

# A WORLD OF LEARNING IN COASTAL MANAGEMENT

**A Portfolio of  
Coastal Resources  
Management Program  
Experience and Products**

CD-ROM included



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# **A WORLD OF LEARNING IN COASTAL MANAGEMENT**

## **A PORTFOLIO OF COASTAL RESOURCES MANAGEMENT PROGRAM EXPERIENCE AND PRODUCTS**

The Coastal Resources Management Program is a Partnership between the United States Agency for International Development and the University of Rhode Island Coastal Resources Center

2002

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## Preface

Sustainable development depends on clean, abundant and affordable water. The U.S. Agency for International Development's (USAID) strategic goals of promoting economic and agricultural development, protecting human health, preventing conflict, and safeguarding the environment all demand better, more integrated management of water. Since most of the earth's water is in oceans and seas, and nearly half of the world's population resides in close proximity to coasts, improving the management of coastal regions and resources has been a long-term priority for USAID.

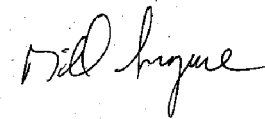
The need for improved management of coastal regions is urgent. Globally, the marine catch accounts for 16 percent of animal protein consumed by humans; the majority of these fish and shellfish are dependent at some time in their life cycle on coastal habitats. Maritime commerce, oil and gas production, aquaculture, pharmaceutical and industrial biotechnology, tourism, and recreation are but a few of the manifold human uses whose value is great, but is difficult to quantify. Add to these the myriad of free ecological services such as storm surge protection, water filtration and dispersal of effluents, and the importance of these regions is difficult to overestimate.

But the challenge of management is equally huge; these are systems where sectoral approaches are woefully inadequate. Many interest groups and agencies must work together if progress is to be made. It is also a relatively new field, with efforts in our own country extending back only 30 years, and in

developing countries even fewer. Successful integrated coastal management is ultimately about forging the right balance between competing uses of water and natural resources, while ensuring that long-term environmental health and productivity are not compromised.

USAID has been a pioneer in working with developing countries to improve the governance of coastal ecosystems, and our nearly two-decade partnership with the University of Rhode Island's Coastal Resources Center (URI-CRC) has been central to our Coastal Resources Management Program (CRMP). CRMP designs and implements long-term field programs that work to build the capacity to effectively practice coastal governance. It also carries out analyses and identifies lessons drawn from within and across field projects, and disseminates experience and lessons learned through training programs, publications and participation in global forums.

This booklet and the accompanying CD-ROM offer a significant portion of the coastal management repertoire that has been developed through the USAID/URI-CRC partnership. We hope you find both the booklet and CD-ROM useful.



Bill Sugrue

Director of the Office of Environment and Natural Resources, Bureau for Economic Growth, Agriculture and Trade; U.S. Agency for International Development

# SHARING KNOWLEDGE AND EXPERIENCE IN INTEGRATED COASTAL MANAGEMENT

Over the past 30 years, there have been hundreds of international initiatives, programs and projects by governments, organizations and citizen groups that attempt to more effectively govern the world's coastal and marine ecosystems. While the need for communication and sharing knowledge among groups working to address similar issues in different places is widely recognized, a greater emphasis upon the dissemination, integration and analysis of this growing body of experience is

required. Too often coastal management efforts are conducted in isolation from one another; experience is not documented and analyzed; and we are not benefiting from our collective accumulated experience about what works, what doesn't, and why. This produces inefficiency in addressing the urgent issues posed by the accelerating social and environmental changes in coastal ecosystems. The Coastal Resources Management Program (CRMP) promotes and practices a learning-based approach to coastal



As the global coastal population grows, areas must support even more uses, as at the busy port of Manado in Indonesia.

management, and places great value in the sharing of experience.

CRMP's primary objective in the countries where it works is to advance the integrated coastal management (ICM) process. Key components of this process include:

- ◆ Broad stakeholder **participation** and empowerment in decisionmaking
- ◆ Effective **coordination** among sectors, between public and private entities, and across multiple scales
- ◆ An emphasis on **decentralized governance** and compatibility between local and national governance
- ◆ Commitment to creating and strengthening human and organizational **capacity** for sustainable ICM
- ◆ Informed and **science-based decisionmaking**

While individual programs must be tailored to the unique environmental, cultural and political conditions that exist in each location, such efforts are nourished when they can draw from the now substantial ICM repertoire that exists—both CRMP's and those developed by others.

For example, we believe knowing how communities in the Philippines developed their community-based marine sanctuaries can provide useful insights to Indonesian practitioners as they attempt to establish marine reserves. Good mariculture practices developed for Honduras can be

adapted for use in Mexico. The process used for developing integrated management plans for the village of Tumbak in North Sulawesi, Indonesia, can inspire the village of Xcalak in Mexico. And Ecuador and Sri Lanka's experiences with developing national approaches to managing their shorelines helped CRMP move through the process more efficiently in Tanzania.

This booklet and the accompanying CD-ROM make the more recent portion of CRMP's considerable coastal management repertoire broadly available. To make it accessible, we introduce our experience by theme and by place. The themes include:

**Governance**, the processes in which public, private and civil society actors organize themselves and coordinate with each other to make decisions and distribute rights, obligations and authority for the use of shared coastal resources.

**Critical Coastal Habitats**, with an emphasis on approaches to and examples of managing and monitoring coral reefs, mangrove wetlands and estuaries.

**Sustainable Coastal Development**, with an emphasis on approaches for encouraging and managing sustainable tourism and mariculture.

**Capacity Building**, with an emphasis on training and educating coastal management practitioners.

**Learning**, including tools and methodologies for adapting programs to new knowledge and changing socio-political contexts, and the application of those methodologies to particular locations.

In the second section, we summarize the strategies being used in the three countries where CRMP is currently engaged in sustained programs—Indonesia, Tanzania and Mexico. Through these examples, we hope not only to share what we are doing, but to make clear how different themes are integrated into an overall ICM program.

Many more themes than the five we have highlighted enter into coastal management. Some of the issues that we have found ourselves increasingly involved with and emphasizing more explicitly include equity, democracy, food security and integrated water resource management.

CRMP recently explored the linkages among gender equity, demographic dynamics, and leadership diversity at an international workshop hosted by the Coastal Resources Center. The work on this topic reconfirms that although the global community recognizes the importance of

environment, gender and population linkages in the action agendas of global United Nations meetings, there is little tangible collaborative or synergistic work among ICM, gender and population organizations. If ICM is to make its full contribution to sustainable development, coastal managers must team with others to find ways to better integrate gender, equity and population/consumption concerns into plans, programs and policies.

Food security and poverty reduction strategies are the central concerns of low-income countries. As attention to sustainable development issues has grown in recent years, so has an interest in linking ICM with problems of food security. Food security in coastal areas is a multidimensional theme. It is more than just improving the stewardship and productivity of inshore fisheries and promoting mariculture, it is also about reducing coastal hazards and



A women's group meeting in North Sulawesi, Indonesia. Gender equity, population, and environmental leadership are emerging issues that need to be addressed by coastal management.





Tanzania's National Coastal Strategy draws from experience developed through local projects like the Mafia Island Marine Park.

vulnerability, developing alternative sources of income, and building capacity and enabling conditions for income growth and investment.

Democratic processes are central to CRMP projects as they work to give people a voice in the process of formulating public policy, and promoting principles such as transparency, pluralism, citizen involvement in decisionmaking, representation, and accountability. The strengthening of democratic institutions within CRMP countries, along with the trend toward decentralization, creates new opportunities and raises important issues concerning the capacity of state and local governments, and the readiness of citizens to take on the responsibilities that come with participation, co-management and local control.

With recognition of the critical interplay between freshwater and coastal estuaries, the linkages and

synergies of integrated water management and ICM have grown in importance. All around the world, and particularly in arid regions, the quantity and quality of freshwater flowing into estuaries is being dramatically reduced. CRMP's partnership in ecologically important but fragile estuaries, such as Bahía Santa María in Mexico and Balikpapan Bay in Indonesia, demonstrates the need to better connect water management and coastal management.

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## *Themes in Coastal Management*

# GOVERNANCE

Good governance is recognized around the world as the core of effective and sustainable coastal management. “Governance” is much more than just government; it encompasses the processes in which public, private and civil society actors organize themselves and coordinate with each other to make decisions, and distribute rights, obligations and authority for the use of shared coastal resources. A central operating principle of the Coastal Resources Management Program (CRMP) is that effective governance systems create the essential preconditions for achieving environmental and social benefits.

Integrated coastal management (ICM) plays an important role in advancing places towards sustainable forms of coastal development through a linked sequence of outcomes. First order outcomes are expressed as formalized commitments to ICM plans, establishment of institutional mechanisms, and provision of the funding and other resources that make feasible the implementation of policies and actions. Second order outcomes are changed behaviors which occur as the result of successful implementation of ICM plans. They include institutional change, positive results

of state-civil society partnerships, and behavioral changes of resource users. Second order changes in behaviors of user groups and organizations are the precursors to third order outcomes—the results that are expressed as measurable improvements in targeted environmental and socioeconomic parameters. Most ICM programs target third order outcomes. CRMP’s primary objective in the countries where its coastal managers work is to advance the ICM governance process towards more sustainable forms of development. Achievements of a sequence of outcomes are the stepping stones that lead to the ultimate goal.

During the first phase of CRMP, from 1985 to 1995, long-term field programs were conducted in Ecuador, Sri Lanka and Thailand. Since 1995, during its second phase, CRMP has worked with partners in



A village meeting in the Tanzanian coastal town of Kilwa. Successful coastal management encourages public participation.

Tanzania, Indonesia and Mexico to advance ICM at both national and local levels.

CRMP recognizes that progress in ICM happens place by place, and that the principles and governance arrangements that foster ICM must be tailored to the unique conditions, culture and history of each nation. CRC has adopted a strategy that calls for experimenting with the application of ICM practices at the local scale, while building constituencies, capacity and policy within national government. This “two-track approach” features an initial emphasis on tangible demonstrations of what ICM means and how it can result in improved governance, changed behaviors and improved conditions. Pilot projects also reveal how the principles of good governance should be tailored to the culture and needs of a specific country.

CRMP is currently working intensively to develop ICM demonstrations in multiple coastal communities in Indonesia, and in the coastal community of Xcalak, Mexico. An important milestone in each community effort is the preparation and formal adoption of management plans. This has been achieved for each demonstration site, and these plans are actively being implemented.

Building ICM governance capacity at the sub-national level is also part of CRMP demonstrations. At the bay scale, management plans and action

strategies have been prepared for Balikpapan Bay in East Kalimantan, Indonesia; Chwaka Bay-Paje, Zanzibar; and with CRMP’s partners Conservation International/Mexico, in Bahía Santa María in Sinaloa, Mexico. Action strategies were developed for larger geographic areas where there is rapid development—such as Lampung Province in Sumatra, Indonesia—and CRMP is also contributing to efforts for ecosystem management of the Gulf of California.

Sub-national and community-based management needs supportive policy and institutional structures at the national level to be effective and sustained in the long term. Whether working primarily at the national or local level, strategies to improve supportive links between central governance structures and policies, and sub-national governance, are key in all locations. In this way, ICM builds capacity for effective decentralized management.

National-level initiatives to build capacity for ICM governance across spatial and sectoral scales have been major components of CRMP’s work in Tanzania and Indonesia. These and other national efforts build from both local and international experience, and work to nest in central government conditions that enable and support local initiatives, while addressing coastal development and conservation that is in the national interest.

## *Themes in Coastal Management*

# CRITICAL COASTAL HABITATS

Coastal ecosystems encompass a broad range of habitat types, harboring a wealth of biodiversity. These rich environments provide critical habitat and spawning grounds that support an array of goods and services of direct benefit to humans. Globally, nearly two-thirds of all fish harvested depend upon coastal wetlands, sea grasses and coral reefs during various stages in their life cycles, and about 90 percent of the world fish catch is caught or reared along coasts.

These facts demonstrate why habitat protection and management are critical in all coastal management programs—both national and local—on which the Coastal Resources Management Program (CRMP) works. All CRMP manage-

ment plans contain policies and objectives that address protection and restoration of critical coastal habitats.

Because coral reefs have particular importance to the coastal nations where CRMP is active, and because coral reefs have become a powerful symbol for coastal ecosystems worldwide, CRMP has carried out a number of special projects to contribute to the important global effort to sustain the planet's reefs. CRMP assisted Thailand to launch a national coral reef management strategy in 1992, and contributed to launching the International Coral Reef Initiative in 1994. CRMP has pioneered the development and use of socio-economic and governance indicators that measure the human dimensions



A community member holds a Crown-of-Thorns starfish on his paddle during a reef cleanup. CRMP programs routinely work to preserve reefs as valuable resources.

of coral reefs. In addition, when widespread bleaching of coral reefs occurred in 1998, CRMP examined the socioeconomic impacts of this phenomenon in the Asia Pacific region.

In addition to these special projects, CRMP programs routinely work to improve overall management of coral reefs. This includes developing practical approaches and guidance documents for resource users to monitor and solve typical problems—such as anchor damage or Crown-of-Thorns starfish outbreaks. Important research—both qualitative and quantitative—has been carried out in the Philippines through CRMP’s work to try to better understand the specific factors that make community-based, coral reef marine protected areas successful.



To avoid destructive practices such as clear-cutting, CRMP promotes sustainable mangrove use.

CRMP also addressed mangrove protection issues, particularly in Ecuador and Central America, where the existing approach to their protection is in many instances doing little to slow trends of their removal or degradation. In Ecuador, the coastal management program promotes an approach that emphasizes the sustainable use of mangroves by local communities, and coordinated monitoring and enforcement of laws prohibiting conversion of mangroves into shrimp ponds and/or urban settlements. A special issue of the Coastal Resources Center’s *InterCoast* newsletter surveyed the status of management efforts in a diversity of settings. Most recently, CRMP field programs are developing bay management plans with local partners for Balikpapan Bay in Indonesia and Bahía Santa María in Mexico that highlight actions to promote mangrove conservation.

Coastal estuaries are highly productive, and play a crucial role in sustaining fisheries. Water quality degradation, user conflicts, and changes to the quantity and pulsing of fresh water flows into estuaries are major issues along every coast. Several CRMP programs have focused on estuary management, including Rekawa Lagoon in Sri Lanka, the lagoons of Nicaraguan Mosquitia, and Bahía Santa María in Mexico.

# SUSTAINABLE COASTAL DEVELOPMENT

**I**ntegrated coastal management (ICM)—a concept that embraces actions that allow people to prosper and the environment to thrive—is a tool for achieving sustainable forms of development. Sustainable development in coastal areas strives to encourage social well-being and economic growth and prosperity, while minimizing the negative impacts of economic activities on the ecosystem.

The Coastal Resources Management Program (CRMP) has worked actively to promote the sustainable development of coastal tourism and mariculture. These industries offer employment and income opportunities for people living in economically deprived coastal areas. In many places tourism and mariculture growth is explosive and poorly planned, giving rise to detrimental environmental impacts that cumulatively undermine the economic sustainability of the industry itself. CRMP has helped to address these and other economic activities that are bringing both opportunities and conflicts to coastal areas. The approach used includes working with the government, private industry and communities to set policy, prepare permitting guidance, develop good practices, and strengthen regulatory rules and guidelines.

Mariculture, especially shrimp farming, has undergone explosive growth in many of the countries where CRMP has worked. Governance mechanisms are often inadequate to prevent the unplanned and unregulated over-development of mariculture operations in specific estuaries and stretches of the coast, leading to declines in water quality, disease, user conflicts and ultimately reduction in mariculture productivity.

Shrimp farming was a central focus of the Ecuador initiative as early as 1984. In Honduras and Mexico, CRMP has partnered with shrimp farm industry groups and other stakeholders to develop and adopt good management practices that both reduce environmental impacts and improve efficiency. Extension and training materials have been produced with private sector and university partners in Nicaragua and Honduras with the goal of building individual farmers' capacity to implement sustainable practices.

This voluntary and cooperative approach to environmental management of the shrimp mariculture industry is being adapted for use in the region of Bahía Santa María, Mexico.

Shrimp farming is also a predominant economic activity and driving force of ecosystem degra-



dation in coastal areas of Indonesia. A pilot project in the coastal village of Pematang Pasir, in Sumatra, is working with producers, community organizations and government to enhance capacity for self-management.

In Tanzania, where little mariculture currently exists, the central government and CRMP are proactively promoting development in a way that is environmentally sound. Guidelines for government decisionmaking authority and permitting procedures for investors have been formulated and approved by the key government agencies. In addition, a *Mariculture Guidelines Source Book* has been prepared that includes technical information for siting and operating different types of mariculture enterprises.

Tourism represents one of the most important sources of revenue and foreign exchange for many coastal nations. In Mexico, it is the driving force for economic development in the state of Quintana Roo. The ICM project in Quintana Roo, building from earlier experience in Sri Lanka, collaborated with universities, business, nongovernmental organizations and government to produce guidelines for low-impact tourism development. While practices are promoted for voluntary use, they have also been

incorporated in the government permit review procedures.

In Tanzania, there is still relatively little coastal tourism, but it is growing rapidly. The CRMP project there has formed a tourism inter-agency working group, the first activity of which was to prepare and present a *Coastal Tourism Situation Analysis* to government agency directors in 2001. The working group is now developing guidelines for environmentally, socially and economically sound tourism development.

It is important to look at the regional scale of planning and the country's overall economic development strategy when building capacity for sustainable development of these economic activities. In Ecuador, macrozoning tools and analysis proved to be effective in formulating development strategies based on environmental considerations, social needs and economic opportunities.



In Quintana Roo, Mexico, tourism is the driving force for economic development.

## Themes in Coastal Management

# CAPACITY BUILDING

Inadequate capacity to practice integrated coastal management (ICM) and to design and implement strategies that lead to more sustainable forms of coastal development is the primary factor limiting progress in ICM. This weakness is apparent in both developed and developing nations. Building partner capacity is therefore central to the work of the Coastal Resources Management Program (CRMP).

Capacity building requires more than human development through education and training—it requires institutional development and development of enabling frameworks. The gap in institutional capacity is a primary reason for CRMP’s incremental approach to making good ICM practices an

operational reality in the nations where we operate. A central goal of all CRMP activities is to build and strengthen the capacity of individuals and institutions to successfully lead, catalyze and support coastal management efforts.

CRMP’s primary approach to building human capacity is through “learning by doing.” In-country work is largely implemented by host country nationals through in-country staff, consultants, working groups and other partners who, working with CRMP staff and consultants, undertake project activities and develop products that advance the country’s ICM initiatives. In-country ICM practitioner capacity is also strengthened by building national, regional and international networks of ICM practitioners that actively



A CRMP staff member trains local teachers for exploring the Blongko marine sanctuary in North Sulawesi, Indonesia.

share experience through annual retreats, e-mail listservers, project journals and newsletters (e.g., *InterCoast*, *Pwani Yetu*). Multi-partner workshops and conferences are occasionally convened to address special topics.



CRMP also builds capacity through education and training. In 1995, CRMP convened a conference in Rhode Island entitled *Educating Coastal Managers*. This conference identified and described approaches to building human capacity and defined the knowledge, skills and attitudes most critical for managers engaged in ICM. CRMP conducts several types of training—international short courses, regional courses and in-country courses—for coastal management practitioners, government officials and decisionmakers, universities, local communities and other stakeholders. Over the course of the last 16 years, CRMP has helped raise the skills of men and women from 68 countries worldwide. The bi-annual Summer Institute in Coastal Management has been ongoing since 1992, and regional training programs with local universities have been offered in Thailand, Ecuador and the Philippines. The curriculum varies with participant needs, is experiential in approach, and draws

heavily from CRMP's field repertoire of experience. Many of the individuals trained in the Summer Institute now play an important role in ICM national and local programs around the globe.

The recently completed Learning & Performing course implemented in the Western Indian Ocean region piloted a module-based approach to short-term training. The regional course was conducted in partnership with the Western Indian Ocean Marine Science Association (WIOMSA). Through this work, a self-assessment tool to assess individual capacity in coastal management was developed. The tool is organized around four areas of competence—technical competence, professional skills, management skills, and knowledge of ICM tools and approaches.

CRMP also works to raise knowledge, awareness and support for ICM with major stakeholder groups. It does this through active media programs both in key countries and in the U.S.

Participants from around the world take part in CRMP's bi-annual Summer Institute in Coastal Management at the University of Rhode Island.



## Themes in Coastal Management

# LEARNING

Systematic analysis of different actions, assumptions and outcomes are fundamental to learning how to improve the success of integrated coastal management (ICM) efforts worldwide. Capturing lessons from experience, sharing them with other practitioners, and taking action to improve ICM offer the opportunity to improve its effectiveness, reach and cumulative impact. Other challenges lie in successfully linking the participatory processes of coastal governance with the best available reliable knowledge.

The Coastal Resources Management Program (CRMP) has incorporated several types of learning activities. One category is the evaluation and assessment of progress, strategies and management capacities in ICM. This activity promotes evaluation as a planning, decisionmaking and management tool, and builds capacity to assess the adequacy of management and governance structures. This kind of evaluation provides a basis for adjusting strategies in order to increase ICM effectiveness, and generates observations about the features

of successful programs that can be transferred to other initiatives.

CRMP has developed and applied a *Manual for Assessing Progress in Coastal Management* to facilitate evaluation of ICM capacity. The evaluation of four integrated coastal



Learning from experience and sharing knowledge throughout the coastal management communities is advanced by CRMP's growing suite of publications.

conservation projects funded by the Global Environment Facility in Cuba, Belize, Patagonia and the Dominican Republic was based on the manual. The manual was also applied to ICM final evaluations in Ecuador, Central America, and to the marine sciences programs in East Africa sponsored by the Swedish project assistance program, Sida/SAREC. It has also been used to guide self-assessments of CRMP projects in Indonesia, Mexico and Tanzania.

A second learning activity is investigation of specific principles and hypotheses of effective ICM actions in individual initiatives or across several projects and programs. Portfolio learning holds the promise of yielding knowledge of the practice beyond that which can accrue from the examination of single initiatives. For example, a comparative study of important factors in the success of some 45 marine protected areas in the Philippines was conducted with CRMP's Indonesian partners to improve the effectiveness of marine protected area development in Indonesia.

There is a growing commitment in ICM to learn from and expand the discipline by careful study of propositions of good practice in individual projects and across project efforts. Analysis and lesson drawing can provide practitioners and the donor community with much-needed practical information on the benefits of alternative frameworks and approaches to ICM. What methods, strategies and management actions are most effective? How can we better document and analyze experience in order to better understand what works, what doesn't, and why in a diversity of contexts?

CRMP and its partners convened an international workshop in May 2001 at Block Island in Rhode Island to explore the merits of portfolio learning, and how to apply shared learning activities within current and future ICM initiatives. The

findings and recommendations of this workshop are feeding into key global stocktaking events on ICM such as the UNESCO conference on oceans and coasts held in Paris in December 2001, as a precursor to the World Summit on Sustainable Development in Johannesburg, South Africa in August 2002.

Case studies, other types of assessments and lesson drawing comprise CRMP's third learning activity. The aim of these activities is to bring together knowledge about and experience with ICM in an accessible form, and to make this experience available to ICM professionals, donors and policy-makers. Case studies are a useful tool for learning from experience in the implementation of ICM. They provide a valuable dissemination mechanism for improving understanding of ICM, extracting lessons learned, and passing these on to others. All CRMP field programs have developed many cases, assessments and lesson-drawing documents that have been prepared by both internal and external learning teams.

Finally, CRMP programs contribute to learning through continuous development and testing of concepts and tools for ICM field application. For example, topics include action planning, project monitoring and outcome evaluation with control sites, survey methods to assess the behavioral aspects of resource use, and outcome mapping techniques.

## Country Programs

# INDONESIA

Indonesia, the fourth largest country in the world and recognized as the richest in biodiversity, is a nation in transition. The nation's commitment to decentralization has been strengthened by recent government reforms and legislation on regional autonomy. Indonesia is also increasingly looking to its vast marine and coastal resources as an engine for its development. These changes provide unprecedented challenges as well as opportunity for the establishment of effective coastal governance at national and local levels. While major investments have been made in coastal and marine conservation and management in Indonesia, until recently the integrated coastal management (ICM) approach has not been widely applied outside of national protected areas, and a

### GOOD ICM PRACTICES

#### North Sulawesi

- ◆ Community-based marine sanctuaries
- ◆ Village management plans and implementing ordinances
- ◆ Project and control sites monitoring

#### Lampung

- ◆ Participatory provincial strategic planning
- ◆ Coastal atlas as tool for information-based planning
- ◆ Village-scale sustainable shrimp mariculture

#### East Kalimantan

- ◆ Bay management

national focal point for integrated oceans and coast policy was lacking. In 1998, the Ministry of Marine Affairs and Fisheries was created, presenting a major opportunity to develop a coherent approach.

### ICM in Indonesia

When the Coastal Resources Management Program (CRMP)



A thriving fish market in Indonesia, where coastal fisheries are essential for the nation's food security.

initiated work in Indonesia in 1996 through the project known locally as *Proyek Pesisir*, there were numerous marine and coastal programs already ongoing. These typically large programs focused on creating national marine parks, establishing technical capacity in geographic information systems, and planning work at both the site and national levels; few projects had moved forward into implementation. CRMP is using three primary strategies to advance ICM in Indonesia:

- ♦ Implementing place-based demonstrations of ICM good practice that address a range of coastal situations
- ♦ Investing sufficiently in monitoring and documentation so that good practices are “proven”
- ♦ Developing legal and institutional enabling frameworks and capacity at local levels and national scales to sustain and foster replication of ICM good practices

In **North Sulawesi**, community-based ICM planning and management strategies are being implemented. One of the first and most tangible results was the creation of a marine sanctuary which is already paying dividends for local villagers through perceived increases in fisheries production, increased coral cover and expanded economic opportunities. A number of manuals have been produced to assist communities to manage their reefs, including a monitoring manual and a guide for organizing a community clean-up of coral-destroying Crown-of-Thorns starfish. Because the sites in North Sulawesi were designed as pilot projects, extensive baselines were established in 1997 both of physical and socioeconomic conditions at the sites, with intermediate assessments conducted in 2000.

In **Lampung**, *Proyek Pesisir* has created a highly participatory

Journalists from Java and Sumatra interview a shrimp farmer from a mariculture project as part of a *Proyek Pesisir* outreach initiative to enhance media reporting of coastal issues.





A young woman net fishing inshore in Lampung, Indonesia. Sustaining artisanal fishing under increased development pressure poses a challenge to coastal managers.

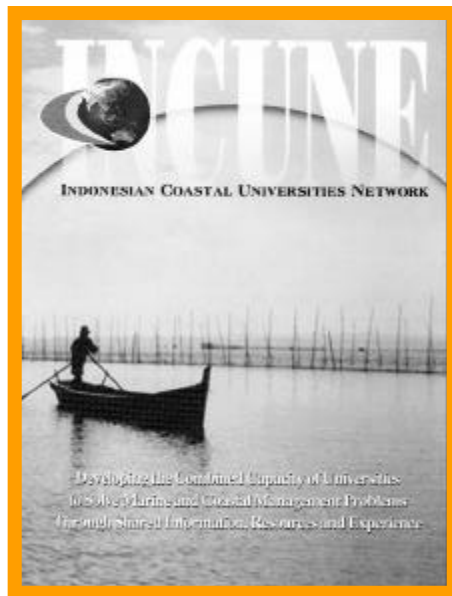
process of planning and management at the provincial scale. The *Lampung Coastal Resources Atlas* defined for the first time the extent and condition of the province's natural resources, through a combination of secondary information and the input of over 270 local stakeholders and 60 government and nongovernment organizations. The Atlas provided the foundation for the development of a Lampung coastal strategic plan. The Atlas and strategic plan spurred intense media coverage and led to significant support from provincial agencies that will provide funding for plan implementation. The project field office has since become an Institut Pertanian Bogor (Bogor

Agricultural Institute) university-based coastal extension initiative. Complementing the provincial work and to support action on priority coastal issues, two community-based initiatives—one in Pematang Pasir with an emphasis on sustainable aquaculture good practice, and the other on an island in Lampung Bay focused on marine sanctuary management—are being implemented.

In **East Kalimantan**, the principal focus is on developing a profile and integrated management plan for Balikpapan Bay and its watershed—the commercial and industrial hub of the province's coastal ecosystem. This profile—again done with a high level of local participation and consultation—is assisting in the development of the first-ever bay plan in Indonesia, and has already resulted in a moratorium on shrimp mariculture in one delta region. The current emphasis is on gaining approval for the integrated management plan for Balikpapan Bay's ecosystem, while enhancing awareness, building partnerships and networks, and strengthening provincial and local government capacity to implement the plan.

The on-the-ground work in field projects was complemented by *Proyek Pesisir's* involvement in shaping a national coastal policy and program. There are three strategies for achieving the project's national goals.





Building on a successful partnership with Bogor Agricultural Institute, CRMP helped establish an 11-university network known as INCUNE to work together to build ICM capacity and knowledge.

First, enabling frameworks for sustained management efforts are being developed. As pilot projects are completed, experiences and good practices are being documented and institutionalized within government, which has the responsibility and capacity to both sustain existing sites and launch additional ones. This is being done through a combination of legal instruments, guidebooks and training.

Second, the new Ministry of Marine Affairs and Fisheries is being supported to develop a law and guidelines for decentralized ICM. Now, more than ever, there is a need and demand for a national coastal law. The new marine ministry is expanding its capacity, and the

passage of the 1999 law extending regional government authority over their marine resources out to 12 miles provides an unprecedented opportunity to make tangible progress towards effective coastal management. CRMP is helping the Indonesian government launch a consultation process to prepare a draft coastal law that can be presented to Parliament in 2002.

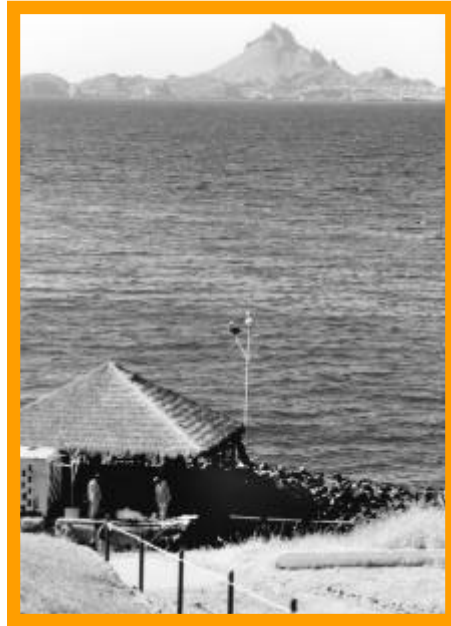
Finally, the project has recognized and is strengthening the unique role that universities play in coastal management. From its inception, CRMP in Indonesia has partnered with Institut Pertanian Bogor (IPB)—the leading marine university in Indonesia. Through its Centre for Coastal and Marine Resources Studies (CCMRS), the university has taken a hands-on role in the Lampung site, established a national ICM reference library (website: <http://www.indomarine.or.id>), initiated an annual ICM learning workshop, and provided research support to other sites. Building from the positive experience with IPB and CCMRS, an Indonesia-wide network of 11 universities (INCUNE) was formed. INCUNE members created a strategy for shared learning and evaluation that outlines how the universities will work together to build experience and capacity, and exchange information about coastal planning and management.

# MEXICO

The economic and governance situations in Mexico have rapidly grown in recent years. Changes in public administration and finance, decentralized planning and coastal development create challenges for the stewardship of Mexico's critical coastal ecosystems. Growth with quality is now a national goal, but the challenge of balancing the need for economic development with responsible management of natural resources and respect for local residents remains. Outside of Mexico's system of protected areas, there is little experience with integrated coastal management (ICM). While there are promising signs—policy tools such as local ecological ordinances are being developed, and there is increasing interest on the part of officials, the private sector and resource users in ICM—tangible examples of what ICM can accomplish in the Mexican context are few, and just beginning to emerge.

## **Conserving Critical Coastal Ecosystems in Mexico**

Within this context, the Coastal Resources Management Program (CRMP) is attempting to demonstrate how a coastal management approach can meaningfully



In the Gulf of California, coastal management must address an intriguing variety of issues including desert islands, tourism, aquaculture and agriculture. These require integrated and innovative approaches to planning and implementation.

contribute to the conservation of critical coastal ecosystems in two ecologically-important coastal areas: Quintana Roo on the Yucatan Peninsula, and the Gulf of California. The cumulative impacts of tourism growth are having a major impact on valuable reefs and wetland ecosystems of the Yucatan Peninsula. In the Gulf of California, key coastal industries of fisheries, agriculture, tourism and aquaculture are also leaving their heavy imprint on the fragile systems of desert islands and mangrove-fringed



estuaries. In both areas, the cumulative impacts of coastal development, with many agencies and stakeholders involved, require new and integrated planning processes, decisionmaking and implementation strategies. The approach of CRMP is to:

- ◆ Demonstrate the utility of ICM processes and plans for selected sites that transcend the boundaries of established protected areas
- ◆ Define and promote good management practices for mariculture and tourism development
- ◆ Build capacity and experience in the practice of ICM

The primary partners in Quintana Roo are the Amigos de Sian Ka'an (ASK) and the University of Quintana Roo (UQROO). In the Gulf of California, the key partner is Conservation International/Mexico (CIMEX).

In **Quintana Roo**, a state whose development in the 1970s was driven by the mass tourism model of Cancun, there is a general understanding that tourism depends on the state's pristine natural resources and marine biodiversity. However, the existing tools that guide development are not designed for or implemented within an integrated framework to ensure a balance between conservation and development.

Responding to the initiation of



In Xcalak, the community-initiated National Marine Park was one of the first of its kind in Mexico. It holds great promise for aiding local fisheries and providing a boost to economic development.

new tourism corridors, the *Normas Prácticas para el Desarrollo Turístico* (*Guidelines for Low-Impact Tourism*) were developed and are available in Spanish and English. Voluntary use of these guidelines by private developers and government agencies is being widely promoted. They have also been well received by government, and are being incorporated into regulatory reviews and ordinances to promote sustainable tourism development.

Xcalak's National Marine Park, created by presidential declaration in June 2000, became, with CRMP assistance, one of the first National Marine Parks initiated by a community rather than by the federal government. It is part of a series of marine protected areas in the state

and the Meso-American Reef ecosystem. The national endorsement and implementation of a community's own vision of its future is a major step towards decentralized management. With the anticipated adoption of a stakeholder-driven park management plan, a park advisory committee will be formed consistent with Mexico's marine protected area guidelines. An updated Xcalak Community Tourism Strategy will bring stakeholders together to prioritize actions for participation in marine park implementation and tourism development. Better information for decisionmaking is being supported by the Costa Maya Geographic Information System Project.

The Chetumal Bay region is a priority site for ICM in Mexico; however, the coastal management process is at the early stage of building capacity and raising

awareness. A 2001 symposium on scientific information on the bay is leading to preparation of a diagnosis of socioeconomic and governance issues, which will feed into a bay-wide status and trends report. Increased outreach through UQROO and an emerging ICM network of nongovernmental organizations is building university and community confidence and capacity to engage and partner with government and the private sector in a multi-sector and multi-stakeholder bay planning effort.

Within the **Gulf of California**, the increased and conflicting use of the land, shore and coastal waters is putting ever-increasing pressure on critical coastal resources. CRMP is working with CIMEX to demonstrate the integrated management of a bay ecosystem. Bahía Santa María, located in Sinaloa state, is recognized internationally as a critical wetland for migratory



Chetumal Bay in Quintana Roo, Mexico, is a priority site for coastal management in Mexico.

A gender equity and environmental workshop implemented by local partners in the state of Sinaloa attracted women from a wide range of professions, including community leaders from the villages surrounding Bahía Santa María.



waterfowl. The Bahía Santa María initiative addresses key issues of freshwater inflow, bay circulation, fisheries, tourism and mariculture development.

The Bahía Santa María management process is promoting the adoption of a single resource management plan shared by the two abutting municipalities, and creation of a trust fund for bay conservation and development supervised by a formally established Committee for Conservation and Development. Early implementation actions are focusing on projects that combine capacity building, community improvement and economic return in coastal villages, including actions directed at the management of village solid waste, and oyster culture and shrimp processing waste.

Critical to the sustainable management of Bahía Santa María will be the active involvement of the bay's fishing, mariculture, tourism and agriculture sectors. Working with shrimp farm cooperatives and

industry groups, good practice codes of conduct and operational guidelines for the Sinaloa shrimp industry are being promoted. The state of Sinaloa is also moving ahead with preparation of an environmental master plan for the entire coast, which provides an opportunity to incorporate key strategies within a larger context.

In 2001, the Government of Mexico announced a project to create a network of 24 tourism-oriented marinas, an *Escalera Nautica* (Nautical Stairway), along the Pacific Ocean and Gulf of California coasts. This action has galvanized regional attention and concern on conservation and development priorities, and the need for a regional approach to decisionmaking on issues of gulf-wide concern. Linked to this, an overall strategy will be developed by CRMP and regional partners in 2002 to advance the use of best practices for coastal marina tourism in target areas.

## Country Programs

# TANZANIA

Tanzania's 800 kilometers of coast is of critical importance to the development of the country. It contributes one-third of the national economy, houses 75 percent of the country's industry, is the location of the largest urban centers, and supports a quarter of the country's population. This is a population that is growing rapidly and inhabits a coast with high biodiversity and productivity. The concentration of people and economic opportunity poses a real threat to the ecosystem services that are so important. The challenge is to balance the conservation and sustainable use of the resource base on which the rural coastal economy depends, while developing new

economic opportunities in a way that benefits the people of the coast and the nation as a whole.

Tanzania is a leader in both regional policy development and field application of integrated coastal management (ICM). Over the last 20 years, Tanzania has built a strong foundation for coastal management. Interest and capacity in marine science was built through a long-term bi-lateral program with Sweden. A mandate for coastal and marine management in the region and an agenda of priority actions was framed through a series of regional and national Ministerial Conferences known as the Arusha Process. When the Coastal Resources Management Program



The Tanzania coast, such as this site in Kilwa, is high in biodiversity and productivity. However, the rapidly increasing population poses threats to the region's valuable ecosystem services.

(CRMP) began in 1997, there were a number of site-based programs demonstrating how ICM principles and processes can effectively address coastal problems and opportunities in specific locations. What was lacking was an enabling framework of policy and interagency collaboration at the national level. The National Environment Management Council (NEMC) in the Vice President's Office joined forces with CRMP to create the Tanzania Coastal Management Partnership (TCMP), in order to establish the urgently-needed national framework for coastal management.

### **A National Coastal Management Strategy for Tanzania**

Through a highly participatory, two-year process, a National Coastal Strategy was developed. Key steps in the process included the development of a Green Paper that presents

arguments on the need for and recommended scope of a national coastal program, as well as options as to how to implement and institutionalize the program. A series of working papers produced by the TCMP provided technical input to the Tanzania strategy. The National Coastal Strategy, which now awaits formal adoption by the Tanzanian Cabinet, sets forth an action plan for how Tanzania will achieve its goal: "To preserve, protect and develop the natural resources of Tanzania's coast to ensure food security and support poverty alleviation and economic growth." Central to achieving this goal are four strategies:

- ◆ **Enabling and supporting local management initiatives.**

The TCMP is building from the lessons of the Tanga Coastal Zone Conservation Development



Strong and broad support from key sectoral agencies has been essential to Tanzania's National Coastal Strategy formulation process.



Women harvesting seaweed along the Tanzania coast. Mariculture is a primary focus for economic improvement in the country, and CRMP has been assisting by creating guidelines for investors and government.

Programme to prepare guidelines for district ICM action planning. Three pilot districts—Bagamoyo, Pangani and Mkuranga—are spearheading the implementation of this essential aspect of the national strategy.

♦ **Facilitating formulation, adoption and implementation of guidelines for emerging economic activities.** When the TCMP was launched, the development of an integrated approach to the siting and development of mariculture projects was a high priority for all stakeholders. The preparation of a *Mariculture Investor's Guide* and a *Mariculture Guidelines Source Book* became early examples for how the Tanzania program will approach major coastal development activities. Both were prepared through an intersectoral working group, then adopted by the 10 government agencies involved in

permitting this activity. Coastal tourism is the next sustainable development issue being tackled by the TCMP. A *Coastal Tourism Situation Analysis* was presented to District Executive Directors in 2001. Development guidelines, similar to those for district action planning and mariculture, are now being developed.

♦ **Building a broad, enthusiastic and capable constituency.** Building a constituency and enhancing national capacity for the program has been key—within government, among other coastal projects and, most importantly, with the people of the coast. All of the coastal programs are learning from one another, and sharing expertise, information and ideas. The partnership's work is regularly featured in the media. The TCMP video, *Voices from the Coast*, features coastal residents and community



leaders discussing in their own words the problems and challenges they face in striving for successful, locally-beneficial coastal management initiatives. At the grassroots level, over 50,000 people took part in the Coastal Environmental Awards Scheme. This program involved people from schools, government institutions, civic groups and the general public in eight coastal districts who competed for prizes, raised awareness and promoted environmentally-sound activities. The program is in its third year and is implemented with assistance from GreenCOM.

◆ **Building a scientific foundation to inform the management process.** The Tanzania coastal program is being built on a strong foundation of reliable knowledge. The Scientific and Technical Working Group has been charged with linking science to management. The *Tanzania State of the Coast* report was released in

2001. It is the first of its kind in East Africa, and combines the knowledge of the nations' scientists, its government, and the people of the coast to present a shared view of the nation's coastal situation. It is a shared platform from which to both measure change and inform management actions.

In the long term, the TCMP's primary aim is to develop the human and institutional capacity to sustain ICM in Tanzania. After adopting an ICM strategy, the TCMP will be transitioned into a national Coastal Management Office. The structures for implementation within the government system will be established and formalized. These will include national and district ICM committees and working groups. Building human and institutional capacity for these newly established ICM structures will be a priority for ensuring future, long-term success.



Over 50,000 people took part in the Coastal Environmental Awards Scheme. Schools, civic groups, government organizations and individuals competed for prizes while raising public awareness of coastal issues.

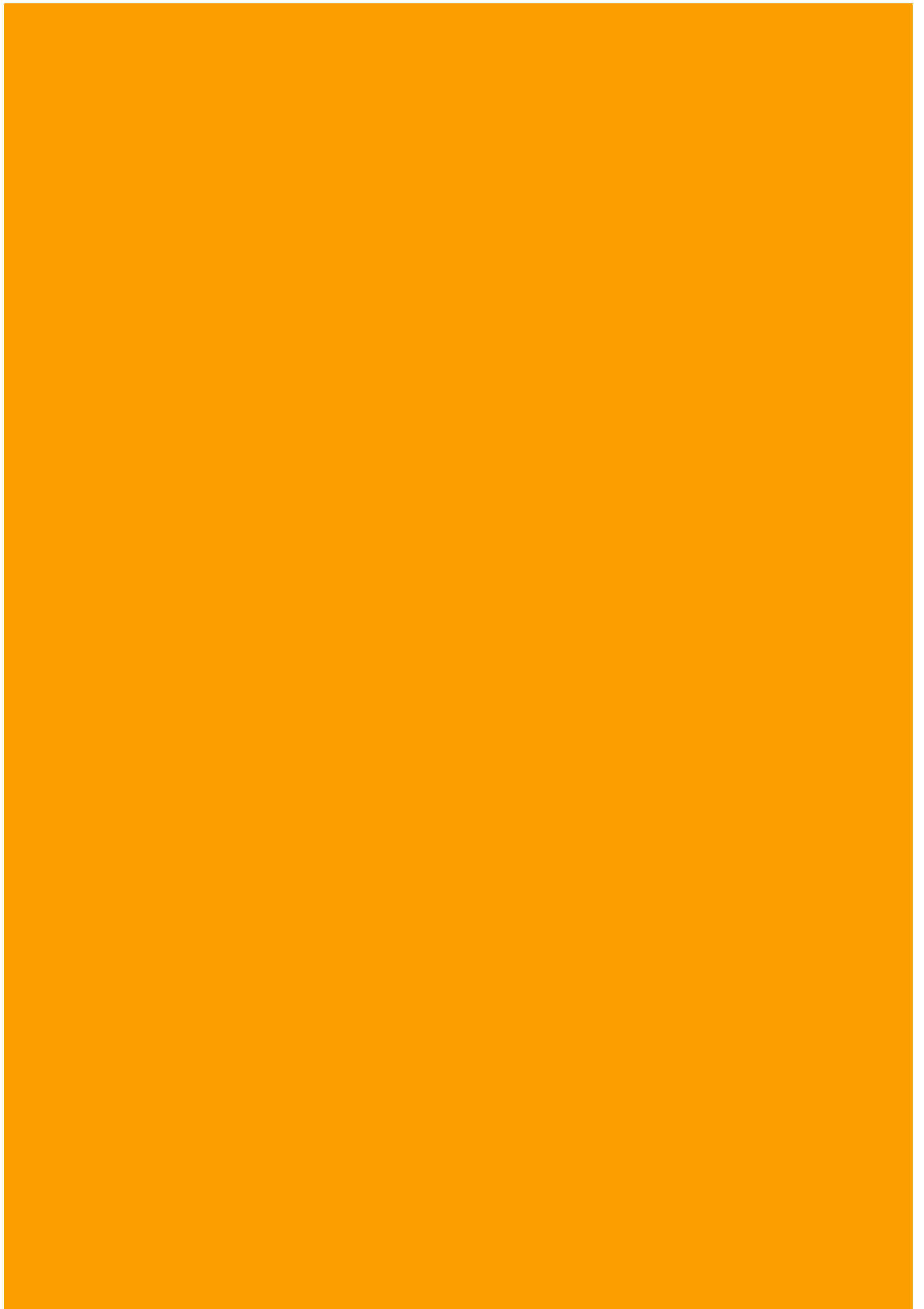
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