CAPACITY BUILDING AND STRATEGIC INNOVATION

Conserving Critical Coastal Ecosystems in Mexico 1996 – 2003

By
Donald D. Robadue, Jr. and Pamela Rubinoff

COASTAL MANAGEMENT REPORT #2244

ISBN #1-885454-52-X

Citation: Robadue Jr., D.D. and P. Rubinoff. 2003. Capacity Building and Strategic Innovation: Conserving Critical Coastal Ecosystems in Mexico 1996 – 2003. Coastal Management Report #2244. ISBN #1-885454-52-X. University of Rhode Island Coastal Resources Center. Narragansett, RI.

This publication was made possible through support provided by the U.S. Agency for International Development's Office of Environment and Natural Resources Bureau for Economic Growth, Agriculture and Trade under the terms of Cooperative Agreement No. PCE-A-00-95-0030-05.

TABLE OF CONTENTS

FIGURES AND TABLES

FIGURES

TABLES

ACKNOWLEDGMENTS

The U.S. Agency for International Development (USAID) and the University of Rhode Island Coastal Resources Center (CRC) have worked together as partners on the global Coastal Resources Management Program (CRMP) from 1985-2003. We are pleased to share the lessons gleaned from the Mexico experience with our Mexican colleagues and others worldwide. The collaborative relationship between USAID and CRC was central and invaluable to the CRMP process, however the ultimate success of the program is a result of the efforts of literally thousands of *amigos* in Mexico who have taken up the challenges with spirit, intelligence and dedication.

The greatest successes are the collaborations that have formed, weaving together both the many coastal initiatives in Mexico and the ever-growing network of leaders and professional colleagues. The teams at CRC and USAID thank everyone involved in this effort for their continued leadership in addressing the increasingly complex issues that face our coasts. We are grateful for the ambition, vision and hard work of those who helped guide the coastal management initiative through uncharted waters in Mexico.

The commitment and stewardship demonstrated by the program managers, field staff, and individuals from our primary partner organizations—Amigos de Sian Ka'an, Conservation International, and the University of Quintana Roo—can not be overestimated. These change agents provided endless support to their local counterparts and to CRC, and helped navigate through difficult times of policy development and community change.

With warm respect and admiration, we have been privileged to work with community members and leaders in Xcalak, Mahahaul, Laguna Guerrero, Raudales, and Chetumal in Quintana Roo along with La Reforma, Playa Colorado, Costa Azul, Dautillos, and Yameto in Sinaloa and feel quite confident that their advances will continue. Similarly, our municipal partners in Othón P. Blanco, Navaloto, and Angostura and state agencies in Sinaloa, Quintana Roo and Baja California Sur have hosted our program activities and have been keen participants in promoting management initiatives to enhance the quality of life in the coastal zone. The Autonomas University of Sinaloa has been a steadfast and supportive partner. Finally, in efforts to promote nested governance among three levels of government and leverage activities throughout Mexico's vast coastal zone, the National Commission of Protected Areas, the National Institute of Ecology, and the Environmental Secretariat's Direction of Gender Equity have provided invaluable support. The program seized opportunities to link with other institutions associated with environment and democracy and greatly appreciated the synergies formed with other USAID programs, including those of the Nature Conservancy, World Wildlife Fund, PA Consultants, International City and County Management Association, *Coalición para la Limpieza Activa del Recurso de Agua*, and the University of Quintana Roo's Training, Internships, Exchanges, Scholarships (TIES) program.

Local non-governmental organizations have come together through networks such as the RedMIRC (Quintana Roo Coastal Management Network), ALCOSTA (Alliance for the Sustainability of the Coast of Northwestern Mexico), and the IMAC, (Mexico Conservation Learning Network). Time and again they have demonstrated their dedication to helping

communities wisely plan for and manage their coastal resources. In addition to USAID, other donors who have supported the program include the David and Lucille Packard Foundation, Summit Foundation, Homeland Foundation, *Fundo Mexico para la Conservación de la Naturaleza,* North American Wetlands Conservation Council, and the U.S. Fish and Wildlife Service. These donors have consistently shown patience and confidence and offered wisdom and guidance as well as funds to help the many additional local initiatives of our partners thrive.

Finally, we would like to acknowledge our colleagues at USAID. Paul White, Richard Volk, Heather Huppe, Sharon Murray, and Barbara Best, have played key roles as members of the greater Mexico team and time and again provided valuable support and guidance to a truly unified effort.

CRC hopes that this report adequately reflects the high quality of work of all these valued friends and colleagues. We also hope that the legacy of this effort will inspire and influence further capacity building and innovative work in coastal management efforts in Mexico. We look forward to continuing to work along side our partners in Mexico toward the ultimate goal of ensuring healthy ecosystems and good management that will yield long-term benefits for the people of each coastal place.

PROJECT TEAM (1996 – 2003)

Amigos de Sian Ka'an
Marco Lazcano, *Executive Director*

Alejandro Vega Zepeda1
Arturo Can Moo
Carelia Rodriquez Perez
Carlos López Santos
Carlos Vidal
Concepción Molina Islas
Dana Wussenich
Frida May
Juan José Di Donna Argülles
Juan Bezaury Creel
Jorge Carranza Sánchez
Laura Susana Rivera
Maria Luisa Villareal Sonora
Orlando Iglesias Barron
Rosa Maria Loreto Viruel
Ricardo González Hunt
Wady Hadad López

Conservation International
Maria Angeles Carvajal, *Executive Director, Gulf of California BioRegion*

Alberto Medrano
Alejandro Robles
Alonso Islas
Ana Luisa Toscano
Armando Villalba Loera
Ernesto Bolado Martínez
Francisco Zamora Arroyo
Humberto Gurrola López
Juan Manual Garcia
Julia Acuña
Mauricio Cervantes Abrego

ISLA
Antonio Cantu
Ma. Elena Martínez Delgado

University of Quintana Roo
Francisco J. Rosado May, *Rector*

Alejandra Dzay Graniel,
Alfredo Ramírez
Ann Snook
Antonio Iturbe Posadas
Bonnie Campos
Carmen Sarmiento Mariscal
Eddie Ellis
Eduardo Galicia Zamora
Efrain Villanueva Arcos
Elma Llovera
Elsa Domínguez Tejeda
Enrique Mota Flores
Erwin Babb
Felipe Medina
Felipe Villanueva Silva
Gerardo García Contraras
Héctor Gamboa Perez
Lourdes Castillo
Luis Sánchez Cataño
Lourdes Somarriba
Magali Cabriolé
Ma. Carmen Brito
Ma. Carmen Pedroza
Ma. Carmen Sarmiento
Ma. Teresa Chan González
Omar King de la Rosa
Natalia Armijo Canto
Rafael Romero Mayo
Sissi Carvallo Matos
Susanne Kissmann

RedMIRC
Adriana Y. Olivera Gómez
Carlos López Santos
Maria Luisa Villarreal
José Humberto Alvarez
Josefa Gómez Lara
Raúl Contreras Castillo

Coastal Resources Center
Stephen B. Olsen, *Director*

Amber Neville
Carlos García Saez
Don Robadue
Jennifer McCann
Josh Cinner
Lynne Hale
Michael Abbey
Pam Rubinoff
Patty Harrington
Townsend Goddard

Extended CRC Team
Bill Matuszeski
Emilio Ochoa
Maria Haws
Mark Amaral
Neil Ross
Rocio Brambila

USAID/Mexico
Paul White, *Mission Director*

Charles Schnell
Citlali Cortes
Daniel Evans
Frank Zadroga
Heather Huppe
Jane Marks

USAID/EGAT Water Team
Richard Volk, *Coastal and Aquatic Programs*

Barbara Best
Mike Philley
Sharon Murray
Tom Rhodes

ACRONYMS

ALCOSTA	Alliance for the Sustainability of the Coast of Northwestern Mexico
AMMT	*Asociación Mexicana de Marinas Turisticas*. Mexican Marina Tourism Association
ANDAH	Aquacultura Association of Honduras
ANUIES	*Asociación Nacional de Instituciones y Universidades de Educación Superior*. National Association of Institutions of Higher Education.
ASK	Amigos de Sian Ka'an, A.C.
BEMAMCCOR	Belize-Mexico Alliance for Management of Common Coastal Resources
C^3EM	Conservation of Critical Coastal Ecosystems in Mexico [Project]
C&D	Committee for the Conservation and Development in Bahía Santa María
CECARENA	Center for Natural Resource Conservation
CESPEDES	Private Sector Center for Sustainable Development Studies
CIAD	*Centro de Investigación Alimentación y Desarrollo* – Research Center for Food and Development
CIMEX	Conservation International/Mexico
CLARA	*Coalición para la Limpieza Activa del Recurso de Agua*. Clean Water Coalition.
COBIOTEC	The College of Biologists in the Technical [Education] System, Chetumal, Quintana Roo
CONACYT	National Science and Technology Commission
CONANP	*Comisión Nacional de Areas Protegidas* - National Commission for Protected Areas
CONAPESCA	National Fisheries Commission
CRC	Coastal Resources Center, University of Rhode Island
CRIP	Mexico Fisheries Research Center
CRMP I	Coastal Resource Management I Program, funded by USAID/G/ENV, operated by CRC 1985-1995
CRMP II	Coastal Resource Management II Program, funded by USAID/G/ENV, operated by CRC, 1996-2003
CCD	*Comisión para Conservación y Desarrollo* - The voluntary planning commission for Bahía Santa María
CyD	*Conservación y Desarrollo*. The Conservation and Development Trust Fund for Bahía Santa María
ECOSUR	*Colegio de la Frontera Sur* – College of the Southern Border
FY	Fiscal Year
FONATUR	National Tourism Promotion Foundation
GAA	Global Aquaculture Alliance
GTC	*Grupo de Trabajo de la Bahía de Chetumal* - Chetumal Bay Working Group
GEF	Global Environmental Facility
GIS	Geographical Information Systems
GMP	Good management practice
GOC	Gulf of California
ICM	Integrated Coastal Management
IMAC	Mexico Conservation Learning Network
IND	Indicator
INE	*Instituto Nacional de Ecología* – National Ecology Institute of Mexico
IR	Intermediate Result
LOP	Life of Project
MEO	Municipal Ecological Ordinance
MIRC	*Manejo Integrado de Recursos Costeros* – Integrated Coastal Management

MPA	Marine Protected Area
NGO	Non-government organization or civic associations
OEM	*Ordinamiento Ecológico Marino* - Ecological Marine Ordinance
OET	*Ordinamiento Ecológico Territorial* – Ecological Zoning Ordinance
PAN	*Partido Acción Nacional* National Action Party.
POET	*Programa de Ordinamiento Ecológico Territorial* – Ecological Zoning Ordinance
PRI	*Partido Revolucionario Institutional* The Institutional Revolutary Party
PROARCA	*Programa Ambiental para Centroamérica* - Environmental Program for Central America
PROFEPA	Federal Environmental Law Enforcement Agency in Mexico
RACE	Rapid assessment of conservation economics
RCP	Resource Cities Program
RedMIRC	*Red de Manejo Integrado de Recursos Costeros* – Quintana Roo Coastal Management Network
SEMARNAP	*Secretaría de Medio Ambiente y Recursos Naturales y Pesca* – Environmental Secretariat of Mexico, prior to 2000, including Fisheries
SEMARNAT	*Secretaría de Medio Ambiente y Recursos Naturales* – Environmental Secretariat of Mexico, post-2000.
SEDESOL	The Secretary of Social Development
SEDUMA	*Secretaría de Desarollo Urbano y Medio Ambiente* – Secretary of Urban Development and Environment
SICOMA	*Sistema de Información de la Costa Maya* – Costa Maya GIS
SO	Strategic Objective
TIES	Training, Internships, Exchanges, Scholarships. A program of USAID.
UAS	Autonomous University of Sinaloa
UQROO	University of Quintana Roo
URI	University of Rhode Island
USAID/G/ENV	US Agency for International Development – Global Environment Center
USAID/Mexico	US Agency for International Development – Mexico Program
WWF	World Wildlife Fund
WILD	Women in ICM—Leadership Development
ZMFT	*Zona Marítima Federal Terrestre* - The federal coastal and marine zone
ZOFEMATAC	*Zona Marítima Federal Terrestre y Areas Costeros* – Federal Maritime Zone Program

PART 1
INTRODUCTION

CHAPTER 1 - AN INTRODUCTION TO THE PROGRAM

> *We increasingly see evidence of the impacts of uncontrolled population growth and migration, the chaotic expansion of cities, the persistence of extreme poverty and public health risks, the continued placement of human settlements in high-risk zones, the expansion of industry that drives ecosystems beyond their carrying capacity, and the deterioration of the infrastructure and facilities needed to mitigate those impacts. The connections between natural disasters and underdevelopment are now clearer and more alarming. A national coastal management policy for Mexico must be based not only in the conservation of ecosystems but also in the sustainable development of productive activities and human settlements. The concept of sustainable development allows for a gradation of uses ranging from one extreme of complete protection to the other of intensive use.*[1]

The program *Conserving Critical Coastal Ecosystems in Mexico* (C^3EM) emerged from the backdrop of rapid development in a number of coastal growth centers, a strong response from the emerging Mexican and international conservation communities, and important efforts to upgrade Mexico's institutional framework for environmental management during the 1990s. The central response of the U.S. Agency for International Development (USAID) and the conservation community in Mexico during this period was a focus on biodiversity conservation and establishment and implementation of protected areas. The seven-year coastal management program[2] (FY 1996 – FY 2003) was primarily funded by the USAID mission in Mexico (USAID/Mexico) to support its overarching biodiversity agenda. The program has been implemented through the University of Rhode Island's Coastal Resources Center (CRC) in partnership with two Mexican non-governmental organizations (NGOs), Amigos de Sian Ka'an (ASK) and Conservation International/Mexico (CIMEX), and a state university, the University of Quintana Roo (UQROO).

Figure 1. Map of Mexico.

The C^3EM program operates in two coastal regions—the southern portion of the state of Quintana Roo and the Gulf of California—where the project's partner organizations take the lead in local conservation and management efforts. Throughout the program, partners raised complementary funds from other donors within and outside of Mexico, while CRC leveraged considerable funds from both USAID and private foundations to build partner capacity and support for priority activities on both coasts.

The opportunity to work on integrated coastal management (ICM) in Mexico emerged in 1995, when CRC staff completed work on the design of a World Bank project aimed in part at initiating ICM programs in Chiapas, Veracruz and Nayarit, in conjunction with environmentally sound aquaculture development. The USAID/Mexico environment officer at the time requested CRC to help prepare a much smaller scale proposal to the Summit of the Americas initiative, supported by the U.S. Department of State, to assist its current conservation partners in Mexico. Although the World Bank program was eventually funded at a smaller scale and then cancelled, its original design had a significant influence upon USAID's 1995 initiative that promoted a participatory approach to prepare coastal management plans that built upon existing environmental management tools, in coordination with universities and NGOs. It is interesting to note this agenda remains relevant a decade later, as the CRC's aquaculture good practices project has been expanded in Sinaloa, CIMEX is working in Nayarit's *Marismas Nacionales*, and USAID has targeted watersheds and lagoons in several of Mexico's southern states as priority sites for their new 2003-2008 environmental strategy.

This circularity and interconnectedness is an important and challenging aspect of the story that unfolds throughout this document. The document is divided into five parts. It begins with laying out the 1990s' context of resource management in Mexico, leads the reader through the successes and challenges of project implementation, and finishes in 2003, where program results and lessons provide a foundation for expanded management initiatives.

This introduction provides background on the governance context for ICM in Mexico and describes the key coastal issues as of the mid-1990s when the project began. It traces the growing role of the conservation and research communities and discusses the implications of the mid-1990s context on project design and operation. This sets the stage for the selection of the program's four intermediate results (IRs) and how these map to the underlying approach to coastal management utilized throughout the project, and the accompanying framework of indicators for tracking progress toward the IRs. The introduction concludes with an overview of the strategies employed to reach each IR.

The body of the report explores the key achievements of the program, using a review of 10 key projects carried out under the different IRs over the course of seven years. Part 2 covers the three main projects that were aimed at improving coastal governance in the sites of Xcalak, Bahía Santa María, and Chetumal Bay. These sites were seen as entry points for coastal management.

Part 3 discusses three projects that explore how to work with the private sector and resource users to achieve the behavior changes that coastal plans require but that regulations alone cannot

make happen. These projects focus on the tourism sector in Quintana Roo, shrimp aquaculture in Sinaloa, and recreational marina development in the Gulf of California region.

Part 4 examines projects aimed at improving the policy and administrative context for managing coastal resources at the site level. The examples are drawn from project efforts related to regional shore use policies in Costa Maya, and the ongoing effort to create an overarching vision and strategy for the Gulf of California.

Part 5 turns the focus to IR 4, "creating strategic partnerships and capacity building" and emphasizes the emergence of the UQROO's Integrated Natural Resources Management Center and Geographic Information System (GIS) Center. It highlights the two-way learning that was involved in strengthening the C^{3}EM strategic partners—ASK, UQROO, and CIMEX.

The report concludes in Part 6 with reflections on the strategies and progress made under each IR, focusing on their meaning for Mexico's evolving vision and needs for coastal resource management. The final chapter draws from these reflections to suggest what Mexico might do to advance coastal management and stewardship.

The C^{3}EM project was made possible in part because coastal biodiversity conservation was a central component of the USAID/Mexico results framework (1998-2003). It was also made possible in part because CRC had a cooperative agreement on coastal management with USAID Washington since 1985—with the latter providing an agile administrative mechanism and additional administrative, technical and funding support. The Mexico program was incorporated within the Coastal Resource Management Program (CRMP) field program umbrella[3] and contributed to the overarching CRMP results framework, which strongly emphasized creating or improving national level coastal management programs in USAID countries. C^{3}EM also contributed to the USAID/Mexico results framework, which emphasized the non-government based initiative to advance biodiversity conservation and focused on site-based conservation of coastal resources rather than on building coastal management programs at the federal or state levels.

Excerpts from: *A Proposal for Integrated Coastal Management in Mexico*

- Create an integrated national strategy for coastal management
- Establish a special environmental program taking an integrated approach to coastal resource decisions
- Form regional coastal management programs
- Incorporate deconcentration and decentralization of authority
- Create legally recognized mechanisms for coordination and cross-sectoral cooperation at each level of government
- Utilize the Environmental land use plans (POETs) as an important tool for coastal management
- Establish continuing opportunities for public involvement as part of the fabric of public decisionmaking
- Utilize economic, financial and taxation instruments for advancing coastal management programs
- Draw more fully on the opportunities for international cooperation in coastal management.

National Ecology Institute, 2000

The difference between these two agendas generated a subtle but

important dynamic that is a sub-theme throughout this story. To return to the quote that opens this section, what does it mean to *allow for a gradation of uses* within a sustainable development agenda*?* What lies between the extremes of *complete protection* and *intensive use?* Who is responsible for *the sustainable development of productive activities* and how can *human settlements* become sustainable rather than chaotic?

These questions highlight important coastal management concerns in Mexico. However, C^3EM was not formulated nor funded to address them head on at the national level. C^3EM's much larger sister programs in CRMP II (1995-2003) Tanzania and Indonesia and CRMP I (1985-1995) Ecuador, Thailand and Sri Lanka[4] were all government-led partnerships that specifically pursued this end. C^3EM, by contrast, directed efforts explicitly to strengthen NGO and university institutions to play more effective roles within the overarching existing environmental framework in Mexico within targeted biogeographic regions.

The reason for this focus was simple. While Mexican law is already ample and its key institutions are in place, the expected levels of public participation and sound implementation are rarely met. This gap between what is needed and what is reality must be closed at many levels. However, the clearest way to do this has been through a place-based focus—where participation and co-management take their most tangible form. While there is ample cultivation and use of state, federal and international help and support, the aim remains to create instructive and compelling experience and capability at the community, municipal and bioregional levels. Experience has shown that progress beyond the site-specific or situation-specific often relies, like an effective advertising campaign, upon word of mouth rather than systematic reform.

There are some important lessons learned in the pages that follow, both through successes as well as activities that did not turn out as well as expected. Explanations are tendered for both. However, making attempts and sometimes mistakes, trying different routes to a destination and being surprised are all at the core of learning. A key result of seven years of collaboration in improving Mexico's evolving ecosystem and land use governance system is a broader understanding of resistance and bottlenecks as well as the tremendous opportunities for reform, progress and growth of integrated coastal management as a central tool for sustainable development.

The governance context for biodiversity conservation and coastal management in Mexico (1995 - 2003)

A mix of global, national and local issues in the target regions of the Caribbean and the Gulf of California helped shape C^3EM. The Mexico context in the mid-1990s contained unique elements of governance, conservation, environmental threats, partnerships, and institutional capacity—all of which were taken into account in the program design.

National environmental policy and leadership was awakened in Mexico with the 1987 report of the World Commission on Environment and Development and with Mexico's adoption in 1988 of its General Environmental Protection Law. Next, the 1992 Conference on Environment and Development in Rio de Janeiro, Brazil set the stage for Mexico's 1995-2000 Environmental Program, prepared by the newly created super-agency SEMARNAP (now SEMARNAT,

Secretaria de Medio Ambiente y Recursos Naturales—the Environment Secretariat of Mexico). Led by Julia Carrabias, this was a period of strong leadership and the revitalization of key conservation and environmental management tools such as protected areas and marine parks, environmental plans for coastal shores, and environmental law enforcement. Important new measures included the creation of the Mexican Nature Trust, *Fondo Mexicana para la Conservación y Natureleza.* This fund supports a variety of site-based conservation projects and has transformed "paper parks" into a key conservation tool. The fund is currently capitalized at about US$58 million, through major contributions from the Global Environmental Facility (GEF), the Government of Mexico, and USAID, along with significant contributions from private foundations.

Mexico has made extensive use of national protected areas (including biosphere reserves and parks) to address marine and coastal ecosystems, many of which have been supported through innovative programs such as the "Parks in Peril" partnership with The Nature Conservancy (TNC), USAID and the National Environmental Secretariat. There is a chain of marine protected areas and reserves along the Quintana Roo coast, anchored by the Sian Ka'an Biosphere Reserve, which occupies the central coast of the state. The Gulf of California contains over 900 islands within the protected area system, as well as a number of coastal sites on the Pacific and Gulf coasts.

Although Mexico had no national ICM program, President Ernesto Zedillo's six-year plan (1994-2000) focused on addressing the key problems of the federal coastal zone—including the need to clarify ownership and establish management responsibilities of the entire Mexican coast. Specific legislation guided federal government management of fisheries, wildlife, forests and the federal coastal zone. As a result, Mexico's "coastal zone management" program focuses on settling title disputes and collecting revenues from concessions within the 20-meter strip above the high water mark where other federal ministries—with counterpart delegations in the states—oversee human settlements, urban planning, navigation, ports, and tourism.

About 13.4 million people reside in the coastal zone, which spans approximately 35,000 kilometers including 166 municipalities in 17 states. This population was governed for 80 years under the highly centralized government, *Partido Revolucionario Institucional* (Institutional Revolutionary Party—PRI), which was in power since 1921. The elections of 2000 marked a major political transition as the presidency shifted to the *Partido Acción Nacional* (National Action Party—PAN). Since this change in government, Mexico's environmental programs have increasingly promoted decentralization, granting state and municipal agencies more authority and decisionmaking power. With this change has come an increasingly vocal struggle over revenue sharing between the federal government and the states. It has also created decentralized environmental programs in all three layers of government. In 2003, most coastal states have their own counterpart agencies, which usually combine environmental affairs and urban development. Yet in 1995, at the outset of C^3EM, there was little coordination or integration either among sectors or among federal-state-municipal lines of command. The struggle among layers of government to create effective decentralization reflects the difficulties of internal reform. However, providing a strong institutional foundation is an essential precondition for advancing ICM in Mexico.

Mexico acknowledges the need to expand beyond the federal zone and establish an integrated coastal management framework. In 2000, the National Ecology Institute published a series of reports summarizing environmental progress under the Zedillo administration and setting out agendas for the future[5]. The recommendations outlined in the reports reflect a tacit understanding of the issues that have slowed the country's attempts at sustainable coastal development. The C^{3}EM is in and of itself a manifestation of the recommendation to "draw more fully on the opportunities for international cooperation in coastal management."

Under the administration of President Vicente Fox **(**2002 to date**)**, greater emphasis has been placed on decentralization, economic instruments (such as land tenancy clarification and concession fee collection in the shore zone) and in procedural efficiency. Environmental groups, universities, business and civic associations, as well as some municipalities, have focused more on addressing the policy and choice-making challenges of complex coastal problems as well as working to take advantage of development opportunities in a responsible way in specific sites and regions.

Key coastal biodiversity issues facing Mexico at mid-decade in the 1990s

Supplying international markets for fisheries products (including farmed shrimp) and building market share in the global tourism industry are both key economic objectives for Mexico and key agents of change in the coastal environment. USAID, in its 1998–2006 strategy for biodiversity conservation and in collaboration with its partners, promoted ICM as an approach—one that could work along side other conservation strategies—as a way to address these issues.

Coastal Issues in Mexico

Coastal issues are now emerging in Mexico, due to recent demographic and economic trends combined with a new awareness at the national and international levels of the problems these trends will generate. Of particular concern are:

- The high rate of population growth in the coastal zone
- The importance of coastal regions for future economic growth, especially in tourism and production of all types
- Evidence of the decline in various marine resource stocks
- The increasingly evident negative relationships between land use and marine environmental quality
- Projections of the effects of global climate change in

Mexico is currently facing serious issues with:

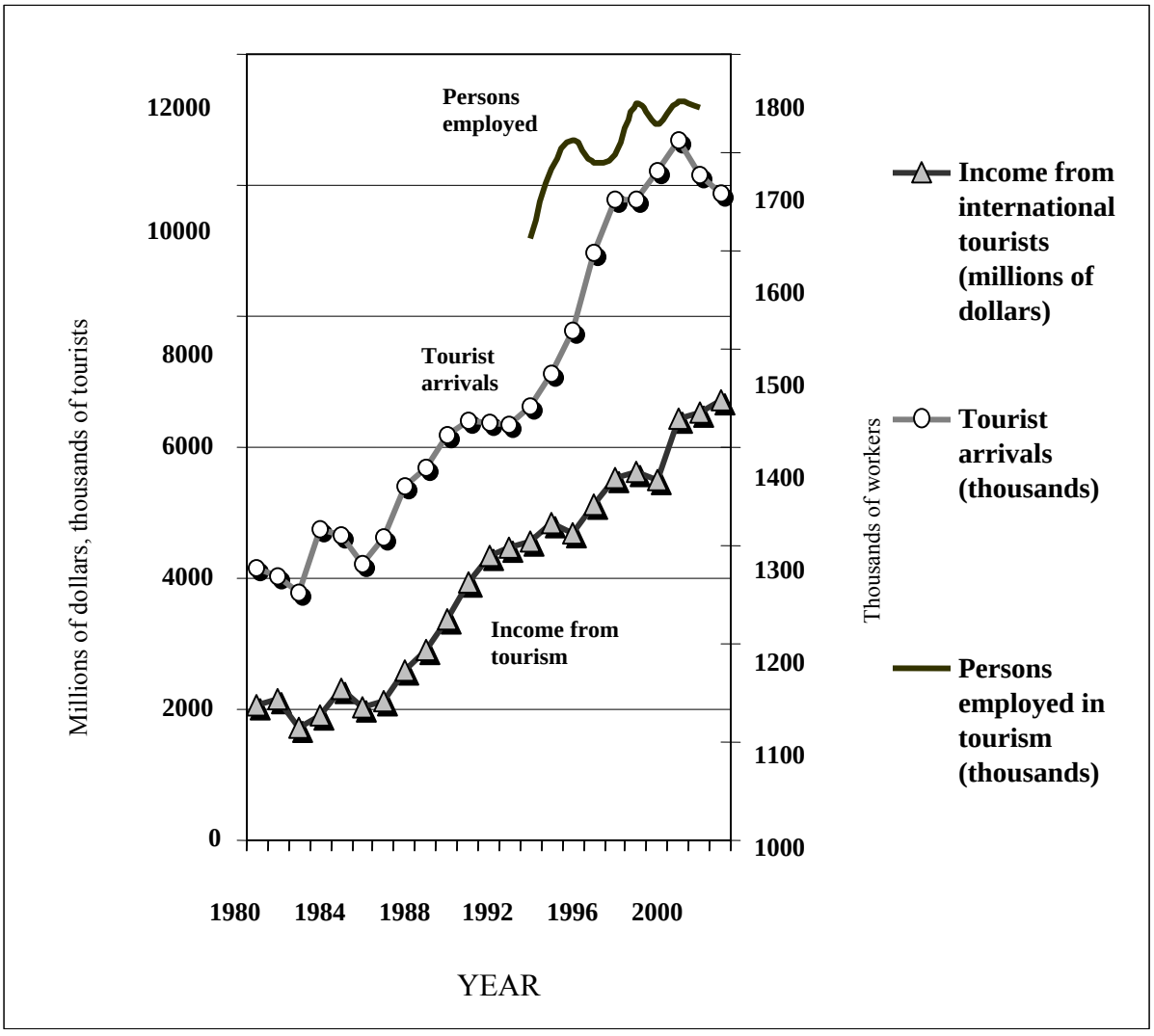
- The physical alteration of shoreline and estuarine ecosystems
- Contamination of all types
- Changes in the ecological functions and structures of once productive ecosystems

National Ecology Institute, 2000[6], op. cit.

Tourism

The growth and popularity of Cancun, now the largest city in the state of Quintana Roo, proved tourism could be an important engine for economic development in Mexico's coasts. It provides a physical "model" for tourism development—one with massive, all-inclusive resort hotels as well as a financial "model"—where initial investments have ignited a long period of hotel room construction and economic boom. Within just 25 years, the once sleepy village of Cancun exploded into a premier resort city of over 300,000 residents and spawned a 150-kilometer tourism corridor, the Riviera Maya. This set the stage for new plans to create a tourism investment program for the southern coast of Costa Maya—the same coast where USAID's program has promoted more sustainable forms of management and growth.

Figure 2. Growth of tourism income, visitors and employment in Mexico[7].



Success is relative to perspective, and at the very least, tourism development has not been without costly side effects. While Quintana Roo captures approximately one-third of Mexico's total tourism income, it is difficult to determine if the benefits are distributed fairly or sufficiently realized by communities and local entrepreneurs alike. While The National Tourism Promotion Fund (FONATUR) is proud of its role in jumpstarting tourism development in Cancun's beach zone and the Riviera Maya, it does not accept responsibility for the uncontrolled secondary impacts of this growth nor for the problems encountered in implementation of the local Environmental Land Management Plan. The plan was adopted only in 1994 after more than 20,000 rooms had already been constructed and visitor arrivals had reached two million per year and were entering another rapid growth phase.

During the 1990s, a civic committee was formed to address the issues of Laguna Nichupte, a major recreational water body that lies between Cancun's hotel zone and the main part of the city, which began to exhibit severe impacts from water pollution. In just the first three years of the new millennium, the population of Riveria's Maya's anchor city, Playa del Carmen, has grown over 20 percent annually due to hotel construction in the region and the immigration of workers employed by these hotels. This growth has put huge pressure on basic services of potable water, sewage and roads. The Environmental Plan for the Riviera Maya corridor proved unenforceable, and a new zoning and regulatory program was adopted. Today, FONATUR continues to promote mass tourism destinations throughout Mexico's coastal zone, including the newest proposal for a 26-site Nautical Route in the Gulf of California Region and a smaller 7,000-room resort in Quintana Roo's southern Costa Maya. This represents a significant scale-back—gained as a result of strong negotiations during the environmental planning process.

Figure 3. The shifting economic center in Quintana Roo. Changes from historic Maya Agriculture (#1) and forestry (#2) to modern agriculture (#3), mass tourism in Cancun and the Riviera Maya (#3), lower impact tourism in Costa Maya (#5) and Chetumal Bay (#6)[8].

Fisheries and aquaculture

A motivating factor for creating marine protected areas in Mexico has been the threat of declining fisheries and biodiversity. Whether it is industrial trawling of shrimp in marine waters or increased fishing pressure on coral reefs and lagoons by artisanal fishers, conflicts are increasing and resources are degrading rapidly. Artisanal fisheries have both social significance and political influence in the region. Unfortunately there are few or no regulations on the species harvested by this sector.

Economic pressures for growth in aquaculture can be clearly seen in the Gulf of California, where 16 of the 20 major coastal lagoon ecosystems have been evaluated for shrimp aquaculture. About 35,700 hectares of ponds have already been built[9] with the potential for a total of 180,000 hectares to be constructed. Such a build-out would threaten these coastal ecosystems, which have important wild shrimp fisheries and internationally significant wetlands, and are key flyways for migrating shore birds and ducks.

Mexico's strong concern for the health and good management of its bays and lagoons is reflected in its Comprehensive Fisheries Policy (through *Carta Nacional de Pesca,* the National Map of Fisheries Policies) which includes a characterization, issue diagnosis and recommended actions for all of Mexico's important embayments. Nevertheless, weak enforcement and bureaucratic processes have made management of these areas a challenge.

The increase in economic investment in just these two sectors, fisheries and tourism, is deeply intertwined with demographic and environmental issues, which affect quality of life in the coastal zone. Increased numbers of buildings, people and infrastructure are vulnerable to storm and erosion hazards, wetlands are subject to conversion or destruction, and construction practices continue to reflect unawareness or disregard for the risks and natural functions of coastal features. Coastal communities suffer from health problems associated with poor waste management, limited educational opportunities, and lack of options for economic diversification. Solutions are not simple. Problems in artisanal and industrial fisheries make aquaculture seem a good alternative to overfishing and declining wild stocks. Yet, aquaculture has, in turn, generated its own set of problems. Tourism—especially for Quintana Roo—has brought both great benefits and distress.

Coastal management tools that have been applied worldwide are finding their way into Mexico. Coastal issues are finding their way to the forefront of public policy debate, and integrated approaches to environment, economy, and development are of greater interest at the federal, state and local levels. Progress has been greatest in small sites and areas of special concern. Over the long run, the forces of change stimulated by the North American free trade agreement, and regional development initiatives such as Plan Puebla/Panama are strong enough to warrant broad-based and multi-level debate and policy change.

CHAPTER 2 - IMPLICATIONS OF THE MEXICAN CONTEXT OF THE MID-1990s FOR PROJECT DESIGN AND OPERATION: THE FOUR INTERMEDIATE RESULTS

The C^{3}EM initiative was implemented in two phases. Funding from the Summit of the Americans was received in 1996 to begin work in Quintana Roo on the Caribbean coast. Two years later, USAID/Mexico incorporated coastal resources management into its five-year environment program (1998–2003), expanding the scope to include the Gulf of California. The project supports USAID Mexico's strategic objective "*to conserve critical biological resources*." The original project design acknowledges the modest investment of USAID in the vast coastline of Mexico and the challenges of integrated management.

> *"This results package relies on developing the capacity of non-governmental groups and local universities to provide leadership and build public support for coastal management at the state level, as well as deepen their capacity to work towards tangible conservation results with coastal communities."* [10]

In total, the C^{3}EM was funded at US $2.7 million to achieve its four key objectives.[11] In FY01, USAID increased the original scope of work to include the design and oversight of a field station and provided supplementary funds to match Japanese Embassy funding of the facility in Mahahual in the state of Quintana Roo. In addition to USAID funding, all C^{3}EM partners have a successful history of fundraising and securing institutional funds to match or supplement USAID project funding. From the start, the team agreed to seek complementary projects that would substantially increase the work that could be supported through USAID funding. These efforts generated more than US$1 million on each coast.

Mexico's evolving legal and administrative framework for environmental policy might be the envy of other Latin American and Caribbean countries, save for the large and growing gap between stated policy and actual practice. Meanwhile, advances in coastal resource governance have been achieved through strategic points of entry rather than a comprehensive national program. Smaller, practical demonstrations of coordination, cooperation and co-management have the potential to generate the hope and self-confidence needed to simultaneously build the demand and the capability to carry out programs of greater scope and influence.

CRC's role in Mexico was to work within the vision and framework of existing non-government organizations that were funded by USAID/Mexico to help achieve the agency's strategic objective for biodiversity. USAID/Mexico's priority in 1996 was to bring an integrated approach to what it felt were a set of isolated coastal conservation projects. The C^{3}EM objectives were to:

1. Make progress in coastal management in areas surrounding biodiversity conservation sites
The C^{3}EM worked in two ecologically important areas to demonstrate how coastal management could help conserve critical coastal ecosystems and build NGO and university partner capacity to contribute to the broader coastal management agenda. The C^{3}EM sites were Xcalak and its associated coral reef ecosystem within the Meso-American Reef System, and Bahía Santa María in Sinaloa, a high priority coastal wetland ecosystem in the Gulf of California bioregion.

2. *Promote voluntary measures to change development decisions*

C^3EM acknowledged that most changes in coastal resource use would need to be voluntary and driven by strong incentives for individuals and developers to adjust their uses. Toward this end, the project, in partnership with private and public stakeholders, focused on developing and using good practices for tourism and mariculture—practices that would reduce environmental impacts, promote sustainable business practice, and enhance the local distribution of benefits.

3. Improve coastal governance

The C^3EM project addressed the regional coastal policies affecting ecosystems of Costa Maya, Chetumal (Quintana Roo), and the Gulf of California. The project contributed to the state-level coastal land use ordinances that are Mexico's primary tool for establishing use priorities in geographic areas. The objective was to strengthen institutions and policies within the targeted regions and thereby increase the chance of success in the strategically selected sites with later replication throughout the region. The C^3EM program design emphasized participatory methods to establish co-management schemes, and sought opportunities to create intersectoral coordination mechanisms and partnerships for coastal planning, governance, and implementation.

4. *Increase local and regional capability to utilize ICM principles and practices*

C^3EM aimed to build the capacity of program partners to work successfully with a broad group of stakeholders at the community and regional levels to support the first three objectives. The project recognized that in order for participatory processes, coastal planning and decisionmaking, or the design and adoption of good practices to succeed, all three layers of Mexican government—local, regional, and national—had to be actively engaged. While C^3EM partners had experience in related fields (e.g. conservation of protected areas), the project sought to build complementary skills and provide additional tools for participation and governance initiatives.

The four project objectives supported USAID/Mexico's broader objectives for biodiversity conservation (see Figure 4) and also closely mirrored USAID Washington's environmental strategic objectives and intermediate results. This promoted a beneficial and productive collaboration between CRC, USAID/Washington and USAID/Mexico.

Figure 4. USAID Mexico strategic objectives and results framework.

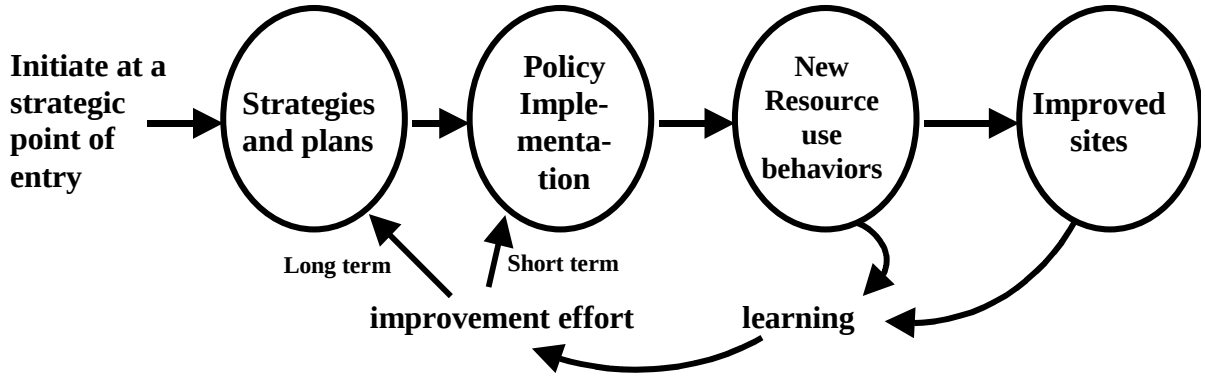
STRATEGIC OBJECTIVE: CONSERVATION OF CRITICAL COASTAL RESOURCES
PRIMARY INDICATOR: Number and area of critical ecosystems, in target areas, with adequate management

USAID/Mexico Results Framework Component	Conserving Critical Coastal Ecosystems in the Mexico Project's Intermediate Results	Indicators to Track Results
Management of target protected areas and other critical ecosystems are improved →	***IR 1. (SEE PART 2)*** ***Coastal management plans formally adopted and selected implementation actions underway along southern Xcalak Peninsula and Bahía Santa María***	**IND: Number of Sites meeting pre-determined management goals** *See chapters 3-5*
Demonstration and implementation of sustainable use activities in biologically important areas →	***IR 2. (SEE PART 3)*** ***Low-impact practices for environmentally compatible coastal development are defined and utilized more effectively by private developers and in regulatory reviews***	**IND: Number of men and women in target areas practicing sustainable activities promoted by USAID** **IND: Number and percent of new coastal zone enterprises in target areas using best management practices advocated by the USAID sponsored Coastal Zone Management Program**. *See chapters 7-9*
Improved policy for conservation and sustainable use of biological resources →	***IR 3. (SEE PART 4)*** ***Policy options are developed for the government consideration; processes are established to promote their adoption***	**IND: Policy Advances** *See chapters 10-11*
Improved Mexican NGO and professional capacity for conservation of sustainable use of natural resources →	***IR 4. (SEE PART 5)*** ***Improved capacity enables enhanced site-management, adoption of low-impact practices and more effective coastal policy for conservation and sustainable use of coastal resources***	**IND: Number of Target Mexican NGOs demonstrating improved ability to manage environmental projects effectively** **IND: Number of individuals participating in training and technical exchange programs/gender disaggregated** *See chapters 12-13*

This Results Framework reflects a symetry between USAID/Mexico and USAID/Washington. More importantly it maps to the basic logic of coastal management interventions carried out in Mexico as illustrated below.

Figure 5 is a generalized schema of the basic C^{3}EM project logic shown as a chain of results[12]. A decision by concerned citizens or leaders to protect or resolve resource use conflicts in a specific site leads to the preparation of strategies and plans aimed at problem solving, followed by changed behaviors of various actors.

Figure 5. The results chain for a development or coastal management project.



As time passes, the expectations embodied in these plans are compared with the current reality. If proscribed activities are not occurring or conditions in the site are different than expected, the program may need adjustments. Good monitoring and continued assessments help ensure these necessary adjustments occur in time.

Using the original community project site as an example, two things sparked the selection of Xcalak as a site requiring "improved management." One was the announcement by government of plans to develop tourism along the coast of this region. Another was the request from community members to create a marine park to promote economic opportunities through ecotourism. The C^{3}EM goal was to help Xcalak and Costa Maya move from 'threatened' status to one in which ecosystem quality was healthy and the coastal management capability was robust. To accomplish this, C^{3}EM proposed using a learning-based approach. Annual work plan reviews used the progress indicators and detailed performance requirements to help C^{3}EM partners continuously assess and revise their activities and make the corrections needed to achieve each intermediate result (IR).

Figure 6. Mapping the four intermediate results onto the results chain.

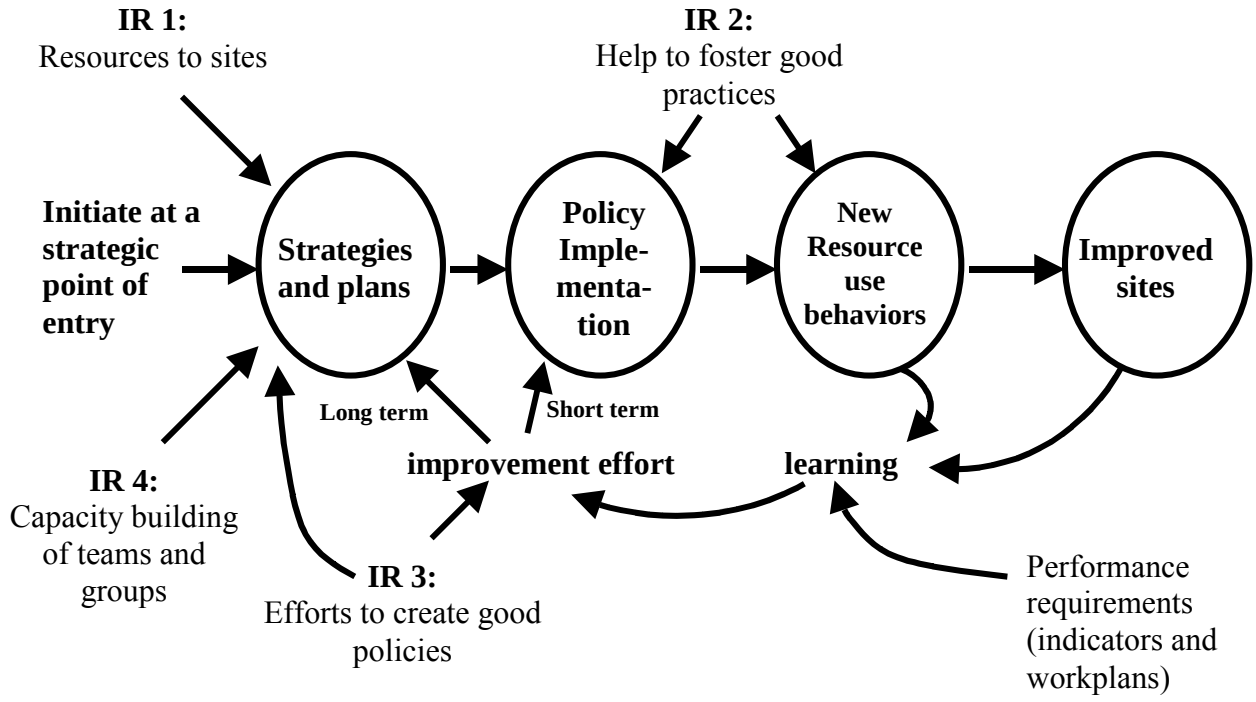


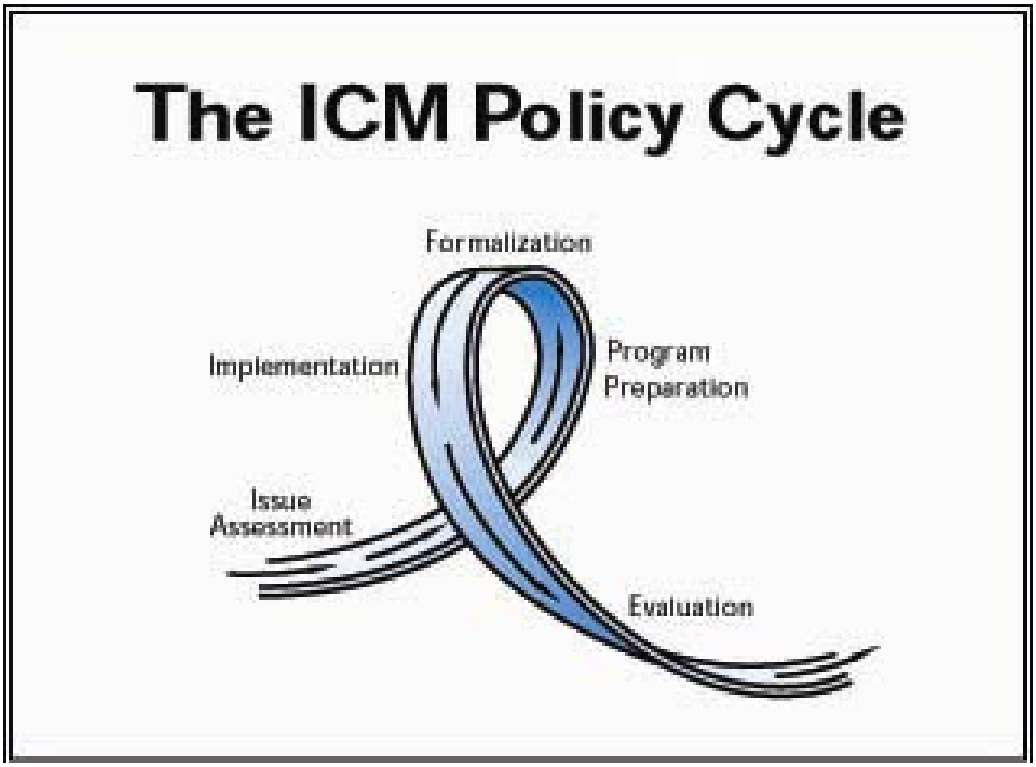
Figure 6 illustrates how the four IRs map onto the logical flow of the results chain. The logic map lays out the activities and structure for achieving 'improved management' that would apply to Xcalak and Bahía Santa María, for example. Intermediate Result #1 (IR1) activities focused on getting site-oriented work started and sustained through early implementation. IR 2 supported a complementary strategy that targeted activities with residents and resource users aimed at motivating and facilitating voluntary changes in behavior, while IR 3 supported efforts to influence policies and decisions at higher levels of government. This latter IR had two objectives—to remove potential bottlenecks in the flow of higher-level resources and to coordinate support to programs on the ground. IR 4 provided resources to expand, train and sustain the teams implementing the work—mainly NGO and university-based partners but also other stakeholders such as public officials.

In both the Costa Maya and Gulf of California sites, measurement of progress towards improved management was the main indicator reported annually to USAID. Advances in site management were tracked by a scorecard, adapted in part from the Mexico Parks in Peril program and the Regional Environmental Program for Central America (PROARCA). This scorecard also incorporates elements of the ICM policy preparation cycle, as seen in Figure 7, which illustrates the basic process for planning and implementation as an iterative loop.

Project outcomes reflect the progress and flow of the results chain towards improved management of sites. These outcomes can be institutional mechanisms (i.e. plans and strategies), stakeholder behavior changes (applying good practices in a coastal development), in addition to

improved site management as described above. Together, these outcomes contribute to improved quality of life for coastal people and conserved biodiversity.

Figure 7. The ICM Policy Cycle.



Coastal Zone Management Scorecard

Step 1: Issue Identification

1a. Management issues upon which the program will focus have been selected. Major short and long-term social and institutional implications of addressing these issues are understood.
1b. The most important gaps in information for further analysis of the selected management issues have been identified.
1c. Major stakeholders, both within government and the public that should be involved in the further development of the initiative, have been identified.

Step 2: Program Preparation

2a. An integrated plan of action (i.e. management plan, community strategy, land use plan) has been prepared that specifies the objectives, policies and actions that will be undertaken for each of the issues being addressed.
2b. The principal/theory upon which the program is based is both understood and can be explained.
2c. Early implementation actions have been tested at a pilot scale.
2d. An institutional design that defines the various public and private institutions, their roles, and interrelationships has been selected and put in place to implement the plan.
2e. A training plan has been developed to provide public and private sector institutions responsible for the implementation of the plan with the capacity to implement the plan.
2f. The cost of program implementation has been realistically estimated and the sources of such finances have been identified.
2g. A core of important stakeholders, both within and outside government, have participated in the preparation of the plan and support the plan's implementation.
2h. A sustained public education and/or awareness program has been developed to inform those who have an interest in the selected issues.

Step 3: Formal Adoption and Funding

3a. The appropriate level of government has formally approved the coastal management plan.
3b. The funds and other resources required for implementation have been secured.

Step 4: Implementation

4a. Program activities are changing target group behavior and improving the protection of natural resources.
4b. The training plan, which provides the political, managerial and technical skills of those implementing the program, has been implemented.
4c. Program stakeholder groups are actively involved in program implementation and influence program decisions.
4d. The management strategy is adaptive. Management strategies and actions have responded to new information and conditions.

Step 5: Evaluation

5a. Data on baseline conditions and subsequent monitoring of change have been compiled.
5b. The questions to be addressed by the Program evaluation and the criteria that will be applied to answer each question have been specified.
5c. Modifications to the objectives and basic strategies of the program have been made and have strengthened the program.

CHAPTER 3 - STRATEGIES FOR ACHIEVING INTERMEDIATE RESULTS

Strategies give direction and purpose, deploy resources in the most effective manner and coordinate the stream of decisions made by different members of an enterprise. This chapter briefly lays out the *intended* strategies for each IR of C^{3}EM. These describe the initial choices on the direction of the project and use of its resources. Later, in Part 5 of this report, we offer reflections on the *realized strategies.* These are examined as part of the more detailed story of each activity as presented in Parts 2 through 5.[13]

Key choices made during the life of the program took into account both those changes internal to the project and its partners, and those external to the project. The latter included issues and opportunities that arose in Quintana Roo, the Gulf of California and Mexico. The ebb and flow, of "one step forward—two steps back"[14] is a necessary part of a learning-based approach that adjusts project activities on-the-fly, as Figure 5 depicted [15].

Strategies for IR 1: Coastal management plans formally adopted and selected implementation actions underway along southern Xcalak Peninsula and Bahía Santa María

Build the bridge from planning to implementation in order to achieve improved management in sites

In both Quintana Roo and the Gulf of California, local successes have helped advance coastal management at all levels. It is the work implemented at the site level that creates concentrated effort and enthusiasm, and provides tangible evidence of the practical outputs and outcomes that can result from the often large investments of time, energy and money that go into studies, discussion and consensus-building. Mexico has a labyrinth of area plans, impact assessment procedures and regulatory criteria—none of which converge at the scale of a coastal ecosystem and most of which has little credibility at the local level. This system begs for an alternative approach that can demonstrate and then generate support for planning methods that cross jurisdictions and layers of government and that unify stakeholders.

Such an approach would ensure sustained efforts that transcend administrations and that have sustainable funding and a vibrant constituency. However, without real priority issues and a commitment to participation, otherwise logical and robust environmental planning can degrade into the tedious formality of preparing environmental master plans at different scales. For example, combining bay and land area decisionmaking—an idea only vaguely referred to in national law—became real and exciting only when tested on the ground in both Quintana Roo and Sinaloa.

Moving from planning to implementation in Mexico means breathing new life into existing instruments. Currently, municipal and state-adopted environmental ordinances and a federal environmental regulation system that oversees coastal decisionmaking are Mexico's principal coastal environmental management tools. C^{3}EM's three strategic partners look at revitalizing these instruments from different perspectives and have different opportunities for influence.

Closing the gap between planning and implementation meant pursuing practical projects with good chances of producing early and tangible success at various levels. In C^3EM, this included implementing specific problem-solving exercises in villages, experimenting with private enterprises to take advantage of conservation successes, reshaping legal procedures so as to engage resource users, and providing the support network for the secretariat function and technical assistance for a working group. Early actions in Xcalak and Bahía Santa María were especially effective in building stakeholder confidence and providing a "practical exercise" for advancing local management while waiting for formal mechanisms to be put in place.

Strategies for IR 2: Low-impact practices for environmentally compatible coastal development are defined and utilized more effectively by private developers and in regulatory reviews

Incorporate equity and quality of life issues to increase the social relevance of coastal management and its effectiveness as a program

C^3EM strategic partners initially engaged in specified sites where biodiversity conservation was the primary concern. As programs on both coasts unfolded, partners also responded to the need to address social and economic development, and the public health dimensions of environmental problems. This was done mostly through training and support for business planning and supplemental livelihoods. The strategy has been critical for engaging the community in conservation and management in the sites. The program has been diligent in incorporating private sector and community viewpoints on good conservation practices. It has also begun to address the incentives and disincentives for implementing policies and good practices that have short-term costs for achieving long-term gains.

The Mexico program's parent project**,** CRMP II, has increasingly emphasized certain global themes over the course of the C^3EM project. These have resonated well in the Mexican context. Both partners and colleagues have been receptive and enthusiastic participants in innovative efforts to incorporate activities locally and contribute insights globally. During a mid-project evaluation, for example, it became evident that many of the project activities did not address gender equity and may have unknowingly even discouraged women's participation. Reasons for this included the way in which issues were identified (e.g., fisheries, a sector in which women rarely participate directly) or the profile of the staffing (mostly male biologists). In the Bahía Santa María project, however, progress was made in identifying the need for both a better mix of project staff, and early actions that more explicitly addressed quality of life concerns of the entire community—including women, children, families. At the time, CRC was incorporating gender and demographics as a core theme in its center-wide program portfolio. Bahía Santa María was clearly already making the links between these two issues and coastal management and was establishing itself as an early adopter.

Strategies for IR 3: Policy options are developed for the government consideration; processes are established to promote their adoption

Building upon prior experience: Climbing up and down the stairway to co-management in Quintana Roo and Sinaloa

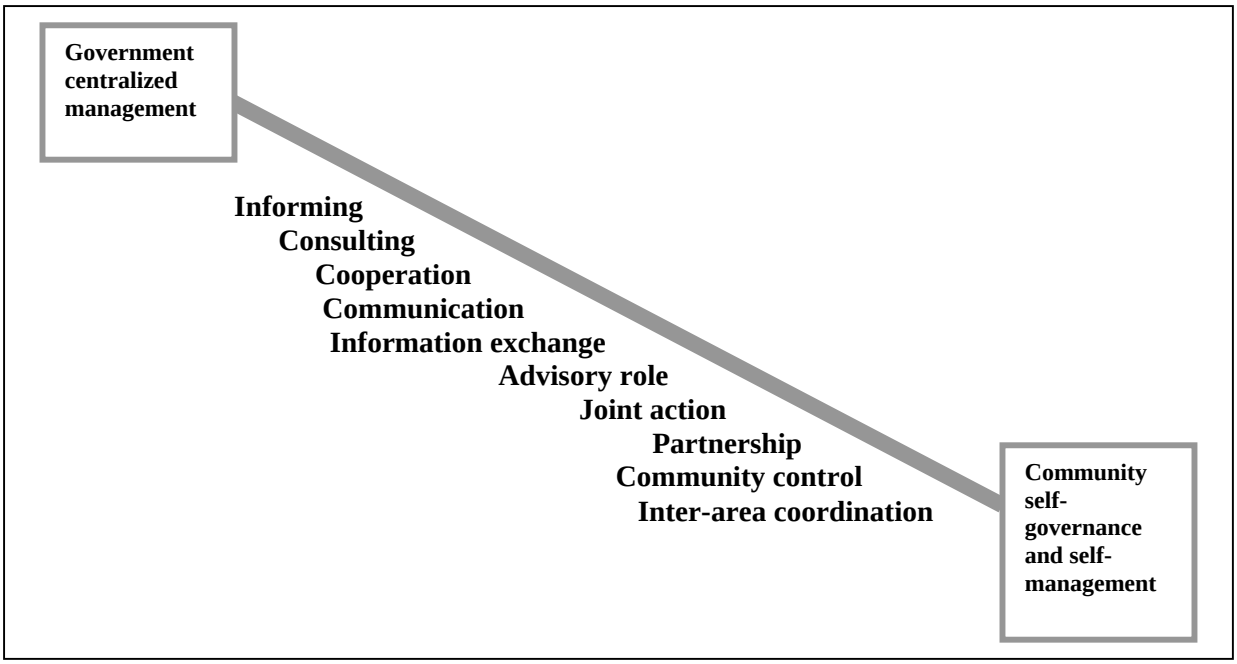
Coastal management is a relatively new idea in Mexican environmental management. Yet, one of its underlying foundations—co-management of natural resources and public goods—has a

well-developed example in the case of forestry resources in Quintana Roo. In co-management, both government and users of common property resources take active responsibility for good decisionmaking and make credible commitments to carry out these decisions

The landscapes, shorelines and coastal waters that contain the natural resources which are the focus of biodiversity conservation and coastal management in Mexico are held under one of three main property ownership arrangements. Some areas with these "goods" are in **private** hands, and their owners have a full bundle of rights. Owners can control access, limit or allow extraction, carry out management activities, and sell off the property and its assets at will. Private ownership by definition excludes non-owners. Other parts of the landscape are held **communally**. In this arrangement, a group shares the benefits, but there remains a mechanism for excluding non-members of the group. Communal property, such as *ejido*[16] farm and forest areas, infrastructure (i.e., irrigation systems) and even public parks with strict access control systems can be considered "toll goods." By imposing a toll, joint use is permitted but effectively limited. Finally, the 20 meter zone above high tide, the ocean, bays and large plots of land are **common-pool resources** or "public goods" owned and regulated by the government in Mexico. There is considerable rivalry over these public goods (the benefits cannot be shared—e.g., catching a fish prevents someone else from enjoying the benefit of that particular fish) as well as considerable difficulty in excluding users. When no attempt is made or no capability exists to exclude or control use of common-pool areas, open access becomes the default regime.

Co-management is the idea that both government and users of common property resources take active responsibility for good decisionmaking and make credible commitments to carry out the decisions.

Figure 8. A hierarchy of co-management arrangements.



It is the place where public policy and private interests intersect to carry out resource management and conservation. While it may be true that decisions need to be made closest to the people affected by them, Mexico's federal government retains most responsibilities for making decisions about coastal and marine waters and resources. If properly staffed, fully funded, firmly backed by the enforcement agencies and the judicial system and absolutely committed to public involvement, then this arrangement might work as printed on paper. To a greater or lesser degree, however, the reality is different.

In C^3EM, co-management is included among the strategies to achieve the IRs. Shorefront areas held by private owners may include a concession for use of the federal coastal zone. The government may transfer ownership of prime coastal property to private parties to induce economic development. A fishing cooperative may have exclusive rights to fish in a particular area for a particular species, but be faced with non-members entering the same grounds. A marine reserve may include no-take zones that exclude all fishing but that nevertheless are the target of poachers because the reserve lacks any influence over the enforcement arm of the government. A federal island park may be officially declared, but lack staff or a management plan. All of these situations require sound decisions regarding the use of common property, communal property or privately held resources. C^3EM and its partners have encountered and addressed a wide range of these management situations, and have worked to explore, identify and test approaches that could become effective elements of Mexico's ICM "tool box." These methods and interventions have been inspired by world experience. However, their implementation is unique to the Mexican context.

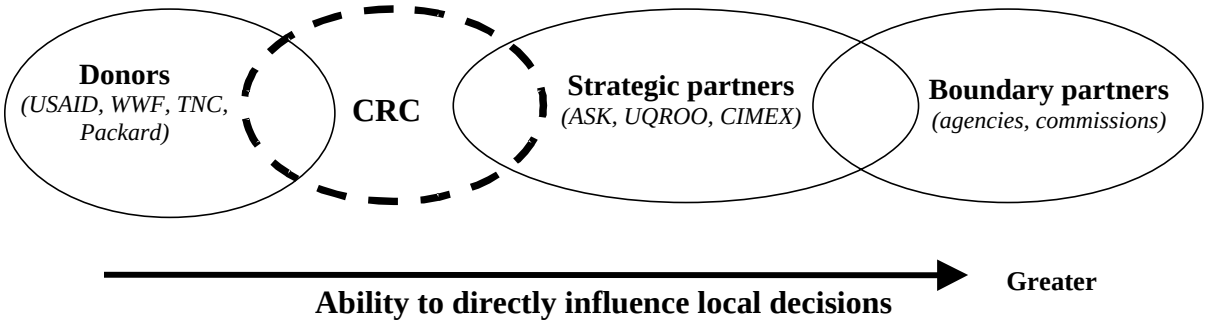
Regional or national levels of government must support local tests of co-management practices and agreements. This can be thought of as a "two-track approach," where concurrent efforts take place at local and national levels. However, the C^3EM strategy used a different approach. Only after testing local efforts and only as the learning and the team matured, did it scale up to a regional approach. The hope was that as local efforts were proven successful, leaders in other community sites would hear about these and adapt the approach to their own issues. Regional or national governments also begin to discover their roles in supporting implementation of policies and programs through such local action. CRC played an important role in this process as well. Since the projects on the two coasts operated relatively independently from each other, cross-program exchange was difficult. CRC, however, played a facilitator role serving as a conduit for sharing ideas and insights between both regions and helping spread the word to other sites.

Strategies for IR 4: Improved capacity enables enhanced site-management, adoption of low-impact practices and more effective coastal policy for conservation and sustainable use of coastal resources

Work through Mexican non-governmental organizations already engaged with USAID's biodiversity strategy

As a point of departure, the sheer size of the coastal zone of Mexico and the biodiversity focus of the USAID/Mexico mission presented a unique situation and challenge to the CRC Mexico team. With a very small budget (initially set at US$2.3 million dollars over seven years) the challenge was to make a difference in some fraction of the 35,000 kilometer Mexican coast. The challenge looms even larger given the high cost of doing business in Mexico, and the large expanse of coast needing improved management.

Figure 9. Relationships among program actors.



On the positive side, Mexico has a number of factors in its favor. It has a high level of technical capability within the academic, research and NGO communities in its 17 coastal states. Many faculty and technical staff in civic associations, including CRC's strategic partners, were trained in the U.S. at the Master's or Ph.D. level. The Mexican government is relatively stable, although its ability to follow through with environmental programs is constrained by limited funding and government capacity, and by high staff turnover at all levels of government. International donor programs concerned about biodiversity conservation, including USAID, have focused on building the capacity of civic society in advocacy, effective participation in public policy and decisionmaking, and have strongly supported the design and implementation of co-management arrangements.

Table 1 illustrates how CRC uses donor support to work through partners who are acting strategically to promote conservation and management improvements. CRC acts as an agent of innovation and change toward more extensive use of coastal management principles and practices. *Strategic* partners[17] in turn take over the roles of educating, persuading, supporting boundary partners, and are able to train others to play similar roles in new sites and for new issues. *Boundary* partners are closest to decisionmaking; that is, they are located at the boundary where they can affect decisions on coastal resource use. Boundary partners are also able to manage their own process of change and expansion, advocate for supportive policies, and become the experts who can guide replication and growth.

Table 1. Strategic and Boundary Partners in the C^{3}EM Project.

Strategic partners	Boundary Partners
QUINTANA ROO: Amigos de Sian Ka'an, University of Quintana Roo, RedMIRC (ICM Network)	Village of Xcalak, municipality of Othón P. Blanco; state agencies within Quintana Roo (tourism agency, state urban development and environment agency); federal government delegations (permits, enforcement park management); and Mexico City-based departments (National Ecology Institute, shore zone agency, National Commission of Protected Areas)
GULF OF CALIFORNIA: Conservation International/Mexico, Autonomous University of Sinaloa, ISLA (La Paz NGO), *Iniciativa NOS* (regional working group of conservation and business leaders)	Sinaloa Aquaculture Institute; municipalities of Angostura and Navolato; Sinaloa state urban development and environmental agency; federal offices of the National Ecology Institute; ALCOSTA (Alliance of Gulf NGOs); municipality of La Paz; port authority in La Paz; Mexico Marina Association

C^{3}EM strategic partners implement all in-country work with their boundary partners and often in collaboration with CRC staff. Most of the funded tasks are integrated into larger programs of activity initiated and led by them. Strategic partners also assume the lead role in interactions with local authorities and other groups. This is based upon recognition that their insights on managing relationships are more accurate and well founded. Also, they have strong incentives to maintain good relationships with boundary partners over the long term and any missteps in judgement are most costly to them. For its part, CRC brings to bear a broader perspective of the situation in Mexico drawn from its international contacts and experience. As skilled practitioners, the CRC team has access to knowledge, tools, and lessons that have been critical for the design and adaptation of the program over the years. Further, the presence of a respected outside organization sometimes helps strategic partners overcome the phenomenon that 'no one is a prophet in his own land' by helping to verify, validate and reinforce work which the partners are already well able to carry out.

All C^{3}EM strategic partners have a successful history of fundraising and gaining access to institutional funds to match project income and leverage opportunities to form more integrated initiatives. From the start, it was acknowledged that the team would seek complementary projects—projects that would substantially amplify the work that could be supported through the USAID funds. These additional projects and funds were essential in order to address some of the necessary work and in order to support a growing constituency of users and needs within the sites.

A noteworthy trend in the Gulf of California region is the increased practice of collaborative project design and joint funding. Projects enlist as many co-sponsors as possible—to the extent that a report's title page is filled with the institutional logos. The fact that many C^{3}EM reports and publications displayed just such an array attests to the high level of success of C^{3}EM partners in fundraising and leveraging additional project support.

Incorporate coastal management approaches into partner capacity and repertoire: learn by doing

At the start of C[3]EM, all partners already had well-trained and technically qualified staff and consultants to help carry out biodiversity conservation. The tendency in the mid-1990s, however, was to emphasize scientific and technical expertise over advocacy. Meanwhile, it is the process skills that are essential to ICM—e.g., skills in building constituencies and in negotiating and implementing successful co-management agreements—and these skills were weak in the C[3]EM partners. Partner organizations recognized that their staff had little experience working with community groups, the private sector, or engaging certain government agencies in non-adversarial ways. In some cases, they also had little experience collaborating with other NGOs or universities. Thus, a key objective and design element of C[3]EM was to strengthen partner capacity to catalyze and support governance processes through building new strategic partnerships. CRC assisted partners in convening multi-stakeholder panels, committees and organizations that could lead to establishing ICM programs robust enough to endure the three-year cycle of staff turnover and political change at the local level. USAID annual workplan requirements and semi-annual reporting became a team-building effort, and a time to periodically assess and adapt the program. Meanwhile, the nature of the USAID cooperative agreement gave the needed flexibility for achieving stated outcomes.

Collaborate with universities to develop coastal management capacity

Initial efforts in Quintana Roo did not involve UQROO. This was primarily because UQROO was not an NGO and had no prior relationship with the USAID biodiversity portfolio. This was awkward for CRC, which is itself a university-based center and which has typically aligned itself with other university coastal centers. Furthermore, UQROO was an attractive collaborator. It had an emerging role as a sponsor of conferences and workshops. It had helped prepare, at the state level, the Costa Maya environmental ordinance. It had an active social forestry program. And, it had a supportive rector. Fortunately, an agreement was reached with the university in 1998 as the second phase of C[3]EM was being implemented. Adding UQROO to the C[3]EM team meant a significant increase in research and outreach efforts to communities and government agencies. It also provided considerable matching institutional support and university-funded counterpart staff to carry out those activities. UQROO was already interested in strengthening its own educational curriculum—improving experiential learning for students and enhancing outreach programs—to encompass coastal management themes. This university partnership expanded significantly when USAID formalized its education program between Mexico and the U.S., one facet of which provided needed resources for UQROO to establish a GIS Center and initiate a Masters degree in environmental planning. URI worked with UQROO to consolidate university and research institutions in the Yucatan Peninsula (eight in total) and increase the effectiveness for data development and distribution. Similarly, URI and UQROO allied with members of a consortium of universities in the Gulf of Mexico and Caribbean promoting regional ICM program and policy development.

The Autonomas University of Sinaloa (UAS), has provided important technical and logistical through its involvement in the Bahía Santa María program. CIMEX has a formal agreement with UAS to provide office space and utilities. The University played a key role in initiating the Bahía Santa María project, and has contributed to a strong technical and extension program for Bahía Santa María. UAS is widely respected by participants in the process for its continuing contribution to both scientific understanding and outreach to bay user groups.

PART 2
IMPROVING THE CHANCES FOR CONSERVATION AND SUSTAINABLE DEVELOPMENT IN SITES

The following three chapters tell the story of achieving results for coastal ecosystems in specific Mexico sites (IR 1). While individual sites are the focus, the important interplay between local, state, and national levels in achieving results for a coastal ecosystem and its adjacent communities is revealed in every chapter of the story. In its simplest form, local aspirations mobilized regional and international resources. These resources then made it possible to turn these aspirations into reality.

The case of Xcalak, described in Chapter 4, highlights the work to give voice to and communicate the local vision and to build local capacity. It also shows how regional policy was addressed, encouraging state and national acceptance of the national marine park, while influencing the Costa Maya land use plan that governs uses outside the park.

Chapter 5 describes Bahía Santa María as the coastal estuary of concern. Like Xcalak, it was initiated at the local level. But, it is important to note that it was the two municipalities surrounding the bay who joined together to launch the effort. Chapter 6 describes steps being taken toward ICM in Chetumal Bay—a story about using experience in capacity building as a potential starting point for ICM. Here, project activities have helped catalyze municipal government support for developing a coastal management strategy that incorporates both the Chetumal Bay and Costa Maya segments of its coast. As a result of the Chetumal Bay success, other municipalities in Quintana Roo have begun to express interest in coastal management initiatives.

CHAPTER 4 - COMMUNITY-BASED XCALAK NATIONAL MARINE PROTECTED AREA PROVIDES AN IMPETUS FOR ICM IN QUINTANA ROO

Introduction

In 1995, conservationists in Quintana Roo were actively engaged in research on and conservation of the state's critical reef and coastal habitats. A similar effort was underway in Belize, Mexico's neighbor to the south. Together, Mexico and Belize shared the role of protecting the Meso-American Barrier Reef that fringes the Caribbean coast from Mexico to Honduras. The decline in the fishing industry in this area had motivated the community of Xcalak to look elsewhere for its livelihood—in this case, to the possibilities that lay in tourism. Looking at the tourism industry as it had radiated southward from Cancun, the Xcalakeños saw tourism both as a promise for economic opportunity and as a threat to their environment.

The local initiative to create a national park

In 1995, the Xcalak community in a letter from their fishing cooperative to the federal government, lead to a collaboration between ASK, CRC, and others to assist Xcalak in the complicated process of characterization, issue identification, visioning, developing a plan and helping get it approved. During a long period of planning, delays, and negotiation, the community engaged in several early actions to practice co-management. Even before the park was officially designated, local fishers had placed marker buoys to protect fishing no-take zones and local agreements were made between the fishing cooperative and the independent fishers to limit catch to certain areas and certain gear. Reef monitoring was implemented in coordination with the fishing cooperative as a way to increase awareness of the need for fisheries management. That one letter set off a series of events, which led five years later, to a ceremony attended by President Zedillo, where in tribute to the community's efforts, he dedicated Mexico's newest national park, Xcalak Reefs National Park. The park includes

The Community Strategy Promoted Citizen Involvement as a Core Component for the Success of the National Park:

Community Training Program
- Train local residents in English and ecotourism
- Train fishers to become certified divers
- Involve the public in the design of the ecotourism tours

Village Improvement Projects
- Maintain environmental quality by installing appropriate wastewater treatment and solid waste systems
- Improve the quality of life of residents by improving communications, electricity supply and potable water
- Organize village clean up and reforestation projects
- Design interpretative signs that promote good practices

Park Management Plan
- Designate the park officially
- Implement a law enforcement program in conjunction with appropriate authorities
- Install mooring buoys to delimit the water area use boundaries
- Implement a monitoring program for fish stocks
- Identify other management actions for natural resources

Regional Coordination Actions
- Assure that the community is actively participating in planning and managing the park
- Assure effective community involvement in the Park technical advisory committee and other government consultative committees

"Estrategia Comunitaria para el Manejo de la Zona de Xcalak, Quintana Roo, México," Amigos de Sian Ka'an, 1997

13,340 hectares of coastal waters that include the reef system and 4,037 hectares of wetlands and lagoons.

The National Commission of Protected Areas (CONANP) now jointly manages the park with the Banco Chinchorro Biosphere Reserve. The park has received considerable national and international attention because it is one of the first national parks initiated by a community and developed in a fully participatory manner. The Xcalak story is not only an example of a successful bottom-up approach to marine conservation, but its visibility helps ensure it does not become a "paper park"—as has been the fate of many parks in Mexico and along the Meso-American Reef corridor. The C^3EM project provided funds to hire a member of the Xcalak community as the first park ranger to work under the direction of the park manager. A Park Management Technical Committee was established and meets regularly. In addition to having community representation, the committee is chaired by the president of the new tourism cooperative. The active participation of the community has permitted institutions such as the National Commission on Protected Areas, which operates all federal parks, along with the Navy and Environment Enforcement Agency and the Agriculture and Fisheries Ministry to collaborate and increase their commitment to co-management arrangements which otherwise would be viewed skeptically. The Park Management Plan, prepared with the full involvement of local people, is in the final stages of legal review and editing before publication in the Official Register, and is expected to be distributed by the end of 2003.

The Xcalak village strategy complements the park program

The 1997 Xcalak Community Strategy provided a clear statement of how the community would effectively co-manage its natural resources and improve fisheries protection, community-based tourism, and community character. Many of the elements of this vision are being acted on five years later. Local fishers have received training in English, birding, and fly-fishing, and have recently formed an eco-tourism cooperative. The cooperative recently signed an agreement with a regional tourism agency to operate a bird watch tower in the Manatee Sanctuary, with future hopes that Xcalak tours will be included in the package of cruise ship excursions from vessels docking in Mahahual, 55 kilometers to the north. Advanced architecture students from the local technical university have proposed specific designs for the *imagen urbana*, providing guidance for new and rehabilitated buildings in the village center, following up on a project originally carried out by students from Syracuse University in the U.S. The Municipal Development Authority has recently indicated that these guidelines will be reviewed and incorporated as a local ordinance in the next few months.

Basic infrastructure is gradually converging on the village, which now has a paved road and will soon have electricity. Major physical changes have not yet taken place in the core village area, and the tourists disembarking from the cruise ship pier in Mahahual are not reaching the village of Xcalak in any significant numbers. The Xcalak Community Committee, formed in 1996 to develop the marine park proposal, has influenced the emergence of new forms of local participation in development decisions. Some of the founding members of the Community Committee have recently established the Xcalak Community Promoters, a forum formally recognized by the municipality of Othón P. Blanco. Three women who lead the forum have

focused their initial efforts on addressing issues of solid waste management, a widely recognized problem with negative impacts on community health and the environment.

Transitioning an economy from fishing to tourism

Since the 1997 strategy, the community has slowly advanced towards consolidation of their vision to diversify the local economy. While the community has slowly increased its reputation in the ecotourism circuit, the challenge has been great. Capacity building, infrastructure and creating a business vision have all required time, commitment, and funds. The fishermen formed the Bahía Blanca tourism cooperative in 1999 as a follow up to the visit to Belize's Hol Chan Reserve. The major influence for the cooperative emerged from graduates of the RARE Center for Tropical Conservation Training Program, where nature guiding and English were taught simultaneously to local residents. Additional training in bird watching, snorkeling, diving, as well as business development has taken place over the years in collaboration with other programs. While tourist arrivals have increased annually and small hotels (two to six rooms) have expanded outside the village, the benefits to the community have not been significant. It has thus become apparent that both the capacity building focus and the benefits must go far beyond the tourist guides, to encompass other services outside the cooperative, including lodging, restaurants and handicrafts.

Building upon the initial inventory of resources, design of tourism packages, and tourism survey baselines, ASK, the Tourism Cooperative, and UQROO joined forces to develop a business plan in 2002 to strengthen tourism by developing a market study, a technical study, a financial evaluation, and a promotional strategy. This effort has been a significant help in building an enterprise vision as a vehicle to transform them from fisherman to tourist providers. Key to this was the decision to remain a cooperative while individual profits may be lower, the benefits of public support as a social institution, was an overriding factor. The enterprise vision helped the cooperative overcome some hurdles and has provided elements to better compete in the market.

How would the cooperative convert to a profitable business? A vision, mission and clear objectives were developed, along with a new logo and slogan. However, one of the key elements identified was the need to change the cooperative's administration to include a sales agent and a fiscal adviser. At the close of the project, the implementation of the business plan had not been initiated, but the cooperative is clearly up to the challenge. The next steps will be critical. This includes the need for the cooperative to secure capital investments and to change to act as a profitable tourism enterprise.

Success factors in moving from a "paper park" to an actively managed park

Transitioning from the point at which a national marine park is created to the point

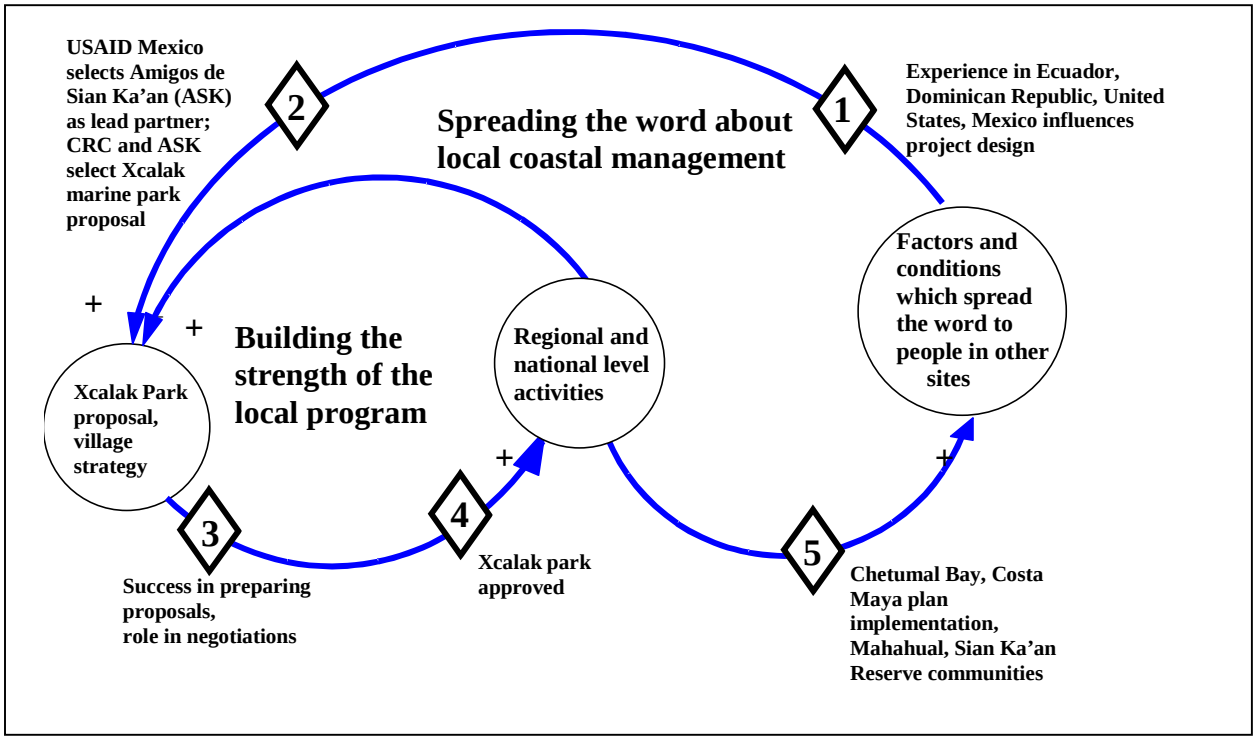
Community-approved Rules for the Xcalak Reefs National Park

The Management Plan incorporates several significant management rules which were negotiated within the community:

1. Only 250 visitors per day are allowed into the park
2. No personal aquatic motors (i.e., jet skis) can be used within the park
3. Fish nets are prohibited within the park
4. Boat permits are limited to a maximum of 40—30 for the Xcalak tourism cooperative *Bahía Blanca*, and 10 for private agencies or hoteliers

where it is fully operational can be slow, or even fail to happen at all. In either case, it can call into question the wisdom of establishing yet more such parks. The time needed to make this transition in the case of Xcalak and its sister park, Banco Chinchorro, has been about three years—a bit better than average. The Park Management Plan has been approved by the community, and by state and federal authorities and is in the final stages of legal review before publication. A community building in Xcalak has been restored to serve as temporary quarters for the Xcalak park while a permanent station is built. Donations for equipment and supplies have become available through the World Wildlife Fund (WWF), the Meso-American Reef program and several private foundations.

Figure 10. Using the Xcalak site as a strategic point of entry for ICM in Quintana Roo.



Part of the reason that the transition time for Xcalak and Banco Chinchorro was brief owes to the relative success of two complementary processes. First, fishers in both parks shifted some of their activity away from fisheries toward providing tourist services. This demonstrates a change in perspective from harvesting to conservation and a recognition that there are other businesses that fishers can profitably pursue. Secondly, the NGO community—including ASK, which played such an important role in park establishment—understood and accepted the new role it would play now that the federal park agency is assuming direction and management of the park, and will put legal and administrative measures into place.

Such transitions are not easy or smooth. In the case of Xcalak and Banco Chinchorro, enforcement of closed seasons for high-value fish species such as conch and lobster are not fully observed; illegal fishing still takes place in sections of the marine parks; and restaurants still

serve such seafood out of season. The newly- formed tourism cooperatives in Mahahual and Xcalak are concerned that outsiders will capture much of the local work as guide/tour operators for divers and cruise ship-based visitors. While the Xcalak park is making significant strides, it is still in an early stage of implementation. It needs steady sources of funding and stronger relationships with the village, fishers, NGOs, scientists, and local businesses if it is to be successful in the long term.

A number of factors contributed to the progress of the Xcalak project:

- A powerful alliance existed among SEMARNAT, Xcalak and ASK
- ASK and the community, shared a common interest in training community members to participate in park management activities and tourism
- The fishing cooperatives worked constructively with park officials since the time Banco Chinchorro was established (many of these fishers are from Xcalak and exchanges with fishers from Cayos Cochinos in Honduras and the Gulf of California have also proved invaluable)
- Activities between Banco Chinchorro and Xcalak management are synergistic
- The local, national, and international research communities continue to provide information to managers and to assist community initiatives
- A web of interested parties from the local to international levels have taken an interest in and provided resources to the park (the C^3EM project has successfully obtained funding for projects in support of the Xcalak strategy from a range of donor partners, including WWF for management plan development, the Summit Foundation for expansion of community management to Mahahual, North American Wetland Conservation Act for environmental education, and the Japanese Embassy for a research and outreach station in Mahahual)
- Economic growth in the Costa Maya is slow

Project Outcomes in Xcalak

1st Order: Institutional Arrangements

- Xcalak Reefs National Park declared, management plan prepared and initial stages of implementation through coordinated efforts with other federal agencies
- Director named in conjunction with Banco Chinchorro
- Community strategy and tourism strategy established
- Tourism Cooperative established
- Park technical advisory commission formed of broad group of stakeholders
- Infrastructure in the process of consolidation, including visitor center, boat, communication equipment funded

2 nd Order - Changed Behavior

- Fisheries co-management and tourism instruments involve the community
- First park ranger hired from the community supports the concept of co-management; fisheries management increased
- Increased participation of community in local and regional decisionmaking
- Community engagement in tourism enterprise increased

These factors have been further strengthened by a strong willingness to work together based on trust and common interests. The process of preparing the Park Management Plan helped reinforce this situation and the fishing community has, for a long period, brought to the project its solidarity, openness, progressive outlook and organizational capacity.

The national government's past commitment to strengthening the federal environment agency, and more recently to creating a decentralized National Parks Agency has favored attention to park plan implementation. Other federal actors such as the Secretary of Agriculture and Fisheries, and the Navy have also been cooperative.

A community-based reef monitoring process has also been initiated and preliminary observations in the fisheries no-take zone show increasing fish populations. More monitoring is required, however, to ensure adequate statistical accuracy of preliminary observations.

A look ahead to the next five years

Within southern Quintana Roo, the time is right for the National Commission for Protected Areas to work with the NGO community to establish updated collaborative agreements and an overarching program of work that allows everyone to contribute. This might be done in a regional workshop setting. Training is also needed in every dimension—from park operations and research to fisheries and tourism operations. As well, both parks must continue to cultivate and support research. Further, park managers and NGOs need to go door-to-door to disseminate information to village residents, educating them on the functions of the park and gaining their collaboration and support.

While these suggestions build and expand on current work, new measures can also be taken. Cooperatives need to work better with each other as well as with the park management. This could include cooperating on efforts to create a bridge to the Manatee Sanctuary, which is just inside the peninsula where Xcalak is situated. Outreach on the plan and park regulations is also essential as is continuing the exchanges between people from Xcalak and other villages with parks and protected areas. Such an exchange recently took place at a meeting in Bahía Kino, Sonora where fishers from various marine park areas exchanged information and experience with each other.

More can and must be done to engage those who have not been actively involved in the early stages of the project. Special attention needs to be paid to young fishers—the group that some community members see as the most willing to take the risks that go along with fishing out of season and fishing within restricted areas.

Xcalak can also be supported in its aspiration to become a model "traditional" coastal community that draws strength from its Caribbean-style architecture, slower pace and village character. It is perhaps this quality that might favor the region being incorporated as part of a World Heritage site including Belize and central/southern Quintana Roo.

Figure 11. Xcalak Reefs National Park progress markers.

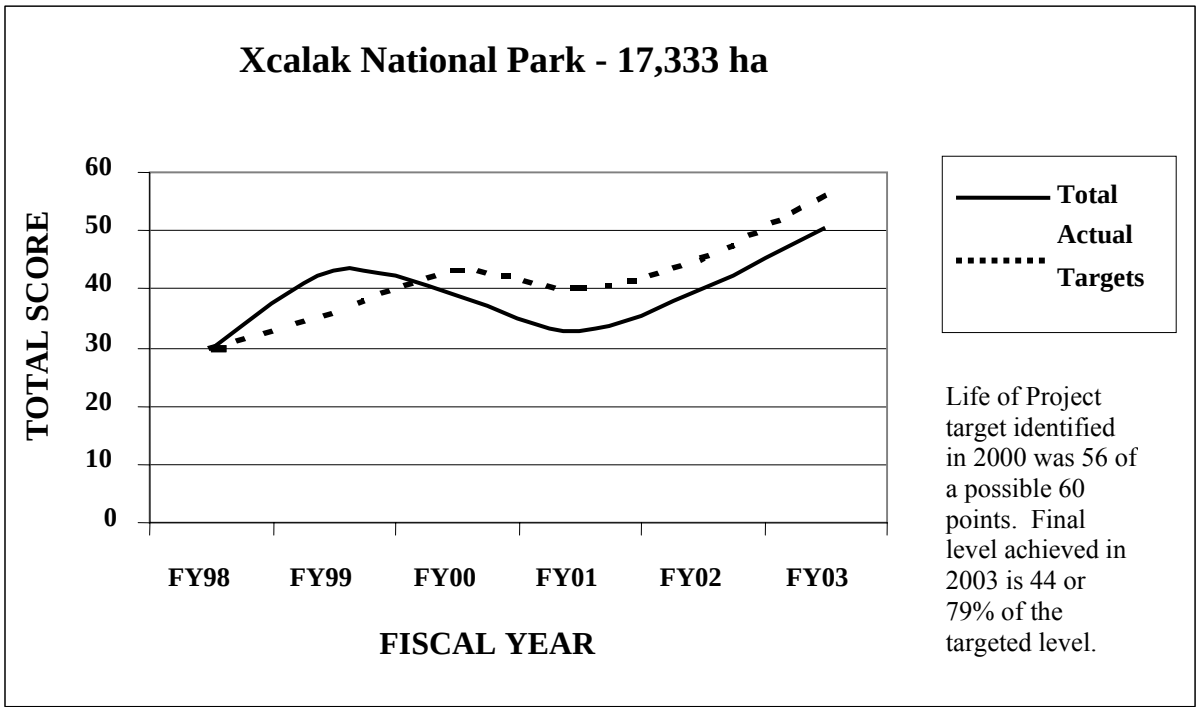


Table 2. Coastal Management scorecard for Xcalak.

	FY98 Baselines	FY99 Status	FY00 Status	FY01 Status	FY02 Status	FY03 Status	LOP Targets
Step 1: Issue Identification							
1a mgt issues	2	3	3	3	3	3	3
1b info gaps	1	2	3	2	3	3	3
1c stakeholders	2	3	2	3	3	3	3
Step 2: Program Preparation							
2a action plan	2	3	2	3	3	3	3
2b theory	2	3	2	2.5	2.5	3	3
2c pilot actions	2	2	2	3	3	3	3
2d institut design	2	2	2	2	3	3	3
2e training plan	1	2	1	0	0.5	1	3
2f cost	1	2	1	2	2.5	2.5	3
2g stakeholders	1	2	2	2	3	3	3
2h public education	1	2	2	1	1	2	3
Step 3: Adoption & Funding							
3a gov't approval	1	2	3	1	2.5	2.5	3
3b funds secured	0	1	0	1	1.5	2	2
Step 4: Implementation							
4a activities/behavior	2	2	2	2	2	2	3
4b training plan implemented.	2	2	2	0.5	1	1	3
4c stakeholders active	2	2	2	2	2	2	3
4d adaptive mgt	2	2	2	0	0.5	1	2
Step 5: Evaluation							
5a baseline data	2	3	3	2	1	2	3
5b questions/criteria	1	2	1	1	1	1	2
5c modifications	1	1	2	0	1	1	2
Total Actual	**30**	**43**	**39**	**33**	**40**	**44**	**56**
Targets	30	36	43	40	45.5	49	56

A score of 0 means no progress was made. A score of 5 means the step or activity is fully completed. Xcalak met 90% of the original targets.

Source: USAID Results Report

CHAPTER 5 - INTEGRATED BAY MANAGEMENT PLAN AND IMPLEMENTED IN BAHÍA SANTA MARÍA

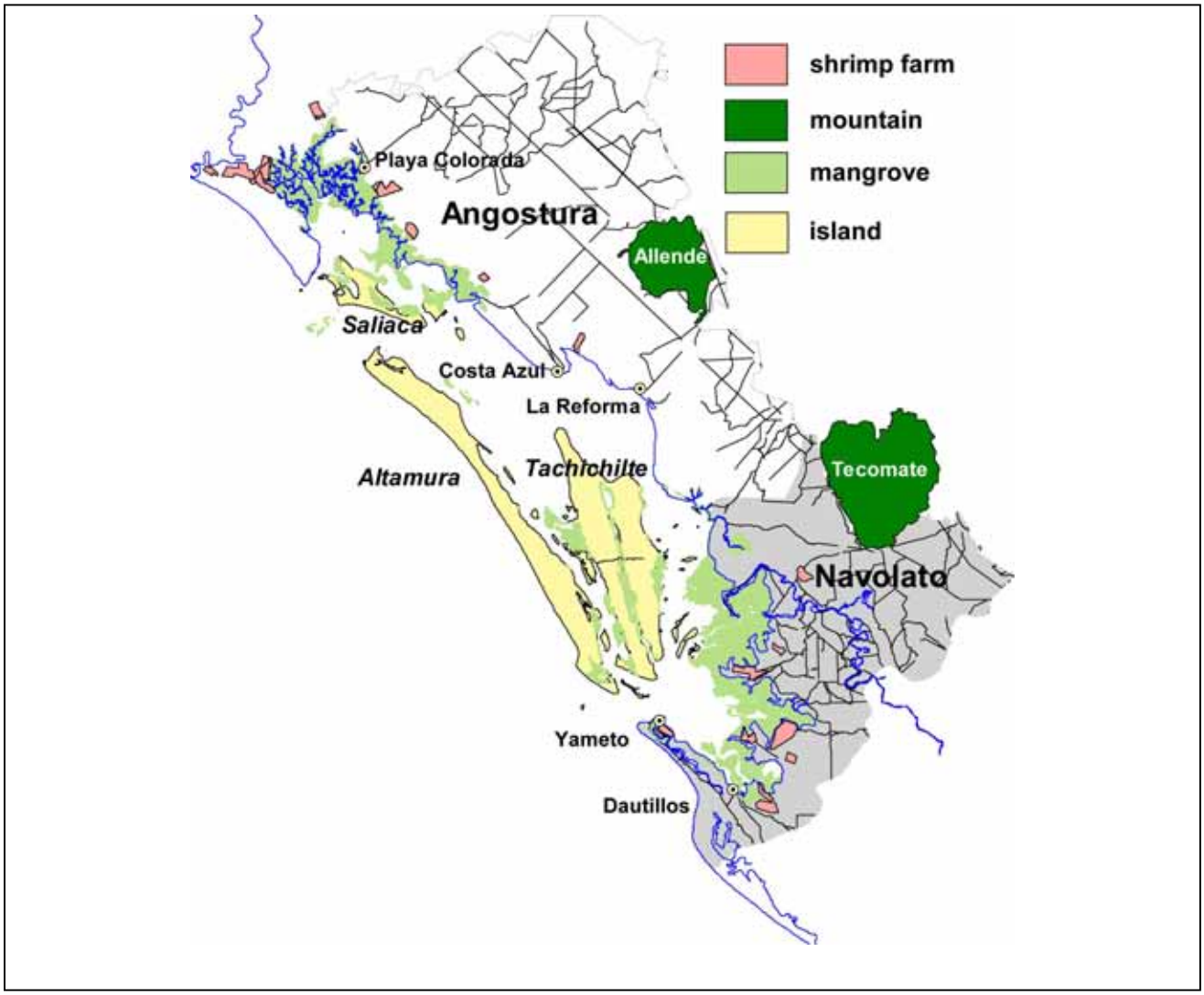
Introduction

The resource users of Bahía Santa María embarked upon a path-breaking initiative to prepare a conservation and development plan that will weave together the sectoral policies and highly fragmented administration of bay uses into a coherent vision and integrative structure for bay decisionmaking. This project was not the brainchild of state or federal environmental officials, but of leaders from the coastal municipality of Angostura which in 1998 requested help from the University of Sinaloa. The university appealed in turn to CIMEX's regional office based in Guaymas, Sonora, given CIMEX's interest to conserve wetlands in light of increasing pressures from fisheries and mariculture.

In 1978, all of the nearly 900 islands in the Gulf were declared patrimony of the Mexican federation and included in the Gulf Islands Flora and Fauna Refuge. Bahía Santa María contains 90 of these islands. Along with eight other areas in the Gulf, Santa Maria Bay has been identified as one of the nation's 32 wetland areas of highest conservation priority. The bay itself is not within the protected area system.

Bahía Santa María's governance situation is typical of much of the Gulf of California shore. No single lead agency is taking responsibility for integrated planning and decisionmaking. In addition to the Gulf Islands program, several other federal programs hold a piece of the ecosystem management puzzle for the bay. Key among these is the government's program to prepare environmental plans, *programas ordenamientos ecologicos territoriales* or POETs. These plans are usually prepared in conjunction with state authorities. They tend to highlight a key development sector, such as tourism or mariculture, which then serves as the unifying theme for the planning process. Decisions covered in POETs include the allocation of uses for coastal and marine areas, as well as development guidelines and regulations. It is becoming more common for such plans to be prepared for special eco-regions of a state. In Sinaloa, for example, this has meant focusing on a plan for its coasts.

Figure 12. Bahía Santa María.



The initiative

Integrated Coastal Management in Sinaloa state has pioneered strategies for conservation and wise use of the bay's natural resources. This is the first time in the Gulf of California region that authorities, community members and bay users have come together to work for an extended period of time on identifying issues and preparing action proposals for an actively utilized coastal ecosystem not under protected area status. The 285,000-hectare bay and watershed area is a priority site for conservation, as demonstrated by its Ramsar Convention on the Conservation of Wetlands (RAMSAR) designation. It is also an important bay for fisheries and shrimp mariculture.

Three unique elements of this ICM effort are worth highlighting here. First, the management strategy was developed under the leadership of CIMEX, which for the first time in the Gulf area was addressing a set of issues that could not be resolved by proposing a reserve or protected area (although the Bay islands do fall within a regional islands reserve). Second, this is a pioneering effort to achieve conservation and management of a large coastal ecosystem in Mexico. Third, the municipalities have played an active role in the design and adoption of a joint implementation mechanism—a council of the two governments with a trust fund that administers implementation funds from local and state government, the private sector, and donor institutions. There will also be an expanded bay council with representation from bay users, public officials, the education community, and the public.

The setting

Bahía Santa María is located on the southeastern coast of the Gulf of California in Sinaloa state. It is connected to the Gulf by northern and southern entrances and has a water surface of almost 50,000 hectares. The three largest islands include Altamura, a 43-kilometers long barrier island, and the interior islands of Talchichilte and Saliaca. The planning area for the Management Program for the Conservation and Development of Bahía Santa María includes the political boundaries of the municipalities of Navolato and Angostura, which in turn are located within the coastal watersheds of the Mocorito and Culiacan rivers. Agriculture is the main economic activity and covers most of the valley's coastal plain. Two low mountain ranges called the Sierra de Allende and Sierra El Tecomate have peaks of 350 to 400 meters, and remain covered with native vegetation and trees. Artisanal shrimp fishing is the main source of income for the five communities located along the bay's shores: Dautillos, Yameto, La Reforma, Costa Azul and Playa Colorada.

In addition to the wild shrimp fisheries, there are almost 7,000 hectares of shrimp farms in the tidal flats adjacent to the mangrove forest, which borders much of the shore and islands. South of the fishing center of La Reforma, the tidal flats of Malacatayá support duck hunting promoted by a private club and reserve called Patolandia. At the southernmost part of the bay, a group of farmers from Montelargo are producing salt by evaporating seawater within the tidal flats.

In the late 1990s, SEMARNAT and several conservation groups focused on putting policies and initiatives into action, working both at the regional level and in site-specific conservation programs. At the regional (Gulf-wide) level, the government has initiated the preparation of one of the first marine environmental plans. This massive undertaking had advanced to the information gathering and characterization stage by 2000, and was expected to take more than a decade to complete. However, efforts accelerated following the 2001 announcement of the Nautical Route tourism project—a plan to build or upgrade 24 recreational marinas around the Gulf of California and Baja peninsula to jump-start tourism development in the region.

The *Carta Nacional de Pesca*, the National Fisheries Policy Map, was published in 2000 and included a diagnosis of more than 40 lagoon and estuary systems of high importance in fisheries and aquaculture. Twenty of these are located in the Gulf of California, and Bahía Santa María is among them.

In addition, federal rules now allow marine and wetland areas to be declared as areas under protection and conservation. For the immediate coastal strip, where the federal government has jurisdiction over the beach and bay zone, a program is in place to clearly identify the federal shore zone (ZMFT), identify uses that do not yet have legal concessions to occupy and use the area, and provide a portion of the revenues from the concessions directly to municipalities, with the restriction that a portion of the revenues must be used for coastal zone management. Fisheries laws separate commercial open water fisheries from nearshore artisanal fisheries. In regions such as Bahía Santa María, which have organized fisheries cooperatives, fishing grounds for certain species, mainly white shrimp, are allocated among cooperatives, while the federal authorities retain control over the timing of shrimp harvests and are responsible for enforcement.

Finally, municipalities can prepare and implement environmental plans and petition for delegation of certain decisionmaking authority on coastal development in the ZMFT. In fact, there is a strong movement to decentralize to state and local authorities what are currently the decisionmaking and management responsibilities of the federal government.

The strategy

With all of these emerging possibilities for integrated planning and decisionmaking as yet unrealized, the stakeholders of Bahía Santa María began a pioneering effort to work together to create a conservation and development program. Major funding for the initial phase was provided by a grant through the North American Wetlands Conservation Council. C^{3}EM, through USAID, also contributed to this effort by providing training, technical assistance to the project team, and logistical support to allow for a substantial on-site presence. In addition, CRC helped raise funds to address shrimp mariculture siting and operational issues in the bay.

The catchphrase for this effort, repeated frequently in meetings and discussions, was the Spanish expression, *estamos a tiempo,* or, we are "just in time"—just in time to find a broad range of people concerned about the problems, and just in time to plan a course of action to avoid irreversible mistakes.

Declaration of Culiacan on Bahía Santa Maria

- Coordinate with the Sinaloa Coastal Environmental Master Plan through its Technical Committee
- Maintain a free flowing exchange of data and information
- Ensure the federal government provides timely information on progress in environmental planning and regulation
- Find ways to link regional environmental plans with municipal environmental ordinances
- Commit to fully utilize public forums and planning mechanisms to help implement regional and municipal policies and plans
- Improve capacity to carry out community based work
- Work to ensure that environmental plans are translated into the required legal implementation measures
- Prepare to engage environmental law enforcement to carry out policies and actions
- Contribute to national proposals for coastal management regulations and guidelines

Signed by 30 program participants in Culiacan, Sinaloa
October 30, 1999

The Bahía Santa María program's broad participatory process with community stakeholders and municipal authorities, in coordination with state and federal agencies, unfolded in stages. At the outset, a strong technical team mainly from the UAS and

Monterrey Technical Institute in Sonora was hired to prepare issue characterizations. Many members of this team were professionals who had studied, taught or worked together previously and shared a commitment to coastal conservation. They had experience working with the economically productive sectors in the coast. Working groups were created within the Conservation and Development Committee (CCD), a voluntary management committee established to represent communities, education, resource users and authorities at the three government levels. Subcommittees were formed to address five key bay themes, review information and develop action strategies. A second parallel effort to solicit community involvement was led by a regional non-governmental group, PRONATURA. CRC assisted with several training workshops and events that introduced coastal management concepts and helped the emerging program find its form. During these sessions, the CCD crafted a vision statement and goals with specific targets. This was called the "Declaration of Culiacan." It was signed in October 1999 by 30 municipal, state, and federal authorities, as well as by key university and NGO institutions. This mandate served to catalyze intergovernmental support and demonstrated strong stakeholder commitment early in the process.

Objectives of the bay management strategy

The overall objective of the bay management strategy is to carry out participatory, community-based management initiatives that will preserve the different coastal environments of Bahía Santa María. This means protecting the flora and fauna of the region, in particular endangered species. It also means promoting sustainable practices for current bay uses and pursuing promising alternative economic activities.

Specific bay program objectives include:

- Expand local capability to conserve critical zones in the bay
- Increase low-impact resource uses which reduce the pressure on overexploited or critical resources
- Incorporate environmentally friendly management practices into ongoing economic activities
- Identify and promote sustainable forms of economic development for the bay

Public participation

Conservation is viewed by bay stakeholders as the way to support the development of present and future economic activities in the bay. The public involvement process has helped greatly to foster broader understanding of the importance of the management and preservation of the bay's environment and its natural resources toward this goal.

Public involvement workshops have united communities and stakeholders in defining the main issues now facing Bahía Santa María given its current uses and in identifying potential alternatives for sustainable management. The result has been the formulation of a consensus-based Bay Management Program. Between 1999 and 2000, eight workshops were held in different communities around the bay. At these sessions, stakeholders developed a shared vision that requires that several specific conditions be achieved within the next 15 years.

Once the vision was completed, chapters on the Bahía Santa María strategy were drafted and reviewed in numerous public meetings. It was at this point that the CCD also underwent an evolution and shifted its focus from discussing issues and preparing documents to building constituencies, providing oversight for the technical work, and guiding early actions. The key turning point for this change in CCD's role was an unexpectedly successful workshop in May 2001 on "Early Actions" held in the village of La Reforma. The workshop attracted 150 participants, most of whom were women. It was the first time many local residents were exposed to the program, and it produced an explosion of effort in the five coastal communities. The draft strategy was subsequently expanded to feature community characteristics, issues and needs, and fisheries and biophysical aspects.

Key bay issues

The bay strategy sets out an agenda that focuses on six issues. It supports conservation of the region's priority biodiversity habitats while enhancing economic potential. The main issues, actions and early results are shown in the adjoining box.

Issues, Actions and Early Results in Bahía Santa María

Fisheries and aquaculture

- Use co-management schemes with the threatened crab and shrimp fisheries; identify the best sites for aquaculture; encourage the use of good shrimp farm management practices and develop bivalve culture that benefits local people.
  RESULTS: Crab co-management is a success, similar ideas are being considered for shrimp fishery; a major new program is funded to introduce good management practices in shrimp farms.

Water circulation and sedimentation

- Develop the basic information needed to understand the bay better, and create a computer model to make better decisions about dredging, sediment control and farm operations.
  RESULTS: Preliminary water quality data is used to start dialogue with municipal and state officials for eliminating Culiacan wastewater inflows; bay sampling and modeling shows areas of poor oxygen, high sedimentation; bay dredging project indefinitely postponed.

Bay islands

- Advance the preparation of specific management plans for the bay islands, which are part of the Gulf Islands reserve; protect bird nesting areas and other key habitats; and promote eco-tourism businesses involving local people.
  RESULTS: Early actions are generating new information, islands are being cleaned up, and disturbances to wildlife are being prevented.

Wetlands and forests

- Obtain a protected area status for the main mangrove wetland, and work with local landowners to conserve the two special forest areas.
  RESULTS: A proposal is being prepared in cooperation with state authorities; in 2002, Bahía Santa María was designated as a habitat of international importance for shore birds.

Water quality

- Better characterize problems in communities—irrigation drains, discharges from the city of Culiacan and the Mocorito watershed; open new lines of work with the agriculture community, especially irrigation districts; and move toward watershed management.
  RESULTS: Work is undeway with city authorities to address identified pollution concerns; proposals are being developed for Río Mocorito.

Coastal villages

- Work with local user groups; provide environmental education; train people in new, less destructive practices and pursue supplemental income generating opportunities; and involve community members in conservation policies and rules.
  RESULTS: Communities are organized, conducting waste collection campaigns, and developing waste disposal sites and latrine construction

Early implementation

Early implementation efforts include shellfish aquaculture, solid waste clean up and sanitary disposal, eco-tourism and sport fishing, conversion of shrimp byproducts into meal, and high-quality composting using worm cultivation. These efforts have included a focus on supplemental livelihoods linked to improved resource management. Special attention has been paid to the interests of women, who have demonstrated a great ability to organize and implement village-level projects and who have been eager participants in livelihood training.

CIMEX has been successful in attracting multiple sources of funding of the bay effort. The bay project is supported by 16 local and international institutions, including a consortium of funders—USAID, North American Wetlands Council, Ducks Unlimited, the David and Lucile Packard Foundation and WWF—as well as significant contributions from UAS and local groups.

The council of municipal governments and trust fund for Bahía Santa María

One of the innovations of this project is the formulation of a new mechanism for unifying natural resource management, with a focus at the municipal level. The CyD, a para-municipal organization, was formally created on September 30, 2003 in a public signing ceremony with the two municipalities of Angostura and Navolato. A trust fund will help provide continued support to the CyD. The leaders of these municipalities will—with considerable input from productive sectors and the public—jointly manage the CyD. This is an arrangement that is unique in Mexico. The organization will support both permanent staff and offices and fund the cost of implementation actions such as small-scale productive projects, technical aid to introduce good aquaculture practices, and additional research and assistance to improve bay decisions on dredging and pollution control. The CyD will advocate for the adoption of municipal ordinances and development plans that carry out the bay strategy. It will also work to get the bay strategy recognized in Sinaloa's coastal area ordinance and other environmental programs.

One of the incentives for this joint action of the municipalities is the potential economic advantage of using coastal management programs to achieve orderly coastal development that results in higher property values, better services and more economic opportunities. Such development, in turn, generates a greater proportion of federal coastal zone concession fees, money that is returned to the town. The municipality of Navolato, along the southern coast of Bahía Santa María, is promoting tourism and residential development in Altata, on a wide barrier spit and in the bay just south of Bahía Santa María. This new growth center will be the major source of tourism and population pressure in the region. Bahía Santa María provides Navolato with an example of "orderly" coastal development including the example of how a council of governments and a citizens' assembly can be used to unify the disparate authorities, including those charged with management of the ZMFT, protected areas, fisheries, navigation, and fresh water flows.

Innovations in the Bahía Santa María program

The following recaps some of the elements of the Bahía Santa María program that could be considered innovative in this region.

A management strategy for an ecosystem and watershed. The bay program is one of the first initiatives in Mexico to address multiple issues outside of an officially declared protected area, which builds upon existing laws, rules and policies in an integrated way.

Collaboration and consensus-building at every step. The program unites all three levels of government, as well as civic and resource user groups and citizens both in implementing the overall project and in designing the strategy. From the outset, international, national and local institutions and groups have joined together to provide funding and in-kind contributions, including the initial grant from the North American Wetlands Council, CIMEX and UAS.

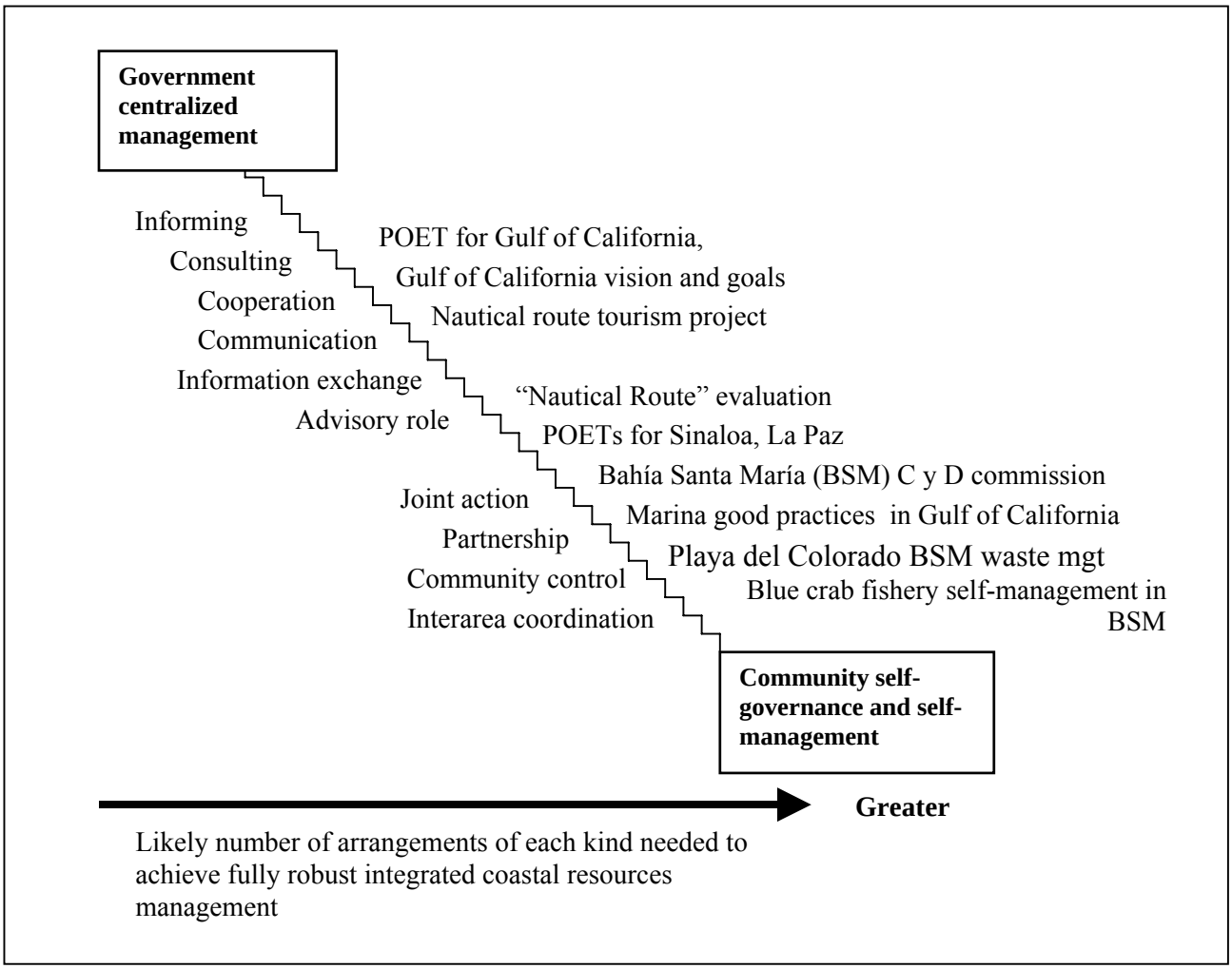
The Conservation and Development Commission and Trust Fund. Once the project started, a voluntary committee was formed to guide public meetings and prepare plan elements. The CCD has successfully worked with the municipalities of Navolato and Angostura to form a joint management entity to permanently guide and carry out a long term bay program, and to establish a trust fund to administer monies and other tangible assets needed to carry the program forward. Hopefully, this fund will be resistant to changes brought by the short election cycle and changes in the winning political party, and will provide a steady stream of resources for implementation.

Experiments in co-management. The Bahía Santa María program has helped promote a wide array of co-management or collaborative arrangements, with many more possibilities still remaining to be pursued. The initial phase of the program could be characterized as serving an advisory role to the municipalities, who in turn have little direct authority over most of the issues incorporated into the bay strategy. This has evolved and expanded to include a broader voluntary effort that has aided implementation of programs and initiatives—an effort that now includes federal fisheries, environmental management and park authorities, state environmental and economic development officials, and the Sinaloa Women's Institute. More of thee players could be placed closer to the government end of co-management continuum as shown in Figure 13. At the same time, fisheries cooperatives and federations also played an active role, including starting a true co-management effort for the blue crab fishery with the help of university and conservation experts. Shrimp aquaculture interests in the government and the private sector (both corporate and *ejido*) contributed to work on that particular key issue. Community groups in villages as well as those interested in sustainable economic activities increased their level of organization and ability to create relationships that hopefully lead to the establishment of small businesses that can contribute to ecosystem management.

Promoting gender equity. A key lesson learned in the program as a result of the success of the early actions workshops and training was the importance of building on social structures and organizations that already exist in the area, and recognizing the depth of natural leadership status achieved by many local women. In addition, there is an important informal network among women in the communities that is a source of information and feedback on the acceptability and feasibility of proposed coastal management actions. Finally, women were able to have their issues heard within the program and at the same time voiced their new appreciation for the connections between environmental quality, economic development, health and quality of life. For example, at a reflection and planning workshop held in June 2003, gender equity was an

important topic of discussion throughout the meeting, and not at all a source of jokes or dismissive attitudes.

Figure 13. Examples of co-management at different levels of the stairway: Co-management in Sinaloa and the Gulf of California.



The Gulf of California

In May 2001, a regional meeting was held in Mazatlan to set conservation priorities for the Gulf of California. This meeting attracted 150 scientific experts, public officials and conservationists. One of the outputs of the meeting was a unified map of areas with high ecological importance and which also faced intense threats and social conflict. Bahía Santa María is in the center of the corridor of coastal lagoons and estuaries of concern discussed at the meeting—this included the states of Sonora, Sinaloa and Nayarit. In 2003, Sinaloa state officials continued to review a draft coastal environmental ordinance that encompasses all of the other lagoon and bay ecosystems in the state. Regional efforts are proceeding to identify and move to conserve other high priority ecosystems. The hope here is that the successes in Bahía Santa María will help inform and guide efforts to address the needs and concerns of similar sites, and that these efforts will also be "just

in time." CIMEX is already working in the *Marismas Nacionales* in Nayarit state. This involves a larger area, more partners, more municipalities and local groups.

Breaking New Ground

The integrated, collaborative approach to building capacity, trust and functionality into the existing legal and administrative tools for estuary management must break considerable new ground to succeed

The Bahía Santa María program already has a good measure of support from local, state and federal agencies. This support must continue if the Bahía Santa María program is to be successful in its implementation. At the same time, current authorities and arrangements are only able to do so much. Early success, especially as it might be applied to similar coastal ecosystems in the region, is likely to increase the demand for a similar approach in other places. This may also mobilize higher levels of government to create additional enabling conditions and provide extra support that is needed for further experimentation to proceed. This could, in turn, lead to assimilation of key aspects of the approach into existing programs and laws.

The Bahía Santa Mara program is still making its way through the steps and inherent trials and tribulations that accompany any new approach. What is being learned in the process can be used constructively to inform the entire wetlands corridor and all the Gulf of California states, as they move closer to defining a common agenda for managing coastal resources.

Figure 14. Bahía Santa María Progress Markers.

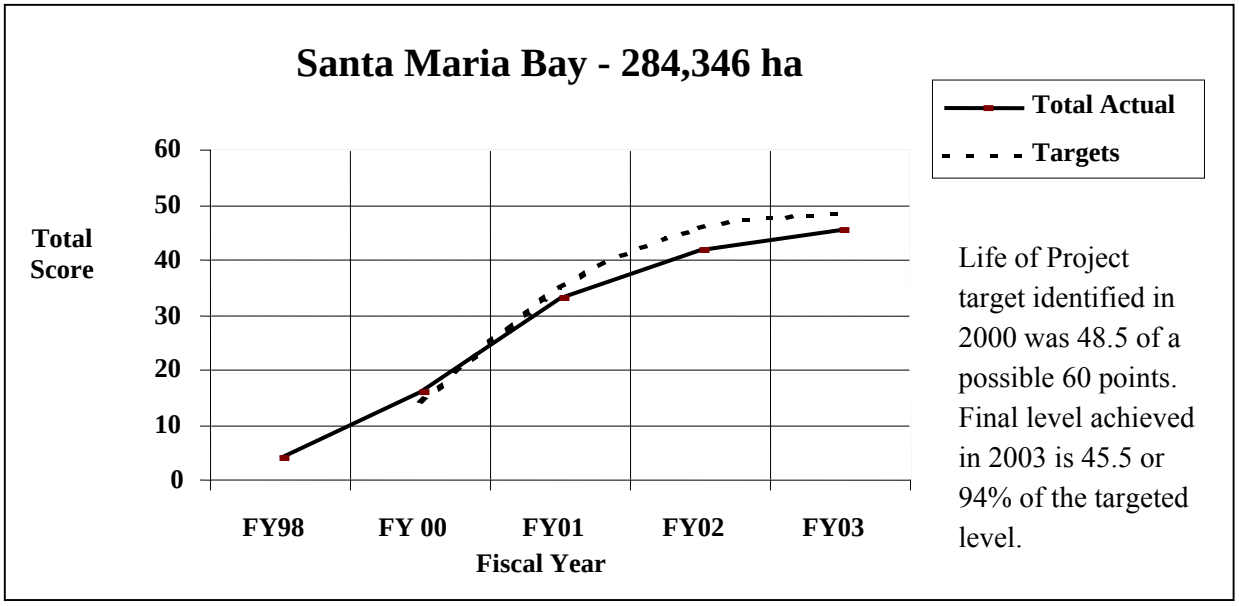


Table 3. Coastal Management Scorecard for Bahía Santa María.

COASTAL MANAGEMENT SCORECARD (USAID-Mexico)
Bahia Santa Maria

	FY98 Baseline	FY 2000 status	FY2001 Status	FY02 Status	FY03 Status	LOP Targets
Step 1 Issue Identification						
1a mgmt issues	1	2	2	3	3	3
1b info gaps	1	2	2	3	3	3
1c stakeholders	1	3	3	3	3	3
Step 2 Program Preparation						
2a action plan	0	1	3	3	3	3
2b theory	0	2	2.5	3	3	3
2c pilot actions	0	0	1	3	3	3
2d institut design	0	1	2	2	3	3
2e training plan	0	0	1	1	1.5	2
2f cost	0	0	2	2	2	2.5
2g stakeholders	1	2	2	3	3	3
2h public education	0	1	2	3	3	3
Step 3 Adoption & Funding						
3a gov't approval	0	0	2	2.5	3	3
3b funds secured	0	0	2	1	1	2
Step 4 Implementation						
4a change behavior	0	0	0	2	2	1
4b training plan impl.	0	0	1	1	1	1
4c stakeholders active	0	0	1	2	2	2
4d adaptive mngmt	0	0	1	0.5	1	2
Step 5 Evaluation						
5a baseline data	1	2	1.5	2	2	2
5b questions/criteria	0	0	2	2	2	3
5c modifications	0	0	0	0	1	1
Total	**4**	**16**	**33**	**42**	**45.5**	**48.5**
Targets		**14**	**35**	**46**	**48.5**	

94% of original target

Notes:
1. Baseline is marked as November 98, when NAWC funding was initiated

Key Orders of Outcomes for Bahía Santa María

1st Order - Institutional Arrangements

- Commission for Conservation and Development established
- Bay Management Strategy for 285,000 hectare bay and watershed approved
- Trust fund for implementation of strategy negotiated
- Three cooperatives to advance productive projects formed

2 ND Order - Changed Behavior

- Projects are selected and funded on the basis of a bay strategy
- Program decisions are made by an inter-institutional commission
- Citizen advocacy in environmental matters has increased municipal services
- Working groups have made effective advances in uniting institutional goals
- Gender equity has enhanced program effectiveness

3 rd Order - Socioeconomic/biophysical

- Two small villages remain free of solid waste and have reduced untreated shrimp waste in the coastal zone

CHAPTER 6 - CATALYZING NGO, UNIVERSITY AND GOVERNMENT PARTNERS TOWARD THE MANAGEMENT OF CHETUMAL BAY

Introduction

Chetumal Bay is located in the southernmost part of Quintana Roo, in the municipality of Othón P.Blanco. The bay is shared between Mexico and Belize. The capital city, Chetumal, is sited on the mouth of the 250 kilometers-long Río Hondo which forms the boundary of the two nations[18]. The tri-national Rio Hondo watershed extends some 13,465-km^2 inland, about 57 percent in Mexico, 22 percent in Belize and 21 percent in Guatemala.[19] The bay has international importance due to its healthy population of the endangered manatee (*trichechus manatus)*, which inhabit the estuary. The bay has the largest population of this marine mammal in the Caribbean. This led the state legislature of Quintana Roo to declare its habitat a Natural Protected Area-Manatee Sanctuary in 1996.

When the C^{3}EM project began, there was little contact with or awareness among the project team about the coastal management needs and opportunities in Chetumal Bay. A statewide workshop held in 1997 in collaboration with UQROO gathered together a broad representation of the scattered initiatives in that state that were, in one way or another, working toward coastal management. The workshop included a detailed examination of the Cancun development experience and the efforts to restore and manage the Laguna Nichupte embayment located behind the barrier beach where the original hotel district was constructed. Participants also examined the early results of the Xcalak and Costa Maya planning experiences and carried out a simulation exercise which yielded several viable alternatives for the high-intensity

Issues in Chetumal Bay

OPPORTUNITIES	CHALLENGES
Cultural and historical resources	Regional economic growth and development
Expectations for tourism development in Southern Quintana Roo	Supply and management of water resources
Ejidos (communally held properties)	Rural economic development
Managing natural resources	Administration of the Manatee Sanctuary as a protected area
Participation in decision-making	Exercising basic rights of individuals and groups
Existing law favoring environmental and social progress	

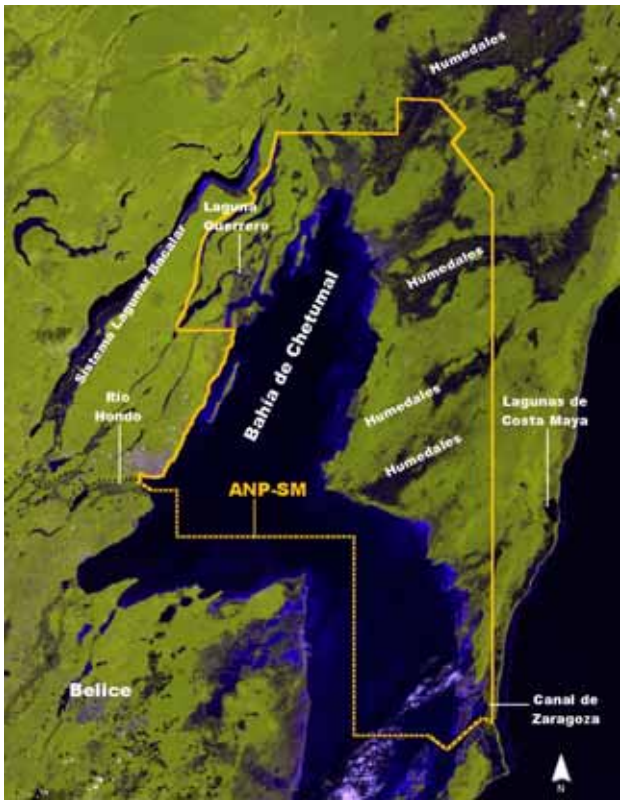


Figure 15. Chetumal Bay.

coastal development program proposed by state and municipal development officials. UQROO was just starting its work as the lead author of the Costa Maya environmental plan, and through this effort began to develop knowledge and expertise as well as important relationships with state and federal authorities. UQROO also showed a strong interest in expanding its work in coastal management. For all these reasons, UQROO and Chetumal Bay were included in the five-year USAID-funded C^3EM project.

C^3EM's initial goal was aimed at building the interest and capacity of UQROO faculty, staff and students in the principles and techniques of integrated coastal resources management. The university requires that its faculty makes contributions to research, teaching, and extension, and UQROO was committed to incorporating ICM into all three of these dimensions. Toward this end, it has found ways to engage students in facilitating policy development and in promoting the use of ICM tools. Strong collaboration between UQROO and C^3EM has continued throughout the project and has led to the formal inclusion in 2002 of an Integrated Coastal Resources Management Program within UQROO's new Natural Resources Management Center. (See Chapter 12 for a more in-depth discussion of the institutional development side of the UQROO/ C^3EM relationship.)

Chetumal Bay was chosen as a geographic focus area for UQROO. This provided the university with a site where it could learn-by-doing in an ecosystem near its campus. Historically, Chetumal Bay management has been most closely associated with the Manatee Sanctuary established by the state government. While the sanctuary covers much of the bay and its wetlands, it does not provide a robust framework for addressing the broader environmental issues in the Rio Hondo watershed or those faced by the city of Chetumal, both of which are key sources of stress to the sanctuary.

This does not imply that Chetumal itself was ready to receive and rapidly respond to this attention. Two factors among others dampened the possibility of early success. First, there was no local sense of urgency to address current issues or try new forms of environmental management. Second, UQROO was inexperienced and still needed to develop its reputation as a good source of assistance in coastal management (at the time, UQROO was warmly welcomed for its work in locally focused community extension, but had no reputation yet in coastal management). Since C^3EM began, however, UQROO has made substantial progress in building its technical reputation by bringing knowledge and scientific information to bear on discussions of bay issues. It has since developed its geographic information system and worked to support the emerging network of groups concerned about the bay.

Work in Chetumal Bay started in a different manner from the approach used in Bahía Santa María. (See Chapter 5.) At first glance, Chetumal Bay appeared to be the ideal situation to create a bay management program, but the project team learned critical pre-conditions for launching a comprehensive effort were simply not present during the 1990s. The project chose to emphasize the need to move forward on the capacity-building program within UQROO, rather than moving quickly ahead with a full-scale planning initiative.

Advancing ICM in the Chetumal Bay region

After three years of small projects and information gathering, a focal event led to building a constituency for bay management. The International Symposium on Chetumal Bay hosted by UQROO was held in August 2001. Local, regional and international experts delivered 60 presentations which resulted in proceedings containing 42 articles on the six themes of the meeting. The three-day event aimed to: 1) broaden the understanding of the Bay as a vital socioeconomic and ecological system and, 2) help set priorities for management action. In addition to the proceedings, two additional volumes were planned—a socioeconomic study of the bay and its watershed (released in 2003) and a complementary natural resources diagnosis compiled by the *Colégio de la Frontera Sur* (College of the Southern Border, or ECOSUR). The later volume is still in preparation by ECOSUR at the time of this writing. The first volume in the series was an extensive bibliography and analysis of the literature about Chetumal Bay (234 citations).

In the symposium, Rosado-May and the UQROO team proposed a bay management agenda revolving around four key elements: technology, socioeconomics, ecology and governance. The team identified 27 objectives and proposed 60 specific actions to protect and properly develop the bay. In the follow-up economic and governance analysis, the UQROO team proposed that Chetumal Bay was/is an international responsibility and that what is needed is a bay governance system that unifies efforts to properly manage the Manatee Sanctuary with surrounding villages, the City of Chetumal and the Rio Hondo watershed. While government officials, civic groups and *ejidos* have significantly increased their efforts in the bay since the symposium, UQROO sees serious impediments to taking maximum advantage of those efforts. It proposes five steps that might help overcome these:

- Expand the scope of bay management to include villages and *ejidos* around this body of water and along the Rio Hondo, Laguna Bacalar and the Costa Maya
- Consider a co-management strategy for the sanctuary, with a substantial role for NGOs
- Create new interagency agreements to unify all of the authorities, from local to national, which have a key role to play in decisionmaking and enforcement
- Revise and extend the sanctuary management program to integrate currently dispersed efforts and address additional key issues such as water pollution and shore development
- Forge a combined vision for conservation and development that would lead to a stable and reliable framework for decisions and economic investments

The institutional commitment of UQROO to bay management is confirmed in the newest study:

> *"The project has been able to create alliances to strengthen the capacity of universities and the network of local organizations so they can become involved in planning and carrying out implementation exercises that conserve and promote wise use of the bay*

region. This in turn will help increase the number of actors interested and active in bay conservation (including government and community groups), and increase the chances that a consensus-based, long-term bay plan will emerge."[20]

A new citizen-based workgroup called *Grupo Ciudano de Trabajo* was formed in January 2003 to follow-up on institutional commitments of the symposium. The group sponsored major public outreach events in support of the Manatee Sanctuary in September 2002 and 2003. The group has integrated its efforts within the Sanctuary advisory commissions and a Navy-sponsored Water Pollution Control Committee for the southern Quintana Roo region.

Discussions are being held with the Meso-American Reef Initiative that proposes the Belize-Mexico Alliance for Management of Common Coastal Resources (BEMAMCCOR) take on the role of the Commission for Transboundary Parks for Belize-Mexico, building upon such efforts as those in Xcalak and Chetumal Bay.

The RedMIRC (The Coastal Resources Management Network)

RedMIRC creates a framework within the broad range of organizations interested in promoting and carrying out actions in support of the efficient and integrated use of coastal resources that can meet to jointly plan activities that support ecosystem maintenance and restoration. At present, this network is comprised of four founding members: ASK, *Amigos del Manatí* (Friends of the Manatee), the *Colegio de Biólogos del Sistema Tecnológico* (COBIOTEC, or the Association of Biologists) and UQROO. Other active members include a school, Eva Sámano de Lopez Mateos, and the Laguna Guerrero Nature Guides group.

A good example of how these network organizations came together was the very successful and locally popular first Environmental Information Fair, "Supporting Our Bay," which took place in November 1999. A second example is the event held a year later called "Caring for our bay today, tomorrow and always." This event attracted an even broader range of community groups and public agencies. RedMIRC has tried to promote an ICM vision within various committees in the region, and has developed its own reputation for both outreach and facilitation on coastal issues.

Building toward better bay management from the middle outwards

The UQROO proposal for a bay management strategy starts with the current administrative platform, the state's Manatee Sanctuary, which is a regional-level tool, and proposes to:

- Expand its reach upward to draw in crucial federal actors
- Expand its scope to add elements that have a direct influence on the bay that have not been included in the original strategy
- Reach downward to local groups and stakeholders and expand their roles through negotiated co-management agreements

Water quality, shoreline management, and the Sanctuary Management Plan were key issues identified by federal, state and local authorities in the 2001 Bay Symposium. Projects have been

implemented to address these issues, with the active engagement of various actors, including UQROO, ASK and RedMIRC.

Engaging municipal government

The USAID/Mexico Democracy Program has provided support to municipal institutions in Mexico through their Resource Cities Program (RCP). The RCP is a unique mechanism that provides technical assistance focusing on general municipal management, urban services management, and citizen participation. The RCP links cities in the U.S. with municipalities in Mexico in an effort to facilitate the exchange of know-how and practical experiences to municipalities in Mexico. The RCP project had already proved effective in Guadalajara. Fortunately, the municipality of Chetumal in Quintana Roo was chosen by the International City/Country Managers Association (ICMA), the RCP program implementer, to test a strategy for replicating the RCP in other Mexican Cities. In July 2000, a pilot project was designed to link Chetumal with Sarasota, Florida. In this partnership, Sarasota officials and technical staff would assist Chetumal's administrators in improving the municipality's water quality management systems, including potable, wastewater and storm drainage systems which affect water quality in Chetumal Bay.

Sarasota was chosen for several reasons. It represents a national success story in restoring degraded water quality and coastal environments, offering examples of both good and bad development strategies. Sarasota Bay and its watershed has been an established National Estuary Program of the U.S. Environmental Protection Agency since 1989. The program has made significant advances in techniques that address the bay's conservation and management. Community participation, political commitment, impact mitigation, and habitat restoration have been notably effective. Some of these techniques can be adapted for use in Chetumal, which faces similar issues such as the need to preserve manatees, wetlands and seagrass beds.

In September 2000, five people from Sarasota visited Chetumal—four water quality specialists and the director of the bay program. The team identified the issues and priorities in Chetumal and used these to develop a follow-up assistance program. In December 2000, Chetumal's mayor and director of urban development and ecology visited Sarasota to participate in both political and technical forums regarding water and bay management. In April 2001, three technical staff from the water commission in Chetumal visited Sarasota to examine management techniques and physical infrastructure. In August 2001, a member of the Sarasota County team actively participated in the Chetumal Bay Summit. The final trip to Sarasota included the director of Chetumal's manatee sanctuary, a university staff member from the ICM center, and a community business leader.

One of the insights revealed through the exchanges is that while the Chetumal Water Commission was successful in bringing state-of-the-art water treatment to the municipality, important implementation problems limited success. In essence, the human component was missing in effective program implementation, including an appropriate fee structure and revenue collection. Indeed, water management is a social, cultural, and political issue. The Water Commission has since taken a stronger stance on fee collection and improved their ability to recuperate costs, which in turn will allow for further system improvements. Officials

acknowledged that one key problem is the lack of community understanding on the links between septic systems and contamination of the bay, and sewer hookups. The water commission has since begun to collaborate with local NGOs to conduct a public education campaign. UQROO has also been recognized as a facilitator for open discussions toward reaching the common goal of identifying actions needed to avoid further degradation of the bay. Sarasota Bay's success can be attributed in part to its expanded capacity to bring agencies and actors together to reach common, clearly identified goals and objectives.

Water quality

The under-secretary of the Navy launched a regional project to identify and address water pollution issues in Chetumal Bay, a key issue that was not addressed in the original Manatee Sanctuary program. This inter-institutional committee has had great success at improving communication and outreach, as well as implementing key activities to reduce contamination and resource damage. The program leveraged other USAID resources to focus on water quality enhancement. As described in the previous section, the USAID democracy-environment linkage that focused on exchanges between officials and experts in Chetumal and Sarasota catalyzed municipal support for the Chetumal Bay activities, while providing technical advice for the water authority. The USAID also facilitated the interest of The Japanese International Cooperation Agency (JICA) to work in the state. As a result, feasibility studies for waste management in Quintana Roo are now being carried out and selected pilot projects that will directly contribute to bay pollution control and prevention are underway.

Shore use management and erosion control

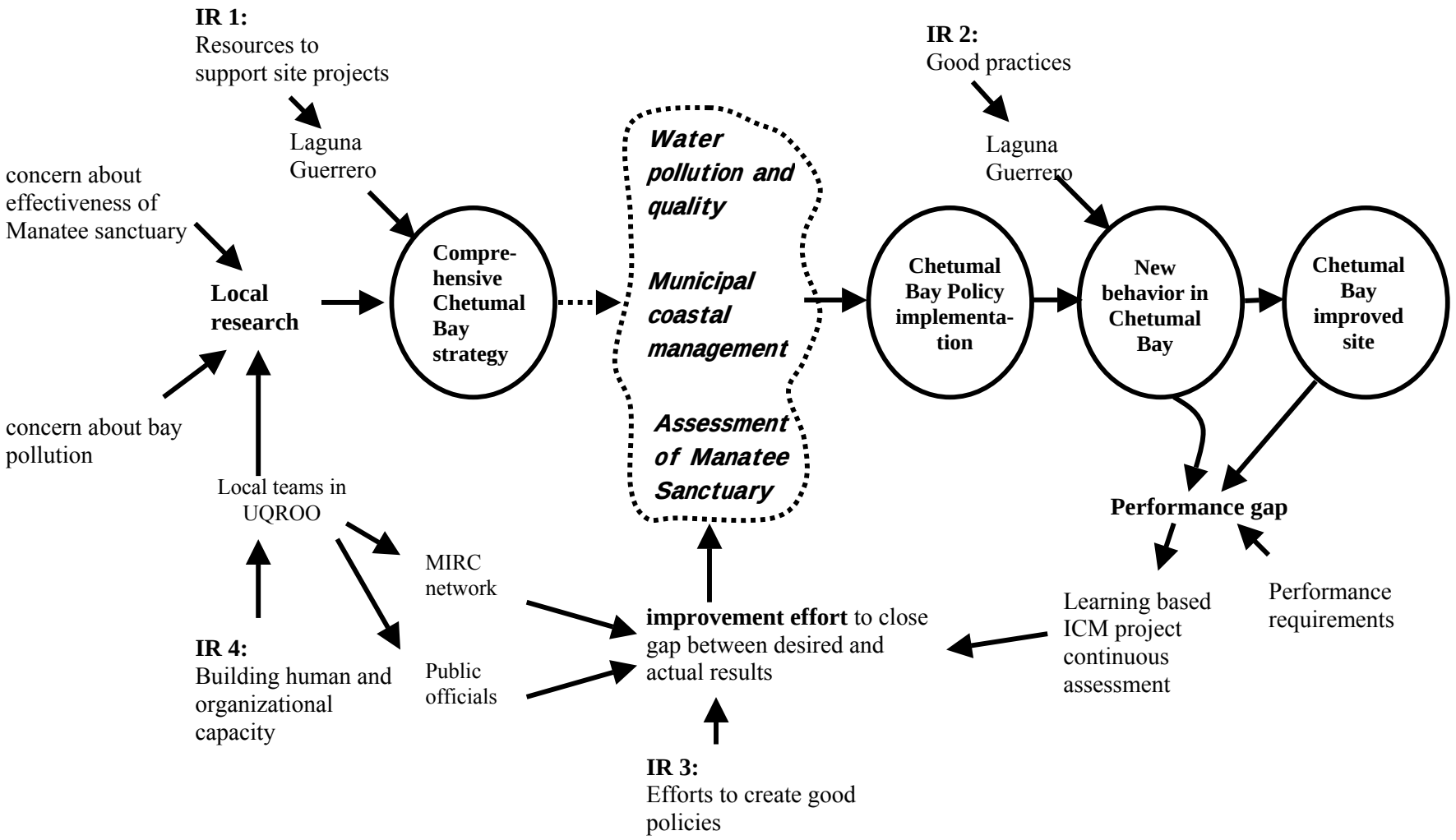
The municipality of Othón P. Blanco entered into an agreement with UQROO to conduct pilot coastal management assessments, including addressing shore erosion issues, with urbanized sites in Chetumal Bay. This is a complementary larger-scale program being carried out to prepare an ICM strategy for a 20-kilometer stretch of the Costa Maya.

Revision of the Manatee Sanctuary management plan and assessment of co-management arrangements

Perhaps more significant from an ICM perspective is the fact that the state's environmental regulatory agency, through the Sanctuary Management Committee, is proposing to undertake a substantial revision of the initial sanctuary management plan. UQROO has been chosen to carry out a participatory process to revise the management program for the Manatee Sanctuary, which had been heavily criticized by the RedMIRC for its limited scope and ineffective administration. Much of the Sanctuary is by definition in the federal coastal and marine zone (*Zona Marítima Federal Terrestre* – ZMFT*)*, as the state has no direct legal jurisdiction over this zone. This therefore requires coordination with federal authorities to conduct inspections and undertake enforcement actions. Unlike federally designated parks such as Xcalak, the Sanctuary has no special status or attention from CONANP. Hence, the NGO community has been debating the need for and feasibility of taking on some of the sanctuary management functions.

As Figure 16 indicates, there has been a recent resurgence in revitalizing the sanctuary itself and in revising the plan to expand the size of the area and to examine co-management arrangements for more effective implementation.

Figure 16. Advances toward a site based approach in Chetumal Bay.



Conclusions Presented in the study, *Our Bay, Our Future*

- The Chetumal Bay has the potential to, but does not currently play a relevant role in defining the regional identity or its people
- *Ejidos* and the rural communities face several challenges in participating and contributing to the sustainable development of their area
- The economy in the municipality of Othón .P. Blanco is stagnant and not diversified
- The investment for tourism favors the northern part of the state and does not benefit the Chetumal Bay Manatee Sanctuary or its areas of influence
- The population does not participate actively or responsibly in the management of solid or liquid waste; in spite of significant efforts by the state water authority, there remains a need to improve the efficiency for providing potable water, treating runoff, and managing solid waste in the city and rural areas
- The decisionmaking about use and management of natural resources (soil, water, etc.) is fragmented with little coordination and lacks an efficient tool to guide the process of effective development
- The existing administration of the Manatee Sanctuary has significant limitations for managing the bay

Key Orders of Outcomes: Chetumal Bay

1st Order - Institutional Arrangements

- University Center for Integrated Natural Resource Management formalized and includes an integrated coastal resources management program
- GIS Center established and regional agreements for information sharing in the Yucatan Peninsula crafted
- ICM network of NGOs established as a forum for exchange
- Belize-Mexico Alliance established to link institutions in both countries aimed at common coastal resources
- Citizens Working Group for Chetumal Bay established

2ND Order - Changed Behavior

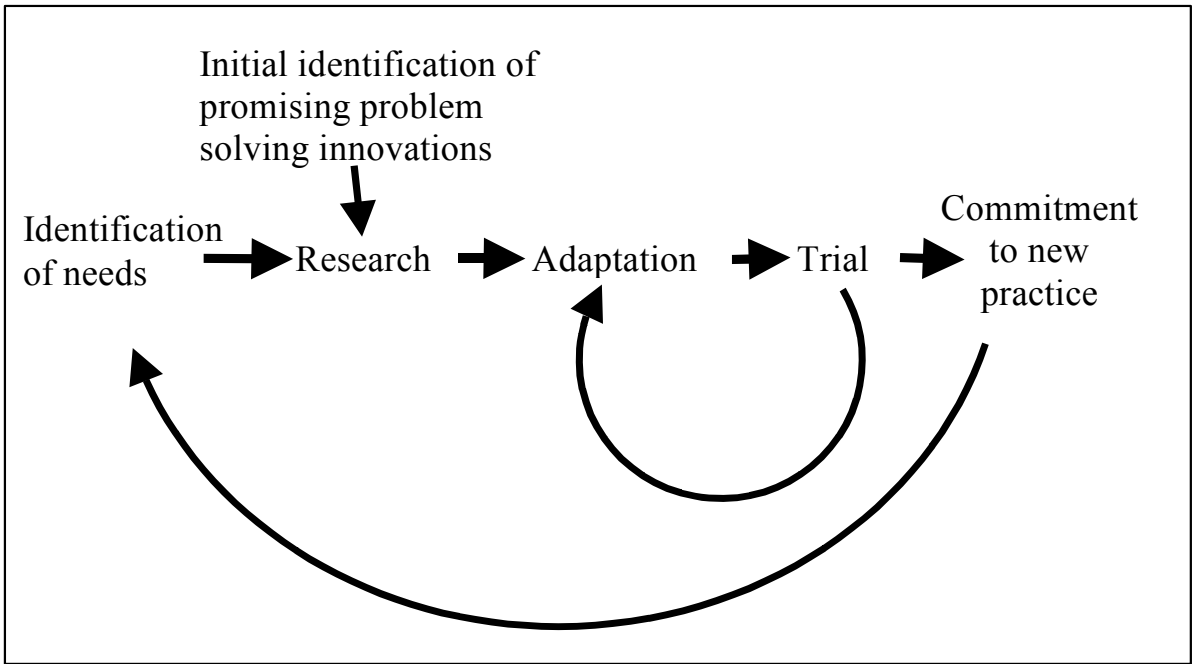
- Project initiatives implemented in collaboration with NGO, municipal, and university actors
- Committee to develop coastal management plan established by municipality
- Efforts and projects aimed at bay pollution are coordinated by the Navy and are being carried out by the university, municipality, and federal government
- Awareness of the causes of pollution to the bay from agriculture and urban sources is increased
- NGOs' credibility and influence on bay decisions increased
- Communities organized around bay concerns
- Lines of communication among scientists, NGOs, government, and social sectors established
- Use of septic systems by community in Laguna Guerrero increased

PART 3
WORKING WITH COASTAL RESOURCE USERS TO PREPARE AND ADOPT GOOD PRACTICES

Introduction

There is an extensive body of well-documented and internationally-recognized good practices for both marina tourism and mariculture that can prevent and minimize impacts to the environment while promoting a sustainable industry. Such practices have been thoroughly tested in the United States, Europe, the Caribbean and Latin America. Both Quintana Roo and the Gulf of California had a need and an opportunity to incorporate such strategies aimed at voluntary adoption by peer groups of resource users.

Figure 17. The innovation process.



Successful implementation requires not only having good practices upon which to draw, but also having strong federal, state and municipal regulatory systems which use guidelines that reinforce the need for high standards for development and that foster the voluntary adoption of "good practices."

Good practices are defined as verified techniques and technologies that mitigate social and environmental impacts of coastal uses. These practices may be codified in a regulatory framework as minimum standards. More often, they are used to encourage firms building coastal developments to think systematically about how to reduce the 'ecological footprint' and long-

term impacts of their operation. Global experience confirms that following these practices results in considerable savings and lowers environmental impacts. An example of a "good practice" is the requirement that hotels be built away from high-risk areas, or that shrimp farms be operated with careful control of feeds and water pumping. This concept can also apply to the techniques used by any group living and working in the coast. Good practices can include those more traditional customs or approaches to conservation which are based on raising an individual's awareness of the effects of his or her behavior on environmental quality and resource productivity.

Tourism

In 1998, there was a window of opportunity to use good management practices to influence development in the Costa Maya tourism corridor. A negative experience with the Cancun-Tulum environmental ordinance and an emerging debate over land use proposals provoked an important question about the Costa Maya development process. Would a regulatory approach encourage developers investing in Costa Maya tourism projects to avoid needless environmental damage? A problem in answering this question was the fact that there was no clear definition of 'low-impact tourism development' for authorities to follow. A series of books produced in the United States by Orrin Pilkey, Jr., William Neil and colleagues called *Living with the Shore*, as well as work by Jon Boothroyd of URI on Rhode Island's shoreline, served as inspiration for writing a guidebook, *Guidelines for Low-Impact Tourism Along the Coast of Quintana Roo* (*Normas Prácticas para el Desarrollo Turístico*), for identifying the values and vulnerabilities of the coastal features of Quintana Roo. The guidebook offered better ways to carry out a wide range of small and large-scale development activities. This story is set out in Chapter 7 on tourism guidelines.

Mariculture

The Bahía Santa Maria program has also provided an opportunity to introduce the concept of good practices as a way to mitigate impacts of proposed shrimp industry growth and supplement what was happening as a result of government regulation in Sinaloa State. CRC drew upon its mariculture experience in Central America and leveraged funding from the David and Lucile Packard Foundation to strengthen partnerships with the mariculture industry in Sinaloa. This is explored in Chapter 8.

Recreational Marinas

In a third initiative, we recognized that the considerable body of work in the U.S. and world wide in marina good practices would be relevant when the Mexican government announced its big Nautical Route project in 2001. CRC initiated work with the marina industry within the Gulf of California to develop a good practices manual. CRC then set out to build capacity for voluntary adoption of good management practices, and included this as a component of a Packard Foundation project. This is set out in Chapter 9.

In Mexico, where collective decisionmaking typically does not occur, it is particularly important to work with the private sector. Community and private interests need mechanisms to resolve problems through negotiation, joint inquiry, and learning—as private decisions will ultimately

dominate what happens in practice. When business people cannot or do not engage in public policy debates and decisions, the only option is to foster the voluntary use of environmentally sound practices.

Moving beyond guidelines toward public policy

The tourism and mariculture industries are consistently willing to collaborate and participate in coastal resource management training programs. Regulatory agencies are also genuinely interested in incorporating good practices into voluntary guidelines and regulations. Mexico's Environment Minister signed an endorsement of the Normas Prácticas as the prologue to the manual's second printing. It is, however, difficult to measure the impact which project activities had on directly promoting these good practices. Both Mexico's mariculture and tourism industries had already adopted international standards—because their international clientele expects this level of quality—prior to the manual's publication. It is not surprising that a survey of marinas in the Gulf of California found that, in general, there is considerable voluntary adoption and use of clean marina practices along with interesting local innovations.

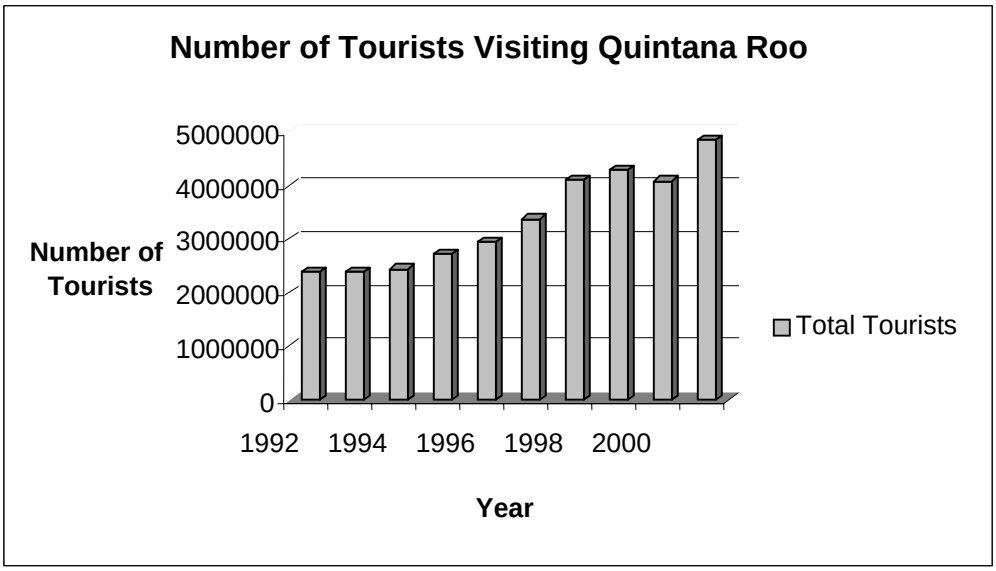
Acting Locally, Thinking Regionally about the Marina Industry

In La Paz, Baja California Sur, a marina working group is underway. The group's goal is to advance marina good practices in La Paz—a major center for marine tourism and a major access point to the pristine Gulf Island Park. The group includes marina owners, and municipal, state and federal officials, and is staffed by ISLA, a local NGO. Currently, the group is conducting a survey of existing operational practices and identifying siting criteria for new marinas. The group is then using this information to influence local planning activities, as well as provide input to the draft national marina regulations. Hopefully this local process will be replicated in other Gulf of California harbors as they prepare for increased marina activity that results from the government-promoted development program.

CHAPTER 7 - TOURISM DEVELOPMENT IN QUINTANA ROO: THE GUIDELINES FOR LOW-IMPACT TOURISM ALONG THE COAST OF QUINTANA ROO

Tourism represents an important source of income for Mexico, and about 8.5 percent of its gross domestic product[21]. It is particularly important in the Mexican Caribbean, where a primary tourism attraction is the area's diverse ecosystems including coral reefs, sandy beaches and coastal lagoons. This region marks the entrance to the "Mundo Maya", the Mayan World—an area rich in Mayan archeological and cultural sites and now utilized as an overarching tourism promotion theme. Together, these attractions make the coastal shores of Quintana Roo one of Mexico's finest tourist destinations, drawing an increasing number of visitors and a constant flow of new investment projects to the region.

Figure 18. Tourism growth in Quintana Roo.



The *Guidelines for Low-Impact Tourism Along the Coast of Quintana Roo* provided an entry point for training government authorities that review environmental impact assessments and develop policy in Quintana Roo. Originally it was envisioned that ASK would work with as many developers as possible early on in their project design processes to explain the practices and even conduct site assessments. This proved too ambitious a goal, especially since many of the developers and their project designers were not located in Quintana Roo. This is one reason why so many designs fail to take into account the local conditions and the local community's aspirations for the kind of development they want for their place. The ASK-URI team also found it difficult initially to gain access to the private sector mass tourism industry. Since the growth in Costa Maya has been sporadic, it was also difficult to target developers in the region. The team then shifted focus to building capacity within the government sector to incorporate good practices within the projects through environmental permitting process. Along the coast of Quintana Roo, tourism has developed at different scales. In the north, the Cancun-Tulum corridor—with its extensive infrastructure—received over two million visitors a year in 1997. In

the south, the Costa Maya corridor was established as the new development target. In 1996, the state government of Quintana Roo articulated its vision for a distinctly new form of tourism development along the southern coast of the Costa Maya, weaving environmental considerations throughout its plan. The state hoped to ensure that development is "intelligent" about the use and conservation of natural resources. This vision also embraces the idea of tourism complementing an overall plan for economic development in the southern region of the state including expanding and improving transportation and power and communications infrastructure. Today, Mahahual stands as a new port of call for cruise ships and a hub of the tourism activity in the Costa Maya. Only time will tell if this strategy reduces impact while enhancing economic development. On one hand, land impacts will be minimized. On the other hand, benefits may go offshore to international tourism enterprises.

Recommendations in the *Guidelines* were intended to:

- Protect investments by reducing possible economic and environmental costs related to natural processes and coastal hazards
- Maintain healthy ecosystems that will attract tourists and provide long term economic benefits
- Complement existing or proposed environmental regulation, by incorporating best management practices into projects requiring the issuance of an Environmental Impact Statement or zoning program aimed at reducing or mitigating environmental impacts

Extending the scope of the C^{3}EM program beyond the Xcalak Reefs National Park

The project team involved in preparing the application for the marine park felt that it was essential to first understand the natural environment of the areas targeted for land development as a way to define what economically, socially and ecologically sustainable tourism means for the Costa Maya. One of the first activities of the project was to characterize the ecological and social conditions in the Costa Maya. This only required extending the scope of technical work already initiated for the park proposal (see Chapter 4). A key focus was analyzing shoreline features and dynamics. Additional technical activities included training on the analysis of remote sensing information including satellite imagery, scenario building, and introduction of new programs.

Content topics of the *Guidelines for Low-Impact Tourism Along the Coast of Quintana Roo*

- Characteristics of the coastal zone of Quintana Roo
- Dynamics of the coastal zone
- Siting infrastructure according to the function of beaches and dunes
- Managing development near waterbodies, lagoons and wetlands
- Vegetation management and landscape design
- Drinking water & wastewater management
- Solid waste management
- Energy
- Case studies: how to implement the guidelines

At the time, the ASK team was using a conservation mapping software package called CAMRIS, which ran on older, low-powered machines running only MS-DOS. A transition to IDRISI and ARCVIEW software was initiated in order to expand the capabilities of the Mexico team in spatial analysis as well as to share the information it was gathering with other colleagues and managers. Today, both the ASK and the UQROO programs have advanced significantly in GIS technology and use of the information. The GIS Center at UQROO develops and manages information for municipal and state programs.

The academic exchange program with URI's Environmental Data Center provided technical assistance and guidance on developing their service center. In 2003, the Center consolidated the Costa Maya geographic information developed in the early stages of the project, and produced an electronic atlas of maps, data layers, database, resource information, and photos. This tool can be used as a basemap for additional GIS efforts, as well as a resource for decisionmakers, researchers, developers and managers. UQROO will be using the Costa Maya GIS as a module for future municipal training.

An important spin-off of the work on mapping was the preparation of an issue-oriented assessment of coastline uses in the state. The data was used to help define the boundaries and strategies for the Xcalak National Park designation. It also allowed ASK to provide detailed technical input to the Costa Maya Ecological Land Use Ordinance, (POET). After considerable internal debate, it was recognized that the data and maps by themselves would not serve to influence how developers planned and carried out their projects. The idea of a guidebook on good practices began to take shape.

The *Guidelines for Low-Impact Tourism* were designed to serve as a guide to coastal stakeholders during the process of planning new developments in the coastal zone. The handbook was released in both Spanish and English. The *Guidelines* provide a tool for incorporating knowledge of coastal processes and applying best management practices for beaches, lagoons, vegetation, energy, solid waste, and wastewater to planning and infrastructure projects. The manual supports and contributes to local sustainable development by recognizing the strong interdependence between environment and economy. The *Guidelines* include examples from the state of Quintana Roo which illustrate many of the coastal management concepts and issues and offers examples on how to apply low-impact practices.

One of the initial objectives of the *Guidelines* was to assist investors in selecting construction techniques that would mitigate potential negative environmental impacts. The process of developing the manual and implementing the good practices included work sessions and workshops with local architects and engineers to both discuss good practices and promote the incorporation of these into future designs. In addition, the project team offered investors technical assistance and expertise on incorporating some of the guidelines. There were fewer requests for this technical assistance than hoped for. However, those projects that did participate in a review made substantial design changes. For example, the alignment of the 50km highway between Mahahual and Xcalak was modified to avoid sensitive areas discovered through shoreline and satellite map studies. The road alignment was altered using information about wetlands, and culverts were installed to allow better surface water flow below the roadbed. The cruise ship pier in Mahahual was relocated in order to avoid coral reef damage. The pier was designed as a structure on pilings, which allowed water and sand to continue flowing naturally, and was located at a headland, where the there was a natural break in the barrier reef, avoiding dredging through a reef.

Additional training was carried out focusing on mid- and high-level government regulators at the federal, state and local levels. SEMARNAT has shown continued strong support for the *Guidelines* project, co-sponsoring a national training workshop in March 1999. Secretary of Environment Victor Lichtinger prepared a prologue to the English version of the *Guidelines.*

Shortly thereafter, the *Guidelines* found their way into federal policy. In 2002, the Quintana Roo office of SEMARNAT incorporated a substantial portion of the manual into its own guidance for tourism development in the state, codifying many of the concepts and the practices into their policy.

Another policy accomplishment was the incorporation of good development practices into the Costa Maya ecological zoning plan (POET). The POET is used to plan and regulate land uses and activities within a geographic region according to natural, social, and economic conditions of the region. These regional zoning plans establish criteria for new development—criteria that takes into consideration the need to protect the environment and maintain ecological equilibrium. More than 25 of the *Guideline*s' good management practices were incorporated into the zoning ordinance and applied to 125 kilometers of shoreline targeted for future coastal development. High demand for the *Guidelines* prompted a recent reprint of the Spanish version.

Mexico's voluminous environmental laws and regulations have not been easy for the public or the development community to access and understand. Recent reforms on public information dissemination and the explosion of Spanish language documents available on the Worldwide Web have helped, but making the rules available is not enough. What is needed are materials that explain the technical and scientific reasoning behind policy and provide compelling arguments for their implementation. The *Guidelines for Low-Impact Tourism* is much more than a checklist of random practices. It is a site-based resource guide that provides information, background and additional resources for further reference. It is also a model that can be used in other sites and situations.

Beyond the Guidelines

The promotion of good practices as a management tool in this region has extended well beyond the publication itself. The Amigos de Sian Ka'an teamed up with the World Wildlife Fund to explore various incentives for promoting hotel certification schemes. These included the Green Globe program, the Environmental Management Systems, the Costa Rica Hotel Certification program, the Blue Flag program, and PROFEPA's (Mexico's Attorney General for the Environment) Clean Industry campaign. Also, USAID Mexico's biodiversity program funded a pilot project of environmental and efficiency-oriented audits for hotels in the northern tourism corridor, building on a successful program in Jamaica. Mexico's businesses have been increasingly receptive to such audits and some industries have also been using quality programs, such as the ISO 14001.

Reflections

In retrospect, both developers and government decisionmakers should have been more involved in designing the *Guidelines.* This in turn would have aided implementation by increasing the sense of industry ownership from the outset. At the beginning of this project (1996-1998), in-country partners found it difficult to initiate a participatory process with a business sector. Common practice by Mexican NGOs, academics and even government agencies is to first prepare a technical document that has recommendations for some kind of change in environmental use practices. They then publish it and finally hope the appropriate audience will

pick up the document and follow its recommendations. A better approach draws upon the techniques of extension where direct contact with potential adapters and users is incorporated from the start and maintained at each step along the way.

In Quintana Roo, this still is not easy since the region attracts international investors who introduce designs from around the world. This is an audience that is hard to find and hard to tap into as they formulate their projects.

It is also difficult to assess the exact impact of the good practice recommendations – those from the *Guidelines* or any other source—on the number of projects or hotels that have embraced and are implementing these practices. It is even more difficult still to determine how much of that can be attributed solely to the *Guidelines.*

The pace of development in Costa Maya has been much slower than anticipated. A closer alliance with the government regulatory side might prove to be a good way to gain insight into and have influence on projects at the earliest point in design. Yet even now, the low presence of municipal and state officials in the Costa Maya region has meant that many projects go unregulated, or come under the regulatory process only after site development has already begun.

Some of the lessons from this first experience with good practices and voluntary compliance were accounted for in the design of work with the mariculture and recreational marina industries in the Gulf of California that was funded by USAID and the Packard Foundation. These are discussed in the next two chapters.

CHAPTER 8 - BEST MANAGEMENT PRACTICES FOR SHRIMP MARICULTURE IN THE MEXICAN PACIFIC COAST

Introduction

For more than a decade, Mexico has attempted to carry out integrated programs that would provide infrastructure and take advantage of economies of scale in "aquaculture parks" and "tourism corridors." Better planning and execution of projects was thought to greatly reduce environmental impacts as well. Although attractive in theory, these concepts have not been carefully and fully implemented. During the 1990s, environmental planning and regulation initiatives for the coastal zone of the Gulf of California such as the POET, have been conducted at the regional, state or local levels. Mexico has also made extensive use of its environmental impact assessment tool, especially in areas that do not have regional environmental plans. However, few of these regulatory plans were ever completed. This leaves coastal communities, which now have a potentially stronger voice in how coastal ecosystems are utilized, at a disadvantage in making sound decisions. The result has been helter-skelter patchworks of self-contained facilities that are generating negative externalities and ecosystem damage. Surprisingly, there has been little effort to work with the sectors directly to motivate and support their use of better practices in siting and operation.[22]

To begin to address this situation—at least as it applied to the issue of aquaculture—the C^{3}EM project decided to draw upon successful work conducted in Central America[23] on good management practices (GMPs) for shrimp farming. With the substantial support of two grants from the Packard Foundation, the project applied the process used in Central America to gain consensus and build capacity for implementing similar good practices in Sinaloa.

The need to transfer and adapt existing good management practices

Approximately three-quarters of Mexico's shrimp farms are located in Sinaloa (18,000 hectares). Over a quarter of these (4,800 hectares) are found in Bahía Santa María. This means there is a high concentration of these farms in an area of significant environmental importance. The Conservation and Development plan for Bahía Santa María (see Chapter 5) anticipated a three-fold increase in requests to build shrimp farms around the bay (from 5,000 hectares to 15,000 by 2015). This made it necessary to define a build-out strategy that recognized the ecological and hydrological constraints, that assured a sustained flow of economic and social benefits to those who presently control the bulk of the land where ponds might be constructed, and that also resulted in relatively lower impacts.

Most of the shrimp farms in Bahía Santa María are located near mangroves and tidal flats. This is an inheritance from the first Ecuadorian shrimp practices. These were adopted by the first shrimp farms that were established in the Sinaloa area in the 1980s. Part of the tidal flats that served as a flooding area and fresh water runoff path in the event of common meteorological events (e.g. hurricanes and summer storms) are now occupied by shrimp farms. This obstructs runoff and increases the potential for coastal damages from natural hazards. In contrast, good construction practices allow the establishment of shrimp operations that preserve normal hydrographic patterns.

The large water requirements of shrimp farms also tend to disturb the overall hydrodynamic patterns of small estuaries, provoking erosion/sedimentation processes—sometimes in detriment to the health of the bay. The impact of shrimp ponds on hydrodynamic patterns may be one cause of the decline in the area of the bay, which has fallen from 151,314 hectares in 1973 to 145,022 hectares in 1992.

Finally, the water pumping operations capture large quantities of small fish and invertebrate fry and may potentially disrupt the fragile nursing grounds of these species, some of which are commercially important to the region. Best management practices include methods of water use management that can simultaneously prevent potential impacts on the estuary and improve shrimp production.

In Central America's Gulf of Fonseca, good management practices (GMPs) for shrimp farming were initiated during the 1990's with a USAID-supported project, Shrimp Pond Dynamics/Support for Collaborative Aquaculture Research. As a response to the aftermath of Hurricane Mitch in the late 1990s, the United States Department of Agriculture project advanced the GMPs by developing an operations manual, along with simplified extension materials. Furthermore, extension agents and producers were trained in GMP concepts. Implementation is currently underway to promote adoption and implementation of GMPs among small and medium shrimp farmers in the two Central American countries. Many of the technical advisors and extension experts involved in this project were recruited to work directly with Sinaloa colleagues. With them, these advisors and experts brought access to the Central American Project's GMPs, operations manual, training curriculum and materials, and extension materials.

In reviewing the good practices, the topics most relevant to Sinaloa's existing siting and operational practices included:

- Site selection and other environmental aspects of farm design and construction
- Water quality management, closed and re-circulating water systems and effluent control
- Basics of farm operation including sources of post-larvae, pond preparation, stocking density, feeds and feeds management, liming, disease control, chemical and biological agents, pond bottom and sediment management, predator control
- Shrimp health management and pathogen biosecurity
- Financial administration, economics, risk-analysis and business management
- GMP self-assessment tools and techniques to increase the sustainability of the enterprise
- Organization and management of shrimp aquaculture parks

Progress in Bahía Santa María and Sinaloa

The good management practices project, initiated in Bahía Santa María in 2000 and ongoing through 2004, is jointly carried out by URI and the University of Hawaii. Objectives of this work include:

- Initiate early actions of the management plan in order to advance priority actions, gain experience in working with the aquaculture sector(s), and build constituency for estuary management

- Build awareness and constituency for good practices and their role as "good neighbor policies" to reduce environmental impacts and user conflicts

- Characterize the shrimp mariculture industry practices within Bahía Santa María and verify the key issues as they relate to an overall influence within estuary management

- Implement a program of good practices to support implementation within the Bahía Santa María Bay Estuary Management Strategy

Pursuing practical training and demonstration activities of good practices with shrimp farmers and their associations is especially critical. This helps at open channels of communication, and provides incentives for the private sector to actively participate in the regional estuary management initiative and to engage state and federal authorities who are actively developing criteria for future development of the mariculture industry. Packard Foundation funds were used to hire mariculture experts to collect existing information and write sections of an industry characterization to include: 1) technical practices; 2) economics of the industry; 3) social aspects; 4) needs for capacity building; and 5) links with environmental management.

Characterization and assessment of shrimp mariculture as the basis of developing GMPs and other recommendations

While many studies have been completed, it was difficult to link the current situation to proposed management recommendations. Similarly, it was difficult to link social and institutional challenges to those of the technical issues faced by farmers. Therefore, there were a series of efforts to build upon existing studies and clarify the issues, as they pertain to the implementation of good practices.

In early 2001, the project produced an issue profile of the shrimp culture industry in Sinaloa with an emphasis on the institutional and social aspects, but also covering the technical and environmental facets. A second assessment was designed to determine the current status of the Sinaloa industry with regards to the most commonly accepted international standards for good practices, (e.g., Global Aquaculture Alliance and the Aquaculture Association of Honduras). The study built upon data already collected by the government research institute, CRIP, and provides a baseline for the types of practices used, so as to be able to measure change in behavior in the future. The results of these studies are providing valuable guidance in the design of Mexico's GMP Training-of-Trainers courses, outreach activities and publications.

Partnership building

A series of consultations were made with private sector producers, social sector producers and public officials—these have proved invaluable during the years of program development. The project was begun through a planning grant and key institutions were interested in collaboration. Through work sessions and workshops, these institutions helped define the need to establish good management practices. During a one-year hiatus in the formal program—while it tried to secure funding—these institutions continued with the development of GMPs. When the project

started up in full force in 2002, significant advances had already been made in Sinaloa. The team formed an inter-institutional working group including representation from CIMEX, the National Fisheries Institute (INP), the Sinaloa Aquaculture Institute, the national fisheries business association, the Sinaloa Aquaculture Sanitation Commission, and the National Fisheries Commission. This working group reviews, revises and develops materials and documents and also assists with the execution of project activities.

Training and capacity building

C^3EM and its partners decided to design and deliver a five-part series of training modules. These focus on key aspects of shrimp mariculture related to environmental management and protection. The topics and training schedule were selected by the inter-institutional working group and the project team. The CRC-University of Hawaii team recently adjusted the implementation strategy to provide greater support to the existing network of aquaculture extension agents and the Sinaloa Aquaculture Sanitation Commission. This Commission already receives substantial funding from the federal and state governments as well as the producers of the shrimp. This new arrangement is expected to greatly increase the number of shrimp farm managers who will be introduced to new practices, as well as increase the frequency of interaction.

In tandem with delivering specific training, the practitioners' group sought to replicate the training with other stakeholders and to build local capacity for technology transfer. For example, the first training course in Best Management Practices for Water and Soil Quality Management was delivered by Dr. Claude Boyd of Auburn University, a renowned expert in this field and a leader in assisting industry groups throughout the world in development and implementation of GMPs. With the goal of replication and transfer in mind, the course was accompanied by a round table and working session with a panel of institutional representatives to discuss on-going project initiatives.

Proposed workshop topics for promoting good mariculture practices

- Water and Soil Quality Management
- Diagnostic techniques for shrimp culture and biosecurity
- Extension and outreach methods for transfers and adoption of good management practices
- Management techniques for shrimp culture
- Socioeconomic impacts of shrimp culture

Development and dissemination of GMPs

There is a wealth of material, including the studies conducted as part of this project, which can be drawn upon when developing the GMPs and a code of conduct. A number of institutions including the National Fisheries Commission, the Sinaloa Aquaculture Institute, and the Research Center for Food and Development (CIAD) have, or are about to, publish manuals covering various aspects of good practices, although none of these is comprehensive in nature. The CRC-led initiative added value by linking the efforts of these institutions and expanding the review of materials by field practitioners. This latter activity helped ensure that the practices selected will be relevant to Sinaloa. Working together with these groups, the project will develop a Code of Practice, and produce a manual of GMPs that is relevant for Sinaloa. Producers will review the Code and the manual for acceptability and appropriateness prior to being disseminated.

Other dissemination products will include: 1) a website containing current and relevant information and materials—produced by this project or others—on GMP efforts, policy, regulation and scientific information related to environmental aspects of shrimp culture; and 2) outreach materials to promote implementation of GMPs.

Diversification of aquaculture

Diversification of aquaculture is a topic of interest when considering shrimp mariculture. There are several reasons for this. First, recent disease outbreaks have bankrupted some farms and made shrimp culture economically inefficient for others. Also, aquaculture on Mexico's Pacific Coast has not developed to its full potential. Because shrimp culture showed so much early promise—with higher rates of return and greater export potential than other species—it was shrimp, and not other types of cultures, that received the greatest investments of technology and money.

Currently, there is renewed interest in culturing other species which could utilize abandoned ponds, could culture during the winter period, and could provide a buffer when shrimp disease does strike. The idea of cultivating other species particularly interests those groups that lack the capital or technical capacity to culture shrimp or to assume the related production risks. Many coastal communities, especially women's groups, have shown keen interest in developing bivalve aquaculture as an option for supplemental livelihood. In the upper Gulf, a women's cooperative has been successful at raising, marketing, and selling oysters. In the July workshop, "Women's Voices of the Coast," the group shared their lessons learned as the second-generation of women begin to enter this profitable enterprise.

To date, the technical team has determined that both the potential and capability for technology transfer exists to: 1) expand the culture of currently cultured species; and 2) develop new shellfish industries locally. Oyster species currently being cultured include the Japanese oyster (*C. gigas*) and the local Pleasure oyster (*C. cortensis*). The technology exists to culture a number of cockles and clams whose populations in the wild are decreasing due to over-harvest. Additionally, there are known culture technologies and high market demand with good prices (US $30/pound) for a large pen shell (*callo de hacha*) and a large scallop (*Pectin*). The technical team has received numerous requests—including from several women's groups—for assistance in starting culture of these species. Unfortunately, funds to provide this assistance are not currently available. An additional impediment is the weak local capacity for extension services that would transfer the culture technology for these species to community groups. The creation of the Environmental Trust Fund for Bahía Santa María may help provide loans and technical assistance to enable small-scale bivalve farms to be developed. This would be a viable alternative to shrimp culture and would support the goal of balancing environment and development needs.

CHAPTER 9 - RECREATIONAL HARBORS AND MARINA DEVELOPMENT IN THE GULF OF CALIFORNIA

Introduction

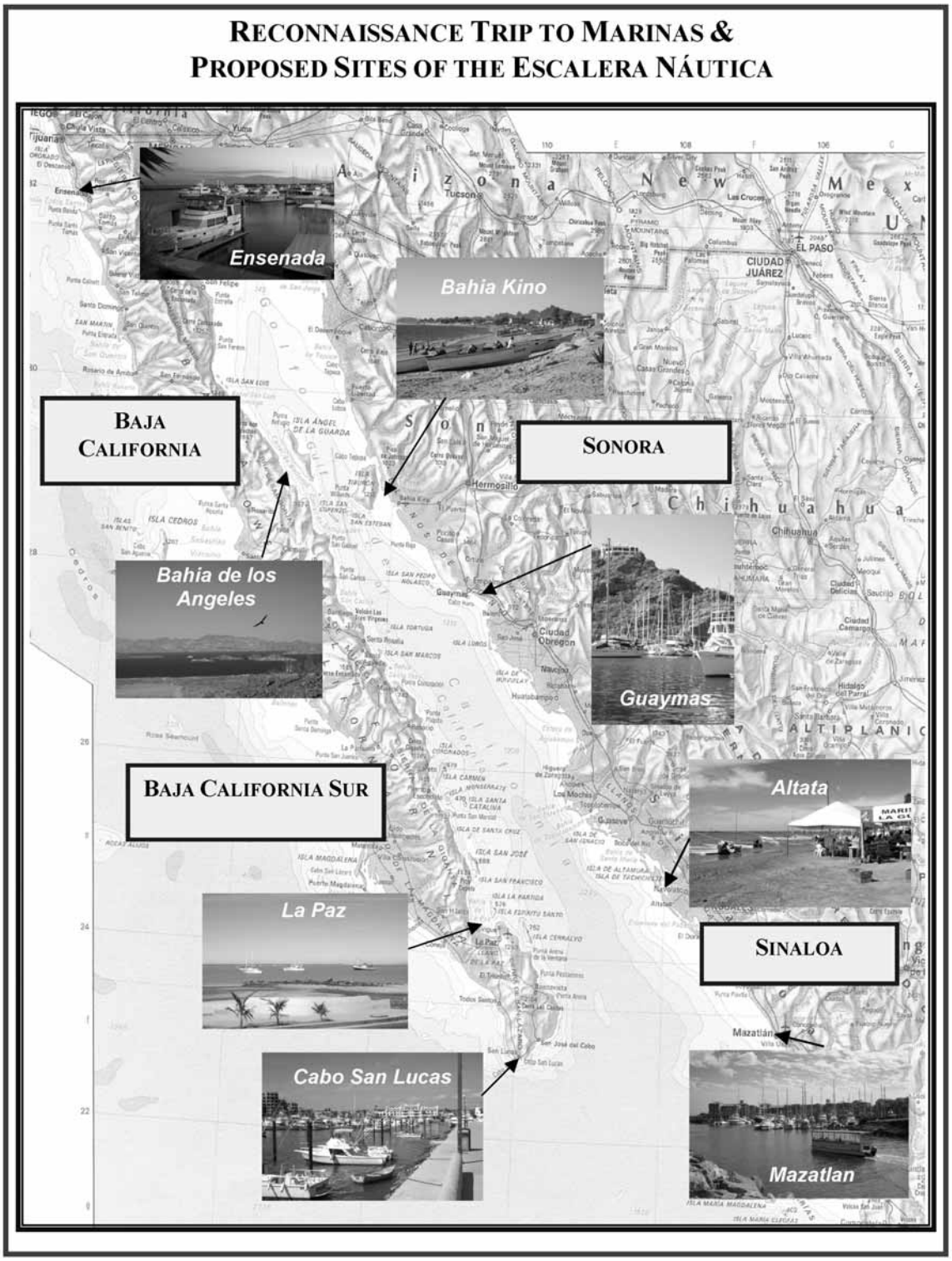
As mentioned earlier, in February 2001, the Mexican Government officially announced the Nautical Route, a bold initiative to stimulate regional development by constructing and/or expanding 27 recreational marinas within tourism nodes around the Gulf of California. The idea of marina tourism as a growth sector had been discussed for at least two decades. The federal government had unveiled a similar concept for the Mexican Caribbean in the mid-1990s. The Gulf initiative was accompanied by the signing of an agreement by the governors of the five coastal states and promised coordination by federal authorities from environmental and development agencies and expressions of support by local authorities and interests. The proposal[24] to boost tourism was based on four objectives:

- Diversify tourism offerings
- Promote sustainable regional development
- Engage in low-cost, high-benefit projects
- Implement quickly

C^3EM's partner in the region, CIMEX, informed the project of the launching of this program and together the team began strategizing on how to assess the pros and cons of such an initiative. The C^3EM program saw this as an opportunity to explore tools and approaches to support a regional ICM response, as was initially encouraged by the USAID officer during the 1997 project design.

Few details of the Nautical Route project were known, but a copy of the agreement quickly found its way into circulation among the community of researchers and conservation organizations in the Gulf region. The Nautical Route became a key issue at the May 2001 Gulf-wide workshop on conservation priorities, held in the resort city of Mazatlan. That event brought together more than 150 members of the community to identify the most important sites and resources for maintaining biodiversity, and assessing the trends, threats and conflicts which needed to be taken into account in setting priorities for research and action. Mexican officials responsible for the tourism project were present and a closing segment of the five-day workshop was devoted to discussion of the character of the project and key concerns. A group reviewed the preliminary list of sites proposed for development during the meeting and distributed a statement of concern that was signed by a number of people in the workshop. Soon thereafter, an informal core working group began to formulate an organized response, drawing upon existing coalitions, regional conservation organizations and donors.

Figure 19. Reconnaissance of marina sites in the Gulf of California.



Mexico's maritime culture is highly dominated by fishing boats, ports and villages. Recreational boating is a relatively new and growing aspect of local recreation, as well as the international tourism industry, where the U.S. recreational boaters play an important role. These boaters arrive in Mexico by sea or using trailers to enjoy sport fishing, to look for available dock space at competitive rates, and as an alternative to the sun and sand aspect of the Mexican tourism experience. As of 2000, the federal government had issued 65 permits to build marinas and 30 had been constructed. Fifteen of these are scattered around the Gulf of California. When President Fox announced the Nautical Route project in 2001, the implication was a tenfold increase in constructed marina slips. Today's 2,600 slips could multiply to more than 26,000 by the year 2015.

The announcement was taken by some to mean a great economic opportunity balanced by the promise to maintain environmental standards and carry out federal, state and local plans and environmental studies. To others, this amounted to the single greatest threat to biodiversity in the Gulf. Either way, the proposal has galvanized public attention and put a sleepy industry into the national spotlight.

Marinas are an important coastal recreational and commercial activity worldwide. Harbor and coastal management programs, supplemented by voluntary marina good practice programs, provide a suite of well-developed tools for maximizing the benefits and minimizing the social and environmental costs of recreational boating and are used throughout the U.S., Europe and Canada. The successful programs are the result of active leadership and involvement by the marina industry. An important side benefit of this involvement is the formation of a strong constituency for coastal management.

The Nautical Route proposal raised questions about conditions in existing marinas as well as a desire to better understand what marinas and recreational ports could accomplish in terms of reducing their environmental impact. Opening the Gulf of California implies the possibility of uncontrolled boater access to the Gulf islands, shores and waters. This, added to the construction of new land-side development projects and tourism enclaves creates a real threat to biodiversity and critical ecosystems.

Identifying an appropriate intervention

CRC's own experience in marinas in Rhode Island and within the U.S. national agenda had been a positive one where it had been able to initiate public–private partnerships, engage a diverse group of stakeholders and influence practice and policy at both a local and national effort.

Little was known, however, about the marina industry in the Gulf region, or about the potential impacts and best ways to manage siting, construction and operation. CRC's initial response was to compile examples of the broad array of studies, guidelines and best practices from the successful U.S. experience and distribute a CD-ROM containing this information to key institutions and leaders.

In efforts to advance a regional agenda that addressed marinas (both the opportunities and the challenges), CRC and CIMEX used funding from the existing USAID/Mexico project to form a team to review the existing situation with recreational marinas and harbors in the Gulf. Neil Ross and Mark Amaral, both pioneers in the U.S. on clean marinas and harbor management, joined the team with local counterparts to review the situation, visit sites and interview marina owners and operators. This November 2001 reconnaissance resulted in a report that outlined a set of short-term actions for developing an industry code of conduct. This built on the relatively good situation in many existing Mexican marina facilities. It proposed demonstrating a Clean Marina approach in an existing harbor, and it suggested marina development policies for the region. The reconnaissance report was widely distributed in early 2002. While this information was useful to some, others felt that CRC was being pro-development, at the expense of a conservation ethic. Efforts have been made to make clear to both the conservationists and the marina owners that CRC's role is to provide tools for management, approaches that can help to reduce impacts and provide good practices that can contribute to sustainable tourism development.

Findings of the November, 2001 Reconnaissance by CRC and CIMEX

- Siting decisions on marina facilities including their size, scale, and location should be made in relationship to a realistic analysis of market demand, environmental considerations, and socio-economic opportunities for host communities
- There is a need to overcome the apparent systematic breakdown in communication among and between key decisionmakers and stakeholders at all levels
- There is an opportunity to foster voluntary compliance of good management practices by the marina industry, building upon the foundation of good examples currently implemented within the region

It has become evident that questions surrounding the size, scale, and location of marina projects have the most significant impact on project viability and environmental sustainability. When appropriate sites are selected, the number of positive impacts (i.e., social and economic) can be expanded and the extent of negative impacts (i.e., environmental and social) can be reduced substantially. Unfortunately, a clear system for evaluating sites, implementing sound criteria for development, and making final decisions based upon accurate information and input from community stakeholders did not exist at the time of this project. To date, despite the many advances by SEMARNAT, FONATUR and local advocacy groups, such a system still does not exist. For example, during the 2000 – 2003 timeframe, the Gulf of California Marine Environmental Master Plan has been completed—but not approved—because of controversies over fisheries issues. Similarly, the regional Environmental Impact Assessment, the first regional assessment of its size and scope in Mexico, has been completed. While the government developed these instruments to provide frameworks for decisionmaking, participation and transparency, to date this has proven insufficient to ensure effective negotiation among communities, academic institutions, conservation organizations and the government.

Meanwhile, efforts to move ahead with the program, and even initiate construction of some of the infrastructure in the Nautical Route project have proceeded. These controversial efforts were exposed in a front page article in the *Wall Street Journal* in January 2003 that was not well received by the promoters of this government project.

The article raised concerns about the poor track record of past projects, the legacy of abandoned infrastructure (such as Loreto's Puerto Escondido), and potential displacement of local business (small-scale hotels, sport fishing) by larger firms. Local community members also have expressed concerns about the potential for long-term impacts when project infrastructure is overbuilt for the wrong market and subsequently abandoned (citing the many bankrupt recreational vehicle parks). It was revealed that six of the 30 marinas in Mexico are bankrupt. Discussion on the level of threat to the region's marine and terrestrial biodiversity and its pristine and fragile coasts, islands and habitats that comes from increased development and from use and unmanaged access by boaters, still dominates the debate about the proposal for 27 marinas. Many of the areas proposed for new marinas are already designated protected areas, but lack the approved management plans and resources (financial and human) for enforcement and monitoring. The fear is that these sites would become vulnerable to negative impacts from unmanaged boating activities, and secondary development activities.

A regional approach

A number of conservationists and marina operators agreed that a proactive approach to developing and promoting good management practices for marina siting and operation would be a valuable contribution to the region. CRC worked with CIMEX and the David and Lucile Packard Foundation to design a program that would mirror a Sinaloa shrimp mariculture initiative. The Packard Foundation subsequently provided $413,000 in leveraged funding for the expanded CRC team to initiate work in August 2002 with the marina industry in the Gulf region, and to build upon efforts initiated in La Paz, in Baja California Sur.

Addressing local concerns

In 2002, in efforts to initiate a two-track approach at the local and regional level, CRC identified La Paz Bay as a good place to test marina good practices. The choice was based on several factors. First, the municipality was already in the process of preparing an ecological ordinance for La Paz Bay, and marina expansion projects were underway. Second, was the presence of ISLA, a local non-government organization that was a partner of the Packard Foundation, as well as a previous USAID partner whose director and president had trained at CRC's Summer Institute for Coastal Management. A working group of authorities, marina operators and civic associations began meeting to discuss the advantages of good practices, survey the extent of use of these practices in existing marinas and to develop harbor policies. ISLA served as the local facilitator and staff to the committee, while CRC and its marina team provided technical assistance and capacity building. It was anticipated that good practices would have multiple benefits in La Paz.

Early on, the working group decided to intervene in the review of initial proposals for a national regulation on marina development, since the first proposals presented by the government were virtually unworkable in the eyes of the La Paz group. They also hoped that the La Paz initiative could contribute to regional and national decisionmaking.

As of late 2003, the La Paz working group is refocusing on preparing a set of local voluntary marina good practices and on identifying elements that would be appropriate as public policy in either the local port regulations, the POET which is currently being prepared for La Paz Bay, and/or as suggestions to the national marina working group.

In retrospect, the decision by the La Paz group to focus on the forthcoming national marina regulations has its pros and cons. The decision has clearly delayed the process for local pilot testing and implementation of the good practices. This, in turn, delays the chance to scale up to the regional level. On the other hand, it has provided time in which members of the La Paz group have been able to bond together. Marina operators in La Paz are not yet organized as a trade association. However, they have fully supported the effort to establish regional guidelines and await a local manual of good practices.

The role of well-informed advocates

At about the same time that work in La Paz and on the national marina guidelines was underway, a small group of organizations began meeting to assist in the review of the marina market study being prepared by EDAW. The results of the study showed a large discrepancy between the FONATUR numbers and those of the independent study. This provided an opportunity for negotiation with the government on its proposed plan. EDAW projected a likely scenario of 6,000 slips needed by 2015, compared to the 26,000 slips sought for the Nautical Route.

Two products were generated as a result. One was a technical study. The second was a consensus statement completed in December 2002, which recommended an approach for identifying a more appropriately-scaled and staged recreational boating and marina program. These were the result of collaboration between nine groups (including CRC), each of which were involved in providing recommendations. This type of collaboration has become more of the norm as coalitions are strengthened and groups are acknowledging the benefits of solidarity in numbers.

ALCOSTA has taken an active and consistent role in following the Nautical Route process and is participating as an active constituency. They have been able to gain access to government planners in a way that others have not. CIMEX's role in this group has facilitated a two-way flow of information to and from the C^3EM project team. Since ALCOSTA represents over 20 NGOs in the region, the alliance has direct access to communities and other environmental and social leaders. As a result, the information flow about the project has increased somewhat. The Environmental Impact Assessment was distributed and four state public meetings have been conducted. Comments from these meetings were synthesized by ALCOSTA members and formally submitted to the environmental agency.

Collaboration with the National Marina Association

The important role of the U.S. marine trade associations in engaging their membership in environmental management, leads logically to the potential benefit of a strategic partnership with the *Associacion Mexicana de Marinas Touristicas* (AMMT), or the Mexican Marina Tourism Association. Although there is strong leadership in the AMMT, it does not yet fully serve as a

unified voice for advocacy. At a national event in January 2003, association members reiterated their interest in learning more about voluntary good practices and the role of those practices in avoiding the unnecessary regulatory burdens that would come with a comprehensive federal rulemaking for marinas. However, it has been a great challenge to organize and respond to these opportunities for involvement in policy.

A national marina working group was established in July 2003 with the goal of developing a set of good practices for all of its members across Mexico. The initial project design only targeted the Gulf of California. However, given the small number of marinas located there and the great potential to influence the whole industry, the decision was made to incorporate other regions in the working group, including representation the Caribbean coast.

At the national level, the formal policy process to write a comprehensive marina regulation has been suspended. Instead, officials and the national trade associate are working to prepare a comprehensive set of good practices and identify those that are candidates for a regulatory approach, should that day arrive.

The AMMT will encourage its members to implement good practices as proof that the industry is motivated to self-regulate. This will be a critical negotiating tool as (or if) the national regulations are finalized.

Integration of good practices into practice and policy

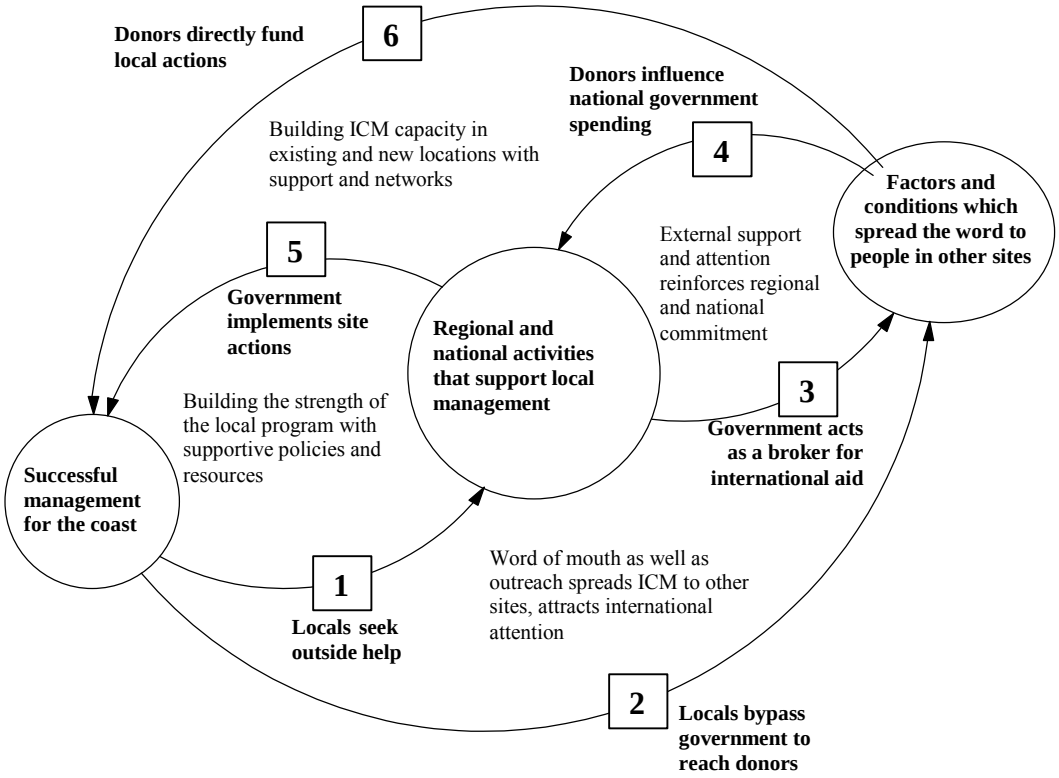
Given the close relationship of the U.S. and Mexico in environmental management and the shared marina clientele in the two countries, the AMMT felt that they would be best served by adapting the technical foundation of the U.S. programs by adding issues and factors unique to the Mexican context. The implementation options being discussed include: 1) developing a marina association certification program, 2) linking implementation with the SEMARNAT's Clean Industry program, and 3)instituting a purely voluntary approach at the harbor or marina level. Through January 2004, the Packard Foundation-funded project will continue its collaboration with the AMMT in development of a good practices document, while contributing to on-site practical exercises, training, and outreach targeted to strategic sites in the Gulf of California.

PART 4
GOVERNANCE IMPROVEMENTS FOR BETTER OUTCOMES IN CONSERVATION AND SUSTAINABLE DEVELOPMENT

Introduction

As noted in the discussion of IR 3 in Chapter 3, tangible success at the site level requires support and resources from higher levels. This includes the need to secure funding from donors, or difficult-to-get government support from state or national levels. C^3EM was interested in creating local successes that would, in turn, influence municipal, state and even federal policy. This is a general description of a "nested" system of governance for coastal management[25], composed of mutually reinforcing relationships and pathways for organizing and combining resources.

Figure 20. Potential resource flow pathways for supporting ICM in Mexico.



1. Local efforts seek help (funds, policies, decisions and/or information) from a higher level (municipal, state or federal). Reciprocally, a regional or national decisionmaker sees what is happening in a place, and decides to provide support, or acts unilaterally as the catalyst to mobilize resources based on agency priorities or a regional study. In this way, an innovative

local success can spur demand for a statewide or nationwide program that benefits dozens or hundreds of additional locations.

2. Local efforts can bypass country government agencies, donors, or groups and make appeals to international sources for help, either to get a new initiative started or keep an existing one going. In Mexico, these external sources usually are free to provide assistance without seeking government approval.
3. Regional or national government may choose to act as **a broker or negotiator for external help** (such as the Meso-American Reef Initiative, with four presidents agreeing to cooperate and international funds provided through the Global Environmental Facility).
4. International donor initiatives may seek to **move regional or federal government in a certain direction** by providing financing that includes a substantial flow of resources to local sites (such as the USAID support to the C^3EM project or the Packard Foundation and CIMEX funding of regional work in the Gulf of California). The donor may be motivated as a result of their own priority-setting or by getting information a result of external influences such as word-of-mouth information, about the needs and opportunities that exist.
5. Regional and national decisions can influence the flow of resources necessary to **implement actions at sites**. Such resources include political leadership, technical information, and power sharing (co-management arrangements) or training. International incentives and encouragement can also stimulate this resource flow.
6. Donors often **directly fund current or new local efforts**, as either demonstration sites or as part of an independently established strategy. This helps avoid the many complications, delays and inefficiencies of regional or national involvement. However, local projects are vulnerable if donors lose interest, have strict or arbitrary requirements that cannot be met, or if the project becomes subject to budget cuts and changed priorities. Unlike regional and national government, which provides citizens with legal and political recourse through judicial, legislative and electoral processes, funds from international donors and other discretionary sources are not locally accountable.

The next two chapters examine the aspirations and experience of the C^3EM's strategic partners as they worked to influence, strengthen and leverage resources and, in turn, strengthen the nested system in Quintana Roo and the Gulf of California. IR 3 sought help for work in specific sites (1-2-3) and sought to create other conditions that would benefit both the primary C^3EM target sites and other priority or ready locations (4-5-6). The C^3EM sites were viewed from the outset as a potential springboard to broader accomplishments in ICM. Figure 20 hints at the extent of activity and factors that were at play. The circle at the center of the figure, which represents regional and national actors is, in reality, a complex web that includes internal connections—some of which are broken and some of which work against integrated approaches. C^3EM was not tasked nor funded to address this middle layer head on. Rather, its responsibility was to explore and exploit leverage points. Chapter 10 describes these efforts, focusing on how regional and national government can contribute to achieving better results for coastal management on the ground in Quintana Roo. Chapter 11 looks at a different challenge. What is the best way to gain visibility and attention and to channel effective responses to a large ecosystem of national and international importance located entirely within Mexico? What are the means for leveraging regional and state responses and addressing issues of the ecosystem?

Site-based work requires legal policy decisions. The innovative efforts in Xcalak and Bahía Santa María ultimately needed and achieved key decisions at higher levels of government. These policy advances are reported as follows:

Hectares Under Improved Management

SITE	Actual and Planned Results (by fiscal year October 1- September 30)					
	Assessment completed	**Planning completed**	**Capacity developed**	**Legal framework established**	**Management actions implemented**	**Monitoring & evaluation implemented**
Xcalak Reefs National Park 17,973 ha	1998	1998	2002	2001 (park decree)	2001	2001 (reef monitoring)
Bahía Santa María Bay Strategy 284,346 ha	2000	2001	2003	2003 (para-municipal agreement)	2002	1999-2003 (programmatic log framework)

CHAPTER 10 - PLANNING AND REGULATION OF THE COSTA MAYA—OPPORTUNITY OR ROADBLOCK TO ICM?

Introduction

A capstone 1997 workshop, "Developing Integrated Coastal Management in Quintana Roo," proved to be an important transition point, moving from a focus on creating the Xcalak National Park toward more ambitious five-year targets for coastal management. As a result of that workshop, the C^3EM felt confident to set the following objectives:

- Incorporate new policies into the Xcalak Reefs National Park and community coastal management plans
- Prepare a long-term statewide coastal management strategy which draws lessons from site-based initiatives, supports implementation and refinement of the Environmental Land Management documents, and stimulates the more effective use of the existing coordination mechanisms
- By 1999, have in place at least 80 percent of the policy framework for coastal management in Quintana Roo

Since 1998, strategic partners ASK and UQROO have played a continuing and active role in contributing to the POETs in Costa Maya, Sian Ka'an, Cancun-Tulum (the latter POET was substantially revised in 2001), and the northern part of the state. They have been involved, as well, in many of the marine parks and protected areas from Holbox to the Manatee Sanctuary in Chetumal Bay, which complete the "necklace" of protection of the Meso-American Reef System.

Coastal resources figure prominently in state development plans, as 85 per cent of economic activity derives from tourism and most of this is concentrated in the Cancun-Tulum coastal corridor.[26] The state's development planning has shifted to a regional approach. It looks seaward and markets the state as the "Mexican Caribbean." It looks landward and sees Quintana Roo as part of the *Mundo Maya* and as an important gateway to the biological and cultural resources of the peninsula and Central America, and hence a gateway to development opportunities in the Pueblo-Panama corridor.

> *"Quintana Roo's goal is to maintain sustainable development in harmony with the environment supported by a diversified, highly differentiated tourism industry as the economic focal point. It relates to other productive sectors in a way that assures competitiveness, where human resources of the state have their own identity and is viewed as both the base for change and the main beneficiary of future development."*

State planners note that this regional outlook brings not only opportunities but also threats and uncertainty as to whether Quintana Roo can achieve its long-term goals. The state faces major threats from storm damage, coastal erosion, and sea level rise factors, which will reduce the amount of coastal area available for development and destroy mangrove ecosystems and other coastal resources:

"The area of greatest economic development, the coastal zone, is also the most affected by environmental damage, in effect becoming its own worst enemy. This degradation is not limited to pollution and landscape modifications but to changes in coastal waters, coral reefs and intertidal zones."

State planners are concerned about the uneven distribution of economic development, especially deficits in the Costa Maya and indigenous Maya region, and associated problems with poor infrastructure, a weak system of land records, threats to the maintenance of Maya culture, a concentration of growth in only two cities, and low levels of entrepreneurial capacity. There are weaknesses of the current governance situation for land use:

- Public involvement is not a routine part of government decisionmaking
- Development and natural resource plans are outdated
- Urban development decisions and enforcement continue to be made through administrative discretion
- Information for land use management is not gathered systematically
- The legal framework for controlling issues of concern to the state remains inadequate
- Infrastructure and public services continue to lag behind the pace of development

To correct these deficiencies, managing growth requires an integrated GIS, the emergence of sustainable population growth centers, set-asides of land for future development, and reforms to the regulation of development. Achieving the vision of "tourism circuits" for a sustainable tourism industry will also require major road construction and upgrades throughout the state.

Development decisionmaking, and many of the other strategies, parallel those in the C^3EM program design. Yet the Mexico project and its strategic partners did not focus on state government as a key boundary partner, indeed such a possibility seemed nearly impossible up to the time the Xcalak Reefs National Park was formally decreed in mid-2000. By 2003, however, the situation appears to have changed, with partners now sensing that the modest initiatives described below are finding a larger and more receptive audience.

The Costa Maya Ecological Land Use Ordinance (POET)

The anticipated stimulus for development in southern Quintana Roo was establishment of the Costa Maya tourism corridor. As Chapter 4 has already described, an extraordinary effort was required to negotiate approval of the Xcalak Reefs National Park. This provoked a two-year delay in the approval of the Costa Maya POET and thus the start-up of the Costa Maya development program. This represented a major change in state policy toward the area. One example of this change is the case of Rio Huache, a pristine mangrove wetland ecosystem that had been targeted for intense development. Negotiations with local residents resulted in the Rio Huache being given protected status instead of being developed. In addition, as described in Chapter 7, a number of the good practices published in the *Guidelines for Low-Impact Tourism* were included in the POET, and most recently SEMARNAT in Quintana Roo utilized the document in its guidelines for development in the coastal zone of the Mexican Caribbean.

The monitoring committee for implementing the Costa Maya POET

The C^3EM program has long envisioned that the Costa Maya POET would provide the basis for establishing a commission to review permits within the coastal zone. This strategy was supported by a number of officials at a statewide workshop sponsored by the program in 1997. It followed that Xcalak was the first locality in Mexico to link criteria from the ecological land ordinance and the marine park zoning plan. Continuous efforts were made to provide input into meetings, show examples of good development and provide training to those involved in developing the tourism corridor. Unfortunately, while the legislation calls for a monitoring committee to evaluate the effectiveness of the ecological ordinance and its permits, this group has met only a few times and did not act as an effective coordinating body. While permits are being issued under the POET, as yet there is no analysis of the effectiveness of the zoning plan or its implementation. Even though there is significant discussion about promoting sustainable development, there has been little movement to integrate zoning mechanisms within the Costa Maya.

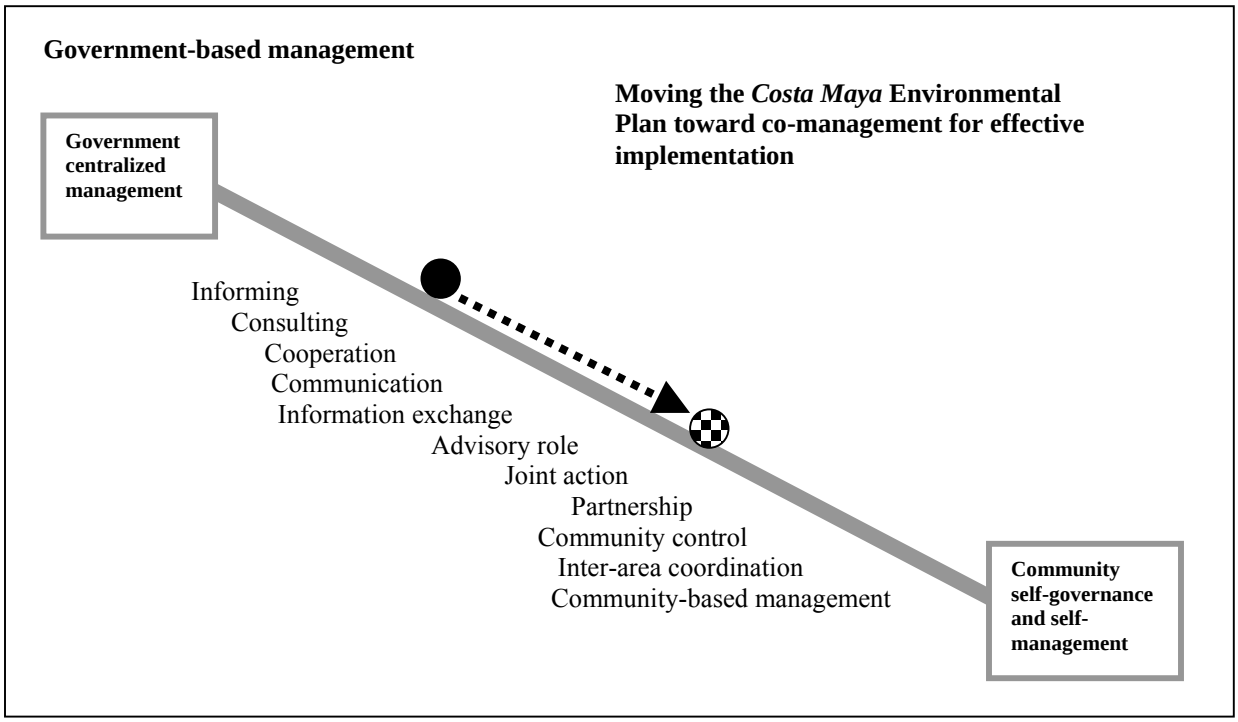
The C^3EM project sponsored a workshop in late 2001 with the purpose of reviewing progress in the POET and other tools for coastal management in the Costa Maya, addressing trends in development of the zone, the status of the various regulatory instruments, progress in urban planning, and the situation in enforcement. The administrative and legal framework for decisionmaking was very much under construction at the time. The list of concerns about gaps and weaknesses in the ability of federal, state and local officials to regulate development raised by state planners in 2000 was much in evidence in the sessions. The POET was noted to be a planning rather than a zoning document, and in fact it was up to the municipality to convert the guidelines into legally binding policies. POET implementation still did not have designated leadership to put together all parts of the complicated three-layered puzzle. On the other hand, the workshop participants noted that self-regulation was also essential, as by itself a regulatory approach would be unsuccessful.

Weaknesses exist throughout the regulatory chain. There is a low level of awareness, support and understanding of regulations, of the meaning of low-impact development, and of the POET as a document. There are also limited resources available for processing permits correctly. There are gaps in compliance monitoring, and missing links between enforcement actions, judicial handling of cases, and issuance of sanctions. "In the case of the POET oversight committee itself," said one participant, "since it does not have any legal authority, what could its role really be? What can be done to avoid the mistakes in northern Quintana Roo?"

The group identified 46 actions that could help address these limitations and take advantage of the opportunities to move the POET from a dormant document to a living example of how to overcome fundamental obstacles to sound resource management and achieve the state's own vision for sustainable development. While Figure 22 suggests that moving down the co-management staircase ought to be easy, in fact the ball meets continuous resistance, and wants to roll uphill as if it was being drawn by a magnetic force.

C^{3}EM has helped support implementation several workshop recommendations. Three of these are described next.

Figure 21. Moving toward co-management in the Costa Maya.



As noted in greater detail in Chapter 12, C^{3}EM addressed the statewide concern head on by producing a publicly available information system for the Costa Maya. Even more important C^{3}EM obtained additional USAID resources to strengthen UQROO's GIS capability, making it a key resource for carrying out part of the state's natural resources management program. The Costa Maya Research Station at Mahahual, jointly managed by ASK and UQROO, plans to act as a local repository of this and other sources of data on the area.

Pilot project for municipal coastal management along the Costa Maya

In 2003, UQROO worked with Othón P. Blanco to organize its own coastal management task force and carry out a pilot study to determine the effectiveness of the POET and establish a baseline for the ZFMT between Mahahual and Punta Herrero, 20 kilometers to the south. This narrow strip of land is crucial, since it takes up a large proportion of the buildable land on the coastal strip and, as much of the shore area is comprised of wetlands and mangrove cover. The study documents the development trends, characteristics, and emerging issues in this federal zone. The study provides data showing a great deal of non-conformance in the full range of development—from planned to actual. It confirms the need for greater oversight of construction activities to ensure permit conditions are being met; and it highlights the fact that institutions may even allow conflicting uses. The expectation is that the municipality will, as the 2001

workshop suggested, carry out both administrative and policy reforms to address these issues. However, with a three-year turnover in Municipal government, this is a huge challenge. The report also complements the studies and negotiations that need to take place in order for the municipality to begin collecting the concession fees in the federal zone-funds that can provide a sustainable support for coastal management. This may provide a needed incentive to enhance management while providing additional funds to support additional administrative and technical capacity in the municipality.

The inter-departmental committee on coastal management is in effect carrying out many of the functions envisioned for the POET monitoring committee, by focusing on a more limited set of issues in an area of critical concern. While this group has advanced in its understanding of the issues, it is difficult to get full support from all of the authorities involved.

Citizen monitoring for enforcement: the Red de Guardias Ambientales

ASK obtained funding from WWF to carry out a pilot program that involves NGOs, fishing and tourism cooperatives along the Costa Maya, in identifying and reporting infractions of environmental laws. The network of "environmental guardians," the *Red de Guardias Ambientales* (RedMIRC) was formally launched in August 2002. Its existence has highlighted the need to address a number of the problems identified in the 2001 Costa Maya POET workshop. The group has prepared its own manual on environmental laws and enforcement procedures, has compiled data on the permit applications in the region, and is taking advantage of recent legal and administrative reforms at the national level that provide citizens with a better mechanism for submitting enforcement complaints to authorities. In its first several months, the RedMIRC network reviewed 12 environmental impact assessments, submitted seven complaints on infractions and 11 proceedings on illegal occupation of the federal zone[27]. The network is now extending its education and membership activities to include the formation of village committees in Xcalak and Mahahual under the rules of the federal environmental law enforcement agency, (PROFEPA**)**, and its work activities with the *ejidos* located in the Chetumal Bay area.

Making a governance nest, and learning to live in it

In Quintana Roo, environmental management and coastal management mean much the same thing. Until 2000, fulfilling the aspirations of site-based management progress in Xcalak hinged on the Costa Maya's progress in making policy decisions through the POET. This meant project progress looked upward for the needed resources. Since 2000, however, coastal management progress for the Costa Maya has instead depended on implementing the POET. This has required smoothing the raw edges and finishing the construction of a multi-tiered system, one that as yet has not worked as designed anywhere in the state. C^3EM and its strategic partners have helped this system work more smoothly, taking advantage of changes in state and municipal leadership that have produced administrative support of the POET effort and the search for productive co-management arrangements.

CHAPTER 11 - CONTRIBUTIONS TO REGIONAL GOVERNANCE IN THE GULF OF CALIFORNIA

Celebrated ocean explorer Jacques Cousteau called the Gulf of California the "aquarium of the world." The nutrient-rich marine environment shelters the planet's highest whale diversity, nearly 900 species of fish and 34 mammal species—82 percent of all of those found in the Pacific Northwest. Its more than one million acres of mangroves and coastal lagoons provide a critical nesting ground for hundreds of resident and migratory species. With myriad threats, the Gulf has also been called a microcosm of the crisis facing the world's oceans. "Poorly planned and regulated fishing, aquaculture and agricultural activities are having a profound effect on Gulf biodiversity…fifty percent of all Mexican seafood, 800,000 metric tons, comes from the Gulf. Much of this is harvested at sustainable levels using destructive techniques." [28]

Introduction

The Gulf of California, also known as the Sea of Cortez, is Mexico's insular sea. There is strong national interest in both conservation and development of the region that includes five states—Baja California, Baja California Sur, Sinaloa, Sonora, and Nayarit. These states include 33 municipalities, with more than 3000 km of coastline. Both states and local government little legal authority over the use of marine and coastal areas. Instead, the federal government have manages these areas by sector. Fisheries, marine transportation, the Gulf Islands, coastal waters, and the first 20 meters of shoreline are regulated by different agencies. Mexico has had limited success in preparing and implementing POETs in the Gulf region. In sum, the Gulf lacks a viable, overall management and decisionmaking framework.

In the absence of an overarching management framework, advances in the region nevertheless continue. CIMEX is vigorously pursuing an agenda of biodiversity conservation for the Gulf and its surrounding coastal-terrestrial ecosystem. Their efforts have been key to developing a management plan in the Alto Gulf Reserve, and developing best practices with the industrial shrimp trawlers in the Gulf. In 1998, CIMEX's strategy focused on wetlands conservation efforts in Bahía Santa María, where USAID support was leveraged to develop lessons learned that could support scaling-up to regional ICM (although development of a regional ICM program was not within the scope of the USAID program due to the program size). Interestingly, CIMEX, UQROO, and ASK were all formed within a several-year period, and each have distinctive strengths as agents of change. One key difference (beside its international affiliation) is that CIMEX has an explicit eco-regional focus guiding its work on land and sea, as well as at critical sites or at regional scales. Their vision is to manage the vast northwestern Mexico ecological region within a common framework. Other international donors and NGOs, such as WWF, have also incorporated the Gulf of California region as a hotspot, or high priority area within their global portfolio.

Two regional networks and initiatives have emerged since the late 1990s. These include "The Coalition," a broad group of scientists, managers, and NGO leaders who have identified conservation priorities and threats for the Gulf; and ALCOSTA, a group of civic organizations engaged in site management programs. These networks have provided invaluable information

and institutional support that help facilitate advances in regional management. Over the course of the program, some key leaders of these efforts have attended ICM training courses held in Ecuador and Rhode Island in the U.S., and served as advisors to USAID/Mexico when the C^{3}EM project was being formulated to include a Gulf of California component. In addition, the NGOs, including the Mexican Nature Trust Fund, TNC, WWF, and CIMEX, have all developed eco-regional strategies to support conservation and management in various forms.

The region's size, its complex ecosystem, its conservation challenges and its economic opportunity have together heightened awareness that a "business as usual" approach is clearly not an option for the future. The Mexican government has made several attempts to create a regional Gulf program that would coordinate the many agencies that have jurisdiction over marine and coastal resources. However, advances to date are few for implementing such a functional regional program.

Adapting lessons learned from worldwide experience

The strategic partnership of CIMEX and CRC provided an opportunity to explore new forms of regional governance that would combine conservation and ICM tools practiced by each partner. By 1998, conservation efforts in the region were yielding important successes, while efforts to forge a broader, sustainable development strategy and framework for northeast Mexico had advanced very little. *A Roundtable on Governance Structures and Processes for the Gulf of California* was held in Rhode Island in December 2001. This served as a starting point for the current collaboration with CIMEX and began the search for a way to set a regional governance agenda and to explore viable implementation mechanisms.

The working group from this meeting reviewed lessons from large marine ecosystem management experiences in the Wadden Sea, Australia's Great Barrier Reef, Chesapeake Bay, Galveston Bay and Tampa Bay. (The U.S. examples all participate in the National Estuary Program overseen by the EPA). Based on this review, a strategy for engaging business and conservation leaders was formulated. One of the most promising factors with potential relevance to the Gulf was the Chesapeake Bay 2000 agreement. This executive-level agreement outlines a set of tangible and measurable goals for management, and provides funds for a core program to administer the regional management in collaboration with line (sectoral) agencies. It provides a powerful unifying force for the hundreds of individual programs needed to govern the Chesapeake Bay.

Factors for sustained success of governance of large coastal systems

- Ambitious, measurable goals
- A clear governmental mandate
- Sustained core funding (decades)
- Decentralized planning and decisionmaking in support of system-wide goals
- Incremental and adaptive cycles of planning and decisionmaking; and informed and supportive constituencies

While recognizing the need to build on this international experience in managing large ecosystems, C^{3}EM also recognized the need to adapt that experience to the Mexico context. For

example, the Chesapeake Bay 2000 agreement outlined a set of tangible and measurable management goals and provided direction for funding of a core program. Such aspects of management would be quite unique in Mexico, since most active management is within a protected area and these areas are rarely linked to local, regional, or national actors and agendas and have no notion of an ecosystem-level agenda. The conservation community, on the other hand, has pursued a regional approach by continuing to engage key private and public stakeholders in a region-wide dialogue.

The strategy for the Gulf of California does draw upon international experience, and includes the following key points:

Incorporate key principles and characteristics of a participatory process

- There are high standards for involvement of Gulf region stakeholders, including both investor and worker groups
- There are high standards for responsibility and transparency
- Processes for evaluating progress and learning are built into the system to enable adaptability
- Progress will be measured against clearly stated objectives

Maintain a balance between capacity and complexity

- Begin with a simple institutional structure
- Organize efforts around clearly stated goals
- Initiate actions on matters that can lead to positive outcomes
- Allow later iterations of the governance program to take on new issues or additional areas of concern
- Progress toward integrated management of the Gulf ecosystem by making tangible advances on key issues

Follow a well-defined strategy toward sustainability of the Gulf

- Reach agreement within the core leadership group
  - Draft an example of a Gulf Agreement to start the process
  - Maintain a broadly participatory approach during preparation and review of the draft
  - Form an alliance among the five Gulf governors around specific goals for the Gulf
  - Pursue the signing of a manifesto in support of the agreement
  - Seek to have the Gulf Agreement itself signed by the president and the governors in order to provide a clear executive level mandate for its implementation
  - Put specific measures in place to carry out the agreement

In May 2002, a small group of five business leaders met and agreed that the sustainability of the Gulf required a real paradigm shift. In efforts to advance a regional governance initiative, the group would promote the development of a vision, with tangible goals, and measurable outcomes. Consistent with lessons learned from other regional programs around the world, the group agreed that they would seek a mandate for regional sustainable development and would

seek high-level public and private support. The program would be built upon efforts undertaken in the Gulf, and supported by knowledge from programs in Mexico and worldwide. The Chesapeake Bay Program was identified as a learning example for the Gulf of California Although the economic and governance issues on th echesapeake differ from thosei n the Gulf, many lessons could still be applied in terms of process, constituency, and management strategies. This effort dovetails nicely on other efforts in the Gulf that involve the economic sectors—e.g. the Gulf-wide Rapid Assessment of Conservation Economics (RACE), implemented by CIMEX, where experts helped assess the value of conservation to various sectors in the region.

Chronology of events to establish a regional governance vision and implementing mechanism

March 2001	Case studies on Wadden Sea, Chesapeake Bay, Great Barrier Reef, provide insight to lessons learned on large coastal governance
December 2001	Roundtable on large coastal ecosystem governance
January 2002	Meeting between National Ecology Institute and key business leaders to discuss role of private sector in promoting a regional vision
February 2002	CIMEX – CRC meeting with SEMARNAT
April 2002	Study tour of Chesapeake Bay for CIMEX and CRC
May 2002	First meeting with the business leaders
August 2002	Model agreement drafted in Spanish
October 2002	Meeting to discuss required financial and staff resources required and to secure initial commitments.; key documents describing the process and its components discussed with group
July 2003	Business leaders group expanded and consolidated with conservation leaders as close advisors and collaborators
September 2003	*Initiativa NOS* (Initiative for a Sustainable Northwest) established; backgrounders developed to summarize the issues and information in the region
October 2003	Workshops for the working group aim to build the foundation for a regional vision and to establish a working agenda for their efforts

Advances have been steady, but slow. Building a constituency of leaders, with dedicated staff and resources to advance a regional agenda is not an easy effort. Today, the *Initiativa NOS*, (Initiative for a Sustainable Northwest) includes 15 business leaders, representing tourism, development, agriculture, energy, and fisheries sectors within the Gulf of California. A group of five NGOs form a group of technical assistants, while CRC provides technical assistance. Bringing business and conservation groups together as well, has required a tremendous amount of trust among and between the groups.

While C^3EM was working in Mexico to apply the Chesapeake model, it was doing so as well in its Rhode Island program where CRC is working with the Partnership for Narragansett Bay to develop a vision with tangible goals, measurable outcomes and a high-level mandate. In August 2003, the CRC team met to exchange advances and discuss commonalties and differences on how the process had unfolded in these two very different places and programs. This reflection encouraged both teams to document their observations:

- Mexico has some strong government liaisons, while Narragansett does not
- The Narragansett Bay coalition has built its draft agreement through the use of focus groups Mexico fears that putting out a "draft" will be seen as a non-participatory process
- Mexico has focused on gaining high-level business support, while Narragansett Bay has targeted a broader constituency
- Narragansett Bay Partnership has dedicated staff, while Mexico currently does not
- Both programs regard their cultural context as critical
- Both regions have several initiatives to build upon (e.g., science and management), however none of these provide a framework with tangible goals and measurable outcomes

Early indications are that the timing is right

The work to establish a new regional governance framework needs to obtain broad-based support from economic sectors as well as the government. There is early evidence to suggest that this might be achievable. For example, a regional fund for conservation programs in the Gulf region has been established in cooperation with the national Nature Conservation Fund. Donor support is also being sought from private foundations and the Global Environmental Facility to implement the initial three-year program. There is full recognition that even if this funding is secured, other funding—including from government and the private sector—will be needed if the effort it to be sustained.

A continuing controversy over the shrimp fishery and enforcement of fisheries regulations has kept Gulf conservation in the regional and national spotlight. Also, as noted in Chapter 9, a working group of donors and organizations has recently formed around the Nautical Route. This has also helped keep the Gulf in the forefront of debate. This working group has prepared joint responses, set common strategies across organizations, and coordinated funding. More recently, the national marina trades association has started working with development and regulatory agencies to identify a best mix of both voluntary, good practices and federal regulations that together can help the marina industry achieve and maintain a clean industry status.

PART 5
STRATEGIC PARTNERSHIPS AND CAPACITY BUILDING

Introduction

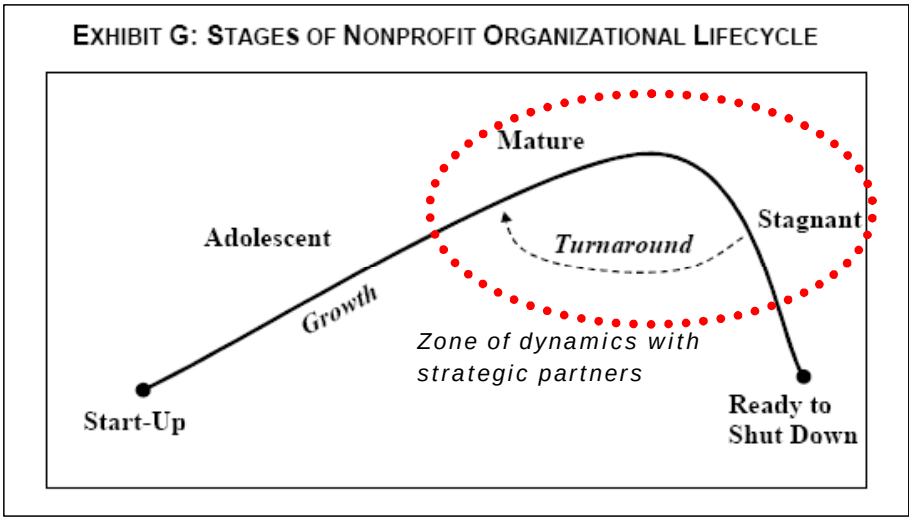
Capacity building is perhaps the heart and soul of how the CRC project team viewed its role with and responsibility to the strategic partners in C^{3}EM. The term frequently used by the team to describe its role is "accompaniment." The term draws its meaning in part from the Spanish *acompañar,* which expresses the idea of being and working together; combining knowledge; sharing experiences, understanding and information. The term captures the tangible qualities of the working relationships that existed among the C^{3}EM partners.

TNC's Audrey Newman, in reflecting upon her experiences in the Asia/Pacific region, expresses a view that is very close to the C^{3}EM understanding of accompaniment. She calls her perspective "catalytic capacity building":

> *"(H)ighly effective capacity-building is about teaching and learning; insights, behaviors and skills; and more. It is about creating an environment that encourages and supports continuous learning, and improvement in individual organizations, networks, and eventually the communities and societies they seek to change. It is about empowering passionate people to learn what they need and share what they know. It is about consciously creating conditions so that each success sparks many others. Its is about starting chain reactions for change."*[29]

Experience in C^{3}EM indicates that at different times strategic partners played one or more of these roles with each other. Catalytic capacity building is something that happens within the space jointly occupied by partners and, to some degree, by donors as well. The dynamics of these relationships was strongly influenced by the fact that all partner organizations were reaching a mature stage, with an increasing need to renew themselves, as Figure 22 suggests.

Figure 22. Strategic partners are maturing organizations with a strong dynamic of adapting to new opportunities and situations[30].



As a result, even though C^{3}EM partner institutions themselves remained engaged throughout the life of the project, the majority of individuals leading and working in project teams within those institutions changed almost on an annual basis. For example, none of the UQROO or ASK staff involved at the outset of the project are currently involved. Several leaders have, however, served in project activities for more than two years. Many others who no longer work directly with the project, nevertheless remain active in coastal and marine management through other organizations or government agencies in Quintana Roo, Sinaloa or at the national level.

The internal dynamics and turnover of partner organizations, was disruptive to work plan implementation. At the same time, it fostered an approach to capacity building that targeted more than just the staff of partner organizations, and that recognized the need for almost continuous orientations and training. This open style provided benefits to leaders in local and national networks.

C^{3}EM capacity building did not go too deeply into organizational strengthening for its strategic partners, determining that other groups were in a better position to provide this level of support. For example, TNC has a long-term program for building organizational effectiveness with its NGO partners, and in fact had a concurrent program with ASK throughout the life of the project. C^{3}EM's reflective and learning oriented operational style did provide numerous opportunities to reflect on progress and experience, to examine whether capacity was improving and what steps could be taken to correct deficiencies.

Connolly and York, in their recent study of organizational effectiveness prepared for the Packard Foundation, see the non-profit organization as continuously gathering resources from the outside to support its programs and services. These resources include staff, facilities, equipment and technology, funding streams, program designs and models of operation, and time.

To be successful, any organization needs leadership, technical, adaptive and management capabilities, bound together by the emerging culture of the group. (See Table 4.) The insights of Newman, mentioned above, helpfully focus attention on the first three of these. Yet it is not enough to be effective in gathering resources. Success depends, as well, on the internal ability to make the best use of those resources. These abilities in turn are affected, for better or worse, by the challenges of social and demographic forces, technological change, economic trends and political and regulatory forces.

Table 4. Four essential organizational competencies[31].

Area of competence	Roles and activities
Leadership	Visioning, directing, inspiring, innovating, prioritizing, modeling, and decisionmaking
Adaptive: monitoring, assessing and responding to internal and external challenges	Networking and collaborating; assessing organizational effectiveness; evaluating programs and services; and planning
Management	Ensuring effective and efficient use of organizational resources
Technical: doing the work of the organization to deliver services and programs	Technology; accounting; budgeting; fundraising; facilities development and maintenance; marketing and communication; evaluation and research; and legal

Some general results from the overall capacity building effort are presented in Figures 23 and 24. One fact is the balanced proportion of men and women engaged in both training events and sustainable development activities over the life of the project. This trend was especially notable in the Bahía Santa María project site.

Figure 23. Participation in training and technical exchange programs.

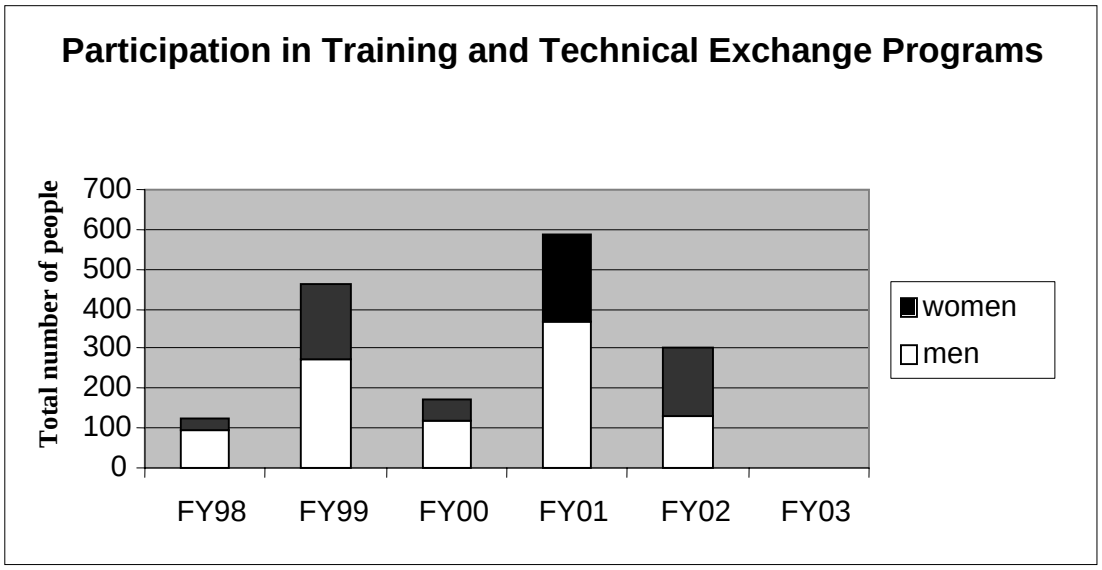
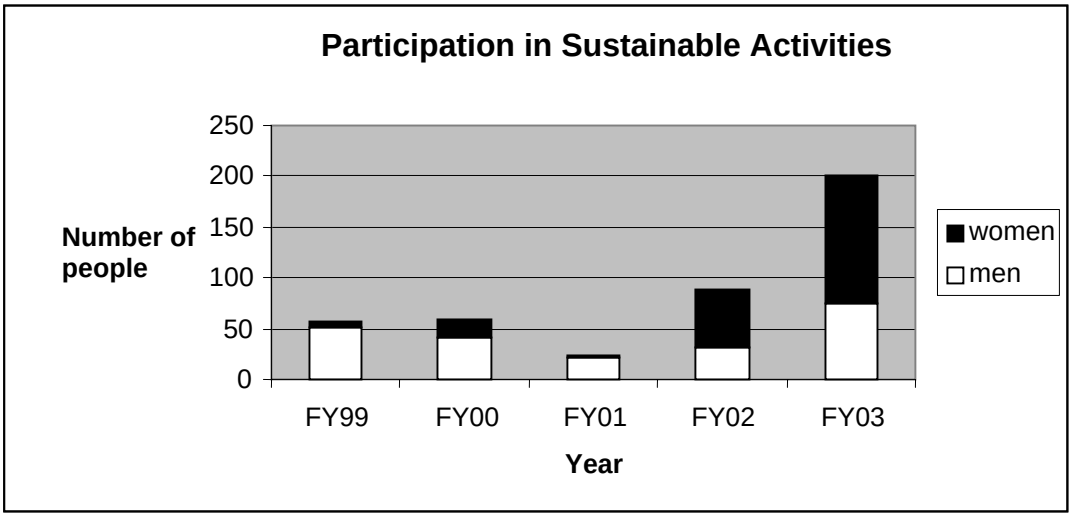


Figure 24. Participation in sustainable activities.



Chapters 12 and 13 explore some of the dynamics of capacity building among C^3EM project partners. This is presented mainly from the viewpoint of the evolution of partnerships and a full recognition that learning between partners goes both directions.

CHAPTER 12 - EMERGENCE OF THE UNIVERSITY OF QUINTANA ROO'S COASTAL RESOURCES MANAGEMENT PROGRAM, THE INTEGRATED NATURAL RESOURCES MANAGEMENT CENTER AND GIS CENTER

Introduction

UQROO has been formally incorporated into the C^3EM Mexico program since 1998. This was an outgrowth of the university's active interest in integrated resource management (ICM). It was actively carrying out ICM extension, training, and workshop activities—an example of the latter being the 1997 event where CRC and its partners facilitated the first statewide meeting for groups involved in coastal management.

UQROO was attracted to C^3EM because the project included a commitment to social well-being in addition to its coastal management objectives. The C^3EM approach pursued community development through actions that recognized the multiple values of the coastal habitat and that worked to change the relationship between community members and the environment. UQROO contributed a substantial proportion of the funding for this C^3EM project activity.

Geographic scope

The villages of Ursulo Galván (Raudales) and Laguna Guerrero were chosen as the place to start creating an integrated coastal management strategy. A broad range of community sectors was involved from the start.

An important criterion for selecting the two villages was their proximity to Chetumal Bay. The bay has been a protected area since 1996 and is a good area for learning about how land-based activities affect the functioning of a coastal ecosystem. The two villages share the estuarine water body also called Laguna Guerrero, which flows directly into the bay. Although several villages share the lagoon, the social dynamics of those villages and the way they relate to the natural environment reveal sharp differences.

Farming is one of the main activities carried out by the residents of Laguna Guerrero and Raudales and is a focus of the relationship between villagers and their environment. People produce crops for their own consumption and for sale in local markets. By contrast, the coastal lagoon plays little role in the local economy, serving mainly as part of the village landscape, rather than as a potential source of employment through nature tours, kayaking or other ecotourism activities.

The ICM project provided a practical way to pursue the broad objective of improving the quality of life in communities while at the same time maintaining the biological diversity and productivity of coastal ecosystems. Discussing ICM means discussing the challenge of finding equilibrium between people and nature along the coast. For this project, that discussion includes southern Quintana Roo. Successful coastal management fuses scientific knowledge about how ecosystems function and respond to human pressures, with the practice of democracy and social participation. Good science plus good politics makes good coastal management. Further, good coastal management requires a multi-sectoral approach to obtain consensus among the diverse

actors at different levels within government, academia, social organizations and coastal communities.

Extension and community development activities

The ICM project has focused primarily on community extension, and has involved faculty from a wide variety of disciplines including Natalia Armijo Canto, Francisco Rosado-May, Rafael Romero Mayo, Hector Gamboa Perez, Alfredo Ramirez Trevino, Bonnie Campos Cámara, Julio Robertos Jiménez, Carmen Pedroza Gutiérrez, Eduardo Galicia Zamora, and Magali Cabrolié.

Students from several career tracks have also contributed significantly, playing a variety of roles including as research assistants and interns.

The main types of projects carried out through the ICM project during this early phase included:

a) Community Diagnoses
Two studies were conducted to identify the social, economic, cultural and environmental aspects of the selected sites. Participatory workshops used techniques such as mapping the local resources and preparing a calendar of the annual cycle of socially and economically important activities to help reveal issues of major concern to the community. Information was gathered from the entire population in both Laguna Guerrero and Ursulo Galván (Raudales).

b) Technology demonstrations
Laguna Guerrero used technology demonstrations as a way to build a relationship with the coastal communities in southern Quintana Roo. These included demonstrations on how to use alternative technology for human organic waste and on composting toilets and septic systems. Another demonstration tested a solar desalinization system, as a means for lowering the salt level in the communities' drinking water.

c) Presentations and workshops with community groups s
The key actors in the different sectors of the community were identified early on during participatory workshops. As a result, the community of Raudales identified a need for a sanitary landfill. The university provided technical assistance through the students of the environmental engineering department and carried out workshops on reducing solid waste as well as reuse and recycling of garbage. Children and homemakers were included in these activities.

d) Organizing local nature tour guides
Since 1999, seven local nature guides from the community of Laguna Guerrero have been involved in the ICM program. These are young people between the ages of 16 and 22 who are interested in being trained and who belong to an eco-tourism organization focused on providing tourists with good nature guide services. The guides have received training in English, environmental interpretation, and the natural history of the region, with an emphasis on bird watching and designing interpretative walks and tours.

e) The Ecotourism Center Project
Homemakers in Raudales are another important group in the area. They have formed an organization, *Unidad Agrícola Industrial de la Mujer* (UAIM), to develop an eco-tourism camping area in a parcel of donated land. The women's group has received training in English, on the value of natural resources, and on waste reuse and recycling.

UQROO was able to take advantage of the opportunity provided by federal government funders and international donors such as the Ford Foundation. An awards competition was convened in August 2000 for institutions of higher education. In response, UQROO submitted a proposal for a project entitled "Community social service for coastal management." The UQROO proposal was selected along with 13 others, only one from each Mexican state, to receive the national prize in the category "Programs that consolidate and strengthen community social service projects." This award generated increased interest and commitment both for the ICM program and the UQROO. The prize drew attention to the two key dimensions of the work. First, it highlights the important contribution which community work provides to the educational process. Secondly, it highlighted the fact that students can make small but significant contributions to places with limited ability or options for improving quality of life.

While the role of the university is not to solve social problems, it can contribute to strengthening local self-help processes, and can help create a future generation of professionals who will become decisionmakers addressing social, environmental and economic challenges.

Expanding the range of activities in ICM

The ICM project has carried out a number of other activities that have complemented the community extension work.

Mexico-Belize Alliance for Managing Shared Coastal Resources (BEMAMCCOR)
The Alliance for Managing Shared Coastal Resources (BEMAMCCOR) emerged in 1999. UQROO, through the ICM program, has been an alliance member from the start. The group's main purpose is to serve as a forum for consultation, coordination, agreement and joint action as it affects the shared coastal resources of Mexico and Belize. The key objective is to assure that coastal resource management decisions made along the border are coordinated. BEMAMCCOR is composed of non-governmental and research groups working in southern Quintana Roo and northern Belize. Its mission is "to contribute to the conservation and sustainable development of shared coastal and marine resources between Mexico and Belize by involving the different sectors of society to improve the quality of life and maintain the biodiversity of the region."

Having an alliance type of entity is critical to implementation of actions in support of the Meso-American Reef System, a commitment not only of Mexico and Belize, but of Guatemala and Honduras as well.

Permanent Seminar on Integrated Coastal Resources Management
This seminar series is a monthly event where a range of specialists from various organizations in the region has the opportunity to make presentations on coastal management. The seminar has been open to researchers, academics, public officials, NGOs, students and the general public.

The seminar provides the opportunity for questions and debate, and allows many different, voices and views to be heard.

ICM Bulletin and Web page

Because outreach is an important activity in ICM, the program developed a quarterly publication called the ICM Bulletin. The bulletin provides specialists and researchers with the opportunity to publish information on a variety of topics including tourism development, contamination, sustainable development, regional development, regional environmental ordinances, environmental legislation, waste management, gender issues, protected areas and species.

Since August of 2000, the ICM project has also maintained a web page. The site includes information on the Permanent Seminar on Coastal Management, community work, documents and recent publications, and links to other web pages on coastal management.

Relationship to the university's academic programs

The experiences generated through the ICM project have found their echo in UQROO's academic programs, especially its International Relations and Alternative Tourism programs and cover themes that include sustainable development, regional development, tourism, and the environment. These programs now include teaching materials and directed studies. As a result, there is a greater interest among students in including natural resource issues as part of their academic research. Students with a social service requirement have also been more likely to pursue a resource management experience as a way to fulfill that requirement. These developments have helped increase the net value of the ICM program's activities to the university's research and teaching missions.

Building institutional capacity to support natural resource management: the Geographic Information Systems (GIS) Center

URI and UQROO competed for and won funding from USAID's university exchange program, to support the establishment of the UQROO's GIS Center. This center is dedicated to developing, compiling and distributing high quality geographic information, training decisionmakers and students in the use of software and data, and providing low cost access to the system. The center's staff members have completed several projects and the information provided by the center is being used by various state agencies. The Center's success led to its designation in 2002 as the Mexico "node" for the World Bank's Meso-American Reef Initiative. Environmental data centers throughout the Yucatan Peninsula are working to create protocols for sharing geographic data and making scientific knowledge available to resource managers and stakeholders.

The UQROO GIS Center served as a model for establishing UQROO's new Center for Integrated Natural Resources Management, which now incorporates the Forestry Program, the Ecological Ordinance Program, the Integrated Coastal Resources Management Program, the Mahahual Coastal Center and the Tulum Heritage Center.

From ICM project to program

One of the priority tasks of the ICM project team was to determine whether the initiative will transition and transform itself from its current focus on outreach and extension to a more comprehensive approach for managing natural resources. Other groups within UQROO were already working with key management tools such as the regional ecological plans, geographic information systems, and alternative technology.

When Dr. Francisco Rosado May took responsibility for the ICM project in January of 2001, it passed from being a project to being a program, and laid out a higher set of goals and expectations for itself. This included expanding the areas of work that would be included in the program. Its location within the university was also shifted from its initial placement with the social sciences division to its new placement within the physical sciences division.

Objectives of ICM-UQROO

1. Become aware and understand the problems and changes in the structure and function of coastal ecosystems including both the natural-physical system and the social system
2. Propose viable alternatives and policies for managing coastal resources
3. Build human resources at different levels, including formal and informal education
4. Mediate and facilitate to resolve conflicts
5. Strengthen extension programs and methods

Areas of concentration recommended for UQROO-ICM IN 2001

Socioeconomic and political: Human settlements, social organization, decisionmaking mechanisms, economic activities, and defining and monitoring key social and economic processes

Ecology and technology: Contamination and environmental sanitation, management of waste, public health, coastal erosion, recuperation of coastal ecosystems, and inventories of natural resources

Judicial, legal and administrative area: Administration of coastal resources; legislation related to coasts, watersheds, and groundwater; policies related to coasts, watersheds, ground water; and defining key ecological processes and monitor in ecosystem health

Strategic studies: Production of food, population trends and migration, certification of sustainable management of coastal resources, and the impacts of globalization

During the final two years of the C^3EM, the program of work with UQROO focused on marrying the growing UQROO expertise in the above areas with the emerging opportunities at the municipal and state level.

Strengthening the management of Chetumal Bay and its area of influence

UQROO published three volumes of information containing physical, social and economic characterizations of the bay region. These publications have been well received. They are being distributed to a widespread audience that includes schools, public officials and bay stakeholders. A new citizen-based workgroup called *Grupo Ciudano de Trabajo* was formed to advance initiatives within the bay and follow-up on institutional commitments of the symposium. The Secretary of the Navy, based in Chetumal, is now actively leading a working group on pollution.

The ICM program is creating a coastal management policy overlay for a 20-kilometer pilot area of the Federal Zone, from Mahahual south to Punta Herrera. This is in preparation for Othón P. Blanco assuming responsibility for managing the concessions, collecting fees and participating in decisions.

Stakeholder participation in bay issues

Ongoing activities that provide continued opportunity for stakeholder participation include monthly seminar series, and a substantially upgraded website. Most recently, the state government requested that UQROO substantially revise the Manatee Sanctuary management plan. The municipality has also requested UQROO's assistance with addressing shore area issues.

Laguna Guerrero Business Plan
The Laguna Guerrero Business Plan focused on developing tourism activities with local groups. Amigos de Manatí has implemented some of the activities, which support the community.

Costa Maya Research Station in Mahahual
This joint project with ASK was completed in 2002 with a station director appointed and a business plan completed. A key role for this Research Station will be to promote monitoring of the environment and of development in Costa Maya.

Capacity Building for the UQROO ICM Center staff
International training opportunities were provided to the ICM coordinator. However staff turnover continued, with a completely new staff in place at the close of the C^3EM project in 2003.

UQROO won a grant through the USAID Training, Internships, Exchanges and Scholarships (TIES) program to improve its curriculum on planning, and as part of this program received assistance from the University of New Mexico and URI. In 2003, UQROO plans to launch its Master's degree program in planning. Underlying the UQROO commitment is the belief that raising the level of professionalism of staff available to state and local government—both those from programs such as ICM and from the private sector—is vital for the successful adoption and implementation of coastal management policies and practices.

ICM at the regional level

A directory has been compiled with names of government and non-government institutions involved in aspects of coastal management. A regional meeting attended by primarily universities was held in Veracruz to exchange information and identify needs for coastal management along Mexico's Gulf of Mexico and Caribbean coast. As a result, UQROO will coordinate with colleagues and develop a program for a regional meeting on ecological ordinances.

The ICM group within UQROO's Integrated Natural Resources Center faces the need to make changes. It needs to expand its staff, diversify its funding base, and expand the range of services it offers, and provide returned overhead. As well, it must take action to broaden its staff to include both professionals and academics.

It is remarkable that the ICM project is on the crest of new growth and development despite the continuation of its own dramatic staff and leadership turnover and despite long periods of disinterest or resistance to involvement by state and local authorities. The ICM team's internal reorganization plus support of the university leadership (Dr. May is now rector) have allowed the initiative to become more firmly embedded within the university mission, and to both benefit from and contribute to the synergy of related groups within UQROO.

CHAPTER 13 - STRENGTHENING NGO STRATEGIC PARTNERS—THE LEARNING GOES BOTH WAYS: AMIGOS DE SIAN KA'AN AND CONSERVATION INTERNATIONAL/MEXICO

> *Development programs only facilitate the process by providing access to new resources, ideas or opportunities for a certain period of time...The most successful programs are those that devolve power and responsibility to endogenous actors.*[32]

Introduction

Program managers from many of CRC's international coastal management projects, including Tanzania, Indonesia, Ecuador, Sri Lanka, Kenya, Central America and Mexico, met in November 2002 to share experiences in starting and maintaining long term coastal management efforts and to reflect on the preconditions for the success of their programs. The need for effective strategic partners emerged as one of the important preconditions for undertaking any initiative[33]. A number of ideas that emerged from the discussion about strategic partners can be applied to the Mexico program.

Establish core principles at the outset. These include the need for transparency in decisionmaking and information sharing, sustainable financing, keeping decisionmaking at the local level, and maintaining a focus on equity in results at the local level. Interestingly, these are the very core principles CRC promotes for participatory management in ICM.

Ensure there is a careful "pre-program" step. This highlights the importance of looking at the nature of the demand for assistance, the character of the local mandate for change, and the role of the catalysts for change (strategic partners both from the place and from the outside). Country program managers found that it was important to pay early attention to achieving a common vision before launching into a detailed coastal resource characterization or planning stage.

Strategic partner teams should also:

- Choose a site which has a local catalyst for action (this can be a person or focusing event)
- Ensure there is a perception, from the outset, that a coastal management initiative is relevant and potentially helpful
- Assess whether the cultural setting is sufficiently open to ideas and help from the outside
- Identify groups and institutions that exhibit potential for becoming productively engaged
- Establish whether the community or local groups have successfully worked with outside collaborators in the past
- Clarify the existing or potential incentives for encouraging local change

This chapter draws upon and explores how some of these insights on working with strategic partners are illustrated by and apply to the Mexico program.

Getting started with NGO partners

C^3EM's strategic partners in Mexico implemented all in-country work with their boundary partners (i.e. the municipality, the fisherfolk, or the federal government). Most of the C^3EM project's funded tasks were aimed at building upon or leveraging work that was fully integrated into larger programs of partner activity. This was consistent with USAID/Mexico's overall interest in consolidating and strengthening its somewhat dispersed portfolio of biodiversity conservation actions.

The process for initiating the relationships in Quintana Roo and the Gulf of California was led by USAID/Mexico in the sense that the original proposal to the Summit of the Americas was to fund work on both coasts. Staff from CIMEX and a number of subsequent collaborators in the Gulf region had already attended short courses co-sponsored by CRC and the Ecuador coastal resources management project during 1994-1996. When ASK was identified as the first strategic partner, staff and potential local associates from several sites in Quintana Roo attended one of those courses as well. This training provided both NGO partners with intensive introductions to CRC's coastal management philosophy and methods. Additionally, it did so not in an academic classroom but rather in a living laboratory that allowed for engagement with Ecuadorian project staff, stakeholders and local and national leaders and in a setting where the program structure, stories, results and current issues became real.

Strategic partners, not CRC staff, assumed the lead role in interactions with local authorities and other groups. This arrangement was based upon the recognition that local insights and judgements about managing relationships are usually more accurate and well founded. Strategic partners also have strong incentives to maintain relationships with boundary partners over the long term, and any missteps in judgement are most costly to them. For its part, CRC brought to bear a broader perspective—drawn from its international contacts and experience of the situation in Mexico. As skilled practitioners, the CRC team contributed knowledge, tools, and lessons gleaned from 30 years of coastal management experience and these proved critical to the design and adaptation of C^3EM over the years.

Contributing to organizational effectiveness and capacity

The presence of an outside organization sometimes helps a strategic partner overcome the phenomenon that "no one is a prophet in his own land" by verifying, validating and reinforcing work which the partners are already well able to carry out.

One of the important tasks an organization faces is in examining and tracking its own practices to make sure it has the capacity to effectively achieve desired outcomes.

Leadership

Leadership includes both internally-oriented and externally-oriented efforts. Internally, leadership by a strategic partner means prospecting for new ideas, resources and opportunities. Looking externally, strategic partners need to continually scan the political and social situation to identify needs and opportunities for advancing the ICM agenda, adding value to a boundary

partner as it addresses an emerging ICM issue, and sharing these experiences and insights within the organization and amongst partners. The networks of NGOs that have emerged during the life of the project, for example ALCOSTA and RedMIRC, create spaces where leaders can try to align strategies and approaches on topics of common concern.

C^3EM's strategic partners are all relatively mature, entrepreneurial groups that recognize the need for long range strategies for themselves, and the importance of organizational planning for individual projects. Examples include preparing business plans for the Tourism Cooperative in Xcalak, the Costa Maya Research Station in Mahahual, or groups interested in low-impact businesses in Bahía Santa María. Each partner has also been affected by strategic choices made at higher organizational levels or within boundary partners that did not always favor commitment to ICM at a given point in time. In the early years of the C^3EM project in Quintana Roo, municipal and state government agencies (boundary partners) were seen as neither cooperative nor capable. This situation had changed significantly by the end of 2003, in part because the political situation had changed, but also because the partners themselves were better prepared to play new roles that were facilitative rather than oppositional.

Strategic partners have continuously sought involvement and support from international donors, and academic, conservation and coordinating groups—through limiting their to dependence upon CRC and the C^3EM. Such expanded partner relationships create a more collegial and peer-to-peer environment based upon mutual respect and consent, rather than a dependent, patron-client dynamic. This skill at gathering support from a wide array of sources is one that boundary partners also need to learn in order to ensure local projects are sustained while newly identified needs and opportunities are addressed. For example, as CONANP has expanded and matured, NGOs interested in marine conservation sometimes find themselves in situations where competition and suspicion, rather than collaboration for achieving common goals, dominants discussions. In this case, leadership by both parties is needed to reach a new accord on the respective roles of each community.

Innovation is another dimension of leadership. The International Development Research Centre (IDRC)—a Canadian organization that "assists communities in the developing world to find solutions to social, economic, and environmental problems through research" and the creator of the "outcome mapping" technique—emphasizes the need to experiment if an individual, organization, or program is to remain innovative. This is where the "soft" side of coastal management comes into play. For CIMEX, innovation meant starting a collaborative ecosystem planning project that was initially outside but not incompatible with the standard ecological ordinance process or the protected area management approach. As a result of this effort, there will be created one of the first joint municipal councils in Mexico. This council will, with the support of the state congress and planning administration, manage the shared waters in Bahía Santa *María*. Similarly, ASK demonstrated innovation when it chose to experiment in working with the small village of Xcalak to create a community strategy that has guided it for several years—a strategy that pre-dated the official management plan by several years. Other innovations include the *Guidelines for Low-Impact Tourism* good practices in development guidebook. Also, ASK is now testing a stakeholder-based environmental law enforcement program patterned on programs that have been tried elsewhere by WWF but which are unique to Mexico.

Technical capacity and expertise
ASK and CIMEX share a common belief in the importance of the scientific and technical credibility of their projects and positions. This belief is, in turn, strongly influenced by international organizations such as TNC, which promotes with its partners such as ASK, a science-based planning process called "Conservation by Design." CIMEX's parent organization holds a similar view: "The fundamental building block of Conservation International's conservation efforts is science." C^3EM did incorporate selected training and technical activities into its work. This included GIS training, coastal geology, and social science in Quintana Roo, and mariculture management, marina technology, watershed management, and gender mainstreaming in the Gulf of California. In addition, over the life of the project, seven project staff attended the CRC's month-long, intensive Summer Institute for Coastal Management training program.

Adaptive capacity
Strategic partners need time to reflect and to incorporate feedback from both internal and external informants as part of the process for assessing (and redesigning, if necessary) processes, services, systems, and procedures. C^3EM's five-year life-of-project provided enough time to allow the team to do that.

In the C^3EM project, all strategic partners, including CRC, dealt with geographically disperse offices and activities, conflicting priorities among levels in their own organization, and issues of competition and collaboration among NGOs or with government. Conducting frequent meetings to collaboratively plan and assess work with all partners was not always practical, especially once the work in the Gulf of California gained momentum. Strategic partners also had different styles of programming their work and insisted on autonomy in making internal administrative and strategic decisions. Over the longer term, however, the sometimes-difficult effort to conduct joint assessments and work plans had benefits. One such benefit was the collaboration between ASK and UQROO on the Costa Maya Research Station.

Other activities were carried out during C^3EM that helped ensure that the project and the project team would adapt as necessary. In the Gulf of California, "project logical framework" methods were adopted. These mapped project activities to the Bahía Santa María management plan for example. However, delays (some dealing with turnover of political cycles) hindered creating a fully functioning bay management entity before the close of the C^3EM project. The annual work planning process, and the interim reviews that took place during CRC's technical assistance visits to the field, encouraged progress reviews, provided suggested adjustments, and prompted discussions of next steps to achieving life-of-project goals. The preparation of proposals to fund complementary activities also required both a review of progress and a review of demonstrated need for the additional funds.

In August 2001, in conjunction with the symposium on Chetumal Bay, project teams from both the Caribbean and Gulf of California coasts were brought together for the first time, to review overall progress in the project and set out the work for the final two years.

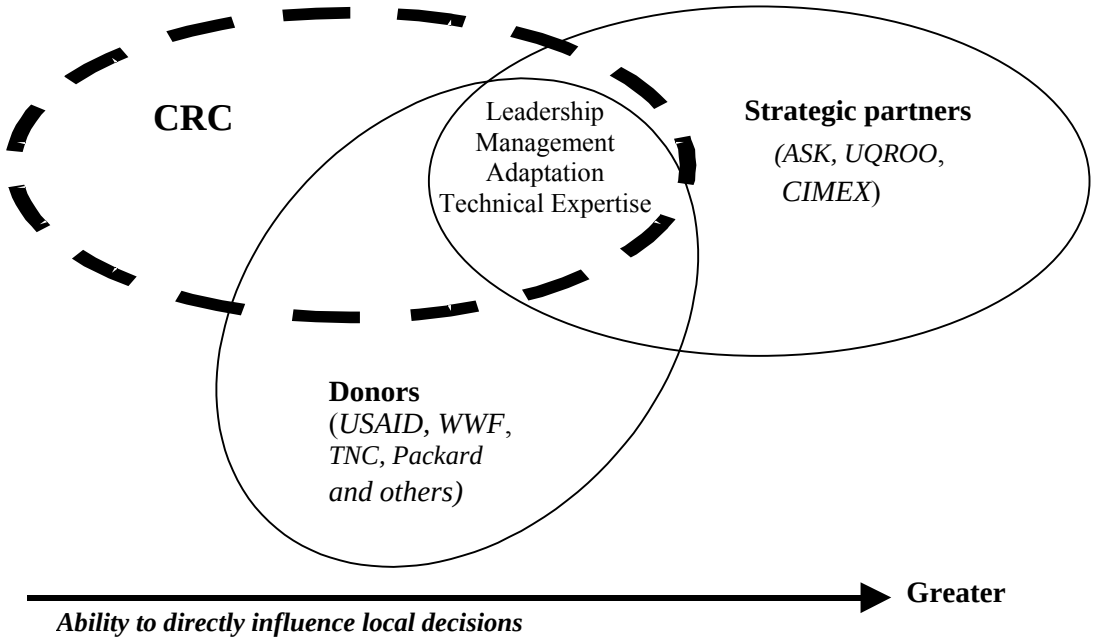
Important lessons and insights emerged from this review:

- The evolving context of the environment and coasts in Mexico creates unprecedented opportunities for successful place-based projects to influence federal and regional policy
- Environmental land management plans (POETs) and other ICM-like mechanisms offer new opportunities as well as challenges for achieving integrated decisions (these are being explored through C^3EM)
- A changing context enables strategic partners to engage more effectively with the three levels of government
- C^3EM must operate as one project with several points of intersection across site and regional-level work on both coasts
- Ongoing experiments with integration mechanisms for coastal management are likely to be applicable locally and may provide examples that have regional and national importance
- Experience on both coasts highlights the value in the emerging networks and coalitions of organizations
- The increasing role of municipal government presents a significant opportunity for the project, with positive results being valuable to the country's 167 coastal municipalities
- Mexico is now beginning to support applied science for coastal management

In sum, it is difficult at times to separate out the benefits and challenges of strategic partnerships and in the end, it is CRC that is ultimately accountable for the results of C^3EM on behalf of USAID.

In C^3EM's early view of the partner relationship (Figure 9), a more linear set of relationships was assumed. In this scenario, donors had relatively little contact with field operations managed by CRC, and strategic partners managed all relationships with in-country actors. In the revised model, the donors, advisors and partners are all engaged with the strategic partners, and often have direct relationships with local actors as well. Ideally, everyone is working to create a single holistic program of support. In reality, it is the strategic partner that is receiving the outside support and as such is the one who must negotiate and manage this support to their best advantage. Figure 23 presents this latter model, showing that all partners with a responsibility for catalyzing the very best in each other as together they pursue a hard-won articulation of a common vision and goals.

Figure 25. A new perspective on donors and strategic partners in terms of capacity building and the four core competencies of an NGO.



PART 6
REFLECTIONS ON STRATEGY, OUTCOMES AND ADAPTATIONS

> *"The job of managing does not breed reflective planners; the manager is a real time responder to stimuli, an individual who is conditioned by his or her job to prefer live to delayed action."* - Henry Mintzberg.[34]
>
> *(T)he goal is to learn something: experiments can surprise the experimenter, and one mark of a good scientist is that she recognizes surprise and pursues its implications. This has not been considered the mark of a good manager, however, who is rewarded instead for steadfast pursuit of objectives.*[35] - Kai Lee

Part 6 offers reflections on the *realized* strategies for achieving the Mexico program's expected outcomes during its seven-year project life (as described earlier in Chapters 4-13). Chapter 14 tells the story of the interplay between the project as designed, with the conditions, opportunities and bottlenecks that were encountered during its implementation. The discussion provides the stepping off point for a look at the unfolding vision for coastal and ecosystem management in Mexico (Chapter 15) and some suggestions on what Mexico can and should do to achieve that vision (Chapter 16).

The ideas here are aimed at informing not only the emerging generation of coastal managers in Mexico (and other countries), but also to donors and portfolio managers preparing country strategies and investment programs to address environmental issues in coastal areas.

Reflections from a comparative earlier experience in Quintana Roo

Looking back over Quintana Roo's short history as a state reveals some of the best known and documented examples of co-management. Quintana Roo was a pioneer in biodiversity conservation during the 1980s when it established the Sian Ka'an Biosphere Reserve[36] and made a major change in how forest resources are managed in the state. Forests held by *ejidos* are now managed collaboratively with the support of government authorities through a forestry management plan based upon the principles of co-management. Once-rampant deforestation and uncontrolled expansion of cattle ranching was largely halted as a result and fisheries resources in the reserve are managed in close collaboration with the lobster fishers. ASK played an important role early in this process of the co-management arrangements.

Arturo López Ornat, the first director of ASK, reflected on the overall success of co-management in forestry in Quintana Roo and the creation of the Sian Ka'an Biosphere Reserve. He acknowledges that while progress was smooth at times, there were also long periods of "one step forward, two steps back." Still, Ornat recommends that "sectors such as agriculture, forestry, fisheries, waters, tourism, can benefit from ecosystem protection and should participate in it."

Enhanced environmental planning

Ornat also advocates an enhanced approach to current environmental planning approaches, noting:

> *"Local people must understand and participate in this process. The State does not usually have the capacity to control most of the ecosystem management; only co-management practices and shared responsibilities, with economic sectors and with the communities, can accomplish this complex goal.*
>
> *"Ecosystem management is a process; programs can only set a general direction and start the wheel turning, trying to strengthen the local capacities (institutional, organizational, technical, financial) at each turn."*[37]

Much of the story of C^3EM is about the difficulties and promising solutions for moving from the 'enhanced approach' as a concept to daily practice.

Addressing governance issues

One key problem in the effort to improve forestry management had been "the discontinuity in local and federal governments" with a subsequent administration often choosing to reject progress made in an earlier administration. Another limitation is securing the financing for new types of production with a stronger component of sustainable use. Innovative approaches require adding technical resources and personnel on top of those needed just to maintain existing activities, yet funds to support the cost of such innovation are scarce. Over time, as local technical capacity in forest management has grown, financing and administration has also become largely local and self-sufficient, providing increased possibilities for local innovation.

During the two decades that have passed since its inception, the Sian Ka'an Reserve has expanded to include additional ecologically important areas. Each scaling-up has faced the need to obtain "technical assistance, followed by local organization." Unfortunately, expectations for the forestry co-management initiative have always increased more quickly than the ability to achieve results. While gaps in government resources to meet the Biosphere Reserve's technical and enforcement needs remain, civic associations like ASK have been able to fill part of the gap, especially that which involves working with local communities.

Unfortunately, these types of gaps are not unfamiliar to ICM in Quintana Roo and Sinaloa.

Patience is essential

Finally, Ornat observes that the time frame for change at the scale of a large ecosystem or jurisdiction needs to be counted in terms of decades not years. He advocates focusing on a few, less controversial issues and building on existing structures wherever possible, including at the local and state levels. In looking back on the forestry experience, he observes "It proved appropriate to use the existing ones [structures], strengthening their capacity to develop their new

roles better." On the issue of sustainability, Ornat states, "Money which arrives easy goes easy; external finance may induce a false commitment; local commitment does not arise from donor cooperation but from a common diagnosis of needs and how to reach them. The best results were achieved when helping the communities develop the initiatives that they identified as their priorities—as long as being consistent with long-term conservation goals."

It is interesting to note that because this experience was about forests, not coasts, C^3EM's partners in Quintana Roo rarely drew parallels or analogies to this body of lived experience, yet in reviewing Ornat's observations the similarities and relationships now seem so very clear.

CHAPTER 14 – REFLECTIONS ON THE ROAD TRAVELLED AND THE PATH AHEAD

This chapter revisits the four IRs described in Chapter 2, the strategies used to achieve them as discussed in Chapter 3, and then examines them in the light of on-the-ground results and in terms of their influence on the larger quest for ICM in Mexico.

Intermediate Result 1: Coastal management plans formally adopted and selected; implementation actions underway

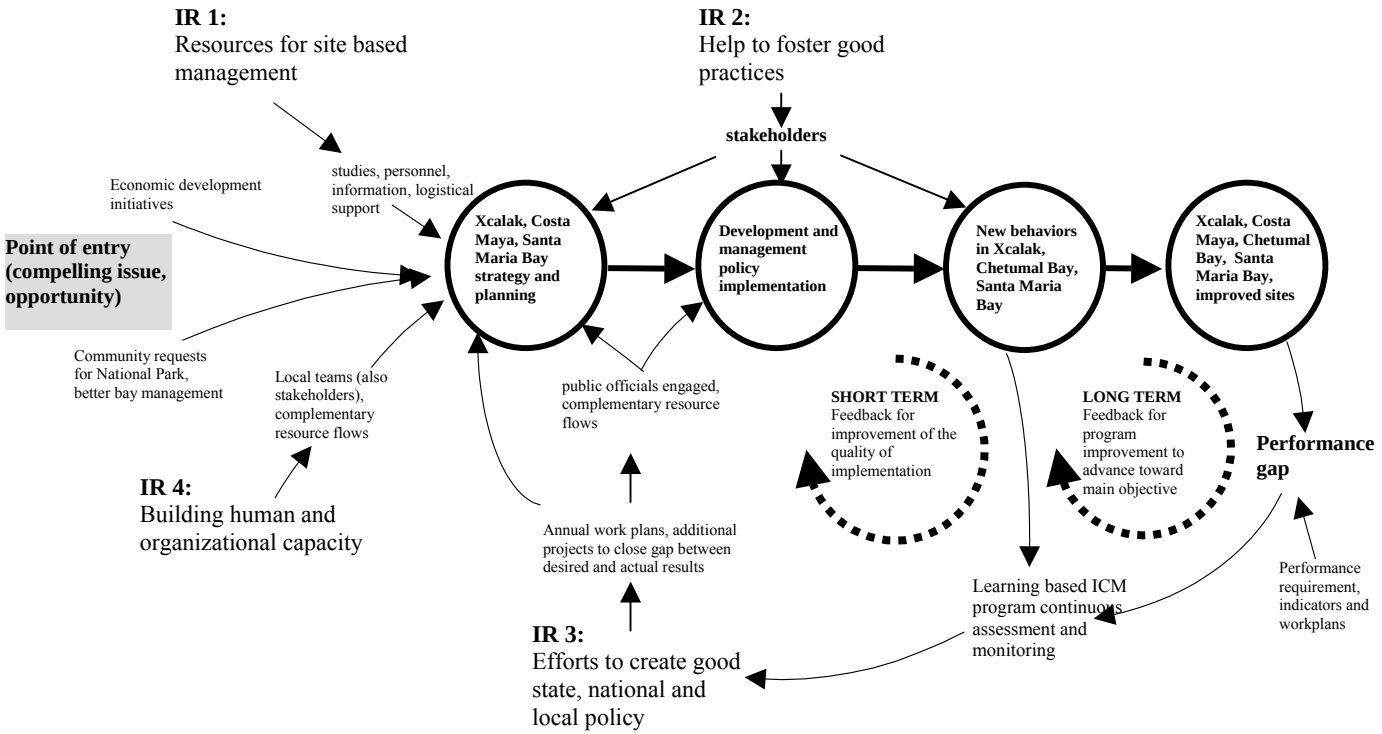
Build the bridge from planning to implementation at the outset using sites as entry point
Both Xcalak and Bahía Santa María met their results targets over the life of the project. While Chetumal Bay did not have specific site management results, rapid progress was made on several fronts during FY 2003. These would generate a fairly high score, in fact, if one were to count as progress the projects' reflection on and revision to previously adopted and implemented policies.

Working in sites and testing strategies through trials and pilots makes a great deal of sense as part of a larger strategic approach. These sessions verified the importance of making tangible, local progress on the ground. Pilot activities can test the ideas and procedures needed to reach overarching ICM goals such as that recently put forward by the World Summit on Sustainable Development—i.e. the goal of getting all coasts under improved management within the next few decades.[38] In this most important sense, all coastal management has a local dimension, whether it is a program started by formulating a national policy, or a defined project aimed at a specific critical ecosystem such as a reef or estuary or aimed at an important category of resource or feature such as all beaches or all mangroves.

Some important additional detail can now be added to the basic project model set out in Chapter 3. This better highlights key elements of the overall program and helps identify some of the important sources of the dynamics just described in Parts 1 through 4. This more detailed picture is shown as Figure 26.

As mentioned in the introduction, the *World of Learning* week allowed CRC staff to probe the question: "Why is including sites as a starting point so important and what makes the difference in local success or failure?" As Figure 26 suggests, there are five crucial components and a number of contributing factors that lead to local success. It is critical that strategic partners, donors and external technical assistance providers work closely with people at the local level to understand this system for success and identify potential weaknesses and limiting factors within it. These become the leverage points through which a project such as C^3EM can focus its resources and contributions.

Figure 26. Using sites as strategic starting points in Mexico: a more complete model of the experience.



Work on problems that are of ***compelling importance***. The issues in Xcalak and Bahía Santa María were relatively easy to grasp, making it easier to bring together a constituency for action who can generate a common vision for the future of the place. In Costa Maya, Chetumal Bay, the Meso-American Reef and the Gulf of California this was more difficult as these places took a regional rather than local approach. However, regional and international civic organizations, as well as the upper layers of government in Mexico, have been able to fit more broadly defined "sites" into their field of vision, making it possible to apply the tools and approaches that had been used successfully in the sites of initial focus to move a broader agenda ahead.

Form an engaged local team that is skilled enough to build a plan based on reliable knowledge and to build the local participation and leadership needed to help in the preparation of that plan or strategy.

In Bahía Santa María, team membership became increasingly local. Today, the local forums, committees or commissions have broad representation and are increasingly able to bring levels of government together. While strategic partner teams have had high staff turnover rates, many of the individuals from these teams remain engaged in other coastal management projects and circulate among the civic groups and networks in the area and in public office.

Develop a local action plan or strategy based on perceived threats or on technical information that indicates resources and coastal environmental quality are degraded and require action to prevent further loss. In Mexico, a formal system of local planning is well established and carried out at different scales—in a regional development corridor, in an entire municipality, or in a single urban settlement. Marine, coastal and land sites can be protected under various categories. Local action plans are aimed at getting the attention, leadership and resources mobilized to breathe life, transparency and efficacy into formal systems.

Promote behavior that is consistent with the plan and discourage behavior that is not. Behavior change involves every level and every group—government agencies improving their performance, hotel owners taking measures to save money by reducing their environmental footprint, and community groups organizing and providing counterpart effort for clean-up of waste from fisheries production. The Mexico program has been enthusiastic about these types of action, and C^3EM has leveraged more than US $500,000 in additional funding to support this approach. However, more attention must be given to understanding the sources of resistance to behavior change and formulating robust, sustainable strategies in concert with public agencies, producer organizations, *ejidos* and other property owners.

Define in local terms the "success" that will result from changed behavior.
As a result of changed behavior, a village or site may be able can claim local project success—e.g., more healthy, productive lives for their residents, or an increased and sustained flow of natural and economic goods and services. However, success is often defined differently by different players. While donors may measure success using terms and indicators such as "the area of critical ecosystems in target areas with improved or adequate management," or as "the number of target Mexican NGOs demonstrating improved ability to manage environmental projects effectively," such measures of success may be little understood or have little meaning to beneficiaries.

Success also occurs on its own time scale, not according to a project work plan or a contract. This often creates a challenge for both project implementers, local practitioners and donors. The members of RedMIRC in Quintana Roo, for example, generated a list of success secrets that shows a clear understanding of the reality they face each day:

Table 5. The RedMIRC Perspective on the Four Essential Competencies of NGOs.

Area of competence	Terms used by RedMIRC members to explain their success
Leadership:	*Internal* Motivation A common understanding of what needs to be accomplished Personal commitment Perseverance Persistence *External* Negotiation Working with the grass roots organizations Sharing common objectives Defining common interests
Adaptation:	Continuous evaluation and adjustment Organization Coordination Opportunities to meet together Connections to other networks at the regional, national and international levels
Management:	Functioning working groups Continuity An ethical and value-driven basis for work The sense that all are included, that there is a place and role for everyone
Technical capacity:	External technical assistance Professional competence Multidisciplinary and interdisciplinary approaches

Intermediate Result 2 : Low-impact practices for environmentally compatible coastal development are defined and utilized more effectively by private developers and in regulatory reviews

In C^3EM's early years, little progress was expected in terms of strongly worded and strictly enforced coastal use policies. Instead, attention was directed at persuading the new generation of developers about to begin projects in southern Quintana Roo that applying better techniques, whether required or not, was both good for the environment and in their best self-interest.

While there have been relatively few major projects initiated in the Costa Maya, and the project and its partners found it difficult to sustain an outreach program with the private sector, it is considered a success that many of the good practices in the *Normas Prácticas* were incorporated into the Costa Maya POET. Several thousand copies of the document have been distributed in Spanish and English, and SEMARNAT/Quintana Roo incorporated the *Normas Prácticas* into its own published guidelines for the state.

Mexicans living and working in coastal regions want sustainable coastal development, not only biodiversity conservation. Evidence includes the enormous interest in low-impact livelihood activities and community improvements in Bahía Santa María, including a true co-management regime for the blue crab fishery; the success and challenges of forestry co-management in Quintana Roo with the *ejidos*; and the proliferation of committees and other integrating mechanisms for the Costa Maya and Chetumal Bay in southern Quintana Roo.

Regulation alone will not bring about behavior change and the use of good practices in coastal development. In conjunction with regulation, people must also understand that what they are doing is wrong, the reasons why it is wrong and has to change, and what they need to do instead. In the Gulf of California, mariculture and tourism efforts are backed by more intensive technical training and support and, to the extent possible, led by the industry itself. This did not happen for tourism in Quintana Roo. The notion of a purely private sector led approach may have been unrealistic from the start. No industry-wide official norms are being implemented for mariculture and marinas. Coastal fisheries have become increasingly pressured and some species depleted. While not a focus of the C^3EM project, the positive interest of fishers in creating marine parks such as Banco Chinchorro and Xcalak, and conducting co-management efforts such as lobster fisheries in the Sian Ka'an Biosphere Reserve and crab fishery in Bahía Santa María, offer good examples of the potential contribution of co-management regimes**.**

Strong expression in favor of incentive-based behavior change comes from the director of Private Sector Center for Sustainable Development Studies (*Centro de Estudios del Sector Privado para el Desarrollo Sostenible*, or CESPEDES) who proposes replacing the "co-" in co-management with statements such as:

- Create effective government regulation to ensure sustainable productivity of resources
- Join together users of common property resources (farmers, peasants, fishers, industrialists or municipalities) to create mechanisms that limit access to those resources

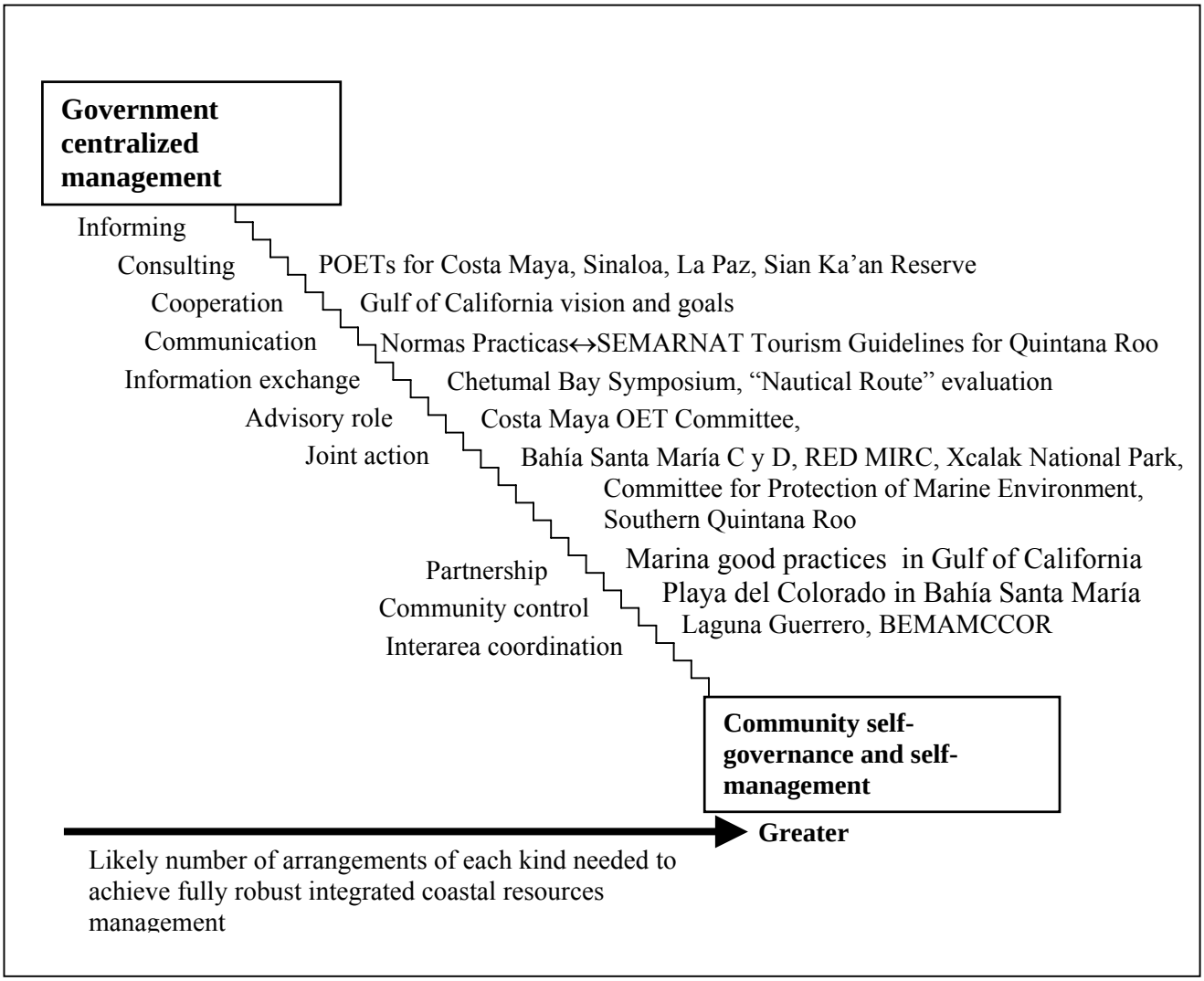
- Assign property rights to resource users, which will create powerful incentives to conserve these resources for the long term

Of these three approaches, CESPEDES' director believes the first approach has not proven very successful and it is time to put more effort into the third approach through legal reforms in fisheries, water, and forestry. C^3EM, however, continues to believe in the potential for using all three approaches.

Intermediate Result 3: Policy options are developed for government consideration; and processes are established to promote their adoption

CRC and to varying degrees its C^3EM strategic partners hoped that a statewide coastal management initiative could be attained, even though this was not a formally stated intermediate result for the project. The idea was that such an initiative would build from the bottom up speared by relatively small site experiences and from the top down as state and federal officials made progress in the decentralization of policy and decisionmaking responsibility. This optimistic scenario was based in part on the nature of CRC's own portfolio that included national and regional policy for coastal management as a key objective in most of its other CRMP I and CRMP II programs. In Mexico, however, this ambitious scenario is more likely reflected in the agendas of the nation's academic and civic organizations than in government work plans under either President Zedillo (1994 - 2000) or Fox (2001 - onwards).

Figure 27. USAID Mexico coastal project and partner-related examples from the co-management repertoire.



What has been accomplished during the life of the project is the building and strengthening of various co-management arrangements (Figure 27) that were essential for local success in particular places but which also, when generalized as policy, could benefit a much broader geographic area.

These arrangements, as the discussion on IR 1 above sets out, are essential for local success in a particular place, but when generalized as a policy, can benefit a much broader geographic area, or extend a narrow agreement to cover additional resources.

Experiments with integrated and participatory mechanisms in the Mexico program

- Xcalak Community Committee
- Xcalak Park Technical Advisory Committee
- RedMIRC NGO network for ICM
- Belize-Mexico Alliance for Management of Common Coastal Resources
- ALCOSTA developing a regional vision and watchdog for Nautical Route project
- Council for Conservation and Development (Bahía Santa María)

The various forms of co-management provide a very convenient shorthand terminology for the myriad of potential arrangements for decisionmaking on coastal resource use. They are "co-" between civil society and private actors, on the one hand, and government in all of its forms on the other. In contrast to the early stages of most coastal management programs, and contrary to the basic idea of co-management, many of the NGO-initiated projects, especially in Quintana Roo, were not able, or did not place a strong emphasis on directly engaging relevant and influential government agencies. Bahía Santa María, on the other hand, was initiated by the municipalities and maintained active government involvement throughout, filling a major gap in Mexico's approach to coastal management. This does not guarantee, however, that local and state support will quickly translate into full-scale adoption and institutionalizing of findings, policies and the action program.

The fact that there is experience with so many different co-management arrangements, or that there is at least one example per step on the graphic, does not mean that the 'problem of coastal governance' is close to being solved. A better interpretation is that just within the small C^3EM project and closely related efforts, it can be shown that the early innovation or pilot phase in Mexico has produced enough promising results to move to the next stage of a broader search for early adopters. The numbers of adoptions needed is different at each level, of course. Mexico has several large coastal and marine ecosystems, and it would be ideal to have overarching policies and strategies for the Gulf of Mexico as well as the Gulf of California that mobilize resources of all kinds to the levels of co-management below that scale—e.g. to states, coastal POETs, coastal ecosystems such as estuaries, wetlands and zones of high biodiversity. Below the state level fall arrangements for fishing grounds or the species within them, municipalities and their coastal resources, coastal villages, protected areas, coastal tourism facilities, mariculture operations, and groups of users. Progress is already being made at each of these levels. However, bottom up and top down strategies need to merge, as noted above in the discussion of IR 1.

Resistance to reform

There are surprisingly few sources of resistance to policy reforms and administrative change, such as the move to a decentralized model favoring state management of coastal resources held in trust by the federation. One resistant group is the sub-secretary of SEMARNAT, the group responsible for preparing Mexico's coastal ordinance. The sub-secretary advocates a participatory policy approach and recognizes the potential of the ordinances as a framework for coastal and marine resources management. Yet, this sub-secretary also believes the process of policy change belongs to the government and that civil society has no role to play in initiating such change. This contradicts one of the key assumptions of C^3EM and many other civil society-oriented initiatives.

Another surprising source of resistance lies within the protected area management system. Mexico has extensively used national protected areas (including biosphere reserves and parks) to address marine and coastal ecosystem issues. Mexico's success in creating a functioning national system of parks and protected areas for a substantial portion of its coastal resources was made possible in large measure by a long-term effort by Mexican and international NGOs and donors, including USAID, to build national capacity. While the park system has become more effective under the CONANP, the gulf between park managers and park advocates and supporters has widened as public authorities begin to assert their responsibility and civic organizations find themselves in adversarial roles or unclear of their new relationship with the public sector. Park managers risk cutting off the vital flows of citizen interest, international funding and NGO support unless they find mutually advantageous co-management arrangements with advocates and supporters.

The hope that a few sparks of interest in a coastal management policy would start a rush to reorder Mexico's environmental management framework was not born out. Instead, C^3EM has contributed to a deeper understanding of what is needed for ICM to move forward in Mexico, what is required for change, and how this change can be accelerated. (See Chapters 15 and 16.)

Intermediate Result 4: Organizations and NGOs with improved capability

Donors including USAID have long been committed to building in-country capacity. As noted in Chapters 1 and 13, leadership, technical, managerial and adaptive capabilities are all vital elements of strengthened civil society organizations. With these more capable groups in place, it then might be possible to realize an expanded vision:

> *"In [our] 'Mexican Miracle' scenario, Mexico becomes a model to the world in the delicate balance of respect for diversity and social justice at the local level… the country embraces economic and intellectual globalization and is able to set its own terms for doing so… broad effective demand for accountability makes for greater transparency and efficiency among economic and political actors, whose interests are served by building the infrastructure to support a strong civil society and a powerful, sustainable economy."*[39]

C^3EM has made a contribution to making such a scenario become more likely.

Points of departure: Working through Mexican NGOs already engaged with USAID's biodiversity strategy

In both the case of Quintana Roo and the Gulf of California, USAID chose the strategic partner rather than the site, pursuing the core idea that civil society organizations needed to be strengthened to serve as a check and balance on one-sided government decisions and approaches. However, civic society organizations were not necessarily the only weak link in the chain of actors and actions needed to help Mexico move toward sustainable coastal development. From a governance standpoint, Quintana Roo, Mexico's youngest state, was deeply troubled in the mid-1990s, creating an often bleak scenario for environmental policy. Fortunately, this was balanced off by the growing strength and influence of the federal government's environment ministry. However, over the long-term, the trend toward decentralized environmental management which shifts power from federal to the state and municipal levels, means that state and local officials must build their capability to assume greater autonomy and responsibility in many arenas.

The fact that leadership, vision, and capacity for environmental management at the state and local levels did not match that of the federal government at the time, meant plenty of work for civic society. NGOs, stakeholders and citizens began to secure recognition and gain respect**.** They built their capacity to fill the many gaps and voids that emerged during the transition to a more decentralized model. As the number of organized groups grew, so too did the opportunities for consultation and involvement. The resulting multi-sector committees, commissions and networks began to constitute a system of complementary nested governance arrangements. (See Chapter 10.) For southern Quintana Roo, at least 11 such groups have emerged since the project began in 1996, although not all of these can be attributed to activities funded under C^3EM. Some of the participating organizations, including ASK and UQROO, achieved considerable centrality within this network.

Committees and networks on coastal issues in southern Quintana Roo

Xcalak Comité Comunitario 1996-1998--->	Present
Comité Tecnico Sanctuario Manatí 1999---->	Present
RedMIRC 1999--->	Present
BEMAMCCOR 2000--->	Present
Xcalak Comité Técnico 2002-2003-->	Present
Grupo de Ciudadanos Bahía Chetumal 2001--->	Present
Comité Seguimiento Taller Chetumal 2001---->	Present
Grupo de Saneamiento Agua Zona Sur 2002--->	Present
Comité de Protección al Medio Marino Zona Sur 2002--->	Present
Comité Técnico Seguimiento OET Costa Maya 2001--->	2002
RED Guardianas Ambientales Costa Maya 2002-->	Present

Expanding the number of groups contributing to project execution was indeed a plus, because it offers more options for accomplishing work plan tasks. However, each partner has expressed its own need for internal strengthening. Donors and actors such as CRC can find themselves more squarely at the center of the partnership rather that in the background in a supporting role.

This can become a source of conflict with strategic partners, who feel that they need to take the lead on decisions related to in-country strategy. Over time, however, growing trust can lead to an external group like CRC to act as the "third side"[40], offering an impartial, overarching and forward looking perspective in resolving disagreements within project teams, among partners and in the design of consensus-building processes and mechanisms.

Learn by doing: Incorporating integrated coastal management approaches into partner capacity and repertoire

The *intended* strategy in C[3]EM was to work with stable collaborators such as ASK to move them along various scales of organizational capability in core areas of coastal management. The assumption was that the partners were already well-qualified and technically capable, and that the role of CRC was to accompany these teams along a path of growth through mentoring and collaborative project implementation. The *realized* strategy, however, needed to address emerging issues. The first was the high rate of staff turnover at ASK and UQROO, among others. A second was the inherent transition issues that come with moving from a one-off project to local, sustained programs. C[3]EM spent considerable efforts in adjusting work plan schedules and task requirements when new people were added to the team and needed to be oriented and trained.

CRC did not establish its own office in Mexico. This was in part to save money and work within what were the quite adequate facilities of partners, and to avoid the appearance of creating yet another outsider presence in an already crowded situation.

Prepare for resistance and failure

Rogers[41] notes the importance of recognizing dis-implementation as part of the extension process—i.e. a process that spans a continuum from the point of introducing a new idea or technology to the point of providing information, tools, and techniques for putting that idea or technology into practice. Until now, government and the private sector have been portrayed as resistant to change, but a similar behavior can be found in NGOs and universities. Changes in behavior—for example going from top-down decisionmaking to a co-management arrangement—means dis-implementing the old behavior and embracing the new. In the case of CIMEX, this meant a mid-2003 organizational decision to discontinue its direct engagement with the work in Bahía Santa María and to instead concentrate on establishment of protected areas. As a result, CIMEX is transferring its coastal management-related activities to Sinaloa-based organizations. ASK remains committed, as it has throughout its history, to community-based work. At the same time, the growth in its geographic and thematic scope is stretching ASK's ability to play this role. Meanwhile, UQROO has opened up significant new relationships with municipalities and state government, strengthened its overall capability to address natural resource management challenges, and is focusing on building professional human resource capacity in planning.

Argyris[42] delves deeper into the sources of organizational defensiveness and resistance to learning that prevent adoption and implementation in the first place. He outlines "double-loop"

learning and explains the need for more than just mastering new methods or techniques. He states that professionals "need to learn how the very way they go about defining and solving problems can be a source of problems in its own right." This, according to Argyris, helps ensure they "reflect critically on their own behavior, identify the ways they often inadvertently contribute to the organization's problems, and then change how they act."

The candor, trust and openness required by double-loop learning can be overtaken by what Argyris refers to as "skilled defensive reasoning." Pressures to complete project tasks and meet the intermediate results in a highly fluctuating organizational environment aggravate such reasoning.

C^3EM did promote conditions that fostered reflection and rethinking about both the program and coastal management writ large. It is fair to say that C^3EM strengthened the capacity of UQROO, ASK, CIMEX, and other local partners to implement similar projects and approaches, or to make strategic choices *not* to do so.

In 2003, the conditions for launching programs based on the principles and practices of co-management are much improved from the conditions the project faced at its start in 1996. Today, a donor with an interest in environmental management or biodiversity conservation can be much more transparent about their agenda, the methodologies they seek to employ and the types of partnerships they believe will produce the best overall outcomes.

Bootstrapping sustainability: Leveraging funds and resources by building and linking networks of practitioners and leaders

As the overall project design and Figure 20 indicate, local success depends on having many types of resources from a variety of sources. This includes funds from donors or government, volunteer efforts, private and public in-kind contributions, and research and extension work carried out by students and faculty. Project success also depends on access to information, equipment, and operating funds. As well, it must engender trust, reputation, maintain good will, exhibit diverse skills in a broad range of disciplines and specialties, participate in networks of groups with a common purpose, and promote public awareness and interest.

When these resources are successfully secured, it may still be challenging to align and apply them efficiently. This is especially so when many partners are involved in the process. The Mexico program at times encountered resistance, and at other times resentment, from its strategic partners over the urgency and level of detail that was expected as part of the project's performance approach to planning and executing work. An organized program and negotiated work plan can do a good job in channeling resources to where they are needed while accommodating the interests and preferences of the donors. Although the commitment of the C^3EM strategic partners was never in doubt, they did not always want to enter into explicit negotiations on the details of work plans. The reasons may have been to preserve organizational independence, to avoid undesired outside "interference" in projects and policies, or because other priorities at a given time made such a labor unfeasible.

Such negotiations are easier when there is a relatively large project that can provide the framework needed to make good use of small contributions designated for a particular purpose.

Otherwise, the transaction costs of gathering resources and colleagues can be too high. Making sure resources are used in the right place at the right time can be a slow and overwhelming and can slow or stall the progress. Partners need to understand and agree on the risks of dispersing and losing the capability to organize and allocate resources, such as when a major project comes to an end or a work planning process cannot be negotiated. In reverse, when partners can share common resources and approaches, the benefits and efficiency can be great. For example, in the case of Bahía Santa María, CIMEX adopted and trained its staff to utilize a logical framework approach, drawing directly from the bay strategy to determine work plan priorities, budgeting and management. This has made it relatively easy to compartmentalize the investments of donors and collaborators into the specific issues each care about. (See Chapter 13.)

Collaborating with universities to develop integrated coastal management capacity

As the earlier discussions indicate, state-level universities on both coasts have been consistent in their willingness to share expertise and generous in their matching contributions to project funding of activities in Costa Maya, Chetumal Bay and Bahía Santa María. UQROO has won national recognition for its involvement of students fulfilling their social service requirement by aiding coastal villages. Faculty at UAS collaborated extensively on a wide range of successful work, including an innovative co-management agreement for the bay crab fishery, major advances in community sanitation and solid waste management, and support for several livelihood projects with community groups and local entrepreneurs. The Mexican National Science Council (CONACYT) has increased its support for applied research on coastal management and conservation projects, however Mexican universities are some distance away from offering comprehensive extension services for marine and coastal management and conservation.

UQROO's Center for Integrated Natural Resources Management is an important attempt to link service-oriented programs, and maintain a broader focus. Large networks of researchers and policy analysts in the Yucatan Peninsula and the Gulf of California have already formed to reduce their isolation, more quickly share results, and foster an awareness of applied research and extension needs. Universities have also played a visible role in preparing environmental use plans for state and federal agencies—although not always successfully engaging the public in plan formulation, review or implementation.

Unfortunately, the traditional incentive structure within universities can work against individual faculty members who devote a larger fraction of their time to extension. UQROO's new GIS Center may help to change this situation—especially since there is a growing recognition that having the combined involvement of professional staff, students, and faculty is a good recipe for success. An increasing number of countries are finding the U.S. Land Grant/Sea Grant university model (which continues to play an important role in CRC's own programs) attractive. The Sea Grant program funds peer-reviewed, socially and stakeholder-relevant applied research, extension and communication in participating institutions.

Chapter 15 describes how the regions' promising trial efforts fit into the broader context of ICM development in Mexico. Chapter 16 concludes with a set of ideas for addressing some of the key bottlenecks and pursuing new opportunities for ICM.

CHAPTER 15 - REASONS FOR HOPE: MEXICO'S EVOLVING VISION AND NEEDS FOR COASTAL AND INTEGRATED NATURAL RESOURCES MANAGEMENT

What Mexico can do

> *Vision 2025: A society with strong ties to its coastal zones, committed to environmentally sound, high quality economic growth that is achieved by efficient, transparent, integrated administration, is consistent with international agreements, and guarantees sustainable development of the coast.*[43]

> *The core of the (Mexican Miracle) scenario logic is that broad effective demand for accountability makes for greater transparency and efficiency among economic and political actors, whose interests are served by building the infrastructure to support a strong civil society and a powerful, sustainable economy. An enlightened and empowered base, supported by a widespread access to education and jobs enables enlightened leadership.*[44]

Rivera-Arriaga summarizes the key obstacles, challenges and opportunities facing coastal management in Mexico at the outset of the new millennium, as Mexico's national administration was changing over to the first non-PRI presidency since the Mexican revolution in 1917:

- Create political will for institutionalizing the ICM program
- Update the bureaucratic apparatus and use stronger administrative, legal and economic tools
- Train personnel and increase public awareness
- Address the incompatibility of interagency jurisdictional and legal frameworks
- Reduce or eliminate corruption
- Address user and use conflicts through collaboration among and across layers of government
- Find alternate, innovative fiscal, legal and/or economic instruments for decisionmaking
- Increase public participation that has been fostered by the democratization atmosphere and by enhanced public environmental education[45]

Caribbean Coast contributions of C³EM toward addressing the challenges

The USAID/Mexico coastal management initiative has offered a number of reasons for hope that these challenges can be overcome, mainly by building upwards from the local opportunities that present themselves as issues emerge along the coast. The program initiated in Quintana Roo in 1996 has made important contributions toward biodiversity conservation within the Meso-American Reef System through the establishment and active management of the Xcalak Reefs National Park. Perhaps even more significant is the momentum which the project has provided to a number of innovative and intertwined lines of work by NGOs, the universities and government authorities—work that is converging to create a unique opportunity in Mexico to move forward with integrated resource management initiatives.

A network of NGOs and academic institutions are serving on both self-initiated and government-appointed coordinating bodies aimed at moving from consultative approaches to collaboration in resource management and decisionmaking. This is a key enabling condition. UQROO has made a major institutional commitment to integrated resources management and sustainable livelihoods. Toward this end it has undergone internal restructuring, revised its curriculum, and served in a stronger outreach and extension role with municipal, state and federal officials. Throughout southern Quintana Roo there is a wider recognition by most actors that integrated resource management initiatives can combine the advances of sectors to improve the quality of life of the residents, secure economic investment, and conserve the rich biodiversity resources of local, national and international significance. The municipalities of both Othón P. Blanco and Cozumel have formed such groups. The atmosphere of mistrust and isolation which characterized the behavior of key actors in business, government, academia and civil society in 1996 has been steadily replaced by the desire and demonstrated willingness to find common ground and shared responsibilities.

Pacific Coast contributions of C^{3}EM toward addressing the challenges

The initiatives of CIMEX, CRC's main strategic partner in the Gulf of California, reflect a wide as well as deep set of activities that provide many more reasons for hope. At the Gulf regional level, CIMEX and CRC have contributed to the formation of an alliance of civic organizations. Alliance members are strengthening their presence in their home areas while also formulating a regional vision that addresses issues affecting the wider northwestern coast. At the same time, events such as the May 2001 Gulf-wide workshop in Mazatlan, Sinaloa, can bring together a large representation of researchers, conservationists and officials to share information as well as debate key issues. A regional approach is also behind the emerging Gulf visioning process led by the business community, and the Rapid Assessment of Conservation Economics which has compiled detailed information on land, coastal and marine resources, use trends and economic growth scenarios. A Conservation Fund for the Gulf of California is also being established to allow donors to coordinate their investments in the region and for local groups to be more effective in preparing proposals that contribute to region-wide learning and strategy while advancing conservation and coastal management in their sites. SEMARNAT has been contributing to an integrated approach by working to prepare a Gulf-wide environmental policy document and a regional impact assessment for the Nautical Route tourism development project.

Closer to the other end of the spectrum is the work in coastal villages, local fisheries, marine protected areas as well as in critical wetland ecosystems such as in Bahía Santa María, Sinaloa and the new focus of attention on the *Marismas Nacionales* in Nayarit state. Here the need for sustainable coastal development is pressing, and perhaps the opportunity exists only for a few more years to show if such a management experiment can take hold.

These local examples are taking place mainly below the radar screen of federal approaches that focus on land use and environmental planning only at large scales. However, at the smaller scales, it is much easier to understand and formulate practical responses to the maladies that Rivera-Arriaga describes. Villages are taking more responsibility for the immediate living conditions. They are also tapping into expertise and ecosystem-wide mechanisms such as the Bahía Santa María citizen planning committee to begin negotiations with municipal, state and

federal authorities. Fishers are engaged in co-management programs that combine internal norms with formal agreements with authorities. Municipalities are deliberating on creating some of the innovative legal arrangements called for by Rivera-Arriaga and strongly implied by SEMARNAT's vision for the future of the nation's coasts. State authorities, while still wedded to the macro-vision and generalized land and shore use policies possible under federal instruments such as the POET, have also become increasingly interested in supporting 'local' planning which aims at addressing inter-agency issues and resolving complex use conflicts.

Other Mexico initiated examples: The Panel for Integrated Coastal Management for Gulf of Mexico and Caribbean and the Gulf of Mexico States Accord

In November 2001, the first meeting of this new group of researchers, activists, officials and managers met in Xalapa, Veracruz. They addressed coastal issues and catalyzed regional action in the Gulf of Mexico and the Caribbean. The group's second, larger meeting was held in May 2003, and attracted the participation of the key sub-secretaries of SEMARNAT and leadership from the Secretary of the Navy interested in improving efficiency and coordinating approaches to coastal ecosystem management in specific geographic areas.

The panel initially focused its efforts in four key working areas:

- Review the legal framework, standards and regulations for coastal development
- Establish an approach to ICM to help set regional priorities and make decisions on developments and programs of larger than local scale, for example the Plan Puebla-Panamá, *Mundo Maya* (tourism development), Meso-American Coral Reef Initiative, Meso-American Biological Corridor, and the Gulf of Mexico States Accord
- Manage the network of institutions, groups and people interested in coastal management in the Gulf of Mexico and the Caribbean
- Assist in setting an applied scientific research agenda with the Mexican National Science Foundation, CONACYT, to maintain a focus on achieving integrated coastal management in the region

The Gulf of Mexico Panel is working to develop an integrated initiative that strengthens scientific, government and civil society collaboration[46].

In a related development, the bi-national Gulf of Mexico States Accord, signed in 1995, is also moving in this direction. It includes the 11 states in Mexico and the U.S. that surround the Gulf of Mexico, and its agenda incorporates transportation, infrastructure and communications; trade and investment; tourism; agriculture, forestry and fisheries; health, ecology and the environment; and education and culture. Its current coastal management priorities include a bi-national "red tide" study, an integrated strategy for a Regional Training and Integrated Management Program for the coastal zones of the Gulf of Mexico and the Caribbean, and the development and deployment of remote sensing laboratories for monitoring coastal resources. It also is considering the preparation of a master plan for the Gulf of Mexico Tourism Corridor, combining the Scenic Highway and the east coast version of the Nautical Route project.[47] UQROO has been an important actor in both initiatives along with their university counterparts in other states.

Mexico's vision for coastal management in preparation for the 2002 World Summit on Sustainable Development

As Mexico advances toward the midpoint of the decade, seeds continue to be planted along the road toward ICM within the unfolding Mexican and hemispheric contexts.

Mexico's current development plans target coastal areas through programs such as Plan Pueblo-Panama and the Gulf of California and Gulf of Mexico/Caribbean Nautical Routes, which will have an effect on shifting investment to coastal regions. At the same time, changes in Mexican federal policy will provide states and municipalities more control over land and shore use, tax collection and natural resource management. Mexico is pursuing administrative reforms in all three layers of government and is considering an integrated approach to all natural resource management issues. Two national workshops on coastal management were held during the summer of 2002 in Mexico[48]. The participants in the national workshops made the following recommendations:

- Mexico needs to establish a national coastal management policy
- Mexico requires an integrating mechanism to unite sectors and government secretaries, and promote broad-based public participation in decisionmaking. A sustained source of financing is essential so that new policies can be implemented
- Mexico needs to develop the information necessary to identify coastal issues and economic development programs that can directly benefit coastal communities
- Mexico must provide its stakeholders with environmental awareness and education to foster an understanding of the value, the characteristics, and the services of the coast

These conclusions are woven into Mexico's larger concern for poverty alleviation and the search for sustainable forms of economic development as expressed in its country paper submitted to the 2002 World Summit on Sustainable Development in Johannesburg, South Africa[49]. "The conditions of poverty and marginalization in which millions of Mexicans continue to live is the most important challenge facing the nation and combating poverty is one of the highest priorities of the presidency." Mexico's 2001−2006 national development plan is aimed at achieving the twin objectives of "environmental protection and sustainable development. The main thrust is for national development of the maritime sector, which encompasses fisheries, tourism as well as scientific research in the marine environment." A host of national agencies are responsible for various aspects of this vision, with goals to collaborate with key governors and municipalities.

A bottom-up perspective from Quintana Roo as a platform for integrated coastal and natural resources management approaching mid-decade

The village of Xcalak has itself changed little between today and 1996, when C^3EM began. However, everything around Xcalak is different—partly due to the active role of Xcalakeños in moving forward with their vision for a marine protected area and a better future.

A system of marine parks and protected areas

Quintana Roo has the largest number of marine and coastal protected areas of any state in Mexico. CONANP is now consolidating its park administration throughout the Yucatan Peninsula region, drawing in part on the successes achieved through the necklace of parks and reserves it has created along the Meso-American Reef system. Some park managers have shown interest in pursuing the opportunity to consolidate the protected areas and their adjacent non-protected areas within a larger management framework. This would help ensure that conservation is maintained within the protected areas while adjacent areas promote sustainable forms of economic development. These park managers are looking to build upon the productive relationships that already exist among levels of government and civil society organizations in Quintana Roo.

Coordination mechanisms

A number of new mechanisms and strengthened institutional commitments have emerged in the past five years, and are steadily evolving toward the consolidated approach demanded at the community, municipal and state level. Organizations contributing to this are:

- UQROO's Center for Integrated Natural Resources (the ICM Program, GIS Center, Alternative Tourism Program, and the POET land-use Program)
- ASK, RedMIRC (network of NGOs in southern Quintana Roo), Colegio de Biologica (COBIOTEC), Amigos de Manati
- BEMAMCCOR) which formally acts as the bi-national entity for the Meso American Reef Program) and the National Secretary of Marina's Pollution Task Force for Southern Quintana Roo
- Individual and collective projects (including GIS exchange and hazard vulnerability assessment) among the institutions such as ECOSUR, Instituto de Chetumal, CINVESTAV (Merida), the University of Campeche, UQROO, and the Costa Maya Coastal Management Research Station in Mahahual
- Municipal ICM working group (to plan and advise municipal actions)

Many of these organizations, groups, or projects have been directly involved with C^3EM, while others have collaborated in research, outreach and management funded by the Mexican government or other external donors.

Decentralization and co-management

The federal government acknowledges the need to decentralize environmental management functions and to advance integrated coastal resource management. The SEMARNAT advisory committee and the key sub-secretaries in a Veracruz meeting of the panel recently made such acknowledgements for Integrated Coastal Management for the Gulf of Mexico and Caribbean. The *Zona Federal* has stated a willingness to develop a pilot program that would have sustainable funding and management in the municipality of Othón P. Blanco (covering Chetumal Bay and Costa Maya).

There are additional actions that point to a continued and increasing commitment to ICM in Quintana Roo:

- Municipal and state leaders are now actively interested in planning, financing, and management of critical coastal areas and ecosystems. This has led to formal collaboration agreements by the municipal urban planning department (Xcalak urban image), the municipal president (who created a working group for ICM), the state tourism secretary (committed to a collaboration in community tourism and ecotourism marketing), and for state and municipal database development that includes information useful for ICM.
- The Secretary of the Navy (Marina) has formed a broad-based, successful task force to address pollution and other resource management issues and to respond to a national initiative on water quality monitoring and pollution control.
- Quintana Roo continues to build upon successes in co-management of forests—*ejido* lands—as well as inland and coastal protected areas.
- JICA is collaborating with SEMARNAT to design infrastructure and associated programs for municipal solid waste and wastewater in Othón P. Blanco (Chetumal and Costa Maya) and Solidaridad (Playa del Carmen), building upon partners' knowledge and aimed at addressing key issues defined within the current coastal program.
- UQROO's TIES Program is initiating a two-year capacity building initiative with the University of New Mexico and URI. This will enhance UQROO's ability to implement an effective graduate level environmental planning and management program. This includes academic exchanges for students and faculty, training-of-trainers, and capacity building events for municipal officials.
- The Meso-American Reef Program and the associated International Coral Reef Action Network Partnership (with USAID) provides opportunities for exchange of technical information, management/monitoring strategies and lessons learned among four countries.
- The Meso-American Biological Corridor provides funds and program focus to address biodiversity, management and associated economic development within the Mayan forest and extending to the coastal zone.

Governor Joaquin Hendricks of Quintana Roo was elected president of the Gulf of Mexico States Accord during 2003. The governor then designated Ing. Artemio Santos Santos, the Secretary of Economic Development for Quintana Roo, as president of the Accord's executive committee. This regional body is now examining the formulation of an integrated development and coastal management strategy. This includes examining tourism and marina development practices. This may provide an important platform for sharing new ideas and recent experience in coastal management in Mexico and may help overcome some of the obstacles to coastal management progress. While many of the elements needed to move coastal management ahead in Mexico are on the table, there is a lack of capacity and leadership necessary to take maximum advantage of these.

Adding a third dimension to integrated natural resources management in the Gulf of California region: Acting just in time

While serendipity characterizes progress along the Caribbean coast, synchronicity is the strong suit in the Gulf of California region.

Northwest coastal Mexico encompasses five states with a dynamic, diverse economy that blends agriculture, manufacturing, mining, fisheries, tourism and aquaculture around Mexico's insular sea. While most coastal residents and resource users may not understand or appreciate the Gulf as an ecosystem, a substantial portion of the marine and coastal scientific community, civic associations, and federal government agencies does, and is now working collaboratively in this shared and extensive region.

- The federal government has united the five governors and federal agencies in launching the Nautical Route marina tourism project

- Management plans and operational programs were advanced for the Gulf Islands regional park, encompassing more than 900 islands, large biosphere reserves including the Alta Golfo and Vizcaino

- International conservation groups and donors have identified the Sea of Cortez as a high priority large marine ecosystem and are working collaboratively to give the land, coastal and marine resources higher visibility and public understanding. CIMEX sees the Gulf of California, especially the mainland coast from Sonora to Nayarit, as part of the Meso-American conservation hot spot, while WWF focuses on Gulf of California as one of its key eco-regions

- Mexican conservation organizations such as PRONATURA, have organized into five geographic regions, including the Baja California peninsula and associated marine waters.

- Conservation-oriented donors have increasingly coordinated their efforts in funding programs and building regional and local capacity for conservation and coastal management, and are establishing a regional fund

- A regional coalition of local site-based organizations (ALCOSTA) formed to both strengthen local capacity and promote a shared vision for sustainable development that can guide a coordinated response to federal development initiatives

- Mexican corporations have helped finance conservation efforts and individual business leaders are contributing to the formulation of a Gulf-wide sustainable development vision and objectives

- The scientific research community and conservation organizations have collaborated for several years to prepare independent regional diagnoses of biodiversity conservation

priorities and more recently have used Conservation International's Rapid Assessment of Conservation Economics to examine trends in the key drivers of change

Closer to shore, this increasingly connected network of researchers and activists are collaborating with park managers and state and local officials in a variety of environmental and governance settings. Groups working on individual embayments, biosphere reserves or subregions of the Gulf Islands park system are finding ways to share their accumulated insights and experience on a more frequent basis, including exchanges and collaborative projects that involve not only experts but local leaders and resource users.

As Chapter 13 revealed, much has also been gained in the Gulf region by working with individual sectors on issues of common concern, for example in the adoption of good practices in fishing, marinas, and aquaculture—all of which have both economic and environmental payoffs.

Folke, Berkes and Colding conclude from their survey of linked social and ecological systems that "local-level institutions learn and develop the capability to respond to environmental feedback faster than centralized agencies."[50] They go on to add: "Environmental and renewable resource issues tend to be neither small scale nor large scale, rather *cross-scale* in both space and time. It follows, therefore, that problems have to be tackled simultaneously at several levels."

This is, at its heart, also the main challenge for Mexico in the decade that lies ahead. The experiences embodied in the C^3EM program, like those studied by Berkes and Folke (including successful traditional systems in Mexico) provide ample evidence that, with some struggle and persistence, Mexico can succeed.

CHAPTER 16 - AN AGENDA FOR COLLABORATION TOWARD SUSTAINABLE DEVELOPMENT IN COASTAL REGIONS AND COMMUNITIES IN MEXICO

> *The success of many ecosystem management projects is highly dependent on getting the timing of their initiation right or recognizing windows of opportunity…. Building capacity, like ecosystem rehabilitation, takes a long time and, therefore, a long-term commitment is also required on the part of assistance agencies.*[51]

This final chapter outlines five ways in which international and national support can be channeled in order to help Mexico realize its vision for a sustainable future in coastal regions.

1. *Test and build collaborative and co-management arrangements for critical ecosystems and regions*
2. *Design economic development programs that directly benefit coastal communities in a sustainable development framework*
3. *Create the capacity to foster behavior change through awareness, organizational development and incentives*
4. *Establish and carry out a national coastal management policy that creates the enabling conditions for local and regional success*
5. *Secure sustained financing for coastal resources management through traditional and innovative channels*

These ideas draw upon the experience and accomplishments to date of the C^3EM project, and also reflect relevant sources of experience and good models from throughout the country.

1. Test and build collaborative and co-management arrangements for critical ecosystems and regions

The context for ICM in Mexico has changed significantly since the mid-1990s. The current governance climate is one that aims towards decentralization, transparency, economic development, and "growth with quality." New opportunities have emerged for linking more traditional site-based conservation approaches with good coastal governance. International and national donors should consider expanding their work from a focus on building capacity within traditional NGO partners, toward programs that create or support commissions, councils or forums where a variety of stakeholder groups work in partnership to establish enduring collaborative and co-management arrangements.

Successful implementation of a growing number of local initiatives is critical to Mexico's progress in resource management. Each coastal state and every coastal municipality needs to demonstrate that implementation of policies and regulations is possible. As more demonstrations emerge, a base of experience will be created that informs regional and national policy. Site planning and action strategies do not stand alone. These need to contribute to creating sustainable development plans and implementation mechanisms for critical coastal ecosystems and watersheds. It is also through pilots and demonstrations that the corps of dedicated and skilled professionals and community leaders is trained and motivated to generate demand for new approaches. There are numerous promising starting points:

Estuary management

Mexico has 40 major estuaries that would benefit from an integrated coastal resources management program. These can draw many lessons from the Bahía Santa María and Chetumal Bay experiences.

Municipal ICM
Mexico has 166 coastal municipalities, each of which has the potential to design and adopt coastal management goals to guide their administration of shore lands in the federal coastal zone. One strategy might be to initiate work in selected municipalities that are representative of a range of coastal management situations or which border on a larger coastal ecosystem of national or state concern.

Marine protected areas and ICM
Another approach would be to select sites adjacent to the National Protected Areas system, for example the Gulf of California Islands Park or the coastal plain and lagoon systems of Chiapas. These sites would be well positioned to design and test other promising forms of local coastal ecosystem management that link conservation and development management goals for mutual gain.

Enhanced POETs
Mexico can also work to utilize and improve the POET as a tool that extends beyond traditional planning, sets in motion a participatory decisionmaking process at the regional level, and is matched by innovative funding mechanisms.

Regional agreements
Regional agreements can be negotiated and formally endorsed for integrated coastal ecosystem management in both the northern Pacific and eastern coasts. The Gulf of California Agreement could soon find itself operating with a clear mandate and documenting its progress towards a set of quantified, time-bounded goals that address the region's development and conservation needs. The Gulf of Mexico could become a model for successfully linking government, business and civil society efforts in a large ecosystem of international importance that encompasses coastal waters, landscapes and watersheds. Both need to be sustained by core funding sufficient to make the implementation of the Agreement feasible.

State-level coastal management plans
Regional agreements can help inspire support for state coastal management plans. Different states could choose to work on a pilot basis in one coastal lagoon or estuary system and its associated watershed and in a tourism development corridor that includes recreational ports and harbors, or address development taking place outside of protected areas. States can address scenarios for development and conservation that consider vulnerability to natural hazards and environmental security. An emphasis should be placed on continuous mechanisms for exchange among state-level coastal managers.

Comparative approaches
Another logical extension of this approach within a regional agreement framework is to consider one or more statewide pilot coastal management projects. For example, Quintana Roo could be viewed as an early pilot of the expressed desire of the sub-secretaries of SEMARNAT and the Secretary of the Navy to create a seamless, nested planning, regulatory, enforcement and impact monitoring approach to critical areas. This pilot would mesh policy formulation, development choices and decisions, on-the-ground compliance, enforcement, and monitoring and would provide input to better policies and integrated decisions for specific coastal landscapes and watershed ecosystems.

Co-management
Comparative research, cross-site exchanges among local leaders, case studies and analyses should be conducted across regions, states, lagoon ecosystems and sites. This will promote understanding of coastal management approaches, of arrangements for managing common property resources and generating public goods, and of key management tools and how they should be applied and adapted.

There is a window of opportunity to build upon successful co-management examples in Mexico (i.e. *ejido* forestry projects, watershed and river commissions and committees). These co-management experiences now need to be placed in Mexico's current context of decentralization of environmental management and the increased role of public and private sectors in providing public goods (including water and beach access) and co-management of common property resources.

2. Design economic development programs that directly benefit coastal communities in a sustainable development framework

Mexico needs public-private partnerships that allow the economic and social sectors to meet their central needs, and at the same time conserve critical resources over the longer term. This means taking resource condition and quality fully into account in decisions made today.

This should draw from the most relevant approaches to evaluating benefits and costs of development. This includes the valuation of natural resources with the economic dimensions of human activities and built environments.

From biodiversity conservation to sustainable development
In Mexico in the 1990s, biodiversity objectives dominated donor funding and environmental community's activities. As a result, significant advances have been made in identifying and prioritizing conservation sites. Now, however, it is sustainable development of coastal communities—not just conservation—that emerges as the priority. To advance this goal requires integrating the social and economic dimensions of resource use, and the conditions and quality of "working" coastal ecosystems into the conservation agenda.

Community-based approaches
Conservation-oriented civic associations in Mexico have discovered the importance of working with communities, government agencies and economic forces. A sustainable development focus

may require dramatic changes, however, in the approach used by conservation-oriented civic associations. Adopting a joint biodiversity and sustainable development agenda, moves significantly beyond site-based conservation. It requires, addressing directly the key agents of change. New types of information will be required to reveal and track interconnections so that effective interventions can be designed and outcomes properly documented.

Working with key economic sectors
Many states look toward Quintana Roo as a model for tourism (i.e., the "Cancun model"), or as a exemplar for protected area management (it has the largest number of protected areas in Mexico), or as the most successful application of Mexico's laws and policies in land management (POET). However, each of these has been developed sectorally, and has not been evaluated in terms of their combined effectiveness towards sustainable development. States like Quintana Roo needs to know whether its development decisions and trajectory are, in fact, generating its desired social and economic benefits, and minimizing the environmental and long-term costs. Further, Quintana Roo lacks the conceptual framework or the right kind of data on trends and effects to answer such basic questions.[52]

Mexico can also identify opportunities to leverage the relevant ongoing work and future investments of the IDB, JICA, and GEF, and initiatives and international programs such as the Global Initiative for Water.

Sharing responsibility
Full advantage needs to be taken of existing local networks by defining specific roles, tasks and projects for the members. For example, ways can be identified to link development patterns of northern and southern Quintana Roo to find incentives for new ways of thinking as well as financial support to manage better in the south. Doing this requires efforts to:

- Determine the future development patterns and economic potential based on the current trajectory
- Map the distribution of benefits and impacts, both socioeconomic and environmental
- Determine the drivers for and the role of good practices, governance, and participatory management in advancing sustainable development
- Identify and disseminate the economic contributions of the Natural Protected Areas
- Assess the complementary or competitive strategies for management and development
- Evaluate and utilize measures of trends in community social well-being such as the components of the index of marginalization as part of assessing progress

3. Create the capacity to foster behavior change through awareness, organizational development and incentives

Learning is at the heart of making progress, and much needs to be done to break down barriers and isolation among the many groups and leaders engaged in coastal resource management. Mexican professionals must engage in support networks and leadership circles to promote the exchange of methods, insights and examples within the coastal regions of Latin America.

Taking small steps: special events and exchanges
CRC's own extended network of partners and collaborating professions can be encouraged and supported to participate in events, conferences and exchanges that expose a wider Mexican and regional audience to ideas, innovations, and example products and interventions.

New partners
World Business Council associates in Mexico can be engaged to help promote efficient and responsible tourism development throughout the business value chain. Work could also be done with the state hotel associations to develop a code of conduct and provide technical assistance for development. SEMARNAT's tourism practices handbook and other tools, including the *Guidelines for Low-Impact Tourism* manual and the PA Associates' work in environmental management systems for tourism and energy should be utilized during the development phase—not after hotel construction is complete.

An integrated approach to advancing good practices for sustainable, low-impact tourism requires building alliances with the private sector to ensure a systematic approach to siting, operating and servicing new development. Such partnerships can help establish and implement public policy and promote codes of conduct and adequate business practices that enable coastal states such as Quintana Roo to achieve sustainable tourism as an effective means for community development and economic security for the region.

Future programs can partner with hotels and municipalities to reduce impacts and gain benefits from a streamlined and effective permit process. Hotel audits and environmental management systems can be greatly expanded, often in coordination with a regional initiative such as the Meso-American Reef certification program.

Coastal programs in Mexico also need to work to align infrastructure and major development lending and investment projects (including at the national and international levels) more directly with environmental policies and more consistently with conservation investments and good stewardship practices.

Build constituencies for change
Constituencies for coastal management must be built and/or strengthened at the local, state and federal levels, to help get policies adopted, mobilize resources for implementation, and ensure on-the-ground compliance with policy. The private sector and resource users are vital members of this constituency.

A culture of commitment to environmental quality also can be fostered through improved science and environmental education. Regional and local conservation organizations and some universities are already able to support initiatives such as those in Bahía Santa María or Xcalak.

Additional support must be channeled to universities and other "think and do" institutions to work on long-term solutions for human resources development, community extension, research and monitoring. For example, university centers and institutes based in La Paz, Culiacan, Mazatlán, Guaymas, Hermosillo, Ensenada and other coastal areas around the Gulf of California can provide degree education, training, outreach and extension type services to both the private

and public sectors and governance initiatives. UQROO, with affiliated institutions throughout the Yucatan Peninsula, is beginning to play this role. Civic associations such as ALCOSTA in the Gulf, and the RedMIRC in Quintana Roo can also play a catalyst and supporting role.

Professional capacity
Universities in both regions where coastal management is underway could continue to build the core competencies needed by coastal managers. These competencies include: skills in project design, program management, negotiation and participatory process, ICM technical issue analysis, identification and diffusion of good policies and practices, and crafting of agreements. One approach to consider is the Sea Grant/Land Grant model. This U.S.-based program links university researchers and experts with businesses, resource users, and civic groups. Research, extension, and capacity building are linked through carefully designed research and extension work programs. A Mexico Sea Grant program might be attractive for funding under existing mechanisms or through new conservation or coastal management trust funds. It is a successful model for how applied science can support the adoption of good practices.

Leadership and organizational effectiveness
Leadership circles and local networks for professionals should be supported. The Mexican Learning for Conservation Initiative (IMAC) is such a network. IMAC provides training, access to a network and ongoing support to groups working in regions such as the Gulf of California. This model fosters rapid exchange of methods, insights and examples within the coastal regions of Mexico and links Mexican expertise and international practitioners through exchanges within and outside of Latin America.

Educating the next generation of leaders and institutions to be effective coastal stewards must be another major goal. Incentives and support are needed to enhance the role of academic institutions to conduct applied research and extension for resource management and to improve the scientific basis of management decisions. New generations of students, faculty, and practitioners will need these skills to help in the transition of Mexican states from over-dependence on regulatory tools to the practice of integrated sustainable development.

In general, better mechanisms need to be identified in order to more quickly translate and communicate essential research generated in Mexican and U.S. institutions toward management and development choices.

Networks for learning
Mexican professionals are also contributing to and being supported by a Latin America network of coastal managers. This network is an important mechanism for exchanging experience, targeting short courses, and disseminating materials. The combined experience and thought is leading to a robust approach to coastal resource and watershed management—i.e., a white water to blue water perspective—that is uniquely capable of meeting the social, economic and conservation needs of this diverse region. This network is feeding an emerging knowledge management system that encourages inflows and outflows of knowledge that are essential for a new generation of coastal managers to tailor their projects and programs to the needs and traditions of the region and its peoples.

4. Establish and carry out a national coastal management policy that creates the enabling conditions for local and regional success.

Making integration among layers and across sectors work
The Mexican government can build on its commitments for transparency and decentralization by removing the financial and administrative obstacles to preparing integrated strategies for resource management. While the federal government controls decisions for marine, coastal, and freshwater, its various agencies have difficulty jointly exercising their authority to serve the needs of a local constituency or to address cross-sectoral problems. The form in which environmental planning currently takes place seldom sets the stage for thoughtful coastal and landscape management. A better way is needed to meld municipal ordinances, water body and watershed management, conservation areas, fisheries management, environmental law enforcement and other policy and implementation tools. Discrete efforts also need to be made to sustain participatory decisionmaking once the programs are created. While SEMARNAT and the Federal Social Development agency (SEDESOL) have existing programs that decentralize decisionmaking within and outside of protected areas, a piecemeal approach will do little to create and sustain the critical mass of expertise, support and commitment required for an effective approach.

Unleash the potential of states and municipalities
Models for ICM need to be operating at the municipal scale for coastal ecosystems of regional and national importance. These can generate inspiration and documented experience that is being applied in new locations.

Avoid "re-centralization"
There is a risk of "re-centralization"—if the federal government does move ahead to exert leadership. In an attempt to avert or balance this, it is necessary to identify priority regions and projects that can demonstrate success in specific sites. These projects should consider important land-water interactions and focus on ecological units that include critical resources, population centers, or economic activity zones.

5. Secure sustained financing for coastal resources management through traditional and innovative channels

Address the social and economic dimensions of conservation
Biodiversity objectives dominated both donor funding and the Mexican environmental community's activities during the 1990s. As a result, significant advances have been made in identifying and prioritizing conservation sites. Now, however, sustainable development of coastal communities is emerging as a priority. Much needs to be done to incorporate the social and economic dimensions of resource use, as well as the condition and quality of "working" coastal ecosystems into the conservation agenda.

Engage with communities
Conservation-oriented civic associations in Mexico have discovered the importance of engaging with communities, government agencies and economic forces. A sustainable development focus may require dramatic changes in approach for these conservation-oriented civic associations. Adopting a joint biodiversity and sustainable development agenda moves significantly beyond

site-based conservation. It requires directly addressing the key agents of change. New types of information will be required to reveal and track the interconnections so that effective interventions can be designed and their outcomes properly documented.

Pursue new funding instruments
Marine and terrestrial protected area park managers need to work with civic associations to both gain a constituency for national funding and to encourage private fundraising for complementary activities. Municipalities must make faster progress in taking on the issuing of concessions and setting use requirements for the Federal Zone. States can better articulate research needs for the National Science Foundation, (CONACYT), and the Mexican Nature Conservation Fund. Development bank projects can incorporate coastal management elements in their design and funding. User fees and volunteer involvement in a variety of aspects of coastal management can also generate resources for management.

Work with municipalities
Mexico's municipalities already have the legal basis to raise revenues for coastal management through administering the concessions in the Federal Zone. Yet, to date, few have gained all the approvals needed to carry out this assessment and revenue collection role. Fewer still have used this opportunity as a way to unify municipal environmental planning and regulation. Local resistance may come from the perceived high costs of getting the process started. There is limited experience on how to progress from tax generation to setting local coastal area use policies or how to create mechanisms such as the proposed Trust Fund for Bahía Santa María. Mexico would benefit from an initiative, in conjunction with the Federal Maritime Zone Program (ZOFEMATAC), to help motivate and prepare municipalities for this role.

Special areas and regions
External donors and Mexican environmental and conservation organizations often focus on priority sites or hotspots. These donors and government agencies need to provide more than funding, however. They need to also provide leadership and offer feedback on program strategies, work plans, and the assessment of program results. Donors and public agencies benefit by negotiating a common vision. For example, the Meso-American Reef Initiative is a conservation corridor aimed at providing support to projects in each adjacent country. Conservation groups are also working with the Mexican Nature Trust to design a fund for work in the Gulf of California region. Special areas could also include recreational or fishing ports and harbors, embayments, wetlands, areas adjacent to parks and protected areas, or a conservation corridor such as the chain of mangrove wetlands extending along the coast from Sonora to Nayarit.

Investments in economic sectors most likely to affect or need coastal resources
Multi-lateral donors are anxious to help ensure compatibility and sustainability in defining and implementing program initiatives. For example, the IDB is financing the *Mundo Maya* tourism initiative as part of the Plan Pueblo Panama. Infrastructure and highway improvements are aimed at jump-starting tourism development in Costa Maya and the World Bank has provided a very large structural adjustment loan to SEMARNAT. It would be highly desirable to open up dialogue and experience exchange on how coastal management actions can be incorporated into these investments. Donor agencies have a unique ability to contact and share information among

an array of projects and partners on a regular basis can help bring in complementary experiences and expertise.

C^3EM has added to Mexico's experience and learning in ICM practices. New programs that draw upon this experience and upon the five strategies we suggest can begin to tackle the challenges and reach the vision set by the Mexico's practitioners and decisionmakers. Doing so may mean Mexico can reach or even surpass the global goal of having 20 percent of its coast under better management within the next decade. This is most likely to happen if coastal management becomes part of the mainstream of biodiversity conservation, sustainable community development, and development investments in ports, tourism, aquaculture and fisheries.

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Annex 1 A TIMELINE OF THE MEXICO PROJECT

Italics represents USAID Mexico project milestones, while other events are included to describe the unfolding overall context for coastal management in Mexico.

	Mexico – National Events and Decisions	**Quintana Roo/ Meso-American Reef**	**Bahía Santa María (BSM)/Gulf of California**
1972		Cancun established as tourism resort. Quintana Roo becomes a state.	
1978			The nearly 900 islands in the Gulf of California are included in the Gulf Islands Flora and Fauna Refuge
1986	Sian Ka'an Biosphere Reserve declared	Amigos de Sian Ka'an founded	
1987			CI launches ecosystem conservation strategy in Mexico combining habitat protection with long-term community participation in regional economic growth
1988	Mexico Adopts General Environmental Law	Hurricane Gilbert hits Quintana Roo	
1992	Rio de Janeiro Conference on the Environment		Biosphere Reserve of the Upper Gulf declared,
1994	Mexican Nature Conservation Fund is established	*USAID proposal to Summit of the Americas accepted*	
1994		Kohl Study proposes development of Costa Maya in southern Quintana Roo	First participatory management program developed for the Upper Gulf Biosphere Reserve
1995		Letter from Xcalak fishers to Governor of Quintana Roo requesting Marine Park *CRC begins work with Amigos de Sian Ka'an*	Gulf Islands Park Management program initiated

	Mexico - National Events and Decisions	Quintana Roo/ Meso-American Reef	Bahía Santa María/ Gulf of California
1996	Mexico reforms its Environmental Law: the General Law for Ecological Equilibrium Banco Chinchorro Biosphere Reserve declared Loreto National Park established as the first marine park surrounding Gulf islands in Baja California Sur	Chetumal Bay Manatee Sanctuary declared (State) *Rapid environmental assessment takes place to prepare Xcalak Marine Park proposal; site visit to Hol Chan, Belize*	
1997		Meso-American Reef Initiative declared Costa Maya Development Plan released *Xcalak Community Strategy released*	
1998		Road to Xcalak is constructed Xcalak decides to wait for new governor to complete negotiations on Marine Park *Tourism "Best Practices" Guidelines published* *CRC begins work with the University of Quintana Roo (UQROO) on a Community profile of Laguna Guerrero and Raudales*	Municipality of Angostura requests assistance from the University of Sinaloa to address bay issues Conservation International formulates project proposal Joint Venture of Gulf region organizations formed *CRC initiates partnership with Conservation International for GOC work*
1999		*Link with USAID's democracy program for municipal exchange Chetumal-Sarasota Florida*	Alliance of Coastal NGOs is formed *Declaration of Culiacan: Vision and goals for Santa Maria Bay*
2000	Change in political parties in the national presidential election for the first time after 80 years of rule The Inter-American Development Bank publishes its coastal management strategy INE publishes its coastal management strategy	Costa Maya Environmental Plan published *Xcalak Marine Park Declared* *UQROO and URI initiate exchange to build capacity in GIS at UQROO*	The Sinaloa Aquaculture Institute is created *BSM Commission for Conservation and Development formed to develop a management strategy* *1st Workshop defines appropriate institutional framework for BSM*

2001	Plan Pueblo-Panama is announced as an economic development strategy for southern Mexico (including QROO) The Nautical Route Development Proposal is announced for the northwest Mexico coast including the Gulf of California	*UQROO launched a Coastal Management Program* *UQROO and URI receive USAID funds to collaborate in developing a geographic information system and Chetumal Bay Symposium* Mahahual Cruise Ship Pier begins operation	The Mazatlan Priorities workshop brings together 150 experts to identify conservation priorities for the Gulf of California CRC initiates Women in ICM, Leadership and Development Program in 6 countries *A proposal to create a trust fund for BSM is reviewed by the municipalities* *The BSM logical framework for implementation is developed* *The Early Actions Workshop in BSM attracts 172 participants, mainly women* *Packard Foundation funds work on aquaculture best practices in Sinaloa* *Reconnaissance trip for the Escalera Nautica establishes a baseline for marina good management practices*
2002	Mexico meetings on Integrated Coastal Management in preparation for WSSD	***X**calak Marine Park Management Plan completed, park manager is hired* *Mahahual Research Station is inaugurated* *University of Quintana Roo forms Integrated Natural Resources Management Center incorporating coastal management* *Chetumal Bay symposium proceedings are published* *UQROO is designated as a node for the Meso-American Reef geographic information system* *ASK initiates community tourism and enforcement projects in Costa Maya* *RedMIRC initiates the USAID-sponsored program for water quality advocacy and training, La Coalición para la Limpieza activa del Recurso Aqua - CLARA in Chetumal*	Sinaloa releases the Coastal Environmental Ordinance Draft of the Gulf of California Marine Environmental Ordinance is circulated *BSM bay strategy presented to state and federal officials* *Private sector dialogue on Gulf governance initiated to develop regional vision* *Packard Foundation provides funds for good management practices initiative for marinas and mariculture*

2003		*Municipality of Othón P. Blanco undertakes coastal planning for 20km test area and initiates work to improve fee collections in the ZOFEMATAC* *Quintana Roo government commissions an update of Chetumal Bay Manati Sanctuary Plan* *Cooperative completes the Tourism Business Plan completed for Xcalak* *Mahahual residents develop a draft village ordinance to manage their beachfront and reef lagoon* *Mexico Training, Internships, Exchanges, and Scholarships (TIES) Partnership Initiative begins between UQROO, URI and University of New Mexico* *Tourism Business Plan developed for Xcalak Cooperative*	Municipalities of Navolato and Angostura sign an agreement to formally create a trust fund and joint management mechanism *Pescador a Pescador event brings 44 fisherfolk from 10 communities together.* *Voices of the Coast bring 6 women's groups together to advance local environmental initiatives*

Endnotes

[1] Mexico National Ecology Institute. 2000. A proposal for integrated coastal management in Mexico.
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[12] See Earl, S., F. Carden and T. Smutylo. 2001. Outcome Mapping: building learning and reflection in to development programs. International Development Research Centre. Ottawa, Canada and the discussion in Chapter 13.
[13] See Grant, R. 2002. Contemporary Strategy Analysis: Concepts, Techniques and Applications. Fourth Edition. Malden: Blackwell Business. Grant in turn draws on the work of Henry Mintzberg, for example, Mintzberg, 1988, Mintzberg on Management. New York: Free Press.
[14] See the discussion of A. Ornat's ideas in Part 6.
[15] This discussion is taken from Grant, R. 2002. Op. Cit.
[16] An ejido is a specific form of land tenure, stipulated by law, in which an individual member has the right to the exploitation of a specific plot of land. The right is not equivalent to ownership of the land. It consists of direct use of the land. The ejidatario cannot sell, rent, or mortgage the plot.
[17] This language is taken from the concept of outcome mapping. See Sarah Earl, Fred Carden and Terry Smutylo. 2002, Op. Cit.
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