unit (RCU/EAS) for the East Asian Seas Action Plan in Bangkok was the

appropriate institute for coordinating the ICRI East Asian Seas Programme, and noted that additional resources would be required for the RCU/EAS to undertake this task effectively. The Workshop carefully reviewed and amended the reports of the Working Groups 1 to 5. The text of the amended reports of working groups 1 to 5 are attached as Annexes IX, X, XI, XII and XIII to this report respectively.

PLENARY DISCUSSION AND ADOPTION OF THE DRAFT ICRI EAST ASIAN SEAS REGIONAL STRATEGY

44. The draft ICRI East Asian Seas Regional Strategy, developed during the workshop and based on the recommendations of the five working groups, was presented, reviewed and discussed in plenary. In presenting the draft, the Secretariat explained that the Strategy aims to integrate the reports of the five working groups as well as reflecting the views expressed in the plenary. The secretariat has aimed to eliminate duplication and overlap between the five reports and develop a consistent level of detail within the Strategy. Where there were gaps material from the ICRI Regional Report for the East Asian Seas, country papers were incorporated in the Strategy. The Strategy, with some amendments, was agreed to and adopted by participants of the Workshop. The adopted text of the ICRI East Asian Seas Regional Strategy is attached as Annex XIV to this report.

ADOPTION OF THE REPORT OF THE WORKSHOP, INCLUDING THE ADOPTION OF THE ICRI CALL TO ACTION AND FRAMEWORK FOR ACTION

45. The Workshop reviewed and discussed the Report of the Workshop. This Report with some minor amendments, was adopted by the Workshop. In adopting the Report of the ICRI Regional Workshop for the East Asian Seas, the participants of the Workshop also endorsed the ICRI *Call to Action* and *Framework for Action*.

CLOSURE OF THE WORKSHOP

46. Mr. R. Kenchington, Facilitator of the Workshop thanked the participants for their very valuable contributions to the workshop, noting in particular their very energetic deliberations into late in the night. He commended them for their patience and endurance. He thanked the Workshop Secretariat, in particular the RCU/EAS, for their efforts in ensuring that the workshop ran smoothly. He also thanked Mr. Chris Bleakley and the members of the drafting group for their hard work in producing the draft Strategy in good time. He expressed the Workshop's appreciation to the sponsors of the Workshop: the Governments of Japan and Denmark and the United Nations Environment Programme (UNEP) for their support which made the workshop possible. Lastly, he thanked the Government of Indonesia for their warm hospitality and support of the Secretariat, in particular, Mr. Sudaryono and Ms. I. Pranoto of the Ministry of State for Environment.

47. The ICRI Coordinator, Mr. Peter Thomas, also made a closing statement. He presented a draft on actions identified as immediate priorities by the some of the members of the Workshop and requested the participants to consider these priorities for action in the region. The text of the draft priorities is attached as Annex XV to this report. He then thanked all participants and specially singled out the Indonesian Government for its commitment at all levels to the goals of ICRI. He also thanked the Government of Japan for its key role in getting the participants to the Workshop and the Government of Denmark. In conclusion, he expressed his thanks to the Facilitator and to the UNEP RCU/EAS for its excellent support and running of the Workshop.

48. The representative of Japan, Mr. Shuichi Takano said it was an honour for Japan to co-sponsor the Workshop. He was very impressed by the exhaustive and marathon sessions of deliberations that took place during the workshop and was amazed that so many people of so very diverse backgrounds and cultures could work together so efficiently to achieve a common goal.

49. The representative of the Philippines, Mr. Alino on behalf of the participants thanked the sponsors and the Facilitator of the Workshop. He expressed the appreciation of the Workshop to Mr. Richard Kenchington for the very efficient manner in which he had performed the duties of the Facilitator. He further went on to say that he looked forward to March 1997 to assess the progress of implementation of the ICRI East Asian Seas Regional Strategy.

50. Mr. Sudaryono, Deputy Assistant Minister, Ministry of State for the Environment of Indonesia closed the Workshop on behalf of the Indonesian Government. In his closing statement, he thanked Mr. Richard Kenchington and Ms. Kim-Looi Ch'ng for their hard work which contributed in part to the success of the Workshop. He also expressed the appreciation of the Indonesian Government to all the Workshop participants for their significant contributions to the success of the Workshop. He concluded by reiterating the desire of the Minister of Environment, H.E. Mr. Kusumaatmadja, which was expressed earlier in his welcome speech, for the results of this ICRI Regional Workshop for the East Asian Seas to be submitted to the Commission on Sustainable Development for its adoption and support.

ANNEX I

LIST OF PARTICIPANTS

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ANNEX II

UNITED NATIONS ENVIRONMENT PROGRAMME'S WELCOMING STATEMENT

Your Excellency Minister Sarwono Kusumaatmadja

Mr. Zenji Kaminaga; and

Ladies and Gentlemen

On behalf of Ms. Elizabeth Dowdeswell, the Executive Director of United Nations Environment Programme (UNEP), it is a great pleasure to express a warm welcome to you.

Mr. Minister, by agreeing to personally be present here and graciously open this workshop you have given the highest encouragement to all present and to the others involved with the *International Coral Reef Initiative* and the *Action Plan for the Conservation and Sustainable Management of the Coastal and marine Areas of the East Asian Seas*. This is an invaluable added bonus to the Government of Indonesia's original offer to support and host the workshop on this truly beautiful island.

Mr. Minister, for this honour and support UNEP is grateful.

In addition to the financial support from the Government of Indonesia, the workshop was only made possible by the generous contributions of the Governments of Japan and Denmark. UNEP is also grateful to these Governments, without whose contribution the already hard pressed financial resources of UNEP would have not been sufficient.

The Government of Japan, through its Environment Agency and Marine Parks Centre of Japan also assisted the UNEP EAS/RCU by providing technical input to the preparation of a key draft document before you, the *East Asian Seas Regional Report on the Issues and Activities Associated with Coral Reefs and Related Ecosystems*.

In the preparation and organisation of the workshop UNEP and its EAS/RCU have been fortunate to receive the support, advice and assistance of many others. It is impossible to name all, but our heartfelt thanks go to them.

As the Coordinator of the EAS/RCU it is my pleasure to report to you that in its usual farsighted approach the *Coordinating Body on the Seas of East Asia (COBSEA)*, on adoption of the East Asian Seas Action Plan in 1981, assigned coral reefs and associated ecosystems a priority area of concern. As a result long before United Nations Conference on Environment and Development (UNCED) in 1994 and last December's Washington International Conference a good many COBSEA-approved projects addressed the environmental pressures on coral reefs and the detrimental effects of land-based activities. With ICRI, now comes the opportunity of developing concerted and coordinated national, regional and global strategies and programmes.

UNEP in its catalytic role and its EAS/RCU as the Secretariat of the East Asian Seas Action Plan are proud to be instrumental in contributing to the implementation of such prudent and farsighted decisions.

Minister Sarwono, with your permission and before requesting you to open the Workshop, I would like to invite Mr. Zenji Kaminaga, Minister, Japanese Embassy (Jakarta) to address the meeting. I am also requested by H.E. Mr. Michael Sternberg, Ambassador, Royal Danish Embassy (Jakarta), to read on his behalf a statement.

ANNEX III**STATEMENT OF MINISTER ZENJI KAMINAGA
GOVERNMENT OF JAPAN**

Your Excellency Minister Sarwono Kusumaatmadja

Dr. Reza Amini

Ladies and Gentlemen,

I would like to extend my warm welcome to all the distinguished guests who have gathered here from all over the world to attend this International Coral Reef Initiative East Asian Region Workshop. I thank all of those who have paid great efforts for holding this Workshop, particularly the Government of Indonesia for hosting the Workshop, the UNEP staff for arranging the Workshop in cooperation with the Indonesian Government, and the Government of Denmark for sponsoring the Workshop.

Now, allow me to say a few words on the significance of this International Coral Reef Initiative in relation with the Common Agenda which you may or may not have heard of. Japan and the United States launched the "Common Agenda for Cooperation in Global Perspective (Common Agenda)" in July, 1993, in order to address critical global challenges of the world. In two years, the Common Agenda has grown to include twenty different areas such as AIDS, overpopulation and conservation of the environment. The International Coral Reef Initiative is one of those pillars of the Common Agenda, and it is one of the most successful ones in gaining wide participation of third countries, international organizations, and individuals, as we can see here today. The international Coral Reef Initiative is now world-wide.

I understand that some of you attended the ICRI Workshop held last year in Dumaguete, Philippines, which accomplished a great success in raising global awareness of the importance of preserving coral reef ecosystems. Building upon the success, ICRI is now in the process of implementing the *Framework for Action* adopted at the Dumaguete Workshop.

While the East Asian region is rich in coral reefs, having more than 70 genera of corals, the region bears much of the world population and is going through remarkable economic development. Thus, there are serious concerns that the region's population and economic growth might adversely affect coral reef ecosystems. Rich in bio-diversity, coral reefs represent an important marine ecosystem. Coral reefs are also critical to the healthy functioning of economically valuable tourism and fishing industries. Conservation and sustainable use of coral reefs and related ecosystems are our tasks that might determine the fate of the East Asian Seas. Furthermore, the region covers a wide variety of countries in terms not only of their natural conditions but also of economic, cultural, and social conditions. How this region engages in cooperation among diverse countries could provide a model to other regions of the world.

Japan is committed to continue to work together with all the other members of ICRI for the conservation and sustainable use of coral reefs, especially in the East Asian region. I earnestly hope that the discussions at the plenary as well as sub-committee meetings during the next several days will be fruitful and provide a firm basis for the further enhancement of the International Coral Reef Initiative.

Thank you.

ANNEX IV**STATEMENT OF H.E. MR. MICHAEL STERNBERG
AMBASSADOR, ROYAL DANISH EMBASSY (JAKARTA)**

Your Excellency Minister Sarwono Kusumaatmadja

Mr. Zenji Kaminaga;

Dr. Reza Amini;

Ladies and Gentlemen

Unfortunately, as much as I wished to, previous commitments have made it impossible for me to be amongst you this morning and be part of the opening of this very important regional workshop. I assure you that my thoughts will be with you today and throughout the week for very successful deliberations and results.

In the past few months, through regular contacts with UNEP's Regional Coordinating Unit for the East Asian Seas (EAS/RCU), the Secretariat of your East Asian Seas Action Plan, I have closely followed the developments concerning the International Coral Reef Initiatives (ICRI) Regional Workshop for the East Asian Seas. The Royal Danish Government is pleased to have been involved with the organisation of your workshop and together with the Government of Japan and the United Nations Environment Programme contributed towards convening it.

Why should Denmark, thousands of miles from the warm coral-bearing waters, be interested in coral reefs? The answer is simple, coral reefs are a priceless and irreplaceable heritage in the custody of human beings all over the world. Daily interaction with this part of our overall environment underlines the critical and significant role the coral reefs and their associated ecosystems play in the delicate natural balance on which so many rely. No matter in whose coastal jurisdiction, contribution and efforts to safeguard, preserve and assist in sustainable use of this valuable resource and equally irreplaceable biodiversity associated with it, should know no boundaries.

Coral reefs are often described as the rain forests of the oceans. The description could not be more apt.

Those of you who dive can testify to the amazing beauty and diversity of these underwater forests. The power of television and excellent documentaries have also brought this beauty and wonder to the rest of us who have no opportunity to see coral reefs in their natural settings. Like most rain forest, the reefs have taken hundreds of years to be what they are. Like the forest, coral reefs provide an ecosystem supporting a profusion of other species and are foci of vast marine biodiversity. This is more significant in the East Asian Seas region because the scientists refer to this region as the centre for global marine biodiversity. Like rain forests, the coral reefs play a major role and contribute to sustain an intricate and delicate environmental balance affecting wide range of flora and fauna, including human beings.

Because of this delicacy, unfortunately, the coral reefs also suffer from the same environmental pressures that threaten the forests. Adverse effects of anthropogenic activities, both inland and in the marine environment, are proving too strong for many reefs to survive or

even have a chance to rehabilitate. Sometimes out of necessity, but often from poor management and neglect, the coral reefs suffer damage and destruction beyond their natural capacity to regenerate. The bottom line is the everyday requirements of ever increasing global population, who throughout the world gravitate towards coastal areas.

I do not wish to paint a gloomy picture or seem to advocate conservation at any cost. Again like their terrestrial rain forest counterparts, the coral reefs could be managed wisely and utilized in a sustainable manner. If we reach the goal of sustainable management and use, little will be lost to any one nation and a lot is gained by humanity.

In the next few days you will be examining every single cause and effect and hopefully will come up with a set of recommendations and strategies for conservation, rehabilitation and sustainable management of coral reefs and their associated ecosystems. To realize your recommendations, an essential and indispensable ingredient must be added by the policy- and decision-makers, i.e., political will and commitment.

The International Coral Reef Initiative (ICRI) which was started as a combined effort of developing and industrialized countries, is a manifestation of this political will. The Danish Government is proud to be part of this initiative. We hope, within the framework of the ICRI and through efforts such as this and other regional workshops, that spark of commitment is fostered to gain strength at the national level in all the countries concerned. There is little doubt that the task ahead needs a combined and concerted effort, like most common environmental problems, it is too big for any one country to handle alone.

In conclusion allow me to thank the Government of Indonesia for hosting this Workshop. In hosting this gathering, together with the recent major national initiatives with regards to the conservation and sustainable management of their coral reefs, the Government of Indonesia is underlining its political commitment in the most appropriate practical manner. This is also clearly manifested by H.E. Sarwono Kusumaatmadja personally opening your Workshop.

Finally, I would like to thank UNEP's EAS/RCU for the efficient manner in which they have coordinated all the efforts and organized this Workshop. As the Secretariat of an intergovernmental agreement on the East Asian Seas, the EAS/RCU offers a suitable vehicle in translating the wishes of the member-states into coordinated action.

Your Excellency, Ladies and Gentlemen,

Allow me to wish you a very successful meeting.

ANNEX V

**OPENING SPEECH OF
H.E. MR. SARWONO KUSUMAATMADJA
STATE MINISTER FOR ENVIRONMENT OF THE REPUBLIC OF INDONESIA
AT THE INTERNATIONAL CORAL REEF INITIATIVE (ICRI)
REGIONAL WORKSHOP FOR THE EAST ASIAN SEAS
BALI, 18 MARCH 1996**

Mr. Zenji Kaminaga, Representative of the Government of Japan,

Dr. Reza Amini, Head of the Regional Coordinating Unit for East Asian Seas Action Plan of UNEP,

Distinguished Experts, Participants, Ladies and Gentlemen,

It is indeed a great pleasure for me to welcome all of you to this International Coral Reef Initiative Regional Workshop for The East Asian Seas, especially here at the beautiful Island of Bali since it was once completely surrounded by living coral reefs.

I would like to express my appreciation to the Governments of the United States of America, Japan, Australia, Jamaica, the United Kingdom and the Philippines who have announced the major initiative to protect coral reefs in partnership with other nations around the world as well as with non-government organisations, international organisations, multilateral development banks and the private sector. Allow me to assure you that the Government of Indonesia is committed to support these efforts.

As the world's largest archipelago which consists of more than 17,000 islands and as the country with the longest coast line (81,000 kms), Indonesia concurrently has an outstanding range of coastal and marine ecosystems which includes various types of wetlands, mud-flats, mangroves, sea grass beds and coral reefs which are recognized as internationally significant.

Coral reefs are the earth's most diverse marine ecosystem as they may support as many as 3,000 different species on a single reef, and Indonesia's are recognized as the most diverse in the world. Coral reefs serve important ecological functions and are furthermore significant as economic resources through fishery and marine tourism.

Coral reefs serve as a barrier to two thirds of the Indonesian coastline. Unfortunately, based on research conducted recently by **The Center for Oceanographic Research & Development (P30-LIPI)** on 371 stations, it is estimated that only around 6.2% of the coral reefs still remain in excellent condition whereas last year's estimation was 7%. It is needless to say that this rapid degradation is very alarming.

Human activities, directly or indirectly, are the main causes of the degradation. These activities can be defined as over exploitation, sea-based and land-based pollution, and destructive fishing practices using explosives and hazardous chemicals. The later is a common method used to stun large groupers and wrasses (especially the Napoleon wrasse) which are then revived and transported alive to supply the immensely profitable live-fish-trade. This method wipes out the local population of those fish as well as killing smaller reef fish, invertebrates and the corals themselves (this topic was discussed at The Second Conference of the Parties to The Convention on Biodiversity in November 1995 in Jakarta).

Ladies and Gentlemen,

Sharing our experiences and knowledge through this workshop will hopefully result in constructive strategies and concrete action plans urgently needed in order to improve coral reef management, particularly in the East Asian Seas. I, therefore, believe that we should have a commitment on policy and economic, legal and institutional instruments as well as a commitment on a funding mechanism. This could, in turn, establish real partnership and strengthen collaboration between Governments, NGOs, the private sector and universities, since the success of this programme depends very much on each and every Parties' effort.

I consider the efforts of the International Coral Reef Initiative to enforce the conservation and sustainable use of coral reefs as a follow up to the Jakarta Mandate Agreement reached in the Second Conference of the Parties to the Convention on Biological Diversity held in Jakarta, November 1995 where the importance of marine biodiversity was clearly stated. During the conference ICRI took part in the exhibition where it strongly pointed out the threats coral reefs and related ecosystems were facing. This has increased public awareness of the need for coral reef conservation. Not only are these efforts and commitments of international concern, but they are also in line with Indonesia's National Development Theme of this year as declared by the President of the Republic of Indonesia, "The Year of Aerospace and Marine".

Ladies and Gentlemen,

I hope that the results of this regional ICRI Workshop could be considered as an input for the ICRI International Conference and submitted to the Commission on Sustainable Development to be adopted and supported. I also hope that the issue of the ICRI Secretariat can receive adequate attention, since that would improve the efficiency and effectiveness of the collaboration, the networking and the implementation of the programme.

Finally, again, on behalf of the Government of the Republic of Indonesia, I would like to thank UNEP, the Government of Japan, the Government of Denmark and the ICRI Secretariat for making this Workshop possible. I wish all participants enjoyable, substantive and fruitful discussions that could lead to the objectives of the ICRI Regional Workshop.

And with these concluding remarks, I now officially open this International Coral Reef Initiative Regional Workshop for the East Asian Seas.

Thank you.

ANNEX VI

**INTERNATIONAL CORAL REEF INITIATIVE (ICRI)
REGIONAL WORKSHOP FOR THE EAST ASIAN SEAS
18-22 MARCH, 1996**

AGENDA/PROGRAMME

MONDAY 18 MARCH

08:00 - 09:00 Registration

PLENARY SESSION

09:00 - 10:00 Opening:

- * Welcome by UNEP's representative, Mr. Reza Amini, Coordinator of the Regional Coordinating Unit for the East Asian Seas Action Plan
- * Statement of the Japanese government representative
- * Statement of the Danish government representative
- * Opening of the Workshop by H. E. Mr. Sarwono Kusumaatmadja, Minister of State for Environment

10:00 - 10:30 Coffee break

10:30 - 10:45 Election of the Chairperson/Facilitator

10:45 - 11:00 Organisation of the Workshop and Orientation (Chair)

11:00 - 12:30 * Introduction of the Goals of ICRI, the *Call to Action*, the *Framework for Action*, and the Report of the ICRI Workshop, Dumaguete, Philippines (Mr. Peter Thomas, ICRI Coordinator)

* Introduction to the revised draft of the East Asian Seas Regional Report on the Status of Coral Reefs and Related Issues and Activities (Ms. Ch'ng Kim Looi, Programme Officer, UNEP EAS/RCU)

* Introduction to Reef Base (Mr. John McManus, ICLARM)

* Introduction to the Global Coral Reef Monitoring Network: GCRMN (Mr. Clive Wilkinson)

12:30 - 13:30 Lunch

14:00 - 15:30 Presentation by country representatives (Approximately 15 minutes presentation per country to outline key national coral reef-related issues and priorities and comments on ICRI)

15:30 - 16:00 Coffee break
16:00 - 17:30 Continuation of the presentation by country representatives

TUESDAY 19 MARCH

PLENARY SESSION

08:00 - 09:00 Open forum on ICRI: Framework for Action:

- * Introduction (Chair)
- * Comments and questions from the floor and discussions on the development of ICRI in the East Asian Seas Region.
- * Opportunities for NGOs, the private sector, and academia/research representatives to comment.

09:00 - 09:30 Working Groups: Introduction and discussions on the Terms of Reference, objectives and expected outputs of five working groups to draft the East Asian Seas Regional Strategy for supporting country implementation of the ICRI Framework for Action (Chair).

Topics of working groups:

Working Group 1 - Management: identify issues, priorities and action plans.

Working Group 2 - Capacity Building: identify issues, priorities and action plans

Working Group 3 - Research and Monitoring: identify issues, priorities and action plans

Working Group 4 - Mechanisms for Coordination, monitoring, evaluation and reporting of ICRI related activities in the East Asian Seas region.

Working Group 5 - Mechanisms and funding resources to support country implementation of the ICRI East Asian Seas Strategy.

- Coordination and linkages with relevant international and regional agreements and programmes.

09:30 - 10:00 Coffee break

WORKING GROUP SESSIONS

10:00 - 12:30	Meetings of the Working Groups 1-3: identify issues and priorities.
12:30 - 14:00	Lunch
14.00 - 15.30	Continuation of the meetings of the Working Groups 1-3
15:30 - 16:00	Coffee break
16:00 - 17:30	Continuation of the meetings of the Working Groups 1-3: review the <i>Framework for Action</i> and propose action plans.

WEDNESDAY 20 MARCH

WORKING GROUP SESSIONS

08:00 - 10:00	Parallel sessions: <ul style="list-style-type: none">* Drafting Committee for working groups 1-3 to meet and write their reports.* Working Group 4 meets: identify mechanisms for coordination, monitoring, evaluation and reporting.* Working Group 5 meets: (a) identify mechanisms for implementation and funding sources; and (b) identify coordination and linkages with international and regional agreements and programmes.
10:00 - 10:30	Coffee break
10:30 - 12.30	Finalisation of the outputs of the Working Groups 1-5 (drafting session)
12:30 - 14:00	Lunch

PLENARY SESSION

14:00 - 15:30	Plenary discussion on the reports of Working Groups 1-3
15:30 - 16:00	Coffee break
16:00 - 17:30	Continuation of plenary discussion on the reports of Working Groups 1-3

THURSDAY 21 MARCH

PLENARY SESSION

08:00 - 10:00	Plenary discussion on report of Working Group 4 on coordination, monitoring, evaluation and reporting.
10:00 - 10:30	Coffee break
10:30 - 12:30	Plenary discussion on report of Working Group 5 on mechanisms and sources of funds for implementation of the ICRI East Asian Seas Regional Strategy.
12:30 - 14:00	Lunch
14:00 - 15:30	Plenary discussion of draft <i>East Asian Seas Regional Strategy</i> .
15:30 - 16:00	Coffee break
16:00 - 17:30	Continuation of the plenary discussion of draft <i>East Asian Seas Regional Strategy</i> .

FRIDAY 22 MARCH

Morning	Free for participants (Drafting of the report of the Workshop by the Secretariat)
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PLENARY SESSION

15:00 - 17:00	Review and adoption of the Report of the Workshop, including the adoption of ICRI <i>Call to Action, Framework for Action</i> and the <i>East Asian Seas Regional Strategy</i> .
17:00 - 17:30	Closure of the Workshop

ANNEX VII

INFORMATION PAPER - REEFBASE: CURRENT STATUS AND CALL FOR MATERIALS

Organisation: International Center for Living Aquatic Resources Management (ICLARM)

Compiled by: John W. McManus

Contact: Coastal & Coral Reef Resources Systems Project, ICLARM, MC P.O. Box 2631, 0718 Makati, Metro Manila, Philippines. Tel: (632) 818 0466; Fax: (632) 816 3183; Email: J.McManus@CGNET.COM

Introduction

There is a general consensus among scientists that the coral reefs of the world are degrading rapidly. However, it is difficult for governments and funding agencies to identify and prioritise specific management needs because of the inaccessibility of existing information in the status of coral reefs. ReefBase is a database designed to summarise information on the uses, ecological status and management of coral reefs globally, regionally and nationally, and to make this information available in user-friendly form on CD-ROM to people involved in reef management and those concerned with the future use and conservation of coral reefs.

Accomplishments to Date

The initial project phase has resulted in a preliminary CD-ROM with:

- Selected information on 6,000 coral reefs. The information is available in a user-friendly software system on the management status of coral reef resource systems, their ecological zonation, fisheries and other uses by people. The data can be accessed using searches, queries, and/or an "active dot" geographical display system with zooming capabilities.
- 200 maps covering all known coral reefs in 108 countries or island states, summarized in five regional maps and a world map, plus 24 detailed maps of selected coral reefs.
- 2,000 reports of natural and anthropogenic stresses to coral reefs. These reports were featured in the 1995 State of the Reefs Report of the International Coral Reef Initiative.
- 500 records of coral reef fisheries and mariculture production, the most comprehensive collection of such information available.
- 4,000 records concerning the use of coral reefs by tourists. In addition to its importance in national, regional and global management summaries, this constitutes the world's most extensive guide to coral reef diving.
- Information on 400 marine protected areas. ReefBase can display these data geographically relative to other factors such as stresses, fishery harvests and tourism uses to facilitate the selection and prioritisation of new marine protected areas and other management strategies.

The CD-ROM has been through alpha testing within ICLARM, and will be sent to international reviewers for beta testing from January to March, 1996. ReefBase 1.0 will be officially released in June, 1996 at the International Coral Reef Symposium in Panama. Additionally,

- ReefBase has become a central feature of the International Coral Reef Initiative (ICRI), for which ReefBase serves as the official Resource Center. ReefBase provided substantial material for the ICRI State of the Reefs Report, which was presented as a keynote address at the Initial ICRI Workshop in May, 1995. The Framework for Action arising from the workshop, which was endorsed by more than 24 represented nations, calls for a strengthening of efforts to consolidate and disseminate information important to reef management - a strong statement of support for the ReefBase effort.
- Around the world, programmes are being designed which will contribute data to a hierarchical system of national and regional databases, with ReefBase as the final mechanism of consolidation. These programmes are being developed in a series of regional ICRI workshops.
- The upcoming Global Coral Reef Monitoring Programme of the International Oceanographic Commission is expected to operate in close collaboration with ReefBase. This programme will involve a series of reef sites throughout tropical seas on which the major coral reef research institutions of the world will conduct coordinated monitoring studies. ReefBase is expected to be a major means of data dissemination.
- ReefBase is expected to play an important role in the upcoming 1997 International Year of the Reef. ReefBase is represented on both the scientific and public information planning staffs, and is expected to provide key information for the planning and implementation of projects within this programme.
- ReefBase collaborated with the University of Rhode Island in the project "Rapid Assessment of Management Parameters" (RAMP). This project developed guidelines for the conduct of surveys on social and cultural aspects of coral reef management. The project resulted in a set of data fields for filing pertinent information in ReefBase. A manual of the methods developed and instructions for submission of results to ReefBase will be distributed along with the first ReefBase version on CD-ROM.
- ReefBase is becoming a unifying feature of ongoing and upcoming efforts to involve volunteer divers in coral reef studies. ReefBase will take a lead role in coordinating international survey efforts based on a "ReefBase Aquanaut Programme". The volunteer divers will gather information for ReefBase using a simple standard method of reef analysis to be taught during weekend training courses by certified trainers. A workshop of several volunteer diving agencies in 1994 led to a general agreement to support the development and wide usage of standard field methods for gathering data to be consolidated and dissemination internationally, and work on this theme continued throughout 1995. Preliminary trials on a standard field method are currently underway, and final recommendations will be available at the 1996 International Coral Reef Symposium.
- ReefBase has become a catalyst for the standardisation not only of research methods, but of reef terminology as well. It has been represented in international efforts to standardise reef descriptive terminology.

- Information on ReefBase has now been disseminated through at least 10 newsletters, two journals, three international workshops specifically on ReefBase, and more than 10 presentations before international audiences around the world. The ReefBase effort has been acknowledged in public speeches by the Philippine Secretary for the Environment and Natural Resources and by a Vice-President of the World Bank.

ReefBase Needs your Help!

There are several ways in which you can help ReefBase improve the management of the coral reefs of the world.

1. **Send us your papers, books and reports.** ReefBase serves as an information center for people seeking information on coral reef management. All reports and other materials are searched for information to be incorporated into ReefBase. However, the materials themselves are valuable to people who come to ICLARM or contact us with requests for information. It is extremely important to have one place in the world where all available coral reef information has been assembled. Most coral reefs are in developing countries, and scientists and managers from these countries need access to this information particularly urgently. ReefBase needs to greatly expand its set of published material, but perhaps the most valuable information resides in unpublished reports (the kind that are sitting amid the shelves and filing cabinets of many of the readers of this article!). Help the world get some more "mileage" out of those project reports. Make ReefBase a repository for whatever useful materials you write!.
2. **Send us your maps and charts.** ReefBase should eventually have a detailed map available for every known coral reef. Of the existing maps that have been digitized, some have been based on sketches, while others have been based on high-quality satellite or aerial photo data and extensive ground-truthing. However, we still need both kinds of maps - any information is better than no information, and no information is precisely what is available for most coral reefs. If you have done surveys on a reef leading to a sketch map, or have produced a map of a reef or coral community from aerial or satellite imagery, please send us copies. We are particularly interested in receiving copies of charts of tropical shelf areas on which areas unsuitable for trawling have been marked. Sediment charts from tropical areas are also very helpful. Maps showing administrative boundaries for marine protected areas or other marine zoning in areas which might support coral are important as well. Even crude information can greatly improve the effectiveness of future surveys and evaluations of coral reefs.
3. **Contact us about data exchange.** ReefBase has incorporated data from the Australian Coral Reef Ecology Database and several other ongoing databases. ReefBase information, in turn, is available for incorporation into other databases or information analysis programmes. As a research programme closes, an excellent way to ensure that optimal use will be made of the data collected is to deposit the data with ReefBase. For people starting up new research projects, a quick check of information in ReefBase on a proposed study site might save substantial amounts of effort and money, and several researchers have found our list of over 10,000 references to be helpful.
4. **Send us your coral reef photographs.** Photographs are an extremely effective way of communicating vital information about coral reefs. We need a complete set of photos for each of the world's coral reefs. All photographers will be clearly credited in the database. Please send us copies as prints, slides, tapes or digital files of:

- **Aerial photos of coral reefs.** Send us the photos of coral reefs that you take from the air, and take more next time you fly (see box 1). Aerial photos are extremely valuable to reef scientists and administrators. Satellite images are also very helpful.
- **Underwater scenic photos.** Send as much information as possible on the location, zone, depth and date. Chart coordinates are extremely helpful (Global Positioning Systems - GPS - are highly recommended for use on the dive boat). Underwater video transects are also welcome.
- **Photos of reef stresses and abusers.** We need pictures of coral diseases, bleaching, overgrowth by algae, pollution, siltation, anchor damage, damage from fishing gear, storm damage, etc. Before and after pictures are especially valuable. Pictures of people trampling or smashing corals, or piling up dirt from runways or roads, etc., can be used effectively in the future as we make them available through ReefBase. Locations and dates are important here as well. Diagrams and computer animation illustrating the effects of reef stresses are particularly welcome.

Special Offer: If we use 20 or more of your photos in ReefBase, we will send you a free copy of the ReefBase Version 1.0 CD-ROM when it becomes available in June 1996 (one per photographer - one video transect, diagram or animation counts as a photo).

Stay tuned for the beginning of the ReefBase Aquanaut Programme next year.

For further information, please contact:

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Tips for photographing coral reefs from airplanes:

- the best time to shoot is 10am to 10pm for depth penetration;
- avoid glitter bands on the water by shooting from the airplane side away from the sun;
- don't lean the camera against any part of the plane - vibrations may affect the picture;
- do underexpose by 1/2f - stop;
- set the camera on infinity, particularly with auto-focus cameras;
- turn off your flash;
- use higher speeds and wider f-stops than usual, as depth of field is not a problem;
- when possible, use a skylight, A-1 or UV haze filter;

- from light planes use a polarizers, in commercial planes which may have windows already polarized - the combination may form rainbows or vignettes on the picture;
- for shooting while piloting an ultralight, try mounting the camera on your helmet;
- be ever vigilant - perfect conditions and excellent views of reefs occur unexpectedly.

ANNEX VIII

CORAL REEF CONSERVATION AND SUSTAINABLE USE IN THE EAST ASIAN SEAS REGION: THE ROLE OF IUCN

Paul Holthus
IUCN Marine and Coastal Programme

The World Conservation Union and Coral Reefs

IUCN, the World Conservation Union, has the conservation and sustainable use of biodiversity at the core of its mission. In the tropical marine environment, coral reefs have always been an important focus in implementing the IUCN mission and IUCN has a long history of involvement in coral reef conservation and sustainable use issues. IUCN was honored to be one of the founding partners of the International Coral Reef Initiative (ICRI), a role of serious responsibility as IUCN is the only representative of the non-government organisation (NGO) community in the Executive Planning Committee of ICRI.

IUCN is a truly a unique World Conservation Union based on three pillars, all of which contribute to the conservation and sustainable use of coral reefs around the world, including in the East Asian Seas (EAS) region. These parts of the union are:

1. The IUCN membership - the organisations, government agencies and governments which have joined the union;
2. The IUCN Secretariat - the global, regional and country level programmes, personnel and offices;
3. The IUCN commissions - the global networks of specialists.

The IUCN Membership and EAS Coral Reefs

IUCN is a union of over 850 member organisations, government agencies and governments. The majority of these are NGOs covering a wide range of levels and capabilities, from large international NGOs, such as World Wide Fund for Nature (WWF) and The Nature Conservancy (TNC), to national and local NGOs. A large number of government agencies are also members of IUCN. In the Asia-Pacific region, this includes key agencies in addressing coral reef issues, such as the Great Barrier Reef Marine Park Authority (GBRMPA). There is also state membership in IUCN and many governments of the Asia-Pacific region, such as Japan, have joined the World Conservation Union.

The IUCN Secretariat and EAS Coral Reefs

The IUCN Secretariat is organised and operates at global, regional and national levels. In addition to the Marine and Coastal Programme, the global secretariat has numerous technical programmes of relevance to the conservation and sustainable use of coral reefs. These include programmes on biodiversity policy and economics; protected areas; species conservation and sustainable use; wetlands conservation and sustainable use; environmental strategies and planning; and education.

IUCN's efforts are also increasingly focused at the regional and country level, primarily though the presence of IUCN offices and/or programmes at these levels. There are offices in most of the regions and many of the countries with coral reefs. In the EAS region, this includes a regional office in Bangkok and offices or programme activities in many EAS countries, e.g. Vietnam, Cambodia.

The IUCN Commissions and EAS Coral Reefs

The IUCN commissions are global networks of specialists who largely work on a voluntary basis, with the IUCN Secretariat facilitating, coordinating, and/or providing seed funds for the commission operations. Several of these commissions are key contributors to coral reef conservation and sustainable use efforts, especially the Commission on National Parks and Protected Areas (CNPPA) and the Species Survival Commission (SSC).

The IUCN CNPPA includes an important programme on Marine Protected Areas (MPAs) which consists of 19 regional working groups coordinated by the CNPPA Vice Chair for Marine. These groups recently completed several years work to produce a comprehensive synthesis of information on the status and priorities for MPA establishment and management in each of the regions, including the important coral reef region of the EAS. IUCN, the World Bank and GBRMPA collaborated in this activity which has resulted in the publication of "A Global Representative System of Marine Protected Areas". Current efforts of the CNPPA MPA programme are focused on the implementation of the recommendations of this report.

The IUCN SSC includes several specialist groups which are focused on the survival of animals in coral reef ecosystems, e.g., specialist groups on coral reef fish, sirenians (manatee, dugong), marine turtles and sharks. A new commission, the Commission on Ecosystem Management (CEM), has been established which will focus on developing a network of experts on the concepts and practice of integrated management of whole ecosystems (e.g., large coastal areas, coral reef systems) and linking the management of these with adjacent ecosystems (e.g., river basins, large marine ecosystems).

The IUCN Marine and Coastal Programme

The IUCN Marine and Coastal Programme seeks to foster, facilitate, catalyze and coordinate efforts in the conservation and sustainable use of marine biodiversity. This is achieved through collaboration in a range of implementation approaches and activities, from global policy efforts to global and regional networks to demonstration field activities. The overall themes of the programme are:

- Conservation of marine biological diversity,
- Sustainable use of living marine resources,
- Integrated coastal and marine management, and
- Marine protected areas.

Within these major themes and tools, the programme has, or is developing, several areas of focus. These include: coral reefs, small islands, large marine ecosystems and the private sector (especially tourism).

Within the World Conservation Union, the global IUCN Marine and Coastal Programme works with the IUCN regional and country offices to assist in the development of projects and to ensure that the results of these activities and the lessons learned are synthesized and disseminated. The global Marine and Coastal Programme also coordinates IUCN marine and coastal activities with other global, regional and country programmes of IUCN, especially those regarding biodiversity policy and economics, protected areas, species conservation and sustainable use, wetlands conservation and sustainable use.

The IUCN Marine and Coastal Programme is working with key international programmes and agencies dealing with marine and coastal issues to form collaborative partnerships. These include:

1. World Bank, especially on the implementation of the recommendations of the report "A Global Representative System of Marine Protected Areas" and guidelines for best practice in sustainable development in the coastal and marine environment (e.g., ICM Guidelines);
2. UNEP, especially through the Regional Seas programme and Regional Coordinating Units;
3. IOC, especially on the Global Coral Reef Monitoring Network (GCRMN) for which IUCN is a co-sponsor;
4. Unesco, especially with the Man and Biosphere (MAB) programme; and
5. World Conservation Monitoring Center (WCMC), which IUCN co-sponsors, on the development of marine conservation databases such as ReefBase, which is being developed by WCMC and ICLARM (an IUCN member).

The IUCN Marine and Coastal Programme is seeking to expand its collaborative actions with international organizations, e.g. with FAO, in the area of sustainable fisheries; with IMO in the area of pollution prevention.

At the global level, the IUCN continues to play a major role in ensuring that marine conservation and sustainable use is addressed in key international conventions and agreements, especially the Convention Biological Diversity (CBD). IUCN has organized the Global Biodiversity Forum in conjunction with the meetings of the CBD parties to provide an opportunity for NGOs, technical experts and government delegations to meet and exchange views. IUCN has also organized and participated in meetings of the CBD Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) on marine biodiversity conservation and sustainable use.

The IUCN Marine and Coastal Programme is working with UNEP to identify ways in which IUCN can assist with the implementation of the Programme of Action of the international agreement on the effects of Land Based Activities (LBA). The IUCN Marine and Coastal Programme is also on the Organizing Committee of the International Year of the Reef (IYOR), with a focus on assisting the IYOR public awareness and education activities to be developed and disseminated to developing countries where most coral reefs are found.

The next triennial IUCN World Conservation Congress (WCC), formerly known as the General Assembly will be held in Montreal (October 1996). The IUCN Marine and Coastal Programme will be organizing a Marine and Coastal Workshop focused on developing the future directions for the World Conservation Union in these areas. In addition, a Special Coral Reef Session will be organized as part of IUCN support to ICRI and IYOR.

ANNEX IX

WORKING GROUP 1 - MANAGEMENT

The Call to Action states that “threats from human-related impacts can be minimized or eliminated through improved and sustained management practices.” The Framework for Action outlines the range of management actions which may be required to achieve conservation and sustainable use of coral reefs and related ecosystems.

Effective management of the coral reefs and related ecosystems of East Asian Seas will involve national and regional action.

At the national level, this will involve developing and implementing national policies and legislation which can provide for effective management at scales ranging from local communities or administrative districts to the national.

At the regional level it will involve regional coordination and common purpose to develop and implement regional policy objectives and programmes which can address ecological processes, biological communities and physical environments which occur in East Asian Seas.

It is important that the participating countries (ICRI partners) adopt the ICRI *Call to Action* and the *Framework for Action* to provide for sustainable use of coral reefs and related resources.

RECOMMENDED ACTIONS

1. Policy and legislation

Objective: Encourage all countries to have policies and legislation for conservation and sustainable use of coral reefs and related ecosystems.

Action(s)

- a. Assist and encourage countries to develop policies and legislation for conservation and sustainable use of coral reefs and related ecosystems.
- b. Encourage within-country harmonization of policies and legislation for conservation and sustainable use of coral reefs and related ecosystems through measures such as integrated coastal zone management.
- c. Promote linkages of national, regional and international policy and legislation for conservation and sustainable use of coral reefs and related ecosystems.
- d. Encourage nations to adopt the ICRI *Call to Action*, *Framework for Action* and the *East Asian Seas Action Plan* and to incorporate their Principles, Objectives and Actions into national policy priorities.

2. Coordination

Objective: Promote coordination at national and regional levels for conservation and sustainable use of coral reefs.

Action(s)

- a. Establish, develop and implement regional coordination mechanisms and processes, especially for transboundary marine environment/coral reef related issues, such as larval transport, shared stocks, migratory stocks, straddling stocks, fishing, pollution and trade.
- b. Encourage and promote national coordination mechanisms and processes, incorporating national, state, and local stakeholders.

3. Information and Data

Objective: To have adequate information and data for management and monitoring of coral reefs.

Action(s)

- a. Encourage the development and application of standardised techniques for data collection and analysis.
- b. Develop national and regional databases to facilitate a regional information network.
- c. Encourage the collection of information on the status of coral reefs and related ecosystems to facilitate the management and sustainable use of these resources.
- d. Encourage and facilitate regional cooperation on scientific research to address management issues.
- e. Encourage participation in the Global Coral Reef Monitoring Network.

4. Awareness/Education

Objective: To achieve awareness on the issues of management of coral reefs and related ecosystems, throughout the community encompassing all levels of government through to subsistence fishers and users.

Action(s)

- a. Conduct regional education, training, and extension programmes, including innovative ways to involve communities.
- b. Conduct and facilitate seminars and workshops on the issues of management of coral reefs and related ecosystems.
- c. Prepare and/or disseminate publications and guidelines on issues of management of coral reefs and related ecosystems.
- d. Facilitate the exchange of information, experts, managers, and government officials, through programmes such as site visits.
- e. Promote involvement in international activities relevant to coral reef awareness.

5. Capacity

Objective: To achieve adequate capacity in relevant organisations to manage and conserve the coral reefs and related ecosystems of the East Asian Seas for sustainable use.

Action(s)

- a. Strengthen and improve the capacity of institutions, decision makers, non governmental organisations and others.
- b. Assist in the development of effective proposals relating to the management of coral reefs and related ecosystems.
- c. Improve management capacity of human resources, especially through training.
- d. Improve equipment, facilities and infrastructure for management in order to meet the need for conservation and sustainable use of coral reefs and related ecosystems.

6. Economics

Objective: Understand and apply the economic value and the economic role of coral reefs and related ecosystems in order to achieve conservation and sustainable use of these resources.

Action(s)

- a. Generate economic valuations of coral reefs and related ecosystems and incorporate these into the development planning process.
- b. Encourage resource accounting.
- c. Encourage the development of economic techniques which take into account the long term values of coral reef productivity.
- d. Develop economic incentives and instruments for coral reef conservation and sustainable use.

7. Social issues and resource utilisation

Objective: Consider and address rational resource utilisation, social equity, access and use issues in the sustainable use and management of coral reefs and related ecosystems.

Action(s)

- a. Develop income generation alternatives to unsustainable use of coral reefs and related ecosystems.
- b. Develop and promote the use of appropriate environmentally friendly technology.

- c. Develop a resource management strategy for proper resource allocation in order to achieve conservation and sustainable use of coral reefs and related ecosystems.
- d. Develop strategies for addressing poverty and improving the quality of life while at the same time maintaining essential environmental values.

8. Financial resources

Objective: Develop sustainable financial strategies for sustainable use and management of coral reefs and related ecosystems.

Action(s)

- a. Encourage and assist countries in the development of sustainable financial strategies and mechanisms for sustainable use and management of coral reefs and related ecosystems.
- b. Encourage and assist countries to identify and approach funding sources.

9. Public participation

Objective: To put in place mechanisms and processes for participation of all sectors of society in sustainable use and management of coral reefs and related ecosystems.

Action(s)

- a. Encourage and assist countries to ensure appropriate consultation between all interest groups.
- b. Encourage the involvement of communities, NGOs and interest groups in the conservation of coral reefs and related ecosystems.
- c. Encourage the development of national and regional networks of local communities, NGOs and interest groups.
- d. Encourage the formulation of stakeholder groups.

IDENTIFY AND PRIORITIZE ISSUES

1. Policy and Legislation

General Policy

- Coral reefs.
- Community roles, e.g. local community rights.
- Marine transboundary issues.
- Lack of continuity - consistency.
- Regional institutions.
- Access to resources.
- External influences on decision making.
- Income oriented decision making.
- Planning capability.

- Need to convince policy makers on benefits of conservation.
- Framework for management too complex.
- Decision making process.

Legislation

- Legislation on local community rights.
- Marine Park Act and Legislation.
- Enforcement of rules and regulations.
- Protection measures in Marine Protected Areas (MPA).
- EIA procedures not established or not enforced.
- Integration of development and conservation needs into national planning process.
- Protection of related ecosystems.
- Liability for managers and institutions.

Management Related Policy

- Coastal Zone Policy and Mechanisms for management and planning.
- Integrate land and marine ecosystems management.
- Marine Park Management Plan.

2. Coordination

- Lack of Coordination at National level and different tiers of government.
- Delegation of authority.
- Duplication.
- Private sector and local involvement.
- International networking.
- Case Study (MPA)
- National capability to meet obligations on international conventions.
- Mechanisms for regional and national coordination.
- Land based source pollution: impacts and activities.
- Decision making process.
- Need for international coordination on marine transboundary issues.
- No physical capacity to enforce law.
- Defining responsibility.
- Integrate land and marine ecosystems management.
- Regional support for national programs.
- Protection of related ecosystems.
- Confidentiality of shared resources data.
- Framework for management - too complex.
- Coordination of responsibilities.

3. Information / Data

- Baseline info on Bio/Physical/Social aspects of resources.
- Information sharing and effective networking.
- Lack of long term monitoring data.
- Lack of technology transfer/sharing.
- Baseline studies on resources.
- Confidentiality of shared resources data.

4. Awareness/Education

- Awareness for public officials, esp. policy makers.
- Experience sharing.
- Lack of coral reef management understanding in managers and policy makers.

5. Capacity

- Planning capability.
- Logistic capability.
- Case Studies (MPA)
- National capability to meet international convention and obligations.
- Lack of coral reef management understanding in managers and policy makers.
- Lack of incentives for staff.
- Trained or qualified managers/staff.
- Human resources to manage MPAs.
- No physical capacity to enforce law.
- National institution
- Lack of technology transfer/sharing.
- Need to convince policy makers and on benefits of conservation.
- Community based management.
- Lack of women's involvement in conservation.

6. Economics

- Economic valuation of resources.
- Private sector and local involvement.
- Lack of incentives to stake holders to consider other options.
- Economic benefits on use of coral reef resources.
- Income oriented decision making.
- Lack of market information on coral reef resources.
- Cost-Benefit Analysis.
- User pays/cost recovery.
- Market based instruments.

7. Social Issues

- Local community rights.
- Poverty.
- Myths of Ecotourism.
- Liability for managers and institutions.
- Lack of women's involvement in conservation.
- Lack of employment alternatives for present reef-users.
- Incentive for local community.

8. Resource Utilization

- Access to resources.
- Intensive use of reef resources, e.g., tourism, fishing, exploitation of coral for national and international trade, souvenirs, and sand mining.
- Myths of Ecotourism.

- Unsustainable resource utilization, e.g., destructive fishing practices and over fishing.
- Lack of market value information of coral reef resources.
- Species sustainability vs. environmental sustainability.
- Natural resources enhancement.
- Community based management.
- Cost Benefit analysis.
- Lack of employment alternatives for present reef - users.

9. Financial resources

- Funding.
- Logistic capability.
- Use of funds from donors.
- Regional support of national programs.
- User pays cost recovery.

10. Public participation, e.g., community, NGOs, Private sector.

- Private sector and local people's involvement.
- Role of NGOs.
- Community based management.
- Need marine park stakeholder association.
- Lack of women's involvement in conservation.
- Responsibility of public groups and private sector.

ANNEX X

WORKING GROUP 2 - CAPACITY BUILDING

INTRODUCTION

The ICRI framework for action stresses the importance of capacity building in order to strengthen the human resources and institutional capabilities for integrated coastal management, research and monitoring, and training and education.

Within the East Asian Seas region a range of political and economic situations have resulted in variable capacities between countries of the region to manage coral reefs and related ecosystems in an integrated and sustainable manner.

The goal of the region must be to develop and support both the government, institutional and human/community capacity to a level whereby coral reefs and related ecosystems are managed sustainably. An increase in capacity will only be achieved through an increased awareness and understanding of the importance of these ecosystems by governments, institutions and the community.

The identification, development, interpretation and dissemination of relevant information and knowledge of the environmental, social and economic importance of these ecosystems is therefore an essential capacity building element.

Coordination and adequate financing is critical to implement and sustain the development of human and institutional capacities.

The ICRI *Framework for Action* recognizes that Integrated Coastal Management (ICM) is the primary means of providing for the conservation and sustainable use of coral reefs and related ecosystems.

The need to develop and strengthen public awareness and education

The importance of public awareness and education was ranked as one of the most important issues that need to be addressed. This can be addressed in the following ways:

- NGO groups, scientists, private sector groups and government agencies should be encouraged to cooperatively develop public awareness and education programmes.
- Education programmes should be developed to target different user groups, e.g., exhibitions for the relevant local people, environmental education in schools, utilisation of educational materials for relevant stakeholders, including the private sector and its clientele, and encouragement of their participation in public awareness and education.
- Governments and relevant stakeholders should be encouraged to provide the infrastructure and funding to facilitate the above programmes.
- Utilize all forms of media in the promotion of awareness of unsustainable activity and of positive actions that can be adopted by all users.

- Develop greater linkages and co-ordination between NGO groups, scientists, private sector groups and government agencies, in order to transfer relevant ICM skills and knowledge.
- Identify the coordinating organisations to facilitate the above actions as necessary, e.g., IUCN, EAS/RCU.

The need to enhance public/local community participation in ICM

- Develop programmes and initiatives to strengthen community organisations and develop regional networks.
- Develop techniques and programmes to facilitate community level training in ICM.
- Improve opportunities for consultation on coastal and marine issues between local organisations, the private sector, academic institutions, other user groups and the general public, through fora and public symposia to promote ICM and deal with impacts.
- Further develop information exchange networks so that informed decisions can be made and successes replicated, e.g., use of Internet, workshops, symposia etc.
- Promote successful pilot demonstration programmes and projects.

The need to strengthen institutional capacity to address conservation and sustainable uses of coral reefs

- On a regional basis, develop country training programs to a higher level, e.g., seagrass and mangrove management, reef restoration and protection.
- Establish and identify centres and programmes of excellence, within the region and countries and network between them, e.g., COREMAP, ASEAMS.
- Enhance the capabilities of regional organisations to support in-country ICM programs e.g. sourcing of funds, travel support, provision of training.
- Develop, distribute and maintain a directory of institutions and organisations with a list of capabilities, expertise, e.g., identify personnel, information sharing, publication exchange.

The need to improve information availability/exchange and training opportunities

One of the major themes that ran through the discussions on the other issues was the need for information exchange through actions to:

- Develop programs and initiatives which:
 - * maximize the opportunity to train trainers at the regional level in applicable fields (multiplier effect)
 - * train media people involved in environmental issues.
- On a regional basis build up environmental training/human capacity and expertise.

- Strengthen the capabilities of research institutions to address management issues, e.g., better facilities for addressing cyanide fishing.
- Promote inter-disciplinary exchange of knowledge and information.
- Encourage governments to develop policies to improve information availability.

The need to strengthen and develop coordinated policies and programmes for ICM

In order to address the need for coordinated and consistent policies in Integrated Coastal Management (ICM) the countries in the East Asian Seas are encouraged to:

- Integrate inland, coastal and offshore management initiatives and mechanisms to optimize synergistic benefits.
- Assist in the adoption and implementation of regional and global conventions and protocols to enhance the capacity of the regional member states and to use these fora to target issues of coral reefs and related ecosystems.
- Seek to minimise or resolve environmental conflicts and impacts in the region through cooperative efforts.

The need to develop and strengthen the capacity for legal/enforcement measures in marine conservation policy in the EAS countries

Countries in the region are encouraged to:

- Strive to ensure that legislation is coherent with the principles of ICM and includes capacity building as a mechanism to achieve the objective of marine conservation.
- Recognize community-based sustainable management practices in the development of legal enforcement measures.
- Facilitate the sharing of alternative modes and experiences in marine conservation and management to aid in appropriate legal and enforcement capacity in the region.
- Explore opportunities for regional cooperation on enforcement.
- Compile information on the valuation of coastal ecosystems and identify mechanisms to assess accountability for and damages to coral reefs and related ecosystems.

The need for the development of financial capacity and identification of resources for effective management

- Encourage member countries, through agreements, to contribute to regional projects and programmes in order to address ICM.
- Develop innovative financing mechanisms consonant with the "user pays" principle and allocate socio-economic incentives which enhance effective management, e.g., licensing, royalties, trust funds, incentives to community-based projects.

- Include funding allocations for capacity building in the regional strategies and activities in the countries.
- Develop and maintain a sustainable financial mechanism and capacities in the region, countries and local communities.

ANNEX XI

WORKING GROUP 3 - RESEARCH AND MONITORING

International Coral Reef Initiative East Asian Regional Strategy Research and Monitoring group

General statements

There are distinct regional problems and issues in the EAS that require directed question-driven research to ensure that coastal resources can be sustainably maintained and managed. Many of these issues need to be addressed collectively on a regional scale, utilising and developing the expertise and facilities of the member countries. Environmental, social scientists, and managers involved in Research and Monitoring need to ensure that the questions they tackle are developed in consultation with all stakeholders. The answers and benefits arising from this research must be disseminated to the wider community at all levels from government through to subsistence fishers and users.

The nature of the requirements to support conservation and sustainable use of coral reefs and related ecosystems is such that inter-disciplinary programmes are essential. This is reflected in many of the actions identified in this workshop.

Monitoring

Statement: Long-term monitoring is needed as a basis for sustainable use management of coral reefs and related ecosystems to predict potential impacts and suggest mitigating responses.

Objective: To establish a regional monitoring network that provides regular reports on ecosystem status and trends.

Actions:

- 1) Establish and develop monitoring programs in countries using standardised methodologies to assess resource status and trends.
- 2) Participate in monitoring as a regional node of the Global Coral Reef Monitoring Network.
- 3) Where appropriate, encourage institutions across the region to introduce and develop the capacity for monitoring and remote sensing, and to assist others with analysis and interpretation of the resulting data.

Methodology

Statement: While world-standard methods and techniques for monitoring and surveying coastal resources have been developed within some countries of the EAS there is a need to ensure that these are developed further and applied consistently throughout the region.

Objective: To ensure that standard methods are applied consistently and evenly across the region to improve the capacity to assess and manage resources and their use.

Actions:

- 1) Train and equip all countries across the region for marine research, including underwater field studies.
- 2) ensure that standard methods are applied consistently within all countries of the region through urgent training.
- 3) Encourage research cooperation to intercalibrate and exchange methodologies.
- 4) Support countries in efforts to translate and adapt methods for use at the local level whilst maintaining the basic methods of monitoring.
- 5) Encourage the development of new and appropriate methods for assessing degradation, sustainable use, and mariculture of critical species.
- 6) Develop and disseminate optimal enforcement methods to assist in the effective management of coastal resources.

Strategic research

Statement: There is a lack of adequate knowledge for effective coral reef and associated ecosystems management, including aspects like direct versus indirect, natural versus human impacts, e.g., sedimentation, pollution, climate change, predation, tourism impacts, over exploitation.

Objective: To have basic science used in informed management decisions through continued development of indigenous capabilities for strategic basic research.

Actions:

- 1) Increase funds for strategic research and encourage cooperative research such as the basic biology of reef communities (fishes, corals, diseases and predators including *Acanthaster* and *Drupella*).
- 2) Encourage multi-national, inter-disciplinary, intra-regional research addressing large scale issues such as interconnectivity of larvae, transboundary pollution, migratory species, effects of global climate change.
- 3) Research on the extent of destructive fishing methods such as explosive and cyanide fishing and their specific impacts and rates of recovery and resulting imbalance within communities.
- 4) Encourage research on the impacts of aquaculture.
- 5) Encourage research on alternative sustainable uses of Coral Reefs and related ecosystems such as the search for bioactive compounds.
- 6) Document traditional community practices and uses of marine organisms.

Environment and biodiversity

Statement: It is well recognised that the EAS region is the centre of marine biodiversity with a wide variety of types of coral reefs and associated ecosystems. We are now only beginning to understand the reasons for this biodiversity.

Objective: To understand further the processes that contribute to this biodiversity so that it can be maintained through time.

Actions:

- 1) Develop and update inventories of the species of the EAS region, emphasising those species that are endangered and threatened.
- 2) Identify areas important for the effective protection of the biodiversity.
- 3) Encourage and support basic research in taxonomy and biogeography.
- 4) Establish and encourage the maintenance of museum collections and curatorships through the provision of more scholarships and employment opportunities.
- 5) Encourage exchange programs across the region and between regions including areas important for their biodiversity.

Recovery and rehabilitation

Statement: Large areas of EAS coastal resources have been degraded beyond their apparent ability to recover in reasonable time, therefore, there is a need to examine mechanisms to rehabilitate these resources.

Objective: To accelerate rates of natural recovery of coastal resources and restoration of natural processes through rehabilitation mechanisms.

Actions:

- 1) Identify sites, both within countries and the region that would be suitable for rehabilitation.
- 2) Ensure that causes of degradation are removed where possible.
- 3) Encourage research and develop techniques to rehabilitate coral reefs and related ecosystems.
- 4) Share information within the region and with other regions through cooperative research on the effectiveness and methods of rehabilitation.
- 5) Ensure protection of areas during and after rehabilitation.
- 6) Monitor and evaluate both the beneficial and adverse effects of ecosystem rehabilitation.

Networking

Statement: There is an urgent need for nations to cooperate to address current rates of resource degradation.

Objective: To have effective intra-regional communication through the establishment of a regional node and a communication network of universities, research institutes, scientific museums and libraries.

Actions:

- 1) Hold regular regional workshops of scientists, resource managers and stakeholders to intercalibrate methods, examine case studies, and share experiences.
- 2) Establish the capacity to respond to urgent regional environmental needs through workshops and establishing regional task groups.
- 3) Set up a system of networking that provides continuous and open channels of communication within and between countries.
- 4) Provide mechanisms for training at all levels on resource use assessment and management including establishing standard sites to allow truly regional comparisons.
- 5) Establish a regional node to coordinate communication, training, workshops and database operations, including permanent reference sites.
- 6) Encourage coordination and communication among regional scientific museums and libraries, universities and institutes.
- 7) Encourage systems of communicating important resource and monitoring issues, problems and solutions, through multimedia mechanisms including Internet, newspapers, radio, television, posters, school kits, etc.

Databases

Statement: There is an urgent need to integrate all useful information into accessible databases so that this information can be made available for ecosystem conservation and management.

Objective: To have functional regional and national databases that contain current data, literature references, and inventories of research and management resources.

Actions:

- 1) Establish suitably equipped and staffed national and regional environmental databases with links to ReefBase that contain standardised structures to incorporate updated data holdings, relevant literature, and research and management resources.
- 2) Develop national and regional repositories of all coral reef and related ecosystems literature with an emphasis on materials that are difficult to obtain, e.g., NGO reports, grey literature.

- 3) Train people from the region in the principles and protocols of database operations and continually upgrade this training at all levels.
- 4) Ensure that all countries have facilities to access regional databases.

Management

Statement: Conservation of coral reef and related ecosystems involves managing human activities. Scientific research and monitoring, along with sociological, economic and cultural studies, are necessary to allow for informed management decisions.

Objective: To provide decision makers with appropriate information to facilitate informed management decisions and ensure sustainable use of coastal resources.

Actions:

- 1) Establish mechanisms in which collaborative inter-disciplinary groupings of scientists can provide data for effective management.
- 2) Contribute to economic assessments of resource values including the value of marine protected areas, sustainable yields of harvest and tourism.
- 3) Develop scientific criteria to assist in MPA establishment and planning, and determine the carrying capacities of small islands.
- 4) Assist in the conservation of endangered and threatened species by providing information on their biology, ecology, migration patterns, and indicating habitat areas that require special protection.
- 5) Encourage research to develop and refine methods for Environmental Impact Assessment (EIA) and management.

Key issues

- sociological, cultural, and economic factors affecting coral reef management
- traditional rights/methods that contribute to impede management
- regional perspective
- scientific baseline for conservation
- research question-driven
- quantify economic value of resources
- research on impacts of human activities including (eco)tourism and land use management

ANNEX XII

WORKING GROUP 4 - MECHANISMS FOR COORDINATION, MONITORING, EVALUATION AND REPORTING OF ICRI - RELATED ACTIVITIES

Preamble:

The East Asian Seas region is committed to working with the other regions of the world in pursuit of sustainable management of coastal resources through the International Coral Reef Initiative. This can be achieved by promoting the need for ICM and by sharing information and management examples in international fora, such as the Commission on Sustainable Development, APEC, the International Coral Reef Symposium and through mechanisms such as the GCRMN. The use of expertise from within the region to assist other regions is encouraged, and receipt of expertise from other regions in building our East Asian Seas regional capacity to implement the global framework for action is welcomed.

The need to develop mechanisms for coordination, monitoring, evaluation and reporting of ICRI related activities is important for sustaining these activities. The mechanisms will provide forums and means to conduct continuous evaluation and reviews of their performance in meeting the goals of the East Asian Seas Action Plan with the purpose of maintaining and improving these activities. In order to optimally conduct the evaluation and review, the establishment of performance indicators is needed.

Standard Setting

Objective: To ensure that information is collected and stored in a standard form across the region

- Through workshops and other means, ensure that consistent monitoring methodology is adopted and applied.
- Agree on standard formats for reporting to ensure coherent regional information.
- Facilitate the development of regional database networks.

Exchange of Information / Networking

Objective: To ensure that relevant information is transferred and made available throughout the region.

- Identify key national agencies as national focal points to communicate on a national and regional basis.
- Identify a regional agency as a focal point to communicate on a regional and global basis.
- Develop a timetable to implement the above networks and assess and review their effectiveness at a meeting by March 1997.

Evaluation-performance indicator

Objective: To measure the progress of the regional implementation of this ICRI strategy in the East Asian Seas.

- Establish performance indicators with an annual review process.

Funding

Objective: To support regional mechanisms for coordination, monitoring, evaluation and reporting.

ANNEX XIII

WORKING GROUP 5 - MECHANISMS AND FUNDING RESOURCES - COORDINATION AND LINKAGES

INTRODUCTION

It was noted that the issues raised during the discussion are all interconnected. The need for a coordinating mechanism to identify and prioritise regional programmes was considered important for sustained financing. With this in place, effective use of existing funds and the access to new sources of funds can be explored in order to facilitate the optimal use of financial resources. Continuous monitoring and evaluation is critical in sustaining the programme resources.

Coordinating mechanism

A coordinating mechanism will encourage countries in the EAS to:

- Determine regional priorities through action programmes of ICRI, eg., the need for training as a basis for the best use of existing funding and for seeking additional funding
- Develop criteria for funding based on the action programmes of ICRI
- Facilitate the sourcing of funds
- Cooperate with relevant programmes and activities including the Convention on Biological Diversity, the Global Programme of Action to Control Land-based Activities, the East Asian Seas Action Plan, CITES, RAMSAR and CMS, MARPOL-IMO, FAO and the IOC and other regional programmes

Sustainable financing

Sustainable financing is needed for the activities of the region. Regional coordination should focus on the effective use of existing funds and accessing new sources of funds. These mechanisms may be pursued encouraging the countries of EAS to:

- Utilize and allocate funding, encourage partnership with the private sector, and to promote mechanisms for economic incentives.
- Identify funding agencies in order to maximize effective use of existing regional and international funding agencies, and government development agencies.
- Determine regional priorities as a basis for the best use of existing funding and for seeking additional funding.
- Encourage contributions by governments to match outside funds as an indication of commitment to the ICRI programme.
- Identify and develop mechanisms for sustainable and innovative funding.
- Explore mechanisms for developing a common or trust fund, with contribution levels or type being indicative of the country's commitment to the initiatives or programmes.

Monitoring and evaluation

- Develop mechanisms for monitoring and evaluating the effectiveness ICRI programmes.
- Assess the effectiveness of the use of funding, through annual reports, steering committee meetings, in-country assessments, etc.

ANNEX XIV

INTERNATIONAL CORAL REEF INITIATIVE EAST ASIAN SEAS REGIONAL STRATEGY

Background to the International Coral Reef Initiative

The International Coral Reef Initiative (ICRI) was established because of serious concern about the increasing and widespread degradation of coral reefs and their related ecosystems, including mangrove forests, seagrass beds and beaches. ICRI is a global partnership of governments, international and regional organisations, non-governmental organisations (NGOs), multilateral development banks and private sector groups. This partnership aims to increase the capacity of countries and local groups to effectively conserve and sustainably use coral reefs and related ecosystems. The key to ICRI's success will be global cooperation, effective use of existing resources and identifying effective mechanisms for implementation.

The approach of the International Coral Reef Initiative is twofold:

- (i) to raise the global commitments to conserve, restore and sustainably use coral reefs and associated environments, and
- (ii) to use and better coordinate the efforts of governments and regional organisations as well as catalyze and facilitate the development of new activities to ensure the conservation, sustainable use and management of coral reefs.

ICRI was launched at an international workshop (May, 1995, Dumaguete, Philippines) attended by 106 participants from over 40 countries representing governmental, non-governmental, international and national organisations and multilateral and bilateral donor organisations. The workshop adopted a *Call to Action* and the *Framework for Action* which provide the basis for future international cooperation and coordination to ensure the conservation and sustainable use of coral reefs and related ecosystems.

The *Framework for Action* is based on the following principles:

- The full participation and commitment of governments, local communities, donors, NGOs, the private sector, resource users and scientists is required to achieve ICRI's purpose; therefore true partnerships, cooperation and collaboration exemplify 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 on these ecosystems.
- 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 recognised and built upon in all the ICRI activities.
- Integrated Coastal Management, (ICM), with special emphasis on community participation, provides a framework and process for the conservation and sustainable use of coral reefs and related ecosystems.

- A long-term commitment is required to develop national capacity to conserve and sustainably use coral reefs and related ecosystems and the continued improvement of coral reef management requires a permanent commitment to an adaptive approach.
- Strategic research and monitoring programmes must be an integral part of the ICRI because management of coral reefs and related ecosystems should be based on adequate scientific information.
- Actions promoted under the *Framework for Action* should take account of, and fully use, the 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.

Coral Reefs and Related Ecosystems in the East Asian Seas Region

The East Asian Seas (EAS) region is recognized as the global center of diversity for the flora and fauna of coral reefs and related ecosystems, making the conservation of the area's marine biodiversity a matter of global significance. Over 70 coral genera have been recorded from parts of Indonesia, the Philippines and the Spratly Islands, while more than 50 genera are found in other parts of the region. Seagrass and mangrove species diversity is equally impressive, with the highest numbers in the world for these plants occurring in the EAS region. The diversity of many other shallow marine species is also extraordinarily high in this region, e.g. nearly 2500 coral reef and nearshore fish species have been recorded in parts of central Indonesia and the southern Philippines.

The conservation and sustainable use of coral reefs and related ecosystems in the East Asian Seas region and the biodiversity they support is of indisputable social, economic and ecological significance. These diverse and productive ecosystems support important commercial and subsistence fisheries, providing critical sources of food and income for local communities. Tourism activities associated with coral reefs and related ecosystems are important sources of employment and foreign currency income. These inter-related ecosystems are also the location of spawning grounds and the recruitment of many marine species which migrate or are transported as larvae across the region.

Unfortunately, the marine habitats of the region are increasingly under the pressure from land-based and sea-based activities and sources of pollution which, together with over-exploitation and physical damage, are resulting in the degradation and destruction of coral reefs and related ecosystems. The social, economic and ecological consequences of this are severe, especially for developing countries of the region.

The main threats to coral reefs and related ecosystems in the East Asian Seas region are:

- pollution from land-based sources - particularly sewage, fertilizers, sediment, biocides, toxic wastes, solid wastes and oil spills;
- siltation due to soil erosion resulting from unsustainable and inappropriate land-use practices;
- unsustainable exploitation of coral reef resources, including overfishing and unsustainable tourism;
- destructive fishing and collecting methods, such as the use of cyanide and explosives;
- land filling and inappropriate coastal construction;
- coastal and marine development projects undertaken with inadequate environmental impact assessment;

- channel blasting and dredging activities; and
- natural disasters (e.g. crown-of-thorns starfish infestations, cyclones, possible climate change).

Purpose of this Strategy

This Strategy was developed by participants at the ICRI East Asian Seas Regional Workshop held in Bali, Indonesia (18-22 March, 1996). The Strategy provides a basis for implementing the ICRI *Call to Action* and *Framework for Action* in the East Asian Seas region.

The Strategy seeks to identify and address common and unifying issues relevant to the conservation and sustainable use of coral reefs and related ecosystems in the East Asian Seas region. It is recognized that the individual countries within the region have their own specific needs and priorities and that these must be addressed at the national level. The purpose of this Strategy is to provide for coordinated and cooperative regional action in supporting individual countries in achieving the aims of ICRI.

The Strategy also recognizes that there are many existing programmes and processes under way within the East Asian Seas region which are addressing issues relevant to the conservation and sustainable use of coral reefs and related ecosystems. The Strategy aims to support these activities by identifying regional priorities for cooperation, coordination and the effective use of resources.

The East Asian Seas region is committed to working with other regions of the world in pursuit of sustainable management of coastal resources through the ICRI Initiative. This can be achieved by promoting the need for integrated coastal management and by sharing information and management examples in international fora, such as the Commission of Sustainable Development, APEC, the International Coral Reef Symposium and through mechanisms such as the GCRMN. The use of expertise from within the region to assist other regions is encouraged and receipt of expertise from other regions, in building our East Asian Seas regional capacity to implement the global framework for action is welcomed.

The Strategy should be implemented in the light of, and as a contribution to, relevant international instruments, agreements and activities. The implementation of this Strategy should take account of existing information and seek to complement existing projects and coordinate with existing programmes. The actions identified in this Strategy outline how the conservation and sustainable use of coral reefs and related ecosystems can be achieved within the context and priorities of the East Asian Seas region.

Coastal Management

The conservation and sustainable use of coral reefs and related ecosystems requires that human-related uses must be addressed through improved and sustained management practices to minimize or eliminate impacts. The ICRI *Framework for Action* outlines a range of management actions to achieve this, with effective Integrated Coastal Management (ICM) clearly identified as the priority approach.

ICM is a process to ensure that development and management decisions in coastal areas are integrated with environmental goals and are made with the participation of those affected. ICM also is the means to ensure that maximum benefit can be derived from sustainable use of the resources of coral reefs and related ecosystems, while minimizing conflicts and harmful effects of resource use.

Effective management of the coral reefs and related ecosystems of the East Asian Seas will require regional, national and local action. At the regional level it will involve coordination to support countries in developing and implementing management programmes. At the national level, it will require developing and implementing national policies and legislation which can provide for effective ICM, and implementing programmes which give effect to these policies and legislation. The success of these management initiatives and effective implementation will depend upon the support and involvement of all stakeholders, particularly local people and resource users.

Goal I:

To provide for the conservation and sustainable use of coral reefs and related ecosystems through Integrated Coastal Management.

1.1 Policy and legislation for ICM

Objective

To develop and implement effective policies and legislation for ICM in all countries in the East Asian Seas region.

Actions

- a. Adopt the ICRI *Call to Action, Framework for Action* and the ICRI East Asian Seas Regional Strategy and incorporate their principles, objectives and actions into national policy priorities.
- b. Develop national policies and legislation for ICM.
- c. Promote coordination of agencies and cross-sectoral planning and decision-making in the policy development process.
- d. Promote linkages of national, regional and international policy and legislation.

1.2 Implementing ICM programmes

Objective

To develop and implement effective integrated coastal management programmes.

Actions

- a. Develop mechanisms for effective coordination between national, state and local agencies with responsibilities relevant to coral reef management.
- b. Develop and implement measures to control and minimize pollution from land-based and sea-based activities, bearing in mind the Global Plan of Action for the Protection of the Marine Environment from Land Based Activities.
- c. Ensure that marine resource harvesting is sustainable, including adopting a precautionary approach when information on sustainable levels of harvest is lacking.
- d. Prohibit destructive fishing methods, such as the use of cyanide and explosives.
- e. Ensure coastal and marine development is environmentally sound, through practices such as:
 - EIA's of development projects;
 - effective management of tourism and recreational activities;

- minimizing and controlling land filling activities;
- minimizing the adverse impacts of mariculture;
- ensuring coastal engineering and construction practices are environmentally sound;
- minimizing the adverse impacts of dredging, channel blasting and mining.

- f. Develop effective marine protected area systems including the preparation and implementation of management plans.
- g. Monitor and evaluate the success of ICM programmes.
- h. Encourage member countries, through agreements, to participate in regional projects and programmes which address ICM.

1.3 Access and equity in the use of the resources of coral reefs and related ecosystems

Objective

To address issues relevant to social equity, poverty, access and rational resource utilisation in the conservation and sustainable use of coral reefs and related ecosystems.

Actions

- a. Develop and implement resource management strategies which ensure equitable, reasonable and sustainable resource allocation and use.
- b. Ensure that ICM programmes address social, economic and cultural considerations, particularly the needs of local people.
- c. Develop income generation alternatives to unsustainable use of coral reefs and related ecosystems.
- d. Develop and promote the use of appropriate environmentally friendly technology in the conservation and sustainable use of coral reefs and related ecosystems.

1.4 Reflecting the economic and other values of coral reefs in decision-making

Objective

To ensure that the economic and other values of coral reefs and related ecosystems are reflected in decisions about the use and development of coastal and marine resources.

Actions

- a. Adopt resource accounting and include the value of coral reef and related resources in these calculations.
- b. Develop and apply techniques of economic and other forms of valuation of coral reefs and related ecosystems to ensure the long term values are considered in the development planning process, e.g., coastal tourism, and resource use, fisheries.
- c. Develop and apply economic incentives and instruments which promote the conservation and sustainable use of coral reefs.

Capacity Building

The ICRI *Framework for Action* stresses the importance of capacity building in order to strengthen the human resources and institutional capabilities for ICM, research and monitoring, training and education.

The national reports presented at the ICRI East Asian Seas Regional Workshop make it clear that the capacity of countries in the East Asian Seas region to conserve and sustainably use coral reefs and related ecosystems varies from country to country.

It is essential to develop the capacity of governments, institutions and individuals to levels necessary to achieve the conservation and sustainable use of coral reefs and related ecosystems. Increasing the capacity of governments, institutions and individuals will be facilitated by increased awareness and understanding of the importance of these ecosystems. The development and dissemination of relevant information and knowledge on the environmental, social and economic importance of these ecosystems is therefore an essential element of capacity building.

Co-ordination and adequate financing are also critical to implement and sustain the development of human and institutional capacities.

Goal II:

To strengthen the capacity of governments, institutions, communities and individuals to conserve and sustainably use coral reefs and related ecosystems.

2.1 Developing and strengthening public awareness and education

Objective

To develop and strengthen public awareness and education on issues relevant to the conservation and sustainable use of coral reefs and related ecosystems.

Actions

- a. Develop co-operative public awareness, education, and training programmes involving NGO groups, scientists, the private sector and government agencies.
- b. Improve linkages and co-ordination between NGOs, scientists, the private sector and government agencies, in order to transfer relevant ICM skills and knowledge.
- c. Facilitate the exchange of information, experts, managers, and government officials between and within countries.
- d. Utilise educational materials to educate relevant stakeholders, including the private sector and its clientele, and encourage their participation in public awareness and education.
- e. Utilise all forms of media to promote awareness of unsustainable activity and of positive actions that can be adopted by all user groups and develop programmes and initiatives to train media people involved in environmental issues.
- f. Identify the co-ordinating organisations to facilitate the development of co-operative public awareness, education, and training programmes, e.g., IUCN, EAS-RCU.
- g. Develop an East Asian Seas regional coral reef awareness campaign as part of activities carried out under the International Year of the Reef in 1997.

2.2 Enhancing community participation in ICM

Objective

To ensure the effective participation of all sectors of society in the conservation and sustainable use of coral reefs and related ecosystems.

Actions

- a. Ensure effective consultation with and among all interest groups in the management of coral reefs and related ecosystems.
- b. Promote and implement community-based management as a means to involve the local population, NGOs and interest groups in the conservation and sustainable use of coral reefs and related ecosystems.
- c. Implement programmes and initiatives, including training, to develop and strengthen community organisations and regional networks and facilitate community involvement in ICM.
- d. Document traditional community management practices and uses of marine organisms and habitats.
- e. Improve opportunities for consultation on coastal and marine issues between local organisations, private sector, academic institutions, other user groups and the general public, through fora and public symposia on ICM.
- f. Promote successful pilot demonstration programmes and projects and the transfer of information on the successes and failures of efforts to conserve and sustainably use coral reefs and related ecosystems.
- g. Further develop information exchange networks, e.g., Internet, workshops, symposia, to improve the opportunity for informed decisions to be made, for successes to be replicated and to learn from mistakes.

2.3 Strengthening institutional capacity for ICM

Objective

To strengthen the capacity of institutions with responsibilities relevant to the conservation and sustainable use of coral reefs and related ecosystems.

Actions

- a. Develop programmes and initiatives to train ICM trainers at the regional and national level in applicable fields.
- b. Encourage and assist countries to become self-sufficient in developing institutional capacity for ICM.
- c. Develop, strengthen and expand country training programmes in the EAS region, e.g., seagrass and mangrove management, reef restoration and protection.
- d. Establish and identify centres and programmes of excellence within the region and within countries and develop networks between centres.
- e. Enhance the capabilities of regional organisations to support in-country programmes through assistance in identifying funding sources, arranging travel support and providing training.
- f. Strengthen the capability of research institutions to address management issues, e.g., better facilities for addressing cyanide fishing.
- g. Develop, distribute and maintain a directory of institutions and organisations (e.g., on their capabilities, expertise) to encourage the exchange of personnel, information and publications.

2.4 Regional co-operation for co-ordination of ICM policies and programmes

Objective

To develop and strengthen co-ordinated policies and programmes for ICM through increased regional co-operation.

Actions

- a. Integrate inland, coastal and offshore management initiatives and mechanisms to optimise synergies.
- b. Assist in the adoption and implementation of regional and global conventions and protocols and use these fora to address the conservation and sustainable use of coral reefs and related ecosystems.
- c. Seek to minimise or resolve environmental conflicts and impacts in the region through co-operative efforts.

2.5 Legal and enforcement measures

Objective

Develop and strengthen the capacity to adopt and apply legal, enforcement and policy measures relevant to the conservation and sustainable management of coral reefs and related ecosystems.

Actions

- a. Recognise community-based sustainable management practices in the development of legal enforcement measures.
- b. Facilitate the sharing of experience and expertise in the conservation and management of coral reefs and related ecosystems to aid in developing legal and enforcement capacity.
- c. Develop and disseminate optimal enforcement methods to assist in the effective management of coastal resources.
- d. Enforce the prohibition of destructive fishing methods, such as the use of cyanide and explosives.
- e. Explore opportunities for regional co-operation on enforcement relevant to the management of coral reefs and related ecosystems.
- f. Compile information on the valuation of coastal ecosystems and identify mechanisms to assess accountability for and damages to coral reefs and related ecosystems.

2.6 Networking

Objective

To have the capacity for effective intra-regional communication through the establishment of a regional node and a communication network of universities, research institutes, scientific museums libraries, management and government authorities.

Actions

- a. Hold regular regional workshops of scientists, resource managers and stakeholders to intercalibrate methods, examine case studies, and share experiences.
- b. Establish the capacity to respond to urgent regional environmental needs through workshops and establishing regional task groups.
- c. Set up a system of networking that provides continuous and open channels of communication within and between countries.
- d. Provide mechanisms for training at all levels on resource use assessment and management including establishing standard sites to allow truly regional comparisons.
- e. Establish a regional node to coordinate communication, training, workshops and database operations, including permanent reference sites.
- f. Encourage coordination and communication among regional scientific museums and libraries, universities and institutes.
- g. Encourage systems of communicating important resource and monitoring issues, problems and solutions, through multimedia mechanisms including Internet, newspapers, radio, television, posters, school kits, etc.

2.7 Databases

Objective

To have the capacity to develop and maintain functional regional and national databases that contain current data, literature references, and inventories of research and management resources.

Actions

- a. Encourage the establishment of suitably equipped and staffed national and regional environmental databases with links to the Global Coral Reef Monitoring Network and ReefBase that contain standardized structures to incorporate updated data holdings, relevant literature, and research and management resources.
- b. Develop national and regional repositories of all coral reef and related ecosystems literature with an emphasis on materials that are difficult to obtain, e.g., NGO reports, grey literature.
- c. Train people from the region in the principles and protocols of database operations and continually upgrade this training at all levels.
- d. Ensure that all countries have facilities to access regional databases.

Research and Monitoring

There are distinct regional problems and issues in the East Asian Seas that require directed question-driven research to ensure that coastal resources can be sustainably maintained and managed. Many of these issues need to be addressed collectively on a regional scale, utilising and developing the expertise and facilities of countries throughout the region. Environmental and social scientists, and managers involved in research and monitoring need to ensure that the questions they tackle are developed in consultation with all stakeholders. The answers and benefits arising from this research must be disseminated to the wider community at all levels from government through to subsistence fishers and users.

The nature of the information required to support well-informed management decision-making is such that inter-disciplinary programmes are essential. This is reflected in many of the actions identified below.

Goal III:

To answer key management questions for the conservation and sustainable use of coral reefs and related ecosystems through the effective use of existing research and monitoring information, and the further development of appropriate research and monitoring activities.

3.1 Research and monitoring to support management programmes

Objective

To utilise strategic research (including social research) to provide decision makers with appropriate information to facilitate informed management decisions and ensure sustainable use of coastal resources.

Actions

- a. Ensure that managers and scientists work together to:
 - define management questions for which research and monitoring can provide answers; and
 - design and develop research and monitoring programmes to address these questions.
- b. Promote strategic research and encourage cooperative research on the basic biology of reef communities (fishes, corals, diseases and predators including *Acanthaster* and *Drupella*).
- c. Promote research on the impacts of land-based pollution.
- d. Encourage multi-national, inter-disciplinary, intra-regional research addressing large scale issues such as interconnectivity of larvae, transboundary pollution, migratory species, and effects of global climate change.
- e. Develop scientific criteria to assist in resource management planning, MPA establishment and management and develop and refine methods for predictive assessment, monitoring and management of Environmental Impact Assessment (EIA).
- f. Assist in the conservation of endangered and threatened species by providing information on their biology, ecology, migration patterns, and identifying habitat areas that require special protection.
- g. Conduct research on the extent of destructive fishing methods such as explosive and cyanide fishing and their specific impacts and rates of recovery.
- h. Conduct scientific and social research on the impacts of tourism and aquaculture.
- i. Encourage research on alternative sustainable uses of coral reefs and related ecosystems such as the search for bioactive compounds.

3.2 Monitoring

Objective

To establish a regional monitoring network to provide regular reports on ecosystem status and trends.

Actions

- a. Encourage the collection, analysis and interpretation of information on the status of coral reefs and related ecosystems to enhance the management and sustainable use of these resources.
- b. Use standardised methodologies to establish and develop monitoring programmes in countries, to assess resource status and trends.
- c. Encourage participation in monitoring as a regional node of the Global Coral Reef Monitoring Network.
- d. Where appropriate, encourage institutions across the region to introduce and develop the capacity for monitoring and remote sensing, and to assist others with analysis and interpretation of the resulting data.

3.3 Research and monitoring methodology

Objective

To ensure that standard methods are applied consistently and evenly across the region to improve the capacity to assess and manage resources and to allow questions on a regional scale to be addressed.

Actions

- a. Promote the training and equipping all countries across the region for underwater marine research.
- b. Recognise the need to use standard methods within all countries of the region.
- c. Encourage research cooperation to intercalibrate and exchange methodologies.
- d. Assist countries in efforts to translate and adapt methods for use at the local level whilst maintaining the basic methods of monitoring.
- e. Encourage the development of new and appropriate methods for assessing degradation; the level of sustainability; and mariculture of critical species.

3.4 Biodiversity of the East Asian Seas.

Objective

In recognising that the East Asian Seas region is the global centre of marine biodiversity, to understand further the processes that contribute to this biodiversity so that it can be maintained through time.

Actions:

- a. Develop and update inventories of the species of the EAS region, emphasising those species that are endangered and threatened.
- b. Identify areas important and suitable for the effective protection of coastal and marine biodiversity.
- c. Encourage basic research in taxonomy and biogeography.
- d. Establish and encourage the maintenance of museum collections and curatorships through the provision of scholarships and employment opportunities.
- e. Encourage the establishment of regional networks of marine protected areas to ensure maintenance of marine biodiversity.

3.5 Recovery and rehabilitation

Objective

To accelerate rates of natural recovery of coastal resources and restoration of natural processes through rehabilitation.

Actions

- a. Identify sites within countries and the region that are suitable for rehabilitation.
- b. Ensure that causes of degradation are removed where possible and ensure protection of areas during and after rehabilitation.
- c. Encourage research and develop techniques to rehabilitate coral reefs and related ecosystems.
- d. Share information within the region and with other regions through cooperative research on the effectiveness and methods of rehabilitation.
- e. Monitor and evaluate both the beneficial and adverse effects of ecosystem rehabilitation.

Mechanisms for Coordination, Implementation and Review of ICRI-Related Activities

The ICRI *Framework for Action* identifies the role of ICRI to facilitate the leveraging and channeling of existing resources among all sectors for the benefit of coral reefs and related ecosystems. Fulfilling this role depends on developing mechanisms for coordination of ICRI activities at the local, national, regional and international levels.

The ICRI EAS regional strategy has been developed to support the country implementation of the *Framework for Action*. This section aims to identify the possible coordinating and funding mechanisms to support the implementation of the regional strategy. Sustainable and long term funding focusing on the principles of this strategy is seen as the key to the implementation of this strategy.

Existing programmes and initiatives should be used in a way which make the most effective use of the scarce resources available.

Monitoring and evaluation are identified as critical requirements to ensure that funding is used efficiently and effectively and that the regional strategy is met in the long term.

4.1 Mechanisms for coordination of ICRI activities

Objective

To ensure the effective coordination of ICRI activities in the East Asian Seas at the local, national, regional and international levels.

Actions

- a. Ensure that there are mechanisms for effective international coordination of ICRI activities across and between all regions and that the East Asian Seas is appropriately represented in these mechanisms.
- b. Promote coordination and collaboration between international and regional, governmental and non-governmental organisations which are carrying out programmes

- relevant to the conservation and sustainable use of coral reefs in the East Asian Seas.
- c. Develop a mechanism for facilitating coordination of ICRI activities within the East Asian Seas region and assisting the in-country implementation of activities outlined in this Strategy.
 - d. Where appropriate, identify a key national agency or agencies with responsibility for national and local coordination.
 - e. The UNEP Coordinating Body for the Seas of East Asia should consider the feasibility of the UNEP Regional Seas Regional Coordinating Unit (EAS/RCU) taking on the role of hosting the coordination of ICRI for the EAS region.

4.2. Financing the Strategy

Objective

To develop sustainable financing to ensure the effective long term conservation and sustainable use of coral reefs and related ecosystems.

Actions

- a. Encourage partnerships with the private sector which generate sustainable funding of ICM.
- b. Develop innovative financing mechanisms consistent with the 'user pays' principle and allocate socio-economic incentives which enhance effective management.
- c. Encourage and assist countries to identify and approach funding sources.
- d. Determine regional priorities as a basis for the best use of existing funding and for seeking additional funding.
- e. Identify and target regional and international funding agencies.
- f. Encourage contributions by governments to match outside funding sources.
- g. Explore mechanisms for developing trust funds.
- h. Identify and develop additional sustainable and innovative funding mechanisms.
- i. Develop training programmes with the objective of promoting the best use of existing funding and skills for seeking additional funding.
- j. Develop criteria for seeking funding based on this Strategy.

4.3 Monitoring and evaluation

Objective

To develop mechanisms for monitoring and evaluating the effectiveness of the implementation of this Strategy

Actions

- a. Evaluate and report on funding effectiveness in meeting this strategy. Techniques may include annual reports, steering committee meetings, in-country assessments, etc.
- b. Ensure that consistent mechanisms for effective monitoring, evaluation and reporting of ICRI activities throughout the region and between regions are available.
- c. Share information with the international community on experience in the implementation of this strategy.
- d. Incorporate performance criteria reporting mechanisms within ICM programmes.
- e. Develop a timetable to review the effectiveness of the implementation of the Strategy.

ANNEX XV

ACTIONS IDENTIFIED AS IMMEDIATE PRIORITIES BY THE ICRI EAST ASIAN SEAS REGIONAL WORKSHOP

A primary objective of the International Coral Reef Initiative is to raise the awareness of policy makers and all stakeholders of the threats to coral reefs and related ecosystems. We draw attention to the importance of implementing the ICRI East Asian Seas Regional Strategy and thereby the ICRI *Call to Action* and *Framework for Action* at the regional level.

In considering the overall Regional Strategy the workshop participants have identified the following six issues as requiring immediate priority attention in the region.

1. Objective: To stop cyanide fishing in the East Asian Seas Region

The participants in the EAS Regional Workshop call for cooperation throughout the region and at the global level to address the issue of the use of cyanide in the live reef fish food trade and the aquarium trade, recognising the responsibilities of both supplier and consumer countries.

Actions:

Improve public awareness concerning the danger of cyanide fishing to the environment.

Develop and implement an effective monitoring, control and surveillance system both on land (to track the distribution of sodium cyanide) and on the sea (to interdict illegal fishers and traffickers).

Develop capability to conduct laboratory testing to detect cyanide use in the country of origin, transfer points and destination countries.

Set up coordination between actors at the national, regional and global levels

Explore legal aspects, including communication among the governments of countries involved.

Conduct research on the extent of cyanide fishing within the region and on the impact on coral reef ecosystems, and rates of recovery of corals and of coral reef communities.

The participants in the EAS Regional Workshop seek support from governments and institutions to fund, host and organise a workshop to be held at the earliest possible time to address legal and enforcement issues related to destructive harvesting and trade of coral reef resources. The workshop will recognise the importance of local communities in addressing the root causes of such practices.

2. Objective: Implement programs to "Train the Trainers" to build capacity throughout the region to address the threats to coral reefs and related ecosystems.

The participants in the East Asian Seas Regional Workshop recognise the unique needs for capacity building in certain countries of the region.

Action: The ASEAMS will organise a two to three week training program to train trainers from Cambodia, Myanmar, and Vietnam on coral reef and related ecosystem monitoring procedures. The ASEAN-Australia's Living Coastal Resources (AALCR) methodology will be used as a training guideline and personnel from the five countries who have participated in the past AALCR project will serve as resource persons. ASEAMS seeks support from governments and institutions within and outside the region to allow timely implementation of this effort.

3. Objective: Implement the regional priorities for Marine Protected Area establishment and management as identified in the "Globally Representative System of Marine Protected Areas (MPAs)" Report of IUCN, The World Bank and GBRMPA

Action: Countries in the region will consider the recommendations of the report with respect to achieving effective management of existing MPAs identified as priorities, establishment of new priority MPAs, and training of MPA managers.

4. Objective: Support the development of a regional node for the Global Coral Reef Monitoring Network.

Action: Countries in the region will:

work to identify a host institution/organisation in the region.

work to identify participating institutions within countries

identify institutions and organisations to assist in development of the network, especially to assist in training.

5. Objective: Support the 1997 International Year of the Reef which will be launched at the Eighth International Coral Reef Symposium in June 1996.

Action: Countries of the region will consider how to play a role in achieving the objectives of the International Year of the Reef. These include:

a major review of the status of coral reefs around the world,

development of public awareness and educational materials and campaigns, and

linking of the efforts of stakeholders and sharing of educational and public awareness materials, assessment of reef resources, education and collaboration.

6. Objective: Support and evaluate the implementation of the ICRI East Asian Seas Regional Strategy

Action: Hold a follow-up workshop by March 1997 to review progress on implementation of the EAS Regional Strategy, identify further issues, and provide an opportunity to increase regional participation.

Action: Identify a regional body to coordinate ICRI activities in the EAS region.

Action: Countries of the region will work to integrate the elements of the EAS Action plan into activities and implementation of regional and international fora and agreements. They will consider:

Integration of ICRI objectives into the activities of APEC

providing input into the Convention on Biological Diversity consideration of Marine and Coastal Biodiversity, and

implementation of the Global Plan of Action for Protection of the Marine Environment from Land-based Activities.

Integration of ICRI objectives into the review by the Fourth Session of the Commission on Sustainable Development of the implementation of Agenda 21 Chapter 17 on Oceans in April 1996.