FOCUS ON:
MAINSTREAMING GENDER, POPULATION, AND THE ENVIRONMENT

INTERCOAST NETWORK

INTERNATIONAL NEWSLETTER OF COASTAL MANAGEMENT

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and

Gender, Population, and the Environment: Finding Common Ground for Coastal Managers

By Sharon Murray and Macol Stewart

After decades of evolving practice, most coastal managers have come to realize that their primary endeavor is not the management of a physical place *per se*, but rather of the human beings who inhabit, use or otherwise affect its health and sustainability. Increasingly, coastal management is equivalent to people management, and awareness and expertise regarding the human element and human-environment interactions have become crucial skills for coastal professionals.

This issue of *InterCoast* takes a closer look at the intersection of coastal zone management with two particular human development and social science themes: population and gender.

Population influences have long been linked to the state of the environment, reaching back to Malthusian imperatives, through the global modeling efforts of the Club of Rome, and progressing to recent work on global carrying capacity and ecological footprints. For many people, while the term "population" evokes a narrow association with reproductive health issues and world population growth, in fact the field is far broader. Research has shown that ecological outcomes are as much or more significantly affected by non-reproductive demographic dynamics as by sheer numbers of people. Population issues including migration patterns, urbanization trends, and per capita resource consumption often eclipse fertility and birth rates as the driving factors behind environmental decline. The attention has broadened from a simplistic focus on "how many" to a much more complex set of scenarios including attention to "where," "when," "how," and "how much consumed" (page 2).

Gender perspectives have also become an essential part of the human-environment management toolbox, as awareness has grown that men and women have different levels of access to and control over natural resources, and carry out distinct roles in coastal management decisionmaking from local to international scales. Gender relations have significant social and environmental implications that affect the welfare of men and women in areas as diverse as food security, livelihoods, family health, and disaster preparedness. While gender work often focuses on rectifying historical imbalances in women's position in society, attention to men's roles is also fundamental to reaching equitable and sustainable outcomes (page 4).

In addition to gender and population having important linkages with environmental management, each issue is also highly related to the other. Reproductive health plays out differently for women and men, migration and urbanization patterns are often skewed by gender, and the manner in which resources are understood and used by human populations also clearly has gender overtones.

Certainly the overlap among these three themes is not absolute, but it is significant, and arguably especially so in coastal environments. Coasts are home to the highest concentration of people, and provide the natural resource base on which such a broad range of human activity depends. Women and men access and use the coast differently, interact with the economic system in different ways, and bring different knowledge and behaviors to bear. The box on page 5 juxtaposes some interesting global trends in the areas of integrated coastal management (ICM), gender, population, and the cross-cutting dimension of agriculture and food security. Together they paint a compelling picture of multiple points of intersection as they are viewed from gender, environment and population perspectives.

The articles presented here are intended to stimulate thinking and encourage action on these numerous and important connections.

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Population and Environment: What are the Linkages?

By Sharon Murray

Considerable effort has been devoted to unraveling the complex web of cause-effect relationships between human population dynamics and environmental conditions and processes. Debates are often heated regarding the drivers or precise nature of the relationships, but one thing is certain—thinking on this issue has developed far beyond a simplistic conclusion that "more population means more environmental degradation."

A few of the seminal concepts and approaches to understanding and quantifying the human-environment relationship include:

Carrying Capacity: A concept drawn from the field of basic and applied ecology that generally refers to the maximum population of a species which a given ecosystem can sustainably support. This notion has been adapted in various ways to humans in their environment. Most famous are the theories of Thomas Malthus, in which he postulates that human population will be limited by the ability to produce food.

POET (**P**opulation, Human **O**rganization, **E**nvironment, **T**echnology): A model derived from human ecology studies (e.g., Park, Catton) and early efforts to adapt ecological modeling to the human species, this model recognizes intervening elements beyond population size to explain human-environment linkage. The ways humans organize their societies (O) and the technologies they employ in their interface with the environment (T) combine with numbers of people (P) to create environmental conditions, and to mediate how humans are affected by their environment.

IPAT (**I**mpact = **P**opulation X **A**ffluence X **T**echnology): Erlich et al.'s widely drawn on model uses pollution as a proxy for human-environment impacts. The model postulates that the overall impact of humans on the environment (I) is the product of the impacts of population size (P), affluence (A, defined here as per capita consumption) and technology (T). While still highly conceptual, this formula is very important in highlighting that an increase in human population numbers alone is not the single driving factor behind environmental degradation.

Ecological Footprint: Essentially a more sophisticated version of carrying capacity analysis, Wackernagel and Rees' (1996) ecological footprint is an attempt to translate human impact on the environment (at the household, community, and national level) into a single unit: area of biologically productive land and water required. The emphasis is less on raw numbers of people, and more on the degree of impact associated with lifestyle and consumption patterns. While residents in the U.S. require an average of 30 acres per capita, the average Bangladeshi only requires 1.3 acres.

Although each of these conceptual models has value in helping us understand how human population and their environment interact, they all have their limitations, and none has been tested empirically to any great extent. The models do not adequately incorporate the resiliency (or lack of resiliency) of different ecosystem types or different spatial scales. Another drawback is the dominant focus on human influences on the environment, without giving sufficient weight to the multiple influences of environmental conditions on human population dynamics, e.g., environmental degradation influences on migration and environmental refugees, increased affluence or urbanization linked to reduced family size and longer life spans, industrialization producing fertility-reducing contaminants. Acknowledging these and numerous other feedback and adaptive relationships suggests the need to move beyond unidirectional models to a systems approach. Pressure-state-response, dynamic systems modeling, and similar constructs offer ways to accommodate human-environment-human feedback loops more effectively.

For coastal resource managers, the insights provided by these conceptual models may help sort out the complexity of coastal socio-ecosystems, suggest better ways to target underlying causes of environmental degradation, and understand the proper level of intervention to address drivers of patterns of coastal resource use.

Murray and Stewart

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The interest is more than academic, as coastal managers can tangibly improve the effectiveness of their efforts by taking into account population dynamics and gender relations in their assessment work, planning, program development, and implementation. Although less of a target audience for this publication, those working in the population and gender fields can also draw on these insights to expand their own vision and agendas through an understanding of the two-way relationship between people and their biophysical environments.

Currently, although groups working on these issues may share a common interest in sustainable and equitable development of coastal areas, each views the coast through a different lens:

- ***For ICM practitioners, coasts are threatened ecosystems*** where participatory planning, policies, and institutions will lead to sustainable economic development and the protection of unique biological resources.
- ***For gender specialists, coasts are settings of inequality*** in which men, women, and their children have different levels of access to productive resources, decisionmaking authority, and leadership opportunities.
- ***For population specialists, coasts are sites with high birth rates***, increasing numbers of economic and ecological migrants, rapid urbanization and globalization, and tenuous food security.

The following articles address the nexus between population, gender, and coastal resources management from several different disciplinary and geographic perspectives, and from both theoretical and action points of view.

Several analytical and conceptual articles illustrate how the population-gender-environment linkage is important and relevant to solving coastal resources management problems. Murray's adaptation of Caudill's (page 6) practical framework for integration of population and environment sets the stage along with Amen, Guyer, and Engelman's (page 8) view from the population community about why this group of non-environmentally-focused professionals and stakeholders should care about coastal resources management. Amen et al.'s insight into how coastal managers can approach the population community as partners reflects a theme that is echoed throughout this issue of *InterCoast*: coastal managers don't have to do it alone. In fact, true integration will require that coastal managers forge relationships with members of the population and gender communities.

Golder and McDonald (page 18), for example, explore the importance of considering population and gender dynamics in marine ecosystems management in Eastern Africa, illustrating the importance of collaboration among environment, gender, and population constituencies. Bremner and Perez (page 20) raise questions about the environmental implications that changing population patterns in the Galápagos Islands of Ecuador and how this has implications for the ecosystem. They urge coastal managers to account for demographic factors and gender dynamics in conservation planning.

Broad's (page 22) analysis of the role of gender in the access and use of climate information in Peruvian fishing communities provides important insights into the differential access and use of environmental information by men and women, and suggests the need to pay more attention to women's roles in reducing climatic uncertainty facing their artisanal fishing communities. Anderson (page 24) also focuses on climate, looking across time scales from interannual climate variability to long-term climate change. She presents the experience of the Pacific Islands as a type of "coal mine canary" or early indicator of the gender implications of climate impacts for coastal disaster management.

Solomon (page 16) examines migration, a critical population dynamic affecting many coastal areas, and makes important observations regarding inland-coastal relationships in the context of women's livelihoods in the Yucatán Peninsula of Mexico. Another darker aspect of coastal labor dynamics is discussed by Stewart (page 28), who explores the linkages among coastal tourism development, the gendered division of labor, and sex tourism. Also, Stewart (page 26) shares practical suggestions from Husain, Booth ,and Godfrey for integrating AIDS prevention into environmental programs.

Also included are several pieces that focus on specific actions at all scales to strengthen synergies among gender-population-environment efforts in coastal areas. Castro, D'Agnes, and Aquino's (page 12) summary of the Philippine's I-POPCORM initiative is an innovative community-level program that provides promising linkages between coastal food security and reproductive health services. Although not directly focused on coastal zones, there is also much to be learned from the experience of the United States Agency for International Development's (USAID) integrated population-environment programs in Ecuador and Madagascar (page 10). These cases stand out because of early measurable and positive results as a function of integrating family planning and natural resource conservation efforts.

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Mainstreaming Gender: Understanding the Steps to Change

By Sharon Murray

A conceptual link between gender and sustainable development (including population and environment issues) has been recognized in both academic literature and action agendas for at least 20 years. There are definitely numerous positive efforts ongoing to mainstream gender into development activities in a concrete way. Many articles in this issue of *InterCoast* focus on these past or ongoing actions linking gender, population, and environment activities in general, and advancing gender equity in particular.

Despite progress, there is a continued sense that not enough is being done, and that there has not been an effective translation of theoretical concepts about gender into tangible action and measurable changes on the ground. How can we identify and seize opportunities both to strengthen and consolidate current work while continuing to push and expand the gender agenda? How do we become more strategic, more effective, more powerful in linking the important issue of gender with population and coastal management, and in truly integrating and mainstreaming these issues in our daily work?

Part of being strategic and effective is understanding the progressive and iterative nature of change, outlining the 'steps' to making change happen, and directing action at the appropriate point along the change spectrum. In the area of developing more inclusive and empowered gender relations, for example, nearly 20 years ago Peggy Mcintosh of Wellesley College (Wellesley, USA) developed a useful conceptual model to reflect the five interactive stages of progress in mainstreaming gender concerns into science curricula. As recently adapted and expanded by Donna Hughes of the University of Rhode Island, (USA), this model may be applied to the realm of integrated coastal management and governance, providing both a 'roadmap' to increasingly gender-inclusive leadership at all scales of action and an important sense of perspective to temper impatience for progress.

While the process of change through these phases is rarely linear, experience has shown that institutions and society will not (or can not) leap directly from Phase I to Phase V or VI. Action-oriented managers looking for specific ways to build gender into their programs would therefore do well to start with an understanding of where they are, and carefully think through how to get to the next level of gender integration in their programs and organizations.

Where is Your Community or Project Currently Positioned Along the 'Change Spectrum?'

The Gender Phase Change Model

Phase I: The Absence of Women is Not Noted

This least-inclusive stage exists where all leaders are men, women are usually outside the decisionmaking process and the public sphere in general. This state of affairs is accepted as normal in this phase, and not even noticed by most.

Phase II: Recognizing the Decisionmakers are Male, and Politics Reflect a Masculine Perspective

This is a consciousness-raising phase, where people start to notice patterns of exclusion or subordination of women for the first time, and questions are raised. Women often become a 'special interest group' in this phase.

Phase III: Identification of Barriers that Prevent Women from Obtaining Decisionmaking Positions

This phase goes beyond awareness to a recognition that male bias affects policy, that gender barriers start early in life, and that addressing these barriers is worthy of attention.

Phase IV: Search for Women Leaders and Their Contributions

By this point, a systematic effort to identify women with leadership abilities has begun, as has the inclusion of women into decisionmaking, and the incorporation of women's issues into the mainstream agenda. A more inclusive phase is when women's issues are moved out of the margins, and traditional ways of doing business begin to change.

Phase V: Leadership by Women

In this phase, action is taken to motivate and support leadership of even more women, recognizing that just having more women in leadership positions does not necessarily mean that women's interests are taken into account.

Phase VI: Leadership and Decisionmaking is Redefined

Finally, if enough equity among men and women is achieved in involvement, decisionmaking, and leadership, entirely new and more positive ways of thinking and addressing issues can evolve, embracing both genders in an environment of empowerment and equity.

(Adapted from McIntosh, D., 1983, *Interactive Phases of Curricular Re-Vision: A Feminist Perspective* and Hughes, D., 2001.)

Trends in Population, Coasts, Gender, and Agriculture and Food Security

Population

World population:
2001 = 6.1 billion
2050 = 9.3 billion (projected)

By 2050, the population will triple in least developed regions, double in less-developed regions, and remain largely unchanged in developed regions.

The global population growth rate is 77 million annually, but 50 percent of this growth is found in just six countries (India, China, Pakistan, Nigeria, Bangladesh, and Indonesia—all coastal countries).

Two million migrants will move from less-developed to more-developed regions.

In developed regions, life expectancy is expected to increase from 75 years of age in 2001 to 82 years in 2050. In less-developed regions, life expectancy is expected to change from 63 years in 2001 to 75 years in 2050.

By 2050, there will be more senior citizens—triple the number of people over 60 years old. There will be five times more people over 80. In more developed regions, there will be two old people for every child, and the percentage of elderly will increase from 8 to 20 percent in less-developed regions.

In the 45 countries most affected by HIV/AIDS, the disease will:
- Decrease the life expectancy by three years
- Kill 15.5 million people in the next five years

In Sub-Saharan Africa, HIV/AIDS prevalence rates are twice as high among young women ages 15-24, as young men. Mounting evidence suggests similar trends in other regions.

Coasts

Fifty percent of the world's population lives within 150 km of the shore. By 2025, 75 percent of the world's population or 6.3 billion will live there.

Thirteen of the world's largest cities are on the coast.

The number of coastal mega-cities is increasing.

The coast provides 25 percent of all primary biological productivity and 80-90 percent of the global fish catch.

For more than 100 countries, coral reefs provide fish, medicine, tourism revenues, and coastal protection.

Marine products supply 16 percent of the animal protein consumed in the world.

Since 1994, aquaculture production has quadrupled.

Two hundred million people depend on fishing for food and/or income.

Since 1970, 25 percent of the world's fish stocks have been depleted.

Seventy-five percent of the pollution of coastal waters comes from the land.

Human activities increase nitrogen and phosphorus levels in water by 50 to 200 percent, and they threaten more than 50 percent of all coastlines and 60 percent of the world's coral reefs.

Gender

Women are 50 percent of the world's population and they:
- Perform about 2/3 of all working hours
- Receive 1/10 of the world's income
- Comprise just over 10 percent of all legislative representatives
- Account for less than 4 percent of all cabinet ministers
- Die more often from gender-based violence than any other human rights abuse
- Represent 2/3 of the world's illiterates

Less than 10 percent of the world's population participates fully in political, economic, social, and cultural life.

Officially, 15-20 percent of households in most countries are headed by women, but in reality, the percentage may be more than 45 percent.

Eighty percent of the 45 million refugees are women and children.

Eighty percent of the refugees are Muslim.

HIV/AIDS will infect more African and Asian women than men.

There are more women's organizations each year in the developing world.

Agriculture and Food Security

Hunger afflicts nearly 800 million people in the world.

Fifty percent of the world's hungry live in India.

Twenty-four thousand people die every day from hunger and related causes.

Seven out of 10 of the world's hungry are women and girls.

In 2000, 55 percent of total food aid recipients were female.

Eight out of 10 people engaged in farming in Africa are women, and six out of 10 in Asia.

In Sub-Saharan Africa, women:
- Produce 80 percent of the food consumed
- Do 90 percent of the work to process it
- Do 80 percent of the work to transport and store it
- Do 60 percent of the work to market it
- Own 1 percent of the land
- Receive less than 7 percent of farm extension services
- Receive less than 10 percent of the credit given to small-scale farmers

Adapted from Diamond, N., *Mainstreaming Gender, Population and Leadership into Coastal Management Programs*, Summary of Women in Integrated Coastal Management and Leadership Development Workshop Proceedings, July 12-13, 2001 and from the Gender Brainstorming Session of the International Research Institute for Climate Prediction, November 2, 2001.

Integrating Population and Environment in Practice: Benefits, Obstacles, and Enabling Conditions

Adapted by Sharon Murray from Caudill, D., *Exploring Capacity for Integration: University of Michigan Population-Environment Fellows Programs Impact Assessment Project*, Environmental Change and Security Project Report Issue 6, Summer 2000

Those working in the distinct disciplines of coastal management, gender relations, or population/reproductive health services may understand well the theoretical linkages between these issues, but still question why they should take steps to integrate their efforts at the programmatic level. "Integration," after all, is not easy, even in closely aligned fields, and practitioners are right to carefully examine the pros and cons of linking environment-gender-population activities on the ground.

Integrated population-environment projects of the United States Agency for International Development (USAID) in Ecuador and Madagascar (see article page 10) benefited from a systematic assessment conducted by the University of Michigan's (USA) Population-Environment Fellows Program during the 1990s that in part helps to answer these questions. Short roundtable meetings were conducted at the field level at both sites to work with integrated program practitioners to share information. Information exchange was inportant to:

- Identify challenges and benefits of linkage
- Define assumptions and hypotheses related to the value-added nature of integrated programs
- Discuss specific measurable outcomes, indicators of the integration/linkage and methodology for assessment

The results of those conversations are summarized in the following lists of perceived benefits, obstacles, and countervailing enabling conditions to promote integrated efforts.

Finally, once convinced that an integrated program is the way to go, how will one know it when one sees it? The box on page 7 provides some common characteristics of policy initiatives and action programs that successfully integrate population, gender, and coastal resource management.

Benefits of Integration: Why Bother?

- *Obvious, Inherent Linkage*: Especially at the community level, life is naturally integrated. Problems have multiple causes and therefore need multi-disciplinary, multi-sector, and multi-level solutions.
- *Door-Opener:* Integrated programs allow for one activity to serve as an entry point for additional activities, by means of trust-building within the community and/or as a strategy for introducing new ideas and messages.
- *Community Based and Participatory:* Integrated programs require a high level of participation from the community people who are the principal actors, beneficiaries, and audience of the program. Greater participation and capacity building can lead to more demand for services.
- *Responds to People's Needs:* Integrated programs are more responsive to community needs and are often community-specific, starting with the immediate priority needs of the people, regardless if those are population, health, or environment related.
- *Reaches More and Most Marginalized People:* The integrated approach has the potential to reach more people, especially the indigenous, marginalized, isolated, and under-served communities.
- *Strategy for Sustainability:* Among the results of an integrated program are outcomes that are more appropriate, concrete, and sustainable.
- *More Cost Effective:* Integrated/linked programs are seen to be more cost-effective both because they are more practical (introducing two interventions at once is cheaper) and more strategic (working with organizations already known and trusted).
- *Greater Efficiency:* It is possible to avoid duplication, at both the program and community levels, and to manage, allocate, and leverage resources more efficiently while at the same time improving the work and reducing the effort.
- *Better Communication and Collaboration:* Integration improves communication, coordination, and cooperation between the program and participating community and between the implementing organizations.
- *Improved Quality of Life is an Overall Goal:* Overall goals of integrated/linked population, health, and environment approaches are to improve the quality of life and well-being of people, and to achieve economic development and environmental equilibrium.

Other advantages include:

- Integration can facilitate access

to and support by donors and is a strategy to avoid "donor bombardment" at the program and community levels.

- Institutional learning and growth can come through taking a new look at program strategies, by integrating the needs of the community with the objectives of the institution.
- Integration can facilitate follow-up, information collection, and achievement of cross-cutting results and impact.

Obstacles to Integration: Things to Watch Out For

- *Funding Challenges:* The most common constraint identified was related to a lack of funding, a lack of donors for integration, sector-specific funding and reporting requirements, and short-term financing. One hypothesis raised was that "invisible integration" may be taking place at the program level. Sector-specific funds go in and sector-specific reports come out, but integration may be happening, unknown to the donor.
- *Partnership Problems:* Difficulty in coordination among partners was the next most common constraint, with specific problems named such as absence of coordination, conflicting strategies, lack of continuity, varying stages of program development among partners, and simply a lack of quality partners.
- *Lack of Political Will:* Lack of policy and support by government

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What Does an Integrated Program Linking Integrated Coastal Management (ICM), Gender, and Population Look Like?

Adapted from Diamond, N. Cross Currents: Navigating Gender and Population Linkages for ICM, 2001. A submission of the University of Rhode Island's Coastal Resources Center Working Group on Gender and Population with Lorena Aguilar, International Union for the Conservation of Nature and Natural Resources

A pro-active coastal policy agenda, tuned to gender and population concerns, is likely to include some attention to the following issues:

- Making access to coastal land and water resources more equitable and increasing women's tenure security
- Adopting non-discrimination guidance and procedures for expanding access to coastal planning by different social groups, including women
- Promoting technology and collateral arrangements that do not exclude women
- Requiring collection and reporting on changes in gendered access to extension, training, enterprise opportunities, and decisionmaking, particularly for the poorest coastal households
- Coordinating coastal planning activities with family planning/reproductive health planning, particularly at the local level

A cross-cutting ICM-gender-population action program may include:

- Partnerships, at the local and national levels, with gender and population civil society groups and government agencies
- Joint advisory committees with ICM, gender, and population specialists
- Cooperating with population and gender partners on collection of baseline data, selection and monitoring of gender equity indicators, use of research methods, and sharing secondary data sources
- Joint activities focused on how to incorporate baseline/monitoring data into local and national ICM planning
- Social marketing conducted to identify motivations for existing and potential coastal constituents and providing support for civil society networking and advocacy for sustainable ICM
- Developing short-term incentives and pilot activities, for both women and men, to encourage them to adopt sustainable ICM practices
- More accessible coastal decisionmaking processes or institutions, at local and national levels and related capacity building for the previously disenfranchised, including women
- Joint communication and education activities using an "options approach," e.g., alternative economic development, family planning, etc.
- Adequate budget allocations for integrated activities

Birthing Pains: Easing the Delivery of Integrated Population and Coastal Conservation Programs—A Primer for Conservation Managers Attempting Collaboration

By Kali-Ahset Amen, Matthew Guyer, and Robert Engelman

Any long-term solution to the growing imbalance between coastal resources and human demands will require not only innovative approaches to conservation management but significant changes in unsustainable population growth trends. Sustainable development and management of coastal areas calls for the careful use of coastal lands and waters in ways that protect resources for future generations while allowing coastal communities and economies to thrive today. In order to do so, it is necessary to address population growth in the best, and only ethical, way we know of: by empowering women to improve their own lives through access to reproductive health services. Engaging the advocates and practitioners who work to improve women's reproductive health allows conservationists to protect the health and well-being of both human communities and the coastal zones in which they live. For the coastal manager who is interested in this connection and wishes to take action but knows little about reproductive health, the question is, how might you begin to forge partnerships?

With ever greater numbers of people living in and relying upon fragile coastal areas, we need to think more broadly and creatively about the linkages between coastal environments, people, and mutually sustainable futures. Unfortunately, reproductive health providers and coastal managers miss important opportunities to link their resources and plan together. This article provides an outline for natural resource managers interested in initiating constructive partnerships that link population growth, reproductive health, and the local environment. The guidelines for action and field-based case studies illustrate some of the proven strategies for developing collaborative relationships between coastal managers and reproductive health service providers.

The studies focus on a type of innovative new program in the field that Population Action International and others refer to as community-based population and environment (CBPE) programs. CBPE refers to the linkage, within a community or a group of communities, of services that combine aspects of natural resource conservation or similar environmental work with the provision of reproductive health services, always including, but not limited to, family planning. As a recent report by the United Nations Population Fund states, "a growing body of experience shows reproductive health and environmental services can work very profitably together, if they are designed to meet communities' own priorities."

Why Should Coastal Managers Approach Reproductive Health Providers as CBPE Partners?

Why Should Reproductive Health Providers Agree?

Simultaneously addressing reproductive health and environmental management concerns at the local level starts with the questions people in communities often ask those who work with them on health, natural-resource conservation, and poverty reduction: How can I gain more control of my life and livelihood? How can I maintain my and my family's health? How can I manage pregnancy and childbirth so that they do not interfere with my efforts to improve life for me and my family? At a minimum, CBPE field workers can refer interested clients to qualified providers of reproductive health or environmental services. Yet, if both reproductive health workers and coastal managers make the effort to better understand the linkages between local biodiversity threats and socioeconomic issues, each can improve upon their work with an enhanced understanding of the ways in which access to environmental resources impacts fertility decisions. This is especially true in remote communities where primary stakeholders are deeply connected to the land.

Coastal managers have much to offer the reproductive health service provider. Blending conservation and health inputs multiplies the returns to women's overall health by increasing their access to services, exposure to information, and opportunity for capacity-building. Coastal management systems often have an untapped infrastructural capacity to mobilize and distribute contraceptives and other reproductive health supplies. This can occur while expanding the overall client base, improving the efficacy of service delivery, and offering a more holistic approach to sustainable development in tune with

people's needs. Linked service projects can lead to the provision of family planning services where they would otherwise not be available, especially to marginalized populations and those in remote and underserved areas.

Another advantage of collaborative and integrated population-environment work is greater program financial security and political support. In a political climate where reproductive health goals are sidelined against natural resource and development objectives, partnership with environmental managers can serve to channel scarce funds and reshape political commitments. In times of political uncertainty and change, CBPE's multi-sectoral service delivery model preserves options for meeting women's needs that might otherwise be severely threatened.

The following three cases provide examples of programs that have effectively linked reproductive health and environmental conservation work in the field. Though the first two are not coastal management programs, the principles for action highlighted in the accompanying boxes should prove transferable.

Taking Action: Examples from the Field

In 1997 Conservation International's *Remedios* program joined with Guatemala's *ProPetén* to improve reproductive health access for women and families, and promote conservation and environmental awareness. *Remedios* lobbied the Ministry of Health to train government midwives and widen community acceptance of reproductive health and family planning, remaining persistent amongst the government's initial hesitation. The midwives also introduced environmental education, for example, by teaching pregnant women the importance of safe water sources for immediate health benefits and reductions in waterborne illness.

ProPetén also created the "Mobile Biosphere," a vehicle in which a multidisciplinary group of professionals, including a reproductive health specialist, a nutritionist, an agronomist, and an environmental educator, travel to the remote communities conducting activities alongside local midwives and health promoters. The project now enjoys the support of the Guatemalan government.

Key Lessons:

- Become an advocate
- Be persistent in the face of governmental resistance
- Start small. Build a trusting relationship within communities
- Find appropriately trained partners, especially reproductive health service providers

In Mexico, *Pronatura*, a biodiversity conservation organization, integrated family planning services into their agriculture and environmental training when female participants began asking for reproductive health services. In fact, the single most important component of successful joint population and environment projects appears to be the active engagement of women. When women can state their own needs without fear, a desire to safely space or limit pregnancies often emerges as a high priority.

At one point, *Pronatura*'s staff wished to find a partner to link with to provide reproductive health services; when they could not find one, they began their own. *Pronatura*'s integrated approach brings together midwives, agriculturists, youth, elders, and pregnant women. Four-person teams (including a reproductive health specialist, an ecologist, an agriculturist, and a nutritionist) help the community identify priority needs. Practical training combined with family health education has given rise to a holistic approach to sustainable development and natural resources planning.

Key Lessons:

- Provide training to build women's capacity
- Involve the community from the inception in the planning and implementation phases of the project. Involve women as keepers of local knowledge, and key stakeholders throughout the lifecycle of a project
- Foster donor support early
- If the need is there—do it!

The Coral Reef Rehabilitation and Management Program (COREMAP), implemented by Indonesian private and public organizations with technical assistance from the Johns Hopkins University Center for Communication Programs, uses behavior change techniques from the public health sector to influence attitude and behavior change toward the environment, particularly coral reefs. This project links environmental and public health professionals in an effort to adapt theoretical principles from health and behavior change communication programs for application in environmental protection. COREMAP's partners identify local beliefs and attitudes, as well as other social factors auspicious for policy implementation. Including both a strong media outreach campaign and an advocacy component, COREMAP integrates environmental messages into community development goals. Through a partnership with the United States Agency for

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US Agency for International Development's Projects Linking Population and Environment

Adapted from *Lessons from the Field: Integration of Population and Environment II: Ecuador Case Study*, World Neighbors, and from *Linking Health, Population and the Environment in Madagascar*, EHP Brief No. 2, June 2001.

Recognizing the intimate link between reproductive health, gender, and environmental management issues, United States Agency for International Development's (USAID) Population Program has supported innovative programs integrating population and natural resource management in both Ecuador and Madagascar, each combining service delivery and development interventions with testing of hypotheses through action research.

Although not specifically centered on the management of coastal environments, the success of these important efforts in integration is encouraging, and many elements of these programs may be successfully adapted to the coastal context.

The Ecuador Examples

Synergies Pay Off

The World Neighbors (a US-based development organization) and the Center for Medical Guidance and Family Planning (CEMOPLAF—an Ecuadorian nongovernmental organization), with support from USAID, have been integrating population and environment concerns in village development projects since the early 1990s. Health, agriculture, and natural resource management were jointly addressed in six rural indigenous communities. Results were compared with health-only programming in six other control villages.

Baseline surveys indicated significant health and environmental problems were present in both sets of communities. Roughly 45-50 percent of children were afflicted with diarrhea and 60-70 percent with respiratory problems. Relatively few women received professional assistance during childbirth, and only about half the women brought their children to the health center after delivery.

On the natural resources side, erosion, loss of soil fertility, and reduction of farm size combined with population growth adversely affected family food security. This stimulated seasonal out-migration of males, shorter fallow periods, and the cultivation of steeper slopes. Drought and excessive rainfall also contributed to soil erosion and natural resources degradation.

The health-only program initially focused on promoting oral contraceptive and condom use through community-based distributors. In response to community requests, during the second and third years of work the program expanded its scope to encompass nutrition (including vegetable gardening and breast-feeding training); education about and treatment for diarrhea, malnutrition, and respiratory infections; and women's reproductive health services (including the treatment of reproductive tract infections and Pap tests).

The integrated program consisted of a somewhat broader initial health offering and an agricultural/natural resources component, including soil and water conservation; farmer experimentation with varieties of wheat, barley, and potato; the use of cover crops and compost; vegetable production; and small livestock improvement. Trainings and referrals were provided by volunteer community health and agricultural promoters, trained by CEMOPLAF and World Neighbors.

This project is especially noteworthy because three years later a follow-up assessment was done to measure the impact of integrated programs compared with health-only programs in six control communities. Although further study should be conducted to confirm initial results and explore specific mechanisms of success, preliminary findings indicate that integrated service provision does in fact lead to significant increases in family planning knowledge and acceptance in comparison to traditional singe-focus approaches.

For example, family planning acceptance in the six integrated communities grew more than three-fold, from 11 percent in 1993 to 41 percent in 1996 (a statistically significant finding). In the six communities receiving health and family planning only, family planning acceptance dropped from 25 percent to 22 percent during the same period (not statistically significant). Many other findings from the study point to strong links between the integrated development approach and acceptance of family planning and clinic services in general. Project and clinic data collected since the study was examined and the results further underscores this relationship.

The evaluation also showed that the integrated programs experienced a much smoother start and had greater early response from the participating communities, compared to the health-only program where some communities did not respond well to exclusive family planning efforts.

The agricultural component responded well to community needs and made progress from the beginning. The team found that although discussing family planning openly in the communities was often not acceptable, individuals and couples from farm families could be encouraged to come to the clinic in Guaranda for private orientation to reproductive health services. The integrated World Neighbors/CEMOPLAF project became a drop-in center for rural people visiting town, and both men and women were comfortable using the services.

For further information, contact World Neighbors at E-mail: actionlearning@wn.org; World Neighbors-Ecuador at E-mail: jbovemun@ecuanex.net.ec; or CEMOPLAF at E-mail: cemoplaf @uio.satnet.net

The Madagascar Example

A New Initiative

Heartened by successes in the Ecuador program, in 2001 USAID embarked on a similar integrated program initiative in Madagascar. The USAID Environmental Health Project (EHP) is carrying out a four-year program in Madagascar linking and integrating activities among projects in health, population, and environment. The central hypothesis of this activity is that integrating natural resource management with population and health will make these projects more effective and sustainable. EHP's support will concentrate in biologically diverse ecosystems in two of Madagascar's priority conservation zones, Moramanga and Fianarantsoa.

Voahary Salama (Integration Programs Initiative—VS/IPI), a consortium of 20 partners in Madagascar that EHP helped to set up, implements the program. VS/IPI aims to:

- Strengthen the capacity of nongovernmental organization (NGO) partner organizations in management and coordination
- Develop and test modeling approaches for integration, evaluating effectiveness, and synergies created by different integration models
- Disseminate lessons learned
- Replicate best practices in integrated approaches locally, nationally, and internationally

The partnership includes USAID/Madagascar, seven NGOs, a Malagasy foundation funded by the Summit Foundation, and 12 other organizations, including several USAID-funded projects. These organizations provide funding, technical assistance, and implementation support. For example, the University of Michigan's (USA) Population-Environment Fellows Program and its Impact Assessment Project (IAP) supports participatory action research.

The link between environmental degradation and declining health is complex, and effects become concrete only in the long run. However, interventions have to be simple and effective in the short term to be meaningful to households and feasible for communities. Based on health and environmental data and national priorities, four themes for integration with natural resource management have been identified:

1. Household food security
2. Smaller, healthier families
3. Sustainable agriculture and use of natural resources (land, water, forest)
4. Healthy communities that can support household well-being

Within the household food security context, the program addresses market gardens for cash income as well as improved nutrition of children and women, including year-round food for the family. Smaller and healthier families are also essential to support household livelihood and economic well-being, which depend on the ability to plan family size and to protect children from preventable diseases.

The links among poor land use practices, the environment, and health are also obvious. Deleterious agricultural practices, such as slash-and-burn, lead to deforestation and environmental problems such as soil erosion. Sustainable agriculture and use of natural resources are important to protect watersheds, to maintain the water quality, and reduce the risk of diarrheal diseases. Environmental management techniques, such as altered irrigation schemes in rice fields, can reduce diseases transmitted by mosquitoes, such as malaria, and by other vectors. Intensification of land use helps to absorb more labor and produces higher yields closer to home, and the management of communal resources, such as forests, can provide reliable benefits to all households. Finally, healthy communities are vital to achieve sustainable development because they provide the human resources and structures for family planning services, schools and educational opportunities, and community groups that take full ownership of development activities.

VS/IPI takes a practical approach and addresses links among sectors to increase access to health, family planning, and environmental interventions by relying mainly on existing program resources. Synergies are expected in several ways, for example, supporting communities and groups in a consistent manner, explicit linkages between messages and services by partners' learning from one another's best practices, sharing resources for fieldwork and evaluation, and cross-training field agents from other sectors. The VS/IPI approach incorporates lessons learned from integrated rural

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Integrating Population and Coastal Resource Management for Food Security: The Philippines' Model

By Joan Castro, Leona D'Agnes and Carmina Aquino

The links between population, gender, and environmental sustainability are increasingly clear in the Philippines. The majority of Filipinos live in coastal areas (59 percent) and the coastal population is increasing at a rate higher than the national average. Fertility and teen pregnancy rates are high. At the same time, destructive fishing (e.g., using dynamite and cyanide) and overfishing are creating a protein food security crisis ("Malthusian overfishing") and increasing malnutrition rates. Most coastal households depend on fishing for their livelihood and have few alternative income sources because of low education levels and limited access to credit and markets.

Projects relating to environmental management or population/reproductive health have long been active in the archipelago. In January 2001, an important initiative was started to explore and test hypotheses about cross-sectoral program synergies between reproductive health and environment/food security efforts in coastal areas. The Integrated Population and Coastal Resource Management (I-POPCORM) project was jointly launched by the Program for Appropriate Technology in Health (PATH), Foundation Philippines, Inc., a nongovernmental organization (NGO), and its international affiliate PATH, with support from the David and Lucile Packard Foundation and other contributors.

Gathering plants in the Philippines

Food Security

The central organizing theme of I-POPCORM is food security. A government report in 1999 stated, "if current trends of over fishing and environmental degradation continue, coastal resources will not be able to provide enough food for the Philippines growing population." The same report identifies coastal resource management (CRM) as a strategy for food security, and family planning as a "strategic intervention" to reduce fishing effort and population pressures in the coastal zone. According to the Philippines Department of Environment and Natural Resources, food security is contingent upon "Three Critical Results" needed to assure a sustainable food supply from municipal waters. These require that:

1. Fishing effort is reduced to sustainable levels
2. Illegal and destructive fishing practices are stopped
3. Coastal habitats are protected and managed

Putting it All Together

I-POPCORM encourages and supports integration of population management and reproductive health strategies into coastal resource management plans and projects, to improve the quality of life of human communities that depend upon coastal resources, while maintaining biological diversity and productivity of coastal ecosystems.

I-POPCORM's strategic objectives include:

- Improving reproductive health outcomes among people living in coastal communities
- Enhancing management of coastal and marine resources through local capacity building
- Supporting alternative livelihood options as a means to reduce food security risk and reinforce best coastal resource management practices
- Using mass media and targeted campaigns to increase the public and policymakers' awareness of population-environment links and solutions

The project is working in 10 municipalities in two provinces (Palawan and Bohol) spanning three bio-geographical zones with similar demographic and coastal ecological characteristics (Eastern Visayas, Palawan, and Calamian). To provide comparative data, some of the targeted municipalities have only CRM activities, others have only reproductive health activities while yet another group has both CRM and reproductive health activities. All of the areas are predominantly rural, with primarily young populations (more than 45 percent of the population is less than 15 years old) and have high marine, fisheries, and biodiversity values. Target communities are geographically remote and do not generally have electricity and television. There are also religious and cultural barriers to discussing and practicing family planning, as well as gender inequalities and "macho" attitudes about family planning responsibilities.

The I-POPCORM initiative specifically targets three groups in critical coastal habitats: fisherfolk, youth, and small entrepreneurs. The project works to address the unmet needs of men and women in the coastal areas by providing them with information on human sexuality and reproductive health and by strengthening their capacity to implement community-based and integrated reproductive health and CRM strategies and programs. Another target group is youth, which comprise a large proportion of the population in the coastal zone. The program seeks to educate them about the linkages between population and environment and encourage responsible reproductive behavior and stewardship of the coastal environment. Finally, the program directs resources to small entrepreneurs in coastal municipalities, particularly pharmacists, who have the potential to become social entrepreneurs through participation in social marketing activities the project supports to increase availability of affordable reproductive health products in coastal areas.

First Year Accomplishments

To date, PATH and its partners have succeeded as advocates and information disseminators to convince local executives in Bohol to incorporate reproductive health as one of ten management strategies of the Candijay municipal governments' CRM plan for 2001-2005. Other accomplishments include:

- Exposing community members, NGOs, and government staff to an Options Approach that provides information on new or under-utilized reproductive health/family planning options (i.e., emergency contraception training to government staff and community pharmacists; community-based family planning training for local NGOs and couple peer educators)
- Involving the youth, fishers, and the health service providers in developing appropriate learning methodologies for reproductive health education
- Helping communities, NGOs, and local governments gain an improved understanding of population, environment, and food security relationships (e.g., migration vs. reproductive over-population)
- Developing relationships with partner NGOs (i.e., jointly designing model community-based projects)
- Involving fishers in the development of integrated population-environment information, education and communication messages and materials for peer groups
- Transferring simple behavioral monitoring method and tools to NGO partners for tracking sexual and environmental practices (i.e., resource extraction, waste disposal) of target communities
- Completing biophysical assessments in four municipalities through which critical ecosystems, resource management options, and Pressure-State-Response indicators were identified
- Completing population and nutrition assessments in the same municipalities that demonstrated high rates of unmet demand for family planning among women of reproductive age (47 percent) and prevalence of active malnutrition (wasting) among children under-three (range 11-29 precent)
- Establishing baseline information on adolescent sexuality and contraceptive prevalence in rural coastal areas (less than 5 percent used modern contraceptive method during last sex)
- Documenting other survey results that challenge the popular notion that rural Filipinos are at low risk of sexually transmitted infection due to religious and cultural deterrents (32 percent knew someone in their village having multiple sex partners, and 18 percent knew someone having a commercial partner)
- Using preliminary results from baseline surveys and comparative analysis to inform policy advocacy agenda

Lessons Learned

Although still a young program, there have been several "lessons learned" in the area of understanding and acting on linkages among health/population management, gender, and CRM to optimize results in each area. Among the most important elements of success appear to be:

- Finding commonalities with existing governmental and NGO programs and working with interested and qualified partners, e.g., the Department of Environment and Natural Resources Department of Environment and Natural Resources and the Department of Agriculture (Bureau of Fisheries and Aquatic Resources), provincial and local government units (municipal health and planning and development offices), community-based CRM projects, barangay councils and committee (fisheries and aquatic management, etc)., regional and local NGOs (primarily environmental ones since there are few local health NGOs), fishers organizations, entrepreneurs (e.g., seaweed farmers), and research institutes in population and marine science.

Gathering fish for food

- Seeking out NGO partners that have know-how on community-based CRM, good linkages and working relationships with local

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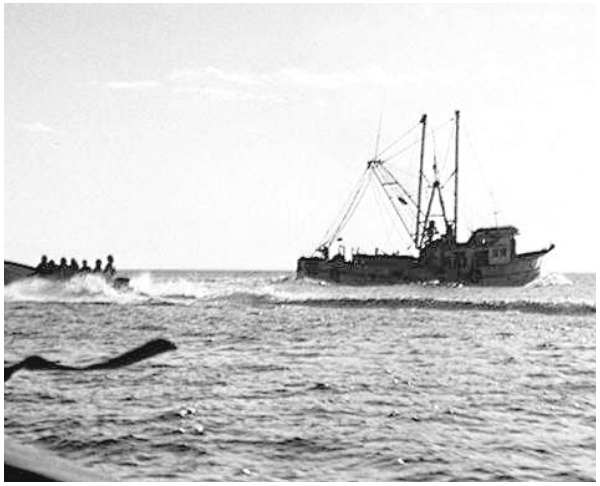
Gender and Coastal Resource Management in Magdalena Bay, Baja California Sur, Mexico

By Kate Pearson

Each spring for the past decade, increasing numbers of tourists have descended upon Magdalena Bay on the Pacific coast of Baja California Sur, Mexico, to engage in one of the world's most popular ecotourism experiences: whale-watching. For residents, the growth of tourism has partly compensated for income loss from the decline of local fisheries and the subsequent restructuring of the fishing industry.

In Magdalena Bay, several projects have been promoted to encourage the nascent ecotourism industry. This article looks at two such projects in relation to gender issues, the Mexican government-sponsored *Crédito a la Palabra* and a training program supported by RARE, a US-based environmental nongovernmental organization (NGO). The study focuses on Puerto San Carlos, a small fishing community with a population of 4,000 in Magdalena Bay. The bay and mangrove habitat provide breeding grounds for numerous species of fish, shellfish, shorebirds, waterfowl, and marine mammals, including the California gray whale.



Multiple users of the waters of Magdalena Bay

All of the main industries in Puerto San Carlos are dependent upon the sea: fishing, fish packing, whale tourism, and grain and oil transport. In most families, there is at least one fisher. Fishing is traditionally a male-dominated activity. There are very few examples of women engaging in fishing, with the exception of family shellfish collection gathered near the shore.

The transportation, energy, and equipment costs are high for commercial fishers in this isolated peninsula community. The government has given non-local fishers access to marine resources, and until recently required that fishers sell at state markets (often below market price). These factors plus economic crises have spurred fishers to underreport catches and harvest illegally, disregarding restrictions on shellfish and endangered sea turtles. Governmental corruption and lack of resources for adequate oversight have meant that illegal fishing goes largely unchecked.

The ecotourism industry is dependent upon whales. These whales migrate to Baja lagoons to give birth between January and April, peaking in February. Whale ecotourism has been promoted as an environmentally-friendly economic activity, in contrast to extractive fishing practices. However, whalewatching is not without environmental risks. Potential problems include waste disposal (there is no garbage removal in Puerto San Carlos), air and water pollution from whale-watching boats, ecosystem damage due to tourism infrastructure, and disturbance of the whales.

Tourism infrastructure is currently poorly developed. In 1998 there were two main whalewatching operations in the community, one well-marketed business owned by a regional entrepreneur, and a less well-known cooperative of whale tour operators. Two hotel owners also have permits to take their customers out on whale-watching boats. As of 1998, there were less than a dozen small hotels and restaurants and almost no tourist shops. Most tourists come to the area on prearranged day tours, or stay a maximum of one or two nights.

The rapid expansion of tourism in Puerto San Carlos took place against a backdrop of economic and social change. Past state policies and economic growth attracted transient fishers to Puerto San Carlos, mostly single men, leading to increases in prostitution and beer vending. The debt crisis in Mexico in the 1980s led to national economic and political changes that significantly impacted the town. The government reduced social spending, privatized parastatal industries and banks, and adopted policies of trade liberalization. When one fish processing plant elsewhere in Magdalena Bay was privatized it reduced its workforce—mostly women—by 90 percent. Numerous studies have shown that women's earnings are more likely to go towards household expenses, and therefore when women lose jobs their families become vulnerable.

With economic restructuring, the fishers lost access to low-interest loans from the government, and few have collateral for private loans. In 1989, *Solidaridad*, a government umbrella program, was created to soften the impact of restructuring. One *Solidaridad* initiative is *Crédito a la Palabra*, meant to reduce red tape for gov-

ernment loans to collectives and organized groups.

In the case of Puerto San Carlos, both fishers and whale-tour operator groups participated and received loans for boats and motors for a few members of the group. When the first recipients pay off the motors, the money is used to buy equipment for other members of the group—a revolving loan. In Baja California Sur, one women's group received a loan for a tortilla factory. In Puerto San Carlos no women applied to the credit program. The fishing cooperatives, all male, established and familiar with local officials, had an edge in applying for participation. Indeed, while the program has helped the town economically, it exclusively benefits those men already organized into cooperatives, leaving out so called "free fishers" (unaffiliated with cooperatives) and women. Also, despite laws mandating the use of local tour guides, almost all tourism revenue in Baja actually flows to North American tour companies.

Furthermore, the credit program has failed to achieve its goal of reducing the strain on marine resources caused by overfishing. Most whale-tour operators are also fishers, and the whalewatching season is less than three months long. The rest of the time the new boats and more powerful motors are being used for fishing—thus actually increasing the pressure on finite resources.

Also in an effort to bolster ecotourism, a guide training program in Puerto San Carlos was sponsored by RARE. RARE has conducted similar programs elsewhere, teaching participants about local wildlife, English, and tour guiding in a three-month intensive program. The program resulted in increased environmental awareness and language skills (English) of the participants. One graduate started a summer environmental education camp for children, held at the School for Field Studies' Center for Wetland Studies (a facility for US college students in Puerto San Carlos). However, in this program, as others, very few women participated (ratio of 1:5 women to men). None of the female participants have become active whale guides. Men usually drive the boats and the small skiffs used have only six seats. If the driver doubles as guide, there is room for one more customer. The program also did not address the potential for supplemental industries. One female graduate, for example, hoped to start a birdwatching operation on her family property, but was not sure how to do so without access to credit.

Both the government and the RARE programs would have been more effective if they had coordinated efforts and consulted with the local community—both women and men—about their needs. Instead, they had almost no local interaction and both groups made decisions about the programs far away from Puerto San Carlos itself. The governmental loan program, for example, would have been more effective in promoting whale ecotourism to ultimately decrease pressure on finite resources if it had also supported the development of small businesses related to tourism (hotels, souvenir shops, kayak rental), and targeted programs specifically towards women (a basically untapped workforce).

The RARE program was effective in a limited way. The goal of the program was to train whale tour guides to be environmentally aware. It did not consider gender concerns, however, or examine how to broaden the reach of its program. For example, RARE could have been more successful if it had taken the additional step of helping its graduates start a community awareness campaign on environmental issues or providing more post-program support to assist graduates in applying their new knowledge and skills.

Recognizing the limited impact of the program, RARE later hired a community development expert to facilitate community meetings about local concerns, including perceived environmental problems. RARE chose not to pursue further conservation activities in Puerto San Carlos because of lack of community interest. The facilitated meetings, however, did start a dialogue among community groups, NGOs, and government officials, and led to a short-lived grassroots litter clean-up campaign.

Ecotourism is a rapidly growing industry in Magdalena Bay

The experience of these projects in Magdalena Bay illustrate that coastal managers must be flexible and responsive to local concerns and needs. Stakeholder input in the planning stages of a project is valuable, both to troubleshoot beforehand and also to achieve stakeholder buy-in. Managers must be sensitive to community dynamics, and marginalized groups (in this case, women and unorganized fishers). Because women face more constraints to participation in projects, a special effort must be made to involve them and to find projects that are sensitive to local gender dynamics.

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Stemming the Tide? Lessons Learned from a Women's Microenterprise Development Project on the Yucatán Peninsula, Mexico

By Jennifer Solomon

There is no doubt that coastal populations are growing worldwide. Coastal tourist destinations often experience an increase in numbers, due not only to the influx of domestic and foreign visitors, but also of national migrants who come to the region in search of employment. In developing nations, this scenario is all too common, resulting in severe stress placed on natural and social resources.

Long a topic of debate in the fields of regional economic development and urbanization, reducing the stem of migrants to urban areas has often been attempted in developing countries by increasing investment in rural/regional development and creation of economic opportunities. With scant funding available for urban planning or investments in housing and community infrastructure for coastal resort cities, an alternative strategy may be the use of microenterprise development projects that can help stem the tide of migration to the coast. Understanding the critical components of such projects within the context of the local communities and attraction to coastal cities is, however, essential for success.

The Case of Quintana Roo, Mexico

Many coastal workers in the state of Quintana Roo, which sits on the Caribbean side of the Yucatán peninsula in Mexico, immigrate from interior communities. They have left their homes with the hope of earning a decent wage in the tourist hotspots of the "Mayan Riviera," with wage earning possibilities that are often unavailable in the small pueblos of the peninsula's interior. Men leave their families and look for work constructing the numerous new resorts, hotels, and restaurants that line the beaches south of Cancún. Women, who have even less of an opportunity to find organized employment in male-dominated rural industries such as timber or agriculture, seek jobs on the coast as hotel maids and cooks.

Maintenance of intact inland communities in Quintana Roo may be desirable for a number of reasons. For one, coastal population growth is often characterized by inadequate sanitation facilities and potable water supplies, leading to increased risk of disease. This is so particularly in the unplanned shanty towns that rapidly grow outside expanding resort communities to house the workers and builders of these tourism regions. Additionally, urbanization of the coast can lead to heightened pressure on fragile coastal ecosystems from, among other sources, water contamination, inadequate solid waste treatment, and erosion. Cultural traditions transferred within communities may also be lost.

The most recent *Mujeres Artesanas* trainees and the two long-term members with some of their products

Microenterprise Project for Women: There's No Place Like Home

During the months of June, July, and August of 2001, an evaluation was conducted on a women's microenterprise development project in the community of Noh Bec, Mexico. Noh Bec, located in the interior of the state of Quintana Roo, consists of approximately 2,000 people of mixed and indigenous descent. The project, called Women Artisans (*Mujeres Artesanas*) seeks to involve local women who convert tropical hardwoods from a certified, sustainably managed forest into utilitarian and decorative items such as bowls and candlesticks. The primary goal of the project is to sell the artisanal items in coastal tourist marketplaces. Additionally, the project hopes to promote community development through forest-based enterprises and the empowerment of women. The project serves as a case study for other organizations seeking to enhance women's status and economic situation in rural communities. Although the primary objective of the project was not to alleviate migration to the coast, the project did hope to involve women in an income-generating business that would in turn preclude the necessity to search for work in coastal areas.

After six years of work on the project by two nongovernmental organizations (NGOs) (one, a conservation-based group from the US, The Forest Management Trust, and the other a Mexican conservation and development group, *Tropica Rural Latinoamerica*, and generous financial support from a donor organization, The Moriah Fund), the project has a remarkable physical infrastructure but only two long-term members. A fully equipped workshop provides women with a safe workplace that they can call their own. Retention of women has been the formidable obstacle for the project, however. Many women have entered the training program, but few remain for longer than several months. In particular, young trainees without children have left the project with the greatest frequency, ironically often moving to urban, coastal areas in search of employment.

What Went Wrong?

Despite several intensive training cycles, the project has failed to become self-sustaining. One of the objectives of the evaluation was to determine why retention rates were so disappointing. Noh Bec appears to be an ideal place to carry out a women's microenterprise development project. Tropical hardwoods such as mahogany are harvested and certified by the Forest Stewardship Council, indicating that the forestry operation is sustainable. There are sufficient post-harvest pieces of wood to provide a regular source of raw materials for the women's wooden products. Local women voiced an interest in producing products for the tourist market. Two NGOs worked in tandem to initiate the process of organizing women, soliciting funds, and facilitating the project. But, Women Artisans has failed to become a viable alternative to coastal employment.

Women in the community generally do not receive a regular wage, and some conservation and development workers noted that young women were leaving for the coast to look for work. Why are young women leaving to seek coastal employment? What lessons can be learned from this project?

The most salient question is, "Who can afford to participate in the training process?" Women were not paid to participate in the training sessions. The NGOs organized the project as such because they wanted to ensure that participants had a vested interest in the project and were not just frequenting the workshop to receive money. Unfortunately, this approach left out potential participants who are required out of necessity to earn a daily wage.

Development projects often seek to create a vested interest, but this is difficult to do with an externally motivated project. Creation of vested interest is possible, but it may take a significant amount of work that may not normally be included in the management plan for a microenterprise project. A monetary reward is one means of creating a vested interest, but not the only one. For example, linking the health of the environment with the welfare of local people through an educational component can foster pride in their work, as well as their communities.

Would retention be improved if the project were directed in part at women with real economic needs? The answer is probably that the majority of the women who attend the training workshops currently are not in dire need of an income, and therefore it may be easier for them to step away from the project. However, women that would stay might also likely be those with children, and thus with roots in the community.

It is also important to recognize that young women leaving Noh Bec for the coastal towns may be departing not only for the sake of earning an income. Coastal towns also provide a place for socialization, especially for those who are not married. Not only do they permit young people to meet other young people, these communities are completely different than where these young people grew up. Thus, coastal employment also affords them a glimpse into other cultures, found both within their nation and beyond its borders.

Lessons for the Future

First and foremost, organizations that wish to engage in microenterprise development projects need to understand their target population. NGOs working within Noh Bec noted that young people were leaving for the coast, and were told that it was for economic reasons. However, no active research was done to determine what young women actually found attractive in coastal cities. Evaluation of the project in Noh Bec points to a complex combination of economic and social concerns driving women to seek a life elsewhere. Undoubtedly, were a preliminary study done that focused on these issues and their relationship to the factors causing these women to migrate towards the coast, the potential for success of the women's microenterprise project in Noh Bec would have been boosted.

The relationship between coastal tourist destinations and rural people living in the interior is one that will ultimately alter rural community composition, as well as that of developing coasts and urban centers that receive a rapid influx of migrants. The case of Noh Bec and Quintana Roo demonstrates that future development activities should focus more on sustainable urban planning and management

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Population and Gender Dynamics in Coastal Conservation in East Africa

By Bronwen Golder and Mia MacDonald

Along the east coast of Africa lies one of the richest marine ecosystems in the world, spanning over 300,000 square miles from Somalia in the north to Mozambique in the south. The World Wildlife Fund (WWF) defines this area as the East Africa Marine Ecoregion (EAME) (Ecoregions are large units of land or water that contain geographically distinct assemblages of species, communities, dynamics, and environmental conditions.).

With its diversity of fish, corals, and mangrove forests, the EAME is among the ecologically richest, rarest, and most endangered marine ecoregions on earth.

Today, extensive fishing, destruction of coral reefs, and the clearing of mangroves are increasingly threatening this unique marine system. To address these threats, WWF has initiated conservation planning and action across the ecoregion. Effective conservation action at such a large scale requires an understanding of, and response to, far more complex biological and socioeconomic interactions and trends than site-level work demands. Population is one of the key socioeconomic factors at work across the ecoregion scale, often shaped by gender dynamics. Along with factors like fertility rates and migration patterns, gender dynamics play an important role in determining the amount of pressure that is likely to be placed on human and natural resources.

Fishermen on Bazaruto Island, Mozambique ©WWF-Canon / Fredrick J. Weyerhaeuser

In late 2000, WWF undertook an analysis of population and gender dynamics in a number of coastal communities within the EAME, and specifically in Tanzania and Mozambique. This article describes the study's findings, what they suggest about the links between gender and population, and ways of addressing these links to advance conservation goals in coastal ecosystems.

Findings: Gender and Population Links

Population dynamics provided important information about current and anticipated pressures on the resources of the EAME, and, as anticipated, gender emerged as a key element determining men's and women's access to and use of resources in the ecoregion.

Gendered Use of Resources

The following were the main findings regarding gender and resource use:

- As the main household breadwinners, men control access to almost all resources and are primarily responsible for much of the destruction in the marine environment. Men's primary activity is fishing in open waters, often using dynamite and poison to secure their catch. Men also cut mangroves for boat and home construction. In the Tanzanian communities studied, palm leaves used for handicrafts are the only resource women alone control. And in most villages in coastal Mozambique, women are not allowed to fish, although they do process and market the men's catch.
- Women, as household managers and increasingly to earn extra income, use primarily those marine resources that are close to land. This is largely the result of prevailing cultural mores. Women use mangroves for fuelwood and make charcoal for household consumption or sale in markets. They also collect small marine life like seaweed, crustaceans, oysters, and turtle eggs, often damaging coral reefs and disrupting turtle breeding in the process. Women are increasingly processing these marine resources and selling them, often to tourists.
- Women, although they are generally the main producers of food through subsistence agriculture, tend not to own or control land. In addition, they rarely have access to technology that would enable more sustainable use of resources. In many cases, men also lack such access, but conservation programs more often target men with programs that provide new sustainable technologies.
- Poverty plays an important role in gendered use of resources. In general, and especially in Tanzania, women in wealthier households do not traditionally or by necessity earn money, so they rarely use marine resources directly. But most people in these coastal communities are poor and so are heavily reliant on local marine resources. Widespread and, in some cases, growing poverty are putting new pressures on women to contribute to household income.

Population and Gender

Population dynamics in the two countries have strong links to gender. Fertility, though falling, is still high, with an average of five chil-

dren born to each woman in Tanzania, and nearly six to every woman in Mozambique. In rural areas such as the coastal villages studied, fertility is even higher. Women in these communities have limited access to family planning and reproductive health care, and overall rates of contraceptive use remain very low. The 2001 report by the New York United Nations Population Fund, *State of World Population 2001*, states that only 16 percent of women in Tanzania and 5 percent in Mozambique use a modern contraceptive method, with even smaller percentages the norm in rural communities. Women's status is also low, with only a small proportion of girls completing school. Because secondary schooling is a strong predictor of lowered fertility, lower education levels for women often lead to higher levels of population growth. Another outcome is that large numbers of women are illiterate. Estimates from the *State of World Population 2001* suggest rates at the national level of 31 percent in Tanzania and 70 percent in Mozambique. As a result, women's power to determine family size is limited.

Dynamism of the Situation

The state of both gender and population are dynamic in the EAME. In most of the coastal communities studied, poverty and population are rising, in some cases very quickly, suggesting even greater future demands on resources. Ironically, some communities view the growing population as positive since it provides a larger market for their wares, including processed marine life. At the same time, out-migration is increasingly common and also has a link to gender. Men usually migrate in search of waged work in cities, leaving women in charge of households and in need of money, which is largely secured through increased use of forest and marine resources.

Indeed, throughout coastal Tanzania and Mozambique, growing numbers of women are undertaking economic activities, the result of household food security needs, male out-migration, a desire or need for more household income (often to pay for health care or schooling for children), and changing social mores. In some communities in Tanzania, women have been driven by these changing circumstances to begin fishing, breaking long-standing gender norms. Structural factors are also playing both planned and unplanned roles in this change; among these are the increasing marketization of local economies, government commitments to gender equity in employment and education, and donor-funded conservation programs that emphasize women's role as resource managers.

Interpreting the Findings and Moving Forward

The results of the analysis suggest that conservation objectives will not be met in the EAME or many other coastal ecosystems if gender and population realities are not addressed. The following are some of the realities revealed by the analysis that should be applied to the EAME and other coastal areas:

- Women are important resource users and managers who, along with men, need education, training, and inputs that will enable them to use coastal resources more sustainably. The analysis revealed that women resource users were generally more open than their male counterparts to shifting harmful economic activities such as the collection of turtle eggs to less environmentally destructive, income-earning pursuits like basket weaving or sustainable mariculture. But, although the law in Mozambique guarantees women and men equal access, women still have limited control over assets and resources. This suggests the need to encourage involvement of both men and women in community discussions and actions rather than engaging only those who can claim principal use or ownership of resources (which in most cases are men).
- Greater awareness of gender-based resource management can play an important role in policy development and action. At national levels, both Tanzania and Mozambique have policies that are gender-sensitive in writing, but government agencies lack the necessary capacity in gender analysis and programming to implement them. Support for gender training of key stakeholders and government coastal resource administrators could be an effective response.
- There is a strong link between high fertility and the low status of women in coastal communities. Limited family planning, reproductive health services, and educational opportunities reinforce these links. Health and education infrastructure in coastal areas and governmental actors that can prioritize its delivery are critical. Also important is long-term monitoring of population trends, joined with planning to address their potential impacts on coastal resource use.

Subsistence fishing co-exists with ecotourism in Mafia Island Marine Park, Mafia Island, Tanzania project © WWF-Canon/Meg Gawler

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Demographic Dynamics, Gender, and Resource Use in the Galápagos Islands

By Jason Bremner and Jaime Perez

The Galápagos Islands, located 1,000 kilometers from the Ecuadorian coast, have been treasured as a unique place on this planet since Charles Darwin visited them in 1835. Recognizing this richness, the Ecuadorian government created the Galápagos National Park in 1959 and the Galápagos Marine Reserve in 1986. In 1959, there were only 1,000-2,000 residents living in the islands. Since the early 1980s, however, the population has grown annually at a rate of approximately 6 percent, and the population of the islands now numbers over 15,000.

The growing population has led to new threats to the fragile ecosystem. The principal conservation issues include: marine resources conflicts; overfishing of certain species such as sea cucumber, lobster, and shark for export to foreign markets; and the introduction of aggressive exotic species which displace and threaten native species. Conservation organizations and the Ecuadorian government have become increasingly concerned with how the growing human population is aggravating these problems.

Demographic Dynamics in the Galápagos

A government-sponsored special census of the Galápagos was carried out in November 1998 due to increasing concerns over the rapid population growth. Although the census recorded a total of 15,311 inhabitants, a recent review of gender and demographics revealed that 650 inhabitants did not have the Galápagos as their usual place of residence, and that this transient population was predominantly male. Eliminating them from the analysis, the adjusted total population of the Galápagos was 14,611 inhabitants, more than 2.3 times greater than the total population recorded in 1982 (Table 1). The annual growth rate has remained above 5 percent from 1982 to 1998.

Table 1. Total Population and Annual Growth Rates in Galápagos: 1982-1998

Year	Total Population	Annual Growth Rate (%)
1982a	6,119	-
1990a	9,785	6.0
1998b	14,661	5.1

Sources: INEC, National Censuses of 1982, 1990 and Galápagos census 1998
a. Does not exclude tourists or non-permanent residents
b. Excludes tourists and non-permanent residents

Analysis of the growth rates and total fertility allows one to conclude that the growth of the islands is primarily due to in-migration. The age-sex pyramids of the adjusted population in 1982, 1990, and 1998 (Figures 1, 2, 3) support this observation and show a concentration of the population in the working ages between 20 and 39. In addition, the pyramids are characterized by larger male populations, suggesting the disproportional migration of young males of working age.

Closer analysis of these age sex-pyramids over time, as well as examination of trends in gender ratios, suggest that migration to the islands has begun to change. The pyramids in 1982 and 1990 have large concentrations of working-age males, but by 1998 there has been a noticeable growth in the female side of the pyramid. The index of femininity (calculated as number of females per 100 males) has been steadily rising since 1974 and grew the fastest between 1990 and 1998 (Table 2). While the population in the Galápagos remains characterized by a greater number of males, the trend since 1974 clearly shows increasing femininity among the migrant population.

Table 2. Femininity of the Population of Galápagos in Census Years

Year(100*F/M)	Femininity
1974	71.5
1982	72.4
1990	76.8
1998	83.9

Source: INEC, National Census of 1974, 1982, 1990 and Galápagos census of 1998

Why has Migration to the Galápagos Islands Changed?

The rapid growth of the Galápagos economy and the improvement of services have resulted in two important changes that have increasingly attracted female migrants. First, male migrants became established and either brought their already existing families or started new families in the islands. Data from the 1998 census shows that the majority of female migrants who arrived before 1993 (73 percent) said their motive for arriving in the Galápagos was family related (Table 3). In addition, between 1990 and 1998, both the number

Table 3. Pre-1993 Migrants' Motives for Migrating to the Galápagos by Sex (%)

	Men	Women
For Work	54.1	24.9
Looking for Work	2.6	1.9
Family Motive	43.3	73.2
Don't Know	--	--
Total	100	100

Source: Galápagos census 1998, 3,449 men and 2,858 women

and proportion of males and females who were in a stable partnership (defined as either married or living together) increased.

The second important change that is attracting female migrants is the changing structure of the Galápagos economy. Growing sectors of the economy such as commerce and public administration have expanded the work opportunities for female migrants who were traditionally left out of the primary economy of boat-based tourism, agriculture, and fishing. Comparing past and recent female migrants' motives for moving to the Galápagos shows that a significantly greater number of recent female migrants compared with past female migrants reported that their motive for migrating to the Galápagos was for work (33 percent versus 25 percent).

What Does Increasing Female Migration to the Galápagos Signify for Natural Resource Use and Conservation Strategies?

One of the principal mechanisms through which the growing female population in the Galápagos could potentially affect natural resource use patterns is through women having different knowledge, attitudes, and practices with respect to natural resource use. However, a public opinion survey by *Fundación Natura* (a major Ecuadorian environmental nongovernmental organization) showed that there are no significant differences between men and women's attitudes towards conservation. In two separate surveys, women were found to have little direct involvement with natural resources through economic activities, household responsibilities, or decisionmaking.

The lack of women's involvement in fishing, limited involvement in agriculture, similar knowledge and beliefs as men, and high education levels seems to suggest that the growing femininity of the population will have little direct impact on conservation. This appears to be especially true with respect to the conservation threats of marine conflicts and overfishing.

Conclusions and Recommendations

Women now constitute a growing proportion of the overall population of the Galápagos. The majority of women, however, have little direct involvement in traditional resource use such as agriculture, animal husbandry, or fishing. This suggests that with respect to the conservation threats of marine resource conflicts and overfishing, women do not have direct impacts. Deeper questions remain unanswered, however. Are there aspects of the marine conflict that will be exacerbated or abated by the increased presence of women and more stable households? Will fishing of already depleted species intensify as men feel increased economic pressure to provide for their families that are now settled in the Galápagos? In addition, information on the non-marine environmental impacts of the female population are worth exploring, e.g., household water use and sanitation practices, family gardening practices (including introduction of exotic species), etc.

The greatest impact of the increasing femininity of the Galápagos population may not be due to direct impacts caused by women, but rather due to an increase in the number of stable couples calling Galápagos home. The greater number of stable households could lead to greater concern for the environment or

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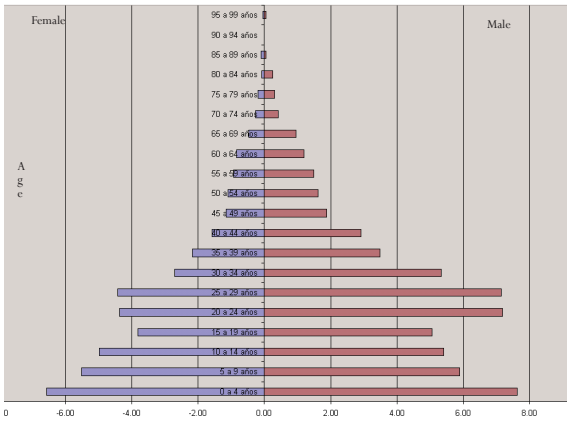
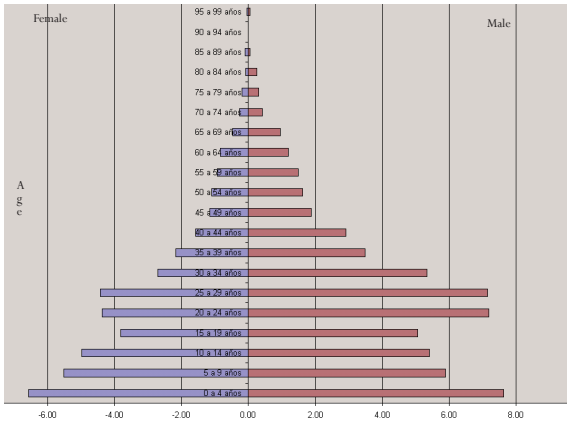
Figure 1. Age-Sex Pyramids for Galápagos: 1982



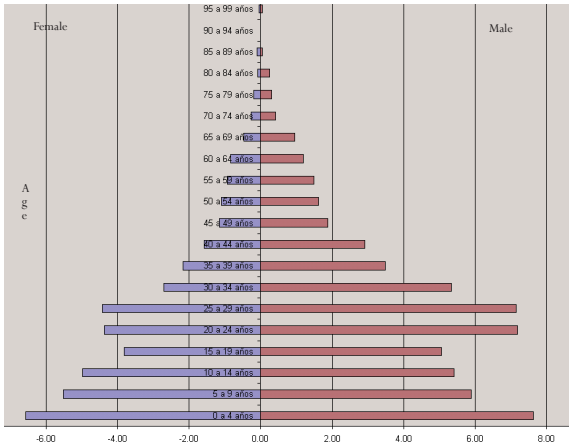
Source: INEC, National Census of 1982. Figure prepared by Carlos Larrea.

Figure 2. Age-Sex Pyramids for Galápagos: 1990



Source: INEC, National Census of 1990. Figure prepared by Carlos Larrea.

Figure 3. Age-Sex Pyramids for Galápagos: 1998



Source: INEC, Galápagos Census of 1998. Figure prepared by Carlos Larrea.

(En)gendering Climate Forecasts

By Kenneth Broad

Until recently, attention to the relationship between gender and environmental issues has not gone much beyond reference to Mother Nature. Often such references were pejoratively framed in the context of the unpredictability of nature, assumed to be an intrinsically feminine characteristic. In response to this uncertainty, humans have attempted to predict patterns of nature. In the case of climate, one of the more recent and widely acclaimed successes of western science has been the increased ability to predict the occurrence of El Niño, and its feminine counterpart, La Niña, and their impact on weather patterns in some tropical regions of the world. This article will discuss recent attempts to apply these climate forecasts for societal benefit in coastal Peru, and will focus on why gender issues should be explicitly incorporated into the discourse on climate forecast applications.

El Niño and La Niña events (known as El Niño-Southern Oscillation, or ENSO in the scientific community) occur with varying intensity on a 2-10-year timescale. El Niño refers to a warming, and eastward shift of a large body of water within the Pacific Ocean. This eastward migration of a massive pool of warm water is associated with shifts in wind and ocean circulation patterns across the Pacific basin, changes in rainfall patterns, and increased sea-level on the west coast of North and South America. These changes can trigger large-scale ecological changes among living marine resources. Along the coast of Peru, strong El Niño events reduce catchability, and can disrupt the recruitment and reproduction phases of the anchovy (*Engraulis ringens*), which supports the largest fishmeal industry in the world. La Niña refers to a cooling and westward shift of the pool of warm water, and a different set of atmospheric, oceanic, and ecosystem changes. Outside of the tropical Pacific, the effects of ENSO are experienced through increased chance of floods, droughts, and other anomalous weather patterns in both coastal and inland areas around the world, though the consistency of these ENSO signals are strongest in the Pacific basin region.

The last two decades have seen breakthroughs in the development of computer models that simulate the physics of the climate and can predict the onset of El Niño. Though the prediction skill remains modest, there is enough of a climatic signal to consider systematic application of these forecasts in regions that are vulnerable to recurrent climatic shocks. New organizations such as the International Research Institute for Climate Prediction (IRI), based at Columbia University, New York, USA, are dedicated to studying the potential uses of this new information from an interdisciplinary perspective (http://iri.ldeo.columbia.edu).

Within climate forecast applications efforts—as with much applied research—the traditional focus has been on determining the monetary value of information, considering macroeconomic scenarios, and focusing on decision-making by key actors within sectors. It is fishermen, farmers, civil defense specialists, governmental ministers, and those working in national meteorological services that tend to be the points of contact for initiating applications activities. In less industrialized countries, these actors tend to be men. If, however, forecasts are going to be more widely used by those outside policy circles in these regions, climate forecast applications should include a focus on the potential use of information by those involved with the informal and household economy. This will necessitate increased focus on gender issues.

Experiences from fieldwork conducted for the IRI from 1996-1999 in coastal Peru and Chile on the impacts of climate forecasts for industrial and artisanal fisheries illustrate the importance of an increased focus on gender. This work was aimed at addressing the questions of which groups within society had access to and understanding of climate forecasts, how information flow occurred, and whether there were "winners and losers" associated with the introduction of climate information.

Our ethnographic survey and archival research did not set out to explicitly study gender issues, but to evaluate the current and potential use of climate forecasts by different members of the fisheries sector, focusing on fisheries management. However, in studying the use of climate information, compelling anecdotal evidence relating to equity of information flow and optimal forecast dissemination strategies suggested the importance of considering women's use of climate information.

We found many instances in rural artisanal fishing villages (*caletas*) where women did not have access to detailed forecasts of El Niño, but had heard rumors of its arrival. Some fishers used the pending arrival of El Niño as an excuse to reduce their wives' weekly allowance. Such cases also emerged within the upper-middle class with the wives of executives from the industrial fishery.

The significance of women's curtailed spending allowances goes

Beachside fish preparation in northern Peru (Photo by Kenneth Broad)

beyond the issue of equity in marital dynamics. In many fishing communities, women are responsible for earning a significant percentage of the family income through non-fishing activities within the informal economy (e.g., running small shops and performing services out of the house). Since the local economy is directly impacted by the quantity of fish catch, knowing whether the fishing season will be bad or good because of ENSO-related effects has direct implications for decisions such as stocking up on goods and restricting household spending in anticipation of a lean season. In addition, women often control the relative distribution of household resources (though they may not control the amount they can spend on themselves). Women regularly make decisions regarding household expenditures on food, clothing, and children's education based on expectations of income from fishing and informal services, both of which are subject to climatic impacts.

Married and single women (and their children) play a key role in the processing of fish and are thus directly impacted by fluctuations in fish supply. Manual labor in fish-meal plants and canneries tends to be dominated by women, who could plan for layoffs during times of scarcity of marine resources that accompany strong El Niño events. Planning information has become more important as changes in labor laws over the 1990s have removed minimum wages and other forms of labor protection for these workers, increasing their vulnerability to shifts in fish supply and to market changes. Given the important role women play in the household unit of production and the barriers in communication among spouses, especially in rural fishing households, it is incongruous that applications efforts should be focused solely on the fishermen.

A final example relates to the issue of information flow. If those who produce and distribute climate information want to get the "best bang for their buck," they should consider targeting the extensive and efficient social networks run by women for receiving detailed information. In coastal Peru, these include programs such as community kitchens and health care organizations that prove crucial during difficult times, such as El Niño. Again, advanced warning of impending problems brought on by climate variability would prove useful for their planning and for diffusion of information throughout the community in a cost-efficient manner. In the study region, women proved to be a potentially crucial audience for forecast information, not only as individuals, but also as members of networks and community organizations.

In many parts of the world, climate forecasts may play a role in reducing uncertainty in climate-related endeavors, of which there are many. As we initiate the use of this information, there is a responsibility to consider the implications of how, and more importantly, to whom information is distributed. We should not ignore the lessons from the myriad of development schemes that failed at the local level because women and women's organizations were not included in the design and execution of projects. Incorporating gender into the mental models of forecast users is necessary for achieving the distributive and participatory balance that should be a primary goal.

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Gender Matters: Implications for Climate Variability and Climate Change and for Disaster Management in the Pacific Islands

By Cheryl L. Anderson

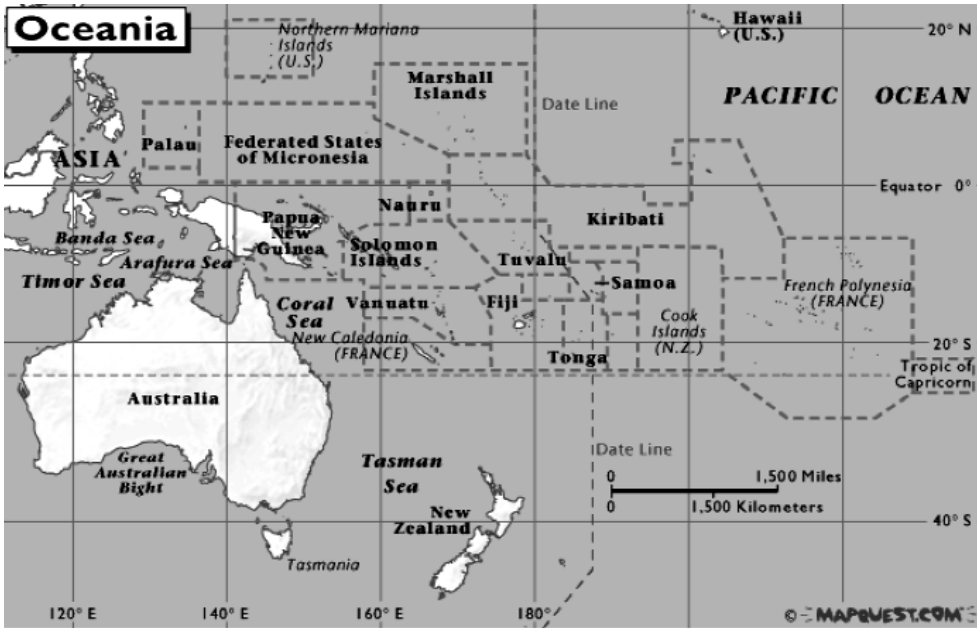
Situated amidst the vast Pacific Ocean, with populations located along the coast and sensitive ecosystems bound through interconnections of the land to the sea, the Pacific Islands present a unique opportunity to observe the effects of environmental changes. They also present a formidable challenge for coastal managers seeking to balance economic development and conservation. Formerly self-contained ecosystems and social systems on the islands are becoming increasingly connected with the global climate and global economy. In the context of climate change and variability, the Pacific Islands have been described as the proverbial "coal mine canaries" of the world. Not only do the islands experience strong effects of El Niño-Southern Oscillation (ENSO) and associated extreme climate events or natural disasters (such as tropical cyclones, drought, wildfires, floods, and extreme tidal variation), the islands may slowly disappear as a result of sea level rise. As early indicators of change, the Pacific Islands may provide insight into the ecological impacts of climate change, as well as social impacts and environmental and disaster management options.

Think Globally, Act Locally: Vulnerability and Coping Strategies

Though climate phenomena are global in scale, their impacts are felt directly on a geographically small scale—within the island countries, on specific islands, in villages and towns on the islands, and among individuals living in these places—and addressing these requires a local approach. Developing appropriate, adaptive strategies for this environment necessitates an understanding of systemic interactions and an emphasis on an integrated, holistic planning process that includes multi-sector cooperation and participation. Gender equality is an essential aspect of participatory planning. As part of the economic, political, social, and cultural characteristics of a society, gender is an important lens for understanding roles and responsibilities within a society, and for designing resource management programs with the people who will be using these programs.

Natural disasters and environmental degradation tend to impact vulnerable populations such as women, children, and the elderly most severely; yet these people often have the least access to resources for recovery. In both developed and developing nations, women are disproportionately represented among those most impacted by environmental changes, not only because their income levels are lower than those of men, but also because they often lack ownership or control of resources, access to information, and decisionmaking authority.

However, focusing solely on vulnerability may be misleading since women often have untapped skills, coping strategies, and knowledge that could be used to minimize the impacts of crisis, environmental change, and disaster. For example, during a drought in the small islands of the Federated States of Micronesia, it was local women, knowledgeable about island hydrology as a result of their land-based work, who found potable water by digging a new well that reached the freshwater lens. The everyday responsibilities of women and men in the small islands of Micronesia translate into gender-differentiated responses to warnings of



oncoming climatic hazards, such as typhoons. Men are generally responsible for ocean-related activities, and women are responsible for land-based and near-shore or reef-based activities. Men typically secure the structures, canoes, and objects needed for fishing, and women gather plant cuttings, prop banana trees, collect food and water, and direct families to a designated shelter where everyone awaits the storm. Afterwards, men rebuild structures and women and children gather salvageable palms and food. Women weave thatch and replant gardens. Without access to information about impending hazards, women cannot minimize risks to their critical sphere of land-based responsibilities.

Women Making a Difference

Government and disaster assistance agencies often overlook women's important role in environmental management. Although many women in the State of Hawaii work for environmental agencies—land and natural resources, urban planning, public health, water resources, coastal zone management, agriculture, forestry, energy, and civil defense/disaster—very few women hold upper management positions. With relatively few notable exceptions, the same is true throughout the Pacific Islands. Therefore, women's thoughts and knowledge may not be visible in public policy development. By contrast, community-based and environmental organizations have a much higher number of women in leadership positions, and can offer an alternative voice in environmental advocacy and management.

In Hawaii, community organizations have been successful in attracting attention and funding and have brought a participatory approach to developing flood mitigation plans. For example, the community of East Maui (a rural community with a concentration of native Hawaiians) frequently becomes isolated by landslides and flooding. Residents recognized the potential for major disasters and formed a team to identify their risks. Based on knowledge of their own community and advice from every agency that would meet with them, the local team mapped available resources using a geographic information system, developed hazard response and evacuation plans, and instituted a mitigation strategy.

During the 1997-98 El Niño event, women participated on drought mitigation task forces in three out of seven US-affiliated Pacific Island jurisdictions. Task forces that included more women and more interdisciplinary participation consistently incorporated strategies to reach smaller communities and villages with information about the potential effects of drought, including ways to conserve water, store food, and treat water to prevent the spread of infectious disease. Drought impacts were severe, but would have been much worse without the penetration of information that led to local conservation and public health programs. The crucial role that women played on the Pacific Island drought task forces and as community organizers for flood mitigation in Hawaii indicates that gender does matter in the development of strategies to deal with the impacts of climate change and variability-especially at the local level where impacts will be felt most intensely.

After the Disaster: Overcoming Gender Inequity

Evidence worldwide indicates that post-disaster situations offer a window of opportunity for promoting equity in gender roles; however, forethought and planning must be initiated prior to the disaster to most effectively take advantage of these opportunities. The disruption of normal life and the pressing need for rapid recovery present new possibilities for women to overcome traditional barriers. However, unless they are handled with appropriate sensitivity to the local context, shifting gender roles can sometimes deteriorate women's social position and result in greater vulnerability to disasters. For example:

- Disaster relief donors that did not understand the power associated with traditional land tenure and the matrilineal land system in parts of Micronesia unknowingly undermined women's status by failing to consult them about where to locate structures and what types of construction materials to use—activities traditionally conducted by women.
- Food assistance delivered in quantities and types inappropriate to the cultural system resulted in imported food products gaining higher value, even though these products had less nutritional value. Gynecologists visiting these islands attribute a drastic rise in infertility, as well as increases in heart disease and diabetes, over the last three decades to obesity associated with the consumption of imported food. As food preferences changed and expectations of free imported food products increased, traditional activities of food and seed storage and preservation for future disasters have decreased.
- Family members migrate to the capital to earn cash to purchase preferred imported products. More men are employed in the limited cash economy than women. Everyone comes to expect certain types of assistance, and they stop rebuilding and reconstructing the islands using traditional materials. The value of subsistence work erodes, as does the socio-cultural

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HIV/AIDS and Coastal Zone Management: Why We Should Care, and What We Can Do

Adapted by Macol Stewart from Harat Husain, Greg Booth, and Mike Godfrey, *HIV/AIDS and the Environment: Why We Should Care and What We Can Do*, USAID Environment Officer's Training Workshop, 2001.

The United Nations Programme on HIV/AIDS (UNAIDS) reports that:

- Over 40 million people are living with HIV, the virus that causes AIDS
- More than 18 million people have already died of AIDS
- AIDS is now the leading cause of death in Sub-Saharan Africa, and the 4th biggest worldwide
- About 14,000 people were infected with HIV *every day* in 2001
- More than 95 percent of new infections are in the developing world
- Almost 50 percent of new infections occur among women
- About 65 percent of the newly infected are less than 25 years of age

In the face of these sobering statistics, a discussion of coastal zone management, gender, and population would be incomplete without an attempt to raise questions about their interaction in the context of the HIV/AIDS pandemic. Development practitioners—including coastal managers—from urban centers to villages are rapidly becoming familiar with the effects or potential threat of AIDS in the communities where they work.

The Demographic Dimension of AIDS

The impact of AIDS is most apparent in Sub-Saharan Africa, where UNAIDS estimates that over 28 million people are living with the disease. AIDS mortality rates in this region, highest among young men and women in their most productive years, are resulting in population structures never seen before; the classic "pyramid" population structure representive of developing countries is expected to be squeezed into population "chimneys." (See Figure)

The Gender Dimension of AIDS

Women, especially young women, make up the fastest growing risk group. In Sub-Saharan Africa, women already account for 55 percent of the infected population. Girls and women are particularly vulnerable to HIV infection for biological reasons and as a result of economic and social pressures that steer them towards relationships with older men. The UN Food and Agriculture Organization estimates that in some areas of Sub-Saharan Africa, HIV infection rates can be three to five times higher in young women than among young men, with women and girls becoming infected at a younger age than men and boys.

The Environmental Dimension of AIDS

Profound alterations in labor force, social, and demographic dynamics associated with AIDS threaten to put many development goals out of reach. Rising AIDS mortality and morbidity among the adult population are slowing economic productivity. Children who have lost one or both parents are leaving school and replacing adults in the labor force in an effort to support themselves and their siblings. Environmental professionals in southern Africa, where infection rates among the adult population have surpassed 20 percent, report a range of AIDS-related challenges:

- Loss of trained professionals
- Reduction of agricultural output and economic production
- Increased threat of over-harvesting
- Decreased local attention to environmental protection
- Decreased inter-generational skill transfer
- Disruption of land tenure system

The US Agency for International Development (USAID) teams and their local partners have found it helpful to address these challenges head-on through integrated HIV/AIDS and environmental programs. Community-based resource management programs, agriculture projects, and women's empowerment activities can all present effective opportunities to incorporate HIV/AIDS education and prevention. Multi-sectoral activities range from the simple gesture of printing HIV/AIDS prevention messages on fertilizer bags in Zambia, to the complex undertaking of a fully integrated population-environment-health program in partnership with a private foundation in Madagascar.

Husain, Booth and Godfrey developed the following set of informal guidelines to assist environmental managers craft multi-sectoral programs in response to HIV/AIDS:

- Incorporate HIV/AIDS information into your planning process. Ask local HIV/AIDS experts for advice. Learn about the prevalence rate and trends in areas where your projects are based.

■ Analyze which programs are likely to be vulnerable to HIV/AIDS, such as those involving land reform, requiring migration of participants, aiming to build skills in local populations, requiring community financial resource contributions, requiring social cohesion and community action, or those requiring national policy attention and resource commitment.

■ Be proactive if you are operating in a high prevalence area

■ Make sure new projects incorporate HIV/AIDS realities into strategies and budgets

■ Reconsider program strategy if necessary: can you expect to meet your original objectives in HIV/AIDS context?

■ Talk openly about HIV/AIDS with program partners (government agencies, communities, nongovernmental organizations, donors) to gain their support

■ Ask implementing partners to monitor and report on HIV/AIDS indicators

■ Include HIV/AIDS questions in social and environmental impact assessments

■ Talk with public health colleagues to discuss collaboration in linking prevention or care/support services with partner institutions and communities

■ Collaborate with local organizations to provide HIV/AIDS-related services

■ Be an advocate for non-discrimination against people living with HIV/AIDS

■ Consider how to integrate orphans and vulnerable children (especially older youths) into coastal management activities and skill development

Having Trouble Getting Started?

Try discussing Godfrey's thought experiments with your coastal management partners:

What would you do if ...

■ HIV/AIDS rates in the coastal area that you manage are nearly twice the national average due to tourism and the large number of migrant workers?

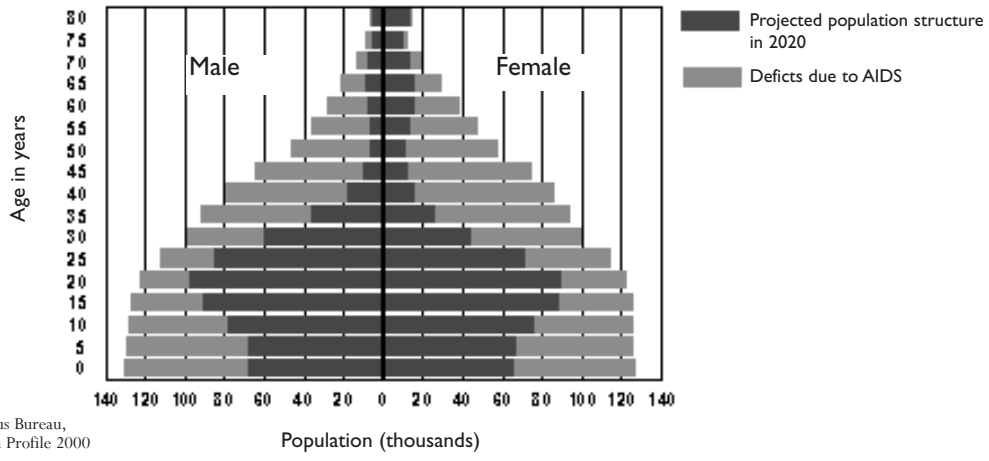
■ Annual staff turnover has risen from 2 percent per annum to 8 percent per annum over five years, and senior and mid-level professionals are being replaced by inexperienced new hires?

■ You find that, because of HIV/AIDS, the communities you work with are increasing the intensity of extractive activities to meet their basic needs and more and more children are becoming involved in natural resource extraction?

■ Your project involves watersheds protected by local military, but you know these resources have traditionally been used by local communities as a water source? What if you have received reports that local women are facing some harassment from soldiers when they come to draw water, and that informal "transactions" take place between the women and the soldiers to gain access to the water?

■ The coastal communities that you work with are known to have HIV prevalence rates of at least 20 percent, and you are approached by a public health nongovernmental organizatons to link your community base to their HIV/AIDS care, support, and prevention efforts?

Projected Population Structure with and without the AIDS Epidemic, Botswana, 2020



Source: US Census Bureau, World Population Profile 2000

Sex on the Beach and other Secrets that Mother Never Told You about Coastal Tourism

By Macol M. Stewart

Expansion of coastal tourism in recent decades has been hailed as a source of economic development, creating jobs and bringing tourist dollars to coastal communities. According to the World Bank Group's International Finance Corporation, tourism provides direct or indirect employment for 231 million people worldwide, or one out of every 10 workers. Tourism is the fastest growing industry, and by 2010 is expected to be the world's second largest industry, surpassed only by agriculture. The tourism industry is already the world's largest source of tax revenues, contributing an estimated US$800 billion to government coffers in 1999 alone. But at what price?

Despite its enormous economic benefits, the tourism industry is not without detractors. Critics have long noted the environmental destruction that poorly managed tourism development can wreak in coastal areas. Although fragile ecosystems continue to be developed as tourist destinations, discussion of environmental impacts is at least now an accepted part of the public debate. The one to two jobs that the World Tourism Organization estimates are created as a result of every new hotel room are no longer viewed strictly from the perspective of economic concerns. Benefits are increasingly weighed against the demands which tourism development will place on freshwater or other scarce natural resources. However, the less palatable human aspects of tourism development—ranging the spectrum from gender inequality, to the sexual objectification of women, to sex tourism—rarely attract the same level of public scrutiny.

Help Wanted: Restaurant, Housekeeping, Laundry

The International Labor Organization (ILO) estimates that the percentage of women employed in the tourism industry in most countries is higher than their participation in the workforce as a whole. Despite the large number of women that the tourism industry has drawn in to fill new jobs, women remain concentrated in the informal economy or in low skill and low pay jobs, with few women reaching positions of management or leadership. Wage disparity between men and women working in the tourism industry persists in both the developed and developing world.

The gender division of labor in the tourism industry tends to reflect traditional gender roles, according to a 1999 report by the United Nations Environment and Development UK Committee (UNED-UK). Employers see women, and women see themselves, as being more suitable for jobs associated with housekeeping or service such as waitresses, chambermaids, launderers, babysitters, receptionists, travel agents, and flight attendants. Men tend to be employed as bartenders, gardeners, bellhops, drivers, guides, construction workers, and pilots. With the exception of waiting tables (a field which is dominated by men in some countries), the jobs which most often fall to women afford fewer opportunities to earn tips. Furthermore, the new employment opportunities offered by the expanding tourism industry are rarely accompanied by a significant alleviation of women's domestic duties. Hence, many women are steered towards part time or seasonal employment, or the informal sector, all of which afford them less pay and fewer benefits, fewer opportunities for advancement and training, and less protection from unemployment.

Marketing Paradise: Sex Sells

Welcoming and scantily clad locals are depicted in marketing materials and post cards because sexual objectification sells. Women working in the tourism industry, such as waitresses or flight attendants, are commonly expected to dress and act like the smiling, stereotypical women featured in glossy resort brochures and television commercials. Sexual objectification in the tourism industry is not always limited to expectations that women who deal directly with customers look young and attractive. Employers may encourage them to be flirtatious or play along with sexual harassment by customers. Other employers turn a blind eye to prostitution in and around their establishments, considering it a necessary, though unsavory, aspect of the tourism business. Some even actively promote and sell sex as the main attraction.

Sex tourism is big business, profiting formal and informal networks of people, including tour operators, pimps, taxi drivers, club owners, hotel clerks, and in some cases police officers and even the families of prostitutes. A 2001 report by the United Nation's Children's Fund (UNICEF) estimates that Thai women working in the urban sex industry transfer nearly US$300 million annually to rural areas. According to the Political Economy Center at Chulalongkorn University of Thailand, the world

sex industry as a whole generated US$20-23 billion between 1993 and 1995. Though prostitution is now illegal in well-known sex tourism destinations such as Thailand and the Philippines, poverty and weak judicial systems continue to fuel the industry.

Sex tourism takes many forms, from organized packaged tours to informal liaisons brokered on beaches and street corners. In some cases the targets of sex tourists are prostitutes, but in other cases they are the poor and uneducated, who informally accept gifts and expensive meals in exchange for sexual favors. "Summertime Cinderellas," as they are called on one South American beach, don't even charge tourists for sex; they are chasing the dream of marrying a wealthy foreigner who will take them away to a glamorous life overseas.

Beach Boys: It's Not Just a Band Anymore

Females are not the only targets of sex tourism. Certain beach resorts in Africa, Asia, and the Caribbean, have gained reputations as destinations for picking up men and boys, known colloquially as "Sanky Panky boys" in the Dominican Republic, "Kuta cowboys" in Bali, or simply as "beach boys" in a host of other coastal hot spots. In many ways, beach boys resemble their female counterparts. Some are like the Summertime Cinderellas, hoping for a lasting relationship with a wealthy foreigner that will improve their status and financial situation. Others, especially the very young, have no other way of surviving or no route of escape.

According to UNICEF (2001), boys as young as 13 are targeted by sex tourists on the beaches of Sri Lanka, the Dominican Republic, and Haiti. Clubs, bordellos, and houses are the preferred venues for sexually exploiting girls, while boys, who have more freedom of movement, are more often targeted in public places such as streets, parks, and beaches.

The nonprofit organization End Child Prostitution, Child Pornography, and Trafficking of Children for Sexual Exploitation (ECPAT) reports that more than one million children worldwide enter the sex trade annually. ECPAT notes that the tourism industry is not the cause of child prostitution, but it provides easy access to vulnerable children in settings where tourists feel free from the social and legal restraints of their home countries. Children are victimized because they are available and vulnerable, or because they are preferred by pedophiles or those who mistakenly believe that children are less likely to be infected with HIV and other sexually transmitted diseases. The National Center for Missing and Exploited Children believes the average HIV infection rate for children rescued from brothels to be over 50 percent, and some rates may be as high as 90 percent.

Lifting the Cloak of Silence

Concerned about the image of their tourism industries, authorities in many countries have been slow to publicly acknowledge the extent of sex tourism. Silence, however, only encourages the practice, as sex tourists are attracted to an atmosphere of anonymity and impunity. International pressure and the efforts of church groups have begun to bring attention to the problem of sex tourism in both consumer and host nations. Sex tourists from a growing number of nations, including the U.S., Australia, Germany, France, the Netherlands, and Sweden, can now be prosecuted in their own countries for sexually exploiting children overseas; yet, few cases are brought to court. Host countries are also taking action, embarking on education and awareness campaigns, enacting anti-prostitution laws, setting up child protection authorities, and initiating rehabilitation for victims.

Strategies that depend on law enforcement and judicial systems are difficult to execute in consumer nations, not to mention in host nations where these systems are weaker. The issue of how to address sex tourism is further complicated by the fact that distinctions between host and consumer nations are rarely clear cut. Carefully crafted education campaigns can be a surprisingly effective way to reach vulnerable young people, and their families, who might not otherwise know what they are getting into. According to a 2001 World Bank report on child labor migration in Benin, preliminary studies demonstrate that even basic public information programs can make a difference by dispelling the myths of big city glamour, dream jobs, and wealthy patrons. Though it may seem insignificant in the face of such an overwhelming problem, raising the awareness of vulnerable populations is an important step in combating sex tourism.

Sex tourism is difficult to address because it is strongly linked to tourism development. Many people in tourist communities profit directly or indirectly. Others assume that it is a necessary part of tourism development and prosperity; they tolerate it in the same way they might tolerate other development by-products such as pollution and increasing pressure on natural resources. Neither pollution nor sex tourism are necessary results of tourism development. But combating them requires a focused and sustained effort that is supported by the tourism industry and local communities as well as by

(continued page 38)

World Wildlife Fund Girls Scholarship Program: Creating Tomorrow's Leaders

Educate a boy child - you educate an individual
Educate a girl child - you educate a household
(Nepali saying)

By Bronwen Golder

Education holds the potential to positively influence the social, economic, and environmental conditions in which individuals and their communities live and work. The education of young women in particular can lead to the adoption of lifestyle and working behaviors that are more sustainable from both a social and environmental perspective. The World Wildlife Fund (WWF) Girls Scholarship program has been established to help increase women's capacity to become active stakeholders and participants in the management of natural resources in their communities.

The program aims to enhance biodiversity conservation by supporting wise choices of women who are working in areas that are a global priority for conservation, are experiencing high population growth, have low levels of girls' education literacy, have high participation rates by women in resource use and management, and have the capacity to support girls' education.

The scholarship program has been designed to:

- Empower girls to make wise choices about their reproductive health, education, use of land and resources, and conservation
- Promote sustainability messages to families through the education of their female members
- Provide role models and a climate of opportunity for girls and women in conservation
- Improve conservation and land use decisions by women whose roles and responsibilities are directly connected to the use of natural resources
- Build the capacity of community groups to support and ultimately manage conservation and sustainable development programs

Results to Date

The WWF scholarship program is currently supporting activities in three regions of high biodiversity: Madagascar, East Africa, and Nepal. While these country projects have core elements in common (such as giving girls access to general education and involving them in family planning and conservation education), all are also introducing country-specific elements that respond to local needs and circumstances. For example, in addition to the provision of scholarships, Madagascar has chosen to involve girls who have already left the education system in the program. This is being achieved through a partnership with a nongovernmental organization delivering community-based literacy programs in target areas. On the other hand, East Africa has made partnerships with schools and the provision of dormitories for girls a core part of its program so that families can be comfortable sending their daughters away to school. Nepal has chosen to develop an endowment fund to help ensure that the provision and management of scholarships by community groups will be sustainable over the long term.

The common theme emerging from these scholarship programs is that no matter how a society is organized, women and girls often need extra help to get the education that will enable them to take their place in local conservation decisionmaking.

Lessons Learned

The experience of the first year of these programs yields the following preliminary findings:

- A range of different methods can be used to achieve the program objectives. These should be applied based on the profile of the region and its communities' needs.
- An increased focus on education can strongly influence patterns of behavior across a region as girls influence their families and partners.
- Local networks and partnerships are critical to implementation and participation.
- Existence of the program has led to a high demand for its expansion from field practitioners and community groups.

The Future

WWF intends to extend the Girls Scholarship program to 10 priority conservation regions over the next five years. The aim is to provide at least US$25,000 per region, per year for the next five years to support girls' education through a range of innovative and country-specific interventions. Bhutan and the Philippines will join the program in 2002.

For further information, contact Bronwen Golder, Conservation Strategies Unit, WWF US, 1250 Twenty-Fourth Street, NW, Washington, DC 20037 USA. Tel: 202 293 4800. E-mail: bgolder@xtra.co.nz. Website: http://www.worldwildlife.org/

Madagascar Spiny Forest Girls Scholarship Program

Objectives:

- To support up to 15 schoolgirls a year to attend primary and secondary schools
- To educate schoolgirls in the basic concepts of ecology and natural resource management
- To support the introduction and integration of environmental education in primary schools
- To provide literacy programs to out-of-school girls in areas of high population growth and resource degradation

Nepal Program's Endeavor to Educate Girl Students

Objectives:

- To empower Nepali women to participate in:
  - Decisionmaking on natural resource use and management
  - Community development initiatives
- To increase the number of girl students from poorer families attending schools, with the aim of funding one girl in all of WWF Nepal's geographical focus areas
- To set up an endowment fund that can provide US$500-1,000 in support per recipient
- To encourage and support micro-credit schemes that will help (through interest earned on loans) generate additional scholarship funding

East Africa Marine Girls (EAME) Scholarship Program

Objectives:

- To support the education of up to 15 girls from the EAME ecoregion
- To pilot a mentoring program for girls
- To facilitate girls' participation in conservation and development activities in a manner and form that is sensitive to religious norms
- To produce and disseminate environmental education materials to local schools

Bhutan Scholarship Program

Objectives:

- To educate and empower the future matriarchs of Bhutan to make wise decisions about the natural resources they will inherit and manage on behalf of their families
- To alleviate the financial burden faced by families sending their girls to school by providing funds to cover transport, books, uniforms, and boarding expenses
- To support education for girls who have dropped out of school (for early marriage) through a non-formal education program
- To encourage vocational training in small alternative income activities that will reduce pressures on natural resources

Women's Environment and Development Organization (WEDO) Advocacy at the United Nations

The WEDO was invited by the Secretariat of the World Summit on Sustainable Development (WSSD), to be held in Johannesburg, South Africa, as the organizing partner of the Dialogue Segment for Women. As part of their contribution, they have drafted a Secretary General's Note for the Multi-Stakeholder Dialogue Segment of the Second Preparatory Committee meeting for WSSD, held in New York at the end of January 2002. To read the report and to learn more about WEDO, go to http://www.wedo.org/index2.htm, click on "What's New," then on "UN Commission on Sustainable Development Dialogue Paper by Women" under December 2001.

The Integration of Gender, Population, and Environment: An Agenda for Global-Scale Action

Adapted by Sharon Murray from Diamond, N. *Cross Currents: Navigating Gender and Population Linkages for ICM, 2001*, a submission of the University of Rhode Island's Coastal Resources Center Working Group on Gender and Population with Lorena Aguilar, International Union for the Conservation of Nature and Natural Resources (IUCN)

Action to promote integration across the coastal management, gender and population communities demands a multi-tiered approach that extends all the way from the household and community up through global institutions. In addition to important action on the ground at the local or national scale, there is considerable opportunity to advance gender-population-environment linkages in the arena of international conventions, events, policy, and action plans.

The importance of international-scale engagement should not be underestimated, as decisions emerging from global discussion and consensus often influence donor priorities or national policies. For example, in the area of integrated coastal management (ICM), following the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, several donors used Agenda 21 to reorient their funding priorities. ICM funding significantly increased because of recommendations in Agenda 21's Chapter 17 on Oceans, Seas, and Coasts.

Gender and population issues have also been addressed at the international scale with recent seminal milestones such as the Cairo Plan of Action from the International Conference on Population and Development (1994) and the Fourth World Conference on Women Platform for Action in Beijing (1995). Both events, and the work leading up to and following them, served to raise the visibility of and commitment to these critical issues on the international stage.

Although quite important in many ways, Agenda 21 and other United Nations action plans and events have unfortunately tended to compartmentalize environment, gender, and population issues. Agenda 21 was largely unsuccessful at mainstreaming gender and social equity issues into its natural resources chapters. Women's issues were often stereotyped and relegated to a separate chapter near the end of the document (Chapter 24—Global Action for Women Towards Sustainable and Equitable Development). In a similar way, Chapters 4 (Changing Consumption Patterns) and 5 (Demographic Dynamics and Sustainability) address consumption and demographic issues separately rather than mainstreaming these issues into other chapters. The Cairo and Beijing outcome documents exhibit a parallel imbalance, relegating the environment and natural resources to isolated references. Environment remains at the sidelines, with health, education, poverty, and development taking center stage in the gender and population debates.

The Road to Johannesburg: An Action Agenda for Participants

There are several persistent challenges for the ICM community in promoting gender equity, adequately addressing demographic dynamics, and ensuring leadership diversity. In fact, 10 years after Rio:

- Many coastal managers still do not clearly understand how gender issues affect coastal management, how to design programs and policies that address gender differences, and who can help them.
- Many coastal plans acknowledge growing coastal populations and household food insecurity, but do not yet include plans for programs and partnerships related to gender-sensitive family planning.
- Many coastal institutions continue to make important coastal management decisions without the perspectives and leadership of female stakeholders and professionals.

The upcoming World Summit on Sustainable Development in Johannesburg, South Africa will not re-open Agenda 21 for revision, but will assess current conditions, identify persistent and new challenges, and prioritize further action. Because the focus of the Summit will be the human development aspect of the environment, it may encourage a move beyond thinking about gender equity and population issues as mere "add-ons" to environment programs.

The Summit and its run-up events provide an opportunity to address the persistent challenge of looking more holistically at the connections between social and biophysical issues in environmental management, and integrating ICM with population, gender, and leadership-related issues. Concerned stakeholders, professionals, and government representatives from all fields have a role to play, as advocacy in international fora requires mutually reinforcing advances at all scales.

The Coastal Resources Center at the University of Rhode Island, in consultation with IUCN, and with

input from the Women in ICM: Leadership Development group have developed some preliminary recommendations to encourage thinking, discussion, and action to integrate ICM, gender, and population agendas. These were presented for discussion at the recent Oceans and Coasts Conference in Paris in December 2001. They invite you to consider these as part of your own action planning in 2002 and beyond

National leaders could:

- Create gender desks in their ministries to engage in environmental work
- Draft or reform legislation that promotes the increased involvement of gender and population stakeholders in environmental management
- Use a gender mainstreaming committee to vet coastal and marine legislation/policies
- Develop mechanisms for ensuring greater representation of women and their interests related to coastal and other sectors at all levels of government
- Promote women's involvement in science and set goals for equal representation of men and women on national and international delegations
- Set 20-percent benchmarks and quotas for female leadership in oceans and coastal issues
- Create plans for determining sustainable population levels for coastal communities by 2007
- Promote sustainable livelihood strategies that recognize gender roles and family impacts
- Establish secondary/college programs focusing on science and management for young women to help prepare the next generation of ocean/coastal leadership
- Establish cross-cutting activities with budget contributions from population, environment, and gender programs
- Be an advocate for international support for all recommended policy and strategy changes at the national and local level

Population advocates could:

- Address different levels of consumption within nations and across international boundaries
- Address the environmental implications of migration and population growth in coastal areas
- Focus on the links between environmental degradation and gender and population issues
- Promote sustainable livelihood strategies that recognize gender roles and impacts on families and the environment

Gender advocates could:

- Focus on the links between environmental degradation and gender and population issues
- Promote sustainable livelihood strategies that recognize gender roles and family impacts
- Create a gender equity/coastal-marine international committee that will provide guidance, tools, and assistance to international, regional, and national initiatives
- Promote recognition of the gender and age-related differences in access, use, and decisionmaking for environmental issues

Environmental advocates could:

- Shift the international climate change agenda towards vulnerability and adaptation to shift funding towards those most affected, including women
- Address different levels of consumption within nations and across international boundaries
- Address the environmental implications of migration and population growth in coastal areas
- Allocate 25 percent of coastal/marine program budgets for gender and population issues
- Focus on the links between environmental degradation and gender and population issues
- Promote sustainable livelihood strategies that recognize gender roles and family impacts
- Create a gender equity/coastal-marine international committee that will provide guidance, tools, and assistance to international, regional. and national initiatives

Donors could:

- Use conditionalities on loans/grants and other support so the negative gender, population, and environmental impacts from tourism are avoided or mitigated (e.g., population, migration, sex tourism, access to resources, habitat degradation)
- Allocate budget and promote women's participation in agriculture, forestry, fisheries, and urban projects
- Promote sustainable livelihood strategies that recognize gender roles and family impacts
- Establish secondary/college programs focusing on science and management for young women to help prepare the next generation of ocean/coastal leadership
- Create a gender equity/coastal-marine international committee that will provide guidance, tools and assistance to international, regional, and national initiatives

E-Conference Opportunity: Successes and Failures in Gender Mainstreaming in Integrated Water Resources Management (IWRM)

Although the first phase of this E-conference will already be completed by the time this issue is published, many readers may want to join for the second and third phases of the online discussion that will be ongoing throughout the year.

This E-conference provides an opportunity to make contacts and exchange experiences with the gender and freshwater resources management community, and make sure the coastal perspective is taken into account. A summary of the discussion will be presented to the world's leaders at the 3rd World Water Forum, to be held in Kyoto, Japan, in March 2003. The E-conference is organized in three stages. It will be in four languages: English, French, Spanish, and Portuguese. At the end of every stage, the results will be translated into each of the other languages and shared among all subscribers.

Stage 1: January 28-February 24, 2002 State of the Art: The State of Gender Mainstreaming in IWRM

Stage 2: April 8-May 21, 2002 Successes and Failures in Gender Mainstreaming in IWRM: Case Studies will be examples of one or more of the five benefits of gender mainstreaming in IWRM: Effectiveness, Equity, Efficiency, Development, and Sustainable ecosystems use)

Stage 3: September 2-September 27, 2002 Synthesis, Analysis, and Recommendations in Gender Mainstreaming in IWRM

To Subscribe:

English-language conference, please send an e-mail to listserv@surfnet.nl (put "subscribe water yourname yoursurname" in the body)

Spanish-language conference, please send a blank E-mail to genero-agua-subscribe@yahoogroups.com

French-language conference, please send a blank E-mail to genre_eau-subscribe@yahoogroupes.fr

Portuguese-language conference, please send a blank E-mail to gwa-e-conference-port-subscribe@yahoogroups.com.br

Learn More — Get Involved

For more information and engaged in environment, population, and gender actions leading up to WSSD 2002, consult the following organizations' websites or E-mail:

Gender Links

www.igc.apc.org/womensnet/ E-mail: WomensNet@igc

A community providing networking and information resources to enhance women's involvement during and after the 4th World Conference on Women—including official U.N. documents in three languages, nongovernmental organization information, and planning information. The main information resource related to finding documents or getting internet/technology-related help is: E-mail: womensdesk@igc.apc.org

On-line conferences on women population, women development, women events, women information, etc.
www.voiceofwomen.com
www.social.com/social/women.html (Women's page at the Social Cafe)
www.lifeonline.org/debate (On-line debate about what WSSD should be trying to achieve)
www.wedo.org (Women's Environment and Development Organization)
www.earthsummit2002.org/wcaucus/csdngo.html (Women's Caucus)
E-mail: wagggs@yahoo.com (NGO Commission on the Status of Women, Leslie Wright)
E-mail: nayaranita@hotmail.com (SAGE—Strategic Analysis for Gender Equity, Anita Nayar)

Population Links

www.unfpa.org/icpd/icpdmain.htm (U.N. Population Fund)
www.populationaction.org/ (Population Action International)
www.ippf.org/ (International Planned Parenthood Federation)
www.popenvironment.org/ (Population-Environment Linkages Service)

General Links

www.johannesburgsummit.org/ (World Summit on Sustainable Development—Johannesburg, August 2002)
www.udel.edu/CMS/csmp/rio+10/ (Global Conference on Oceans and Coasts—Paris, December 2001)
www.water-2001.de/ (International Conference on Freshwater—Bonn, December 2001)
www.gpa.unep.org/igr/default.htm (Global Program for Action Intergovernmental Review Meeting—Montreal 2001)

Bremner and Perez

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conversely could aggravate existing threats. Future research will have to monitor behavioral changes and anticipate new emerging threats related to a growing population.

Although unique and not entirely generalizable, the rapid growth of the Galápagos Islands presents an outstanding example of the importance of understanding demographics and gender for long-term conservation planning. The insights provided certainly suggest that gender aspects of demographics should be considered for every conservation site. At the very least, conservation planners should have a clear notion of gender ratios, migration patterns (both in-migration and out-migration), and the actual or potential impacts of these demographic factors on gender roles and resource use. Without such information, community conservation workers and conservation planners face several risks that include: working with the wrong stakeholders, unaccounted-for out-migration of male or female stakeholders, or unperceived gender-linked changes in resource use patterns that affect the conservation target. Efforts to meet these minimum requirements will contribute to understanding gender roles and resource use and will have a strong impact on future conservation efforts.

For further information, contact Jason Bremner or Jaime Perez, 86 Annandale Ave. Asheville, North Carolina 28801 USA. Tel: 011-828-225-9836. E-mail: jason_Bremner@yahoo.com

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multilateral and bilateral agencies, along with weak administration or other political influences comprise a third key area of constraint.

- *Lack of Understanding of Integration:* There is no common set of goals and objectives for integration, nor is there a common definition of the concept of integration. Thus, different and sometimes conflicting points of view persist between and within organizations.
- *Lack of Data and Evaluation Results:* There is a lack of data on the results of integration and a need for monitoring and evaluation of the complementary impacts, costs, and benefits.
- *Complex and Risky Integration:* The approach is more complex and complicated than single-sector programs, taking time and resources, and requiring more coordination and planning, with risk of failure and staff overload.
- *Sectoral Specialization Still Dominates:* There are few dedicated "champions" for integration. Traditional structures, divisions, vertical approaches, and centralized decisionmaking still dominate the field.
- *Challenges at the Community Level:* There can be a lack of community trust of the implementing organizations, non-acceptance of new ideas, and lack of community organizations. For programs, the challenges involve dealing with complexities of the local socioeconomic situation, lack of knowledge of the area, language, culture, and needs of the people.

Enabling Factors for Integration: Putting it all Together

- *Political Will:* Positive governmental policies, supportive commitments by local authorities and staff of government ministries, and participation by international and national organizations do exist.
- *Institutional Partners:* Some inter-institutional coordination does take place, competent intermediary actors are at work, and there is movement toward decentralization and ecoregional planning.
- *Available Funding:* There are some existing financial resources and donors, though not many.
- *Predisposed Communities:* Community interest and enthusiasm are seen as strong factors, with established community organizations and structures to build upon.
- *Know-How:* There are emerging local initiatives, available technical assistance, and existence of integrated program examples.
- *Need and Opportunity:* There are great needs in terms of population, health, environment, and sustainable development along with interest and support of the public to attain economic stability and preservation of the ecological richness

Amen, Guyer, and, Engelman
(continued from page 9)
International Development-funded Healthy Indonesia 2010, COREMAP has brought together multiple stakeholders—from women's groups to Rotary and sports clubs—to educate and empower communities as advocates for their fair share of government funds and services.

Key Lessons:

- Add value to existing health projects with a proven track record to expand the reach of CBPE messages
- Perform community needs assessment in addition to scientific baseline studies and identify compatible opportunities
- Value the priorities of multiple stakeholders to convey collective ownership

Summary: Key Points for Developing a CBPE Partnership

Miriam King-Dagen, a former Central American representative for World Neighbors, called the linkage between population and environment programs 80 percent practical and 20 percent theoretical. As the maxim suggests, "if it works, do it." The can-do attitude of practitioners like Ms. King-Dagen has unfortunately only rarely been accompanied by operations research that can demonstrate empirically what works, why, and under what circumstances, in community-based population and environment efforts. Admittedly, the methods and conventions that have yet to be molded pose a challenge, and the indicators of success remain to be documented. However, this may not be a barrier to sound CBPE practice. Several recommendations may provide assistance in taking the first steps toward this fruitful collaboration:

1. Identify a goal that brings together the objectives of both environmental and population/reproductive health institutions
2. Involve local communities and local indigenous stakeholders, especially women, throughout planning and implementation
3. Ensure broad commitment to the strategy, emphasizing for the reproductive health provider the relevance of the project mission to the principles of the International Conference on Population and Development and to addressing more than one outcome at a time
4. Find a common ground with reproductive health partners by engaging them early on in the planning process
5. Involve local communities in evaluating project impact. Integrated programs often make the most sense on the ground, and satisfied local communities will strengthen your collaborations

Of these, involving the women in the community from the planning phase is the most important. Women will help to lead the way forward, not only for the betterment of their own and their families' lives, but toward sustainable relationships between people and nature that can include the world's waters and coasts.

For further information, contact Robert Engelman, Population Action International, 1300 19th Street, Second Floor, Washington, DC 20016 USA. Tel: 202 557-3403. E-mail: re@popact.org

Castro, D'Agnes, and Aquino
(continued from page 13)
government units and people's organizations, community credibility, prior local experience in community organizing, ability to self-manage, willingness to promote family planning. and financial accountability

- Providing equal gender opportunities to alternative livelihoods and micro-credit, for environmentally-friendly small enterprise development activities
- Working with women and men on family planning practices (including emphasizing men's reproductive health rights and responsibilities and how men can benefit from better control over their own and their family's future)
- Involving youth as peer educators using the idea of responsible stewardship of their sexuality and their environments
- Forming partnerships with local research institutes to generate information needed to inform policy advocacy and develop site-specific intervention programs
- Developing a creative approach to desensitize population and family planning and to generate interest and support for the program

For further information on the I-POPCORM project, visit website: http://www.path.org/philippines/pro_ipopcorm.htm

For further information, contact Joan Castro, PATH Foundation Philippines Inc., 395 Sen Gil Puyat Avenue, Makati City 1200, Philippines. Tel: 63-28953201. Fax: 63-2899-5561. E-mail: pathphil@path.org. Website: www.pathphil.org

USAID

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development projects and integrated conservation and development projects as well as principles developed for cross-sectoral approaches in the democracy and governance context.

EHP plays four principal roles in the initiative:

1. To support monitoring, evaluation, and operations research activities, including the development and testing of new indicators and data collection instruments to measure integration
2. To improve management of integrated approaches at the grassroots level
3. To ensure national-level coordination of activities
4. To disseminate lessons learned

To date, NGO partners have conducted participatory rapid assessments following training provided by the University of Michigan IAP. EHP has designed a new integrated health, population, and environment household survey instrument and collected baseline data in intervention and control communities. The combination of household and community data will inform the selection and implementation of integrated health, population, and environment interventions.

For further information, contact Odile Randriamanajara (in Madagascar) E-mail: echo@pact.mg or Eckhard Kleinau (in the US) E-mail: kleinauef@ehproject.org

Pearson

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In a place like Magdalena Bay, one option for economic diversification is aquaculture, an activity in which women have historically participated. If handled responsibly, an aquaculture project could also aid in conserving bay resources. Another idea developed by a Center for Wetland Studies employee is to involve crab fishers' families, especially women, in processing the meat from harvested crabs. In essence, this strategy combines modern production techniques such as shrink-wrapping and freezing with historical gendered labor practices. If families were earning more per harvest there might be less incentive to flaunt seasonal restrictions. Furthermore, the Mexican coastal management system is plagued with entrenched corruption and inconsistent policies that pit stakeholders against each other.

Coastal management practices that involve local people of both genders have more chance for success because they are tailored to community needs and realities, managers are seen as accountable and responsive to local communities, and local communities feel a greater sense of responsibility in seeing the programs work. Community participation alone is not sufficient. Meaningful involvement of both women and men is critical for broadening the base of development within the target community, channeling more income to families, ensuring compliance with the law and cooperation on community projects, and relieving pressure on resources.

Gender proved to be an important element of coastal resource management and community development in Puerto San Carlos that program managers overlooked to their detriment. The importance of gender relations in patterns of resource use is not unique to Magdalena Bay. Involving a diversity of community members who can really represent community interests—especially women, even if they are not seen as the main resource users—in the planning and implementation of projects can bring a new dimension of improvement to a range of coastal management activities. Coastal managers do not have to be gender experts to reap the benefits, they just need to pay attention to women's needs. Decisionmaking authority and access to resources for women could have made a difference in Puerto San Carlos. When looking for ways to bring sustainability and success to coastal management, think community and think gender.

(This research was part of a larger University of Arizona, US, project led by Emily Young.)

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This could be accomplished through support for NGOs that deliver reproductive health care in underserved communities, and partnerships with government agencies or NGOs to improve health or school facilities. Government agencies or conservation managers might also undertake or support studies of migration patterns and their impacts on gender.

The Importance of Collaboration

Collaboration will be a critical factor in the success of coastal conservation. As success increasingly depends on existing and shifting socioeconomic realities, coastal resource managers' traditional areas of expertise may not be sufficient to implement a broad-based conservation strategy. Such a strategy may require attention to issues of reproductive health, migration, and women's status. It is neither efficient nor desirable, however, for coastal resource managers to become experts in such areas. Rather, collaboration with governmental, non-governmental, and community groups will most effectively address critical gender and population dynamics. Throughout most areas of the world, and even in the most remote communities, organizations exist that can take responsibility for promoting or providing reproductive health care, education, or support in sustainable resource management. The challenge for conservation organizations is to build a dialogue and shared understanding with those groups so that issues of common interest can be addressed constructively.

Lessons for Future Action

The EAME gender analysis makes a strong case that successful conservation action in the EAME will be impossible without recognizing the links between gender and population and strategically responding to the different roles of men and women in resource management. High rates of fertility and poverty are unlikely to change unless women have more access to reproductive health care and education. And, as resource users, women also need to be involved in community decisionmaking about the use or protection of resources.

Finally, because the analysis revealed that migration patterns are gender-related and have a direct impact on resource use, conservation planners should understand and address both the drivers and impacts of migration.

As pressures on the EAME and other coastal ecosystems around the world increase, the resources that support millions of people are threatened. Protecting the biodiversity of these rich systems will require strategic action that is sensitive to the critical role that gender dynamics play in the use of coastal resources.

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governments and nongovernmental organizations.

As coastal professionals increasingly address the complex dynamics of population and gender relations in their management efforts, the darker human side of labor inequality and sexual exploitation in coastal areas cannot be ignored. Coastal managers should not feel that speaking out against these issues is beyond their purview. Indeed, the physical security, economic stability, and social equality of all members of the working population in burgeoning coastal tourism centers—women, men, and children alike—are prerequisite to achieving the good governance and community involvement that underpin healthy coastal ecosystems. To the extent that integrated coastal management professionals both acknowledge and confront these problems directly, coastal stakeholders will be convinced that the profession cares as much about protecting people as it does about protecting the environment.

(To learn more about efforts to combat sexual exploitation and trafficking see USAID's September 2001 publication *Trafficking in Persons: USAID's Response* http://www.usaid.gov/wid/pubs/trw01a.htm)

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An article highlighting the World Wildlife Fund Girls' Scholarship program (page 30) addresses the need to plant the seed of cross-sectoral integration in the population-environment-gender nexus early, and actively foster leadership in the next generation. While many of these stories promise the successes of integration, other local ICM actions have found that successes were limited because gender was not taken into account, as Kate Pearson (page 14) reveals in her story of ecotourism promotion in Magdalena Bay, Mexico.

Finally, at a macro-scale of action, Diamond and Aguilar (page 32) provide useful insights into action at the international scale, especially in the months leading up to the World Summit on Sustainable Development, the 10th Anniversary of the Rio de Janeiro U.N. Conference on Environment and Development, to be held in Johannesburg, South Africa, later this year.

Collectively, these articles show the growing interest in uncovering

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that goes beyond a narrow emphasis on tourist facilities. An especially strong focus must be on the often-ignored burgeoning populations of tourism-industry workers. These workers are often present in about a 5:1 ratio of worker to active hotel room capacity. However, an equally important approach is to focus efforts on projects that encourage sustainable development in interior regions. The example from Noh Bec does illustrate the potential of interior development projects, but also the need to understand the complex interactions between interior and coastal communities in both environmental and socioeconomic terms. Without this understanding, such projects are not likely to succeed and improve the lives of interior inhabitants while relieving pressure on coastal zones.

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Anderson

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structure that values the roles of women.

These far-reaching and often unforeseen impacts show how critical it is that programs be cognizant of both men and women, and of the social and cultural context of disaster programs. The most effective strategies for adapting to changes in Pacific Island climate—both climate change and climate variability—depend on the inclusion of multiple perspectives, knowledge, and skills, that draw from science, technology, social science, indigenous knowledge, business and private sector skills, and a gender perspective. This view was endorsed by the 2001 U.S. National Assessment of the Consequences of Climate Change and Variability in the Pacific Islands, where an adaptive and integrated strategy founded on a dialogue among scientists, managers, decisionmakers, and cultural practitioners was called for.

Amidst the exceedingly complex issues and uncertainty in addressing climate change and variability in the Pacific Island context, the logic for including a gender perspective is clear. Gender matters when addressing environmental management and disaster relief, vulnerability, and preparedness. Ultimately, a holistic framework that integrates knowledge and includes a gender perspective—as advocated by the United Nations, disaster relief agencies, and development organizations worldwide—will be the most effective for helping Pacific Islanders cope with long-term change and strive for sustainable development. If the Pacific Islands are indeed an early indicator of what is to come, how and to what extent the Islands choose to incorporate a gender perspective will be telling for many other locales designing strategies to mitigate natural disasters and adapt to global climate change and variability in the coastal zone, and beyond.

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FOCUS ON: MAINSTREAMING GENDER, POPULATION, AND THE ENVIRONMENT

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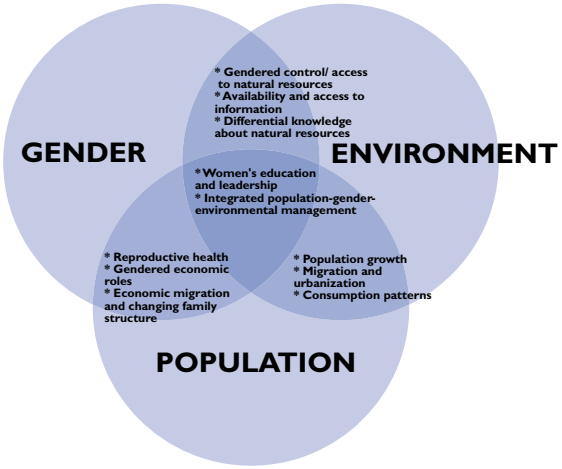
and understanding linkages among the fields of coastal management, population, and gender, and caution us as to the consequences of ignoring the many critical connections. It is also apparent that the integration of these topics is still quite new, and that considerable effort will be required to nurture embryonic linkages beyond the state of theory to eventual birth as fully developed policies and practices on the ground.

As a contribution to that development, these articles certainly raise more questions than they answer, and suggest general compass points to orient future action rather than a fully developed roadmap of how to proceed. In the end, our hope is that the articles in this issue of *InterCoast* will inspire, motivate, and provide concrete tools for readers to integrate gender, population themes, and coastal management work, and foster leadership in this area



The intersection of gender, population and environment issues is significant, and plays out in many different combinations. Where there is an interrelation, important issues arise for coastal managers.

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