

# FOCUS

on population, environment, and security



## Fishing for Families: Reproductive Health and Integrated Coastal Management in the Philippines

By Joan Castro and Leona D'Agnes

Life in the Philippines—a nation of more than 7,000 islands—is never far from the sea. Every Filipino lives within 45 miles of the coast, and every day, more than 4,500 new residents are born (Earthtrends, 2003; PNSO, 2006). The rapidly rising population has overwhelmed the fisheries that have traditionally supported the country, bringing grinding poverty and malnutrition to many coastal communities. But a new approach to conservation may save families along with the fish and their habitats.

The Integrated Population and Coastal Resource Management (IPOPCORM) project seeks to improve life in communities dependent on the sea for their livelihoods, while conserving biodiversity and productivity in high-priority marine corridors. By integrating the delivery of family planning and conservation services, IPOPCORM found that it could improve reproductive health and coastal resource management more than programs that focused exclusively on reproductive health or the environment—and at a lower total cost.

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## Declining Fish, Growing Population

Every square kilometer of the Philippine coast is home to an average of 286 people—one of the highest population density rates in coastal Asia (see map) (ADB, 2004). But more than twice as many people live in each square kilometer of the marine eco-regions targeted by IPOPCORM (PFPI, 2006). Human pressures have decreased the biodiversity and productivity of municipal fisheries, which formerly supplied up to 80 percent of rural coastal dwellers' dietary protein (Department of Environment and Natural Resources [DENR] et al., 1999; Green et al., 2003). Open access to fisheries and the rampant destruction of fish habitats such as mangrove stands, coral reefs, and sea grass beds have further exacerbated the fisheries' decline (Luna et al., 2004).

The Philippine government recognizes the looming crisis posed by declining fish stocks and burgeoning population: "If current trends in population growth and coastal resource exploitation

[overfishing and habitat degradation] continue, the availability and affordability of fish to provide a crucial protein source will be lost" (DENR et al., 1999, p. 5). In Palawan—once considered the "fish-bowl" of the Philippines—IPOPCORM researchers observed high levels of malnutrition, fertility, and poverty in areas where destructive fishing is common and marine habitats are overexploited (Aliño et al., 2001; Castro et al., 2004). Children of Palawan fishermen are three times more likely to be malnourished as children whose fathers engage in other occupations (Amarillo et al., 2005). In addition, preschoolers in households where mothers are not currently practicing family planning are more likely to be underweight (Amarillo et al., 2005). Fishing households typically contain six members who each earn an average of 20 pesos (US\$0.40) a day—less than half of the Philippines' official poverty threshold for rural households (Montebon et al., 2004).

In response to the government's call for action, several programs have established marine protected areas, mangrove protected areas, and other environmental stewardship arrangements, or are promoting seaweed cultivation and other sustainable aquaculture ventures. However, it is unlikely that these measures alone can stem the emerging food security crisis without concomitant efforts to slow the momentum and rapid growth of the Philippines' population—particularly in marine conservation hotspots, where up to 50 percent of the residents are 17 years of age or younger (PNSO, 2000). An unprecedented number of Filipinos—10 million preteens—will soon enter the reproductive age group, which poses serious challenges to the past decades' gains in biodiversity conservation and coastal resource management.

## Integrating Population and Environment in the Field

Launched by PATH Foundation Philippines Inc. (PFPI) in 2001, IPOPCORM helps community-based organizations and local government units work with fishing communities to implement reproductive health and family planning activities in tandem with coastal conservation and alternative livelihood strategies. The IPOPCORM project extends technical, planning, and financial assistance to

Fishers cultivate seaweed on Mantigue Island in Camiguin Province, Philippines. Courtesy of PFPI.







Children living in the coastal community of Lanuza Bay, Surigao, Philippines. Photo by Heather D'Agnes.

## FOCUS Online

More information on IPOPCORM's programs can be found on PATH Foundation Philippines Inc.'s website, <http://www.pfpi.org>, including "Integrated Coastal Management Matters":

<http://www.pfpi.org/PDF/ICM%20Matters.pdf>

A recent assessment of USAID's population and environment projects and programming options rated IPOPCORM as "the gold-standard model for PHE planning and execution":

[http://www.ehproject.org/PDF/phe/phe\\_assessment2007.pdf](http://www.ehproject.org/PDF/phe/phe_assessment2007.pdf)

The IPOPCORM model was also featured in "Integrating Population, Health and Environment (PHE) Projects: A Programming Manual": [http://www.ehproject.org/PDF/phe/phe-usaid\\_programming\\_manual2007.pdf](http://www.ehproject.org/PDF/phe/phe-usaid_programming_manual2007.pdf)

In "Our Sea Is Our Life!" USAID tells the IPOPCORM success story: [http://www.usaid.gov/our\\_work/global\\_health/pop/news/philippines\\_ipopcorm.html](http://www.usaid.gov/our_work/global_health/pop/news/philippines_ipopcorm.html)

The complete results of IPOPCORM's operations research (D'Agnes et al., 2008) are in preparation.

# Philippines: Population Density, 2000

Persons per km<sup>2</sup>



## Gridded Population of the World

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Source:  
Columbia University and Centro  
Internacional de Agricultura Tropical  
(CIAT), *Gridded Population of the World*  
(GPW), Version 3. Palisades, NY:  
CIESIN, Columbia University.

Available at  
<http://sedac.ciesin.columbia.edu/gpw>

Note:  
National boundaries are derived  
from the population grids and thus  
may appear coarse.

0 200 km

Lambert Azimuthal  
Equal Area Projection

Based on 2.5 arc-  
minute resolution data

MALAYSIA



NGOs and local resource user groups implementing field-based subprojects working to meet three goals:

- (1) Improving the reproductive health status of adult and youth populations;
- (2) Improving the management of coastal resources at the community level; and
- (3) Increasing awareness and support for cross-sectoral approaches to biodiversity conservation.

Twelve NGOs are currently working with 33 municipal governments to deliver IPOPCORM interventions to 356,461 people in 183 coastal and island *barangays* (villages) located in eight biodiversity conservation corridors. IPOPCORM targets three groups living in marine ecosystems: youth, fishers, and entrepreneurs.

**Youth:** The program targets teens aged 15-19 with interventions designed to encourage them to postpone sex and childbearing, as well as foster their commitment to environmental stewardship. IPOPCORM trains teens to become youth peer educators, delivering messages to their friends that motivate them to become “stewards” of their sexuality and the coastal environment, as well as to use safer sex practices. At two-day adventure camps, youth peer educators learn about coastal ecology and simple methods their communities can use to monitor fish sanctuaries and marine protected areas.

**Fishers:** Small-scale fishers, gleaners, and other traditional users of coastal resources have the highest rates of poverty and unmet demand for family planning services and are the most likely to engage in destructive environmental practices. To address these needs, IPOPCORM develops the capacity of partner NGOs to deliver information on reproductive health and coastal resource management, and helps peoples’ organizations plan and implement community-based family planning activities in tandem with conservation and alternative livelihood strategies. Volunteer peer educators encourage men and women to adopt safer sex practices and to refrain from using dynamite, cyanide, and other illegal fishing methods that destroy marine habitats and ecosystems. Married couples serving as peer educators talk to other couples about their reproductive health and fishing practices, while male peer educa-



tors take advantage of long hours at sea to deliver the same messages to other fishermen.

**Entrepreneurs:** The program encourages owners of small convenience (*sari-sari*) stores—among the only institutions in remote coastal sub-villages—to become “social entrepreneurs” by distributing reproductive health commodities at low prices (with a slight profit margin). These community-based distributors (CBD) are trained to counsel and screen potential family planning users and dispense non-clinical methods (condoms, pills) to those with no contraindications. NGO partners manage the logistics and the funds and replenish the distributors’ stocks of contraceptives. In this way, NGO partners can expand their family planning programs without hiring additional outreach workers.

## Strategies for Success

**Community-Based Distribution:** Recognizing the limited reach of government health systems in coastal zones, local executives in 33 municipalities

A CBD agent offers family planning services at her *sari-sari* shop on Culion Island, Philippines. Courtesy of PFPI.

have endorsed IPOPCORM's community-based distribution model and signed agreements with partner NGOs. In several municipalities, mayors have also contributed funds, commodities, training assistance, and other support. Through this program, PFPI and its partners have established a rural distribution network with 977 outlets and a sustainable cost-recovery mechanism. A parallel system of 2,181 government health workers trained by the program provides technical support and referral services.

**Micro-credit:** To reduce overfishing, the program extends micro-credit to coastal dwellers to finance alternative livelihoods such as beekeeping, food processing, seaweed cultivation, natural hog farming, ecotourism, and potable water supply schemes. To date, more than 1,860 households have received start-up loans averaging 6,000 pesos (US\$120) per family and totaling 11.2 million pesos (US\$224,000). Ninety-five percent of the families have repaid their loans. In addition, the peoples' organizations have retained the earned interest for organizational and community development activities (PFPI, 2007c).

**Advocacy:** PFPI is spearheading an advocacy communications campaign that targets national,

provincial, municipal, and local executives with information about population-environment-poverty linkages and other countries' experiences with mainstreaming reproductive health into natural resource management agendas and programs. PFPI also encourages local mayors and NGO executives showing leadership potential to participate in a week-long study tour of Thailand, where they are exposed to more detailed information on population-environment programs. One prominent mayor—a former opponent of the project's community-based distribution operations in Candijay, Bohol—became a strong advocate of the IPOPCORM approach after participating in the study tour; she continues to promote it in her leadership role with the Union of Local Authorities of the Philippines (Hernandez, 2006).

### Successful Across Sectors: Program Accomplishments

**Reproductive Health:** IPOPCORM's experience demonstrates that NGOs with environmental missions can quickly develop the capacity to facilitate and manage community-based family planning services, given appropriate training and technical and commodities support. Access to family planning services in areas served by IPOPCORM has increased 13-fold since 2001, and more than 18,000 couples now regularly obtain their family planning supplies from a network of community-based distributors trained under the program. Revenue from sales of contraceptives at these outlets totals nearly one million pesos (US\$19,950) (PFPI, 2007b).

**Environment:** IPOPCORM and its partners have also established or strengthened 88 marine sanctuaries and other stewardship arrangements to protect and conserve coral reef structures, sea grass beds, mangrove stands, and wildlife populations. To ensure the long-term protection of these areas, local government partners enacted 97 new regulatory measures over the past six years, and empowered 79 community-based resource management groups and 129 fisheries and aquatic resource management councils. More than 1,050 community volunteers were trained and deputized as fish/forest wardens,

Fishermen unload their catch from the night before, Coron, Palawan, Philippines. Photo by Heather D'Agnes.







and several of them also serve as family planning educators (PFPI, 2007b).

**Integration:** Ten municipal governments have formally integrated reproductive health into their medium-term environmental management plans—the first step toward institutionalizing the integrated approach—and 146 *barangay* councils have done the same in their annual development plans (PFPI, 2007a). Awareness of population-environment linkages is growing: One community volunteer said, “IPOPCORM not only promotes balance in the family, but also ecological balance.” Other villagers report that the project’s holistic services are more in sync with their lifestyles than single-sector approaches (Herman, 2004). In addition, the integrated approach helps bridge gender barriers in the community by increasing women’s involvement in conservation efforts and access to micro-credit. The per capita income of women and fishers increased at IPOPCORM sites, indicating the integrated approach’s poverty-reduction potential (Montebon et al., 2004; Castro, 2006).

### Bigger Bang for Each Buck: Operational Results

IPOPCORM recently tested the project’s central hypothesis that integrated or cross-sectoral approaches yield a bigger payoff than single-sector strategies (D’Agnes et al., 2008). The results show that IPOPCORM’s integrated approach has had a significantly higher impact on both reproductive health (RH) and coastal resource management (CRM) indicators than the stand-alone programs. The IPOPCORM approach improved results on all nine RH and food security indicators used in the analysis. Moreover, the IPOPCORM approach exceeded the impact of the RH-only and CRM-only interventions on five of the nine RH and food security indicators and performed equally well for the remaining four indicators. These results strongly suggest that the integrated approach yields a greater impact on human health and food security than the single-sector approaches.

Of the 18 CRM indicators measuring the health and diversity of mangrove stands, coral reefs, and

A mangrove-friendly shrimp culture method, aquasilviculture is one of the alternative livelihoods supported by IPOPCORM on Bohol Island. Courtesy of PFPI.

food fish stocks at the IPOPCORM sites, 14 remained the same, three improved (mangrove and coral reef indicators), and one decreased (mangrove regeneration). In contrast, at the CRM-only sites, mangrove volume, density, and regeneration decreased, while only reef fish richness increased. At the RH-only sites, mangrove volume and density decreased, while only reef fish density increased. Therefore, the integrated IPOPCORM approach outperformed the CRM-only and RH-only approaches for the key CRM indicators (Mamauag, 2007).

The unique information, education, and communication (IEC) strategy employed in the IPOPCORM site may have inspired more effective responses from local communities than the conventional IEC strategies used in the single-sector programs. In the RH intervention sites, family planning is promoted as a means to improve

health, which mainly benefits women and children. In the CRM intervention sites, conservation is promoted as a way to assure the sustainability of coastal resources, which mainly benefits fishers. In the IPOPCORM sites, key messages encourage people to simultaneously protect their coastal resources and plan their families in order to assure food security for the entire community (D’Agnes et al., 2008).

Although IPOPCORM cost more to implement than either of the non-integrated approaches, the combined cost of fielding the independent RH intervention and the independent CRM intervention was greater than the cost of the IPOPCORM intervention. When the study viewed IPOPCORM’s cost efficiency together with its higher impacts, it concluded IPOPCORM was the more cost-effective approach (D’Agnes et al., 2008).

### Impact on Selected Indicators (2001-2007)

(statistically significant trends only)

	INTERVENTION		
	IPOPCORM	RH-only	CRM-only
<b>RH AND FOOD SECURITY INDICATORS</b>			
Contraceptive use during first sexual experience	●		
Proportion of young (15-24) males that are sexually active	●		
Proportion of households solely dependent on fishing	●		
Use of dynamite in fishing	●		
Use of cyanide in fishing	●		
<b>CRM INDICATORS</b>			
Coral reef: condition index	●		
Reef fish: target species richness			●
Reef fish density (# per sq. meter)		●	
Mangrove volume (cu. meter per hectare)	●	■	■
Mangrove density (# per hectare)		■	■
Mangrove mean diameter at breast height (cm)	●		
Mangrove regeneration (# per hectare)	■		■

● Trend in desired direction    ■ Trend in undesired direction



## Challenges and Constraints

IPOPCORM's efforts to improve family planning have faced some opposition. In some areas, Catholic clergy and allied church groups are actively trying to impede community-based family planning activities by pressuring volunteer peer educators to quit. Church groups in another municipality threatened to cancel education scholarships for children whose parents volunteered to be couple peer educators. But despite such obstacles, most community volunteers trained under the program and all of the local government and NGO partners are continuing their efforts.

Other constraints include the decline in overseas funding for population-environment activities just as local governments are keen to scale up the IPOPCORM approach across the Danajon Bank (Central Visayas) eco-region. The loss of this opportunity has long-term implications for the one million people who depend on the Danajon for their food and livelihoods. It also has global and regional significance, as the Danajon is one of only three double-barrier reefs in the entire Asia-Pacific region.

## Lessons Learned and Best Practices

- Integrated programs have greater positive impacts on human and ecosystem health than single-sector programs—and at lower total cost.
- Synergistic approaches are more in tune with the way community members live and are therefore more acceptable than single-sector approaches.
- Linking family size to sound environmental management and, ultimately, food security, helps people recognize the importance of smaller families.
- Reproductive health services and family planning help support the sustainability of coastal resources, while coastal resource management enables the promotion and acceptance of family planning.



- Community-focused integrated program strategies require implementers to possess a variety of skills, including community organization experience, basic knowledge of environmental management and reproductive health, and strong interpersonal skills.
- Good working relationships with local government and health officials are essential to the success of any project, and supporting governments' development plans and objectives is key to establishing such relationships.
- Alternative livelihood training and micro-credit offer safety nets for poor fishing households that otherwise may suffer during the 2-3 years it takes for fish sanctuaries to regenerate.
- Integrated approaches benefit from programs that expand the role of youth, women, and fishers in village development, protected area management, and peer education.

Aerial view of the globally significant Danajon Double Barrier Reef Eco-region, where population density averages 455 people per sq. km. Courtesy of PFPPI.

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A Badjao mother and child in a canoe, Philippines.  
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