



# POPULATION, HEALTH, AND ENVIRONMENT ISSUES IN THE PHILIPPINES

## A Profile of the Autonomous Region in Muslim Mindanao (ARMM)

Ma. Corazon G. De La Paz and Lisa Colson

Linking population, health, and environment (PHE) issues is becoming increasingly important for the Philippines, where natural resources and public health and well-being are often negatively affected by factors such as population pressures and poverty. Understanding these connections—including the economic and social context in which they occur—and addressing PHE issues in an integrated manner is critical for achieving sustainable development.

This regional profile highlights key population, health, and environment indicators and important development challenges for the Autonomous Region in Muslim Mindanao (ARMM). It is designed to help educators, policymakers, and community leaders identify key threats to sustainable development and explore possible approaches to addressing them. This profile is part of a series covering select regions of the Philippines, and is intended as a companion publication to the Population Reference Bureau's 2006 data sheet, *Making the Link in the Philippines: Population, Health, and the Environment*.<sup>1</sup>

### Overview of ARMM

ARMM is composed of all the predominantly Muslim provinces in the Philippines and is the only region in the country with its own government.<sup>2</sup> ARMM is divided into two geographical areas: the Mindanao mainland and the Sulu Archipelago. The provinces of Lanao del Sur, Maguindanao, and Shariff Kabunsuan are situated on the mainland, while Basilan, Sulu, and Tawi-Tawi are located within the Sulu Archipelago.<sup>3</sup>

Although the current population of ARMM is relatively small compared to other regions in the Philippines, ARMM's high growth rate, high fertility rate, and low contraceptive prevalence indicate that the region's population will grow substantially over the next several decades. The increased population pressure has the potential to exacerbate the region's



already poor health and low socioeconomic status, as well as pose a threat to the region's environment and natural resources (see Figure 1, page 2).

Given that women in ARMM would like to have fewer children and with the recent rise in modern contraceptive use, there is potential for increased family planning in the region, which would help women achieve their desired family size and improve their quality of life.<sup>4</sup>

### SOCIOECONOMIC CONTEXT

The 2003 *Human Development Report* of the United Nations Development Programme (UNDP) showed that ARMM has the lowest per capita income in the Philippines and remains the poorest region in the country.

- ARMM has a per capita gross regional domestic product of 3,486 pesos, the lowest of all the regions in the Philippines. The national average for the Philippines is over four times that at 14,676 pesos.<sup>5</sup>
- ARMM has fared better than many other regions in overall employment, with an unemployment rate of only 2.4 percent—a third of the national level.<sup>6</sup> Yet, the region is one of the most impoverished areas in the Philippines with a poverty incidence of 45 percent. The provinces of Maguindanao and Sulu have the highest levels of poverty.<sup>7</sup>
- ARMM has a net primary education enrollment ratio of 81 percent as of 2002, the lowest level in the Philippines.<sup>8</sup> The region also has the low-

est level of simple literacy in the country at 70 percent.<sup>9</sup> Many also attend *madrasah* (private, Islamic schools) on weekends for religious and primary education. Students of *madrasah* often have difficulty finding employment because their Filipino, English, and mathematics skills tend not to be as strong as those of other students.<sup>10</sup>

## DEMOGRAPHIC AND HEALTH TRENDS

ARMM has a total population of 4.1 million people, with a population density of 335 people per square kilometer compared to the national average figure of 277. Thirty-one percent of the population lives in urban areas. Though not the most densely populated region, it has the highest annual population growth rate in the Philippines at 5.5 percent and is growing faster than population projections expected.

- ARMM's high population growth rate is driven by a high fertility rate—women residing in ARMM have on average 4.2 children (compared with 3.2 for Philippines as a whole). Although the total fertility rate has declined from 4.6 in 1998, women are still having more children than they would like to have: an average of 4.2 children versus the desired average of 3.7.<sup>11</sup>
- Only 19 percent of married women in ARMM use some form of contraception. Although overall contraceptive use has remained the same since 1998, modern contraceptive prevalence has in-

Figure 1

### PHE INDICATORS FOR AARM

Population (2007)	4,120,795 <sup>a</sup>
Population density (2007)	335 people per km
Percent urban (2000)	31%
Annual population growth rate (2000–2007)	5.5% <sup>b</sup>
Lifetime births per woman (total fertility rate) (2003)	4.2
Married women ages 15–49 using contraception (2003)	19% (any method) 12% (modern methods) <sup>c</sup>
Unmet need for family planning (2003)	27%
Infant mortality rate (2006)	31 infant deaths per 1,000 live births <sup>d</sup>
Forest cover (2002)	29%
Number of threatened animal species (2004)	44
Protected areas (2004)	184,204 hectares <sup>e</sup>
Families that obtain water from a safe water source (2002)	35%
Families with sanitary toilet (2002)	46%
Per capita gross regional domestic product at constant 1985 prices (2006)	3,486 pesos <sup>f</sup>

<sup>a</sup> National Statistics Office (NSO), “2007 Census of Population,” accessed online at [www.census.gov.ph/data/census2007/index.html](http://www.census.gov.ph/data/census2007/index.html), on May 20, 2008.

<sup>b</sup> NSO, “2007 Census of Population.”

<sup>c</sup> NSO and ORC Macro, *Philippines National Demographic and Health Survey* (2003).

<sup>d</sup> NSO, *2006 Family Planning Survey*, accessed online at [www.census.gov.ph/data/pressrelease/2007/pr0718tx.html](http://www.census.gov.ph/data/pressrelease/2007/pr0718tx.html), on April 14, 2008.

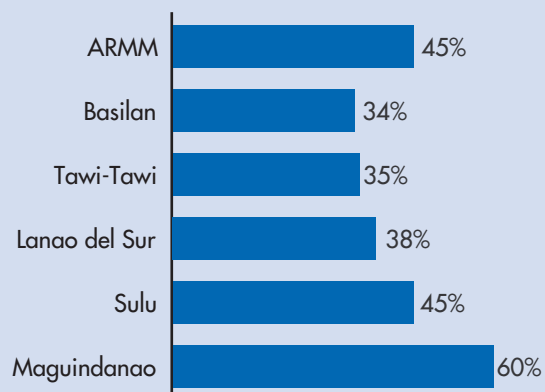
<sup>e</sup> DENR, “Summary of Protected Areas in the Philippines by Region: 2004,” accessed online at [www.denr.gov.ph/section-facts-figures](http://www.denr.gov.ph/section-facts-figures), on Nov. 27, 2007

<sup>f</sup> National Statistical Coordination Board, Regional Accounts, accessed online at [www.nscb.gov.ph/grdp/2006/2006concap.asp](http://www.nscb.gov.ph/grdp/2006/2006concap.asp), on April 14, 2008.

**SOURCE:** Except where noted, data are taken from Population Reference Bureau *Making the Link in the Philippines: Population, Health, and the Environment*, (Washington, DC: Population Reference Bureau, 2006).

Figure 2

### INCIDENCE OF POOR FAMILIES IN AARM AND ITS PROVINCES, 2006



**SOURCE:** National Statistical Coordination Board, *Poverty Statistics* ([www.nscb.gov.ph/poverty/2004/table1.asp](http://www.nscb.gov.ph/poverty/2004/table1.asp), accessed April 7, 2008).

creased from 9 percent to 12 percent. However, ARMM continues to have the lowest contraceptive prevalence of all regions in the Philippines.

- ARMM has one of the highest levels of unmet need for family planning in the Philippines. One in four married women would like to stop having children or want to delay their next birth but are not using any contraceptive method.
- ARMM has some of the country's poorest health indicators. The infant mortality rate is 31 per 1,000 live births, compared with the national average of 24 per 1,000 live births. Only 44 percent of children ages 12 to 23 months received all recommended vaccinations versus 70 percent for the Philippines overall.<sup>12</sup>
- ARMM fares better than the rest of the Philippines in terms of breastfeeding. Mothers in ARMM breastfeed their babies for about 20 months, whereas the average Filipino mother breastfeeds for about 14 months.<sup>13</sup>
- Only 35 percent of families in ARMM are able to obtain water from a safe source, and only 46 percent have sanitary toilets. These levels are very low, especially compared with the national level, where 80 percent of families have access to safe water and 86 percent have sanitary toilets.

## NATURAL RESOURCES AND BIODIVERSITY ISSUES

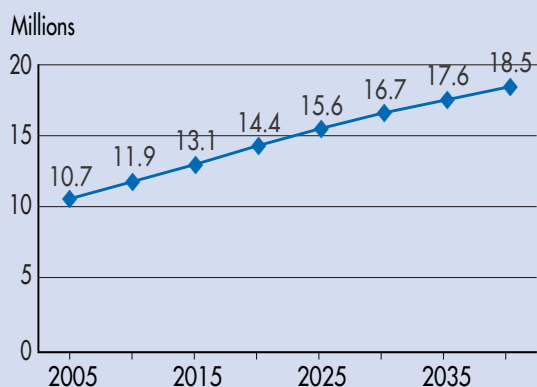
Decades of logging and pollution pose a threat to the natural resources of the ARMM region, yet the fishing and agricultural industries—supported by fertile flatlands, a conducive

climate, and rich marine resources—offer excellent opportunities for improving the economic well-being of the people.

- With a land area of 12,288 km<sup>2</sup>, ARMM makes up only 4 percent of the Philippines total land.<sup>14</sup>
- As of 2002, 29 percent of ARMM is covered by forest, among the lowest of regions in the Philippines. Forest cover is important for climate regulation, watershed protection, and preventing soil erosion.
- Agricultural land accounts for 26 percent of the region's total land area. Since 1991, the total number of farms increased 9 percent to 248,000 farms, while the average farm size decreased slightly. Coconut, corn, banana, palay, tubers, roots, and bulbs are key crops in the region.<sup>15</sup>
- Based on Department of Environment and Natural Resources (DENR) data, there are a total of 10 protected areas in the region with a total area of 184,204 hectares.<sup>16</sup> The Lake Lanao Watershed Reservation makes up 98 percent of this land area.<sup>17</sup> Protected areas, even if small, help ensure the survival of rare species and maintain ecosystem services, such as the provision of clean water.
- Lake Lanao, near Marawi City, is the second largest freshwater body in the Philippines and supports the Maria Cristina hydroelectric plant, the largest source of hydroelectric power in Mindanao. It was once considered one of the most biodiverse lakes in the world, yet decades of logging and pollution have significantly degraded the water quality.
- The Wao municipality in Lanao del Sur became the first local government in ARMM to construct a Category 1 sanitary landfill, meeting the highest standards in solid waste management and serving as a learning site. Recycling and composting is also processed nearby.<sup>18</sup>

Figure 3

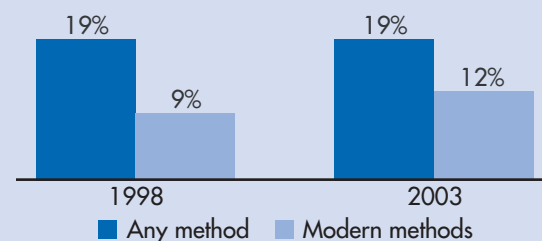
### PROJECTED POPULATION FOR AARM, 2005–2040



SOURCE: National Statistical Coordination Board, *Population Projections* ([www.nscb.gov.ph/secstat/d\\_popnProj.asp](http://www.nscb.gov.ph/secstat/d_popnProj.asp), accessed Nov. 27, 2007).

Figure 4

### MARRIED WOMEN AGES 15–49 USING CONTRACEPTION, 1998 AND 2003



SOURCE: National Statistical Coordination Board, *Population Projections* ([www.nscb.gov.ph/secstat/d\\_popnProj.asp](http://www.nscb.gov.ph/secstat/d_popnProj.asp), accessed Nov. 27, 2007).

- Forty-four animal species are threatened with extinction, including the Philippine eagle (*Pithecophaga jefferyi*), Sulu hornbill (*Anthracoceros montani*), and the hawksbill sea turtle (*Eretmochelys imbricata*).<sup>19</sup> Threats to these species include logging, encroachment on their habitat, land cover change, and overexploitation.
- The Tubbataha Reefs National Marine Park is the nation's first marine park, located in the center of the Sulu Sea, northwest of ARMM. It is the first natural UNESCO World Heritage Site in the country.<sup>20</sup>
- The Allah Watershed Forest, the Palimbang Watershed, the Salaman River Watershed, the Alip-Dalcol Watershed, and the Daguma Mountain Range in Sultan Kudarat provide water for the Allah River irrigation system. Priority sites for conservation include Munai/Tambo, Mt. Piagayungan, Ligawasan Marsh, and Mt. Daguma.<sup>21</sup>

### The Liguasan Marsh

Liguasan (Ligawasan) Marsh is a vast 288,000 hectare swamp stretching across the provinces of Maguindanao of ARMM and Cotabato and Sultan Kudarat of Region 12. It is rich in biodiversity and important for the livelihoods of the approximately 278,000 people living around the area. The marsh is a depository for water drained from the Cotabato River Basin and serves to prevent the flooding of low-lying downstream areas in central Mindanao, thus making farming viable in the lowlands. Communities also rely on fish from the marsh as a major food source.<sup>22</sup>

- A field inventory of the wildlife and vegetation in 1999 revealed a total of 218 species of flora and fauna.<sup>23</sup>
- Liguasan Marsh is a known migratory path for birds and is home to 30 fish species (24 of which have commercial value); three species of reptiles; and water birds such as species of wild ducks, herons, and egrets. It is also the refuge of the rare oriental darter (*Anhinga melanogaster*) and purple swamp hen (*Porphyrio porphyrio*) and the threatened Philippine hawk eagle, spotted imperial pigeon, and rufous-lored kingfisher.
- Liguasan Marsh is believed to be the last home of the endangered Philippine crocodile (*Crocodylus mindorensis*).<sup>24</sup>
- The ecological integrity of the marsh has been marred by violent encounters between the government, the Moro rebels, and other lawless groups who have taken refuge in its forested areas.<sup>25</sup>
- The water in the marsh undergoes an annual dry period lasting several months, causing hardship for

families living along the periphery of the marsh as fish and crop harvests decline.

- Key threats to the marsh include: logging, siltation, diversion of and obstructing river flows, infill of marshlands for conversion to agriculture, conflicts, and the introduction of exotic species.

## RESPONDING TO CHALLENGES

Continued population growth, poverty, overexploitation of natural resources, pollution, and reduction in biodiversity are significant challenges for ARMM. Nonetheless, the continued abundance of natural resources provides the regional government with an opportunity to improve people's health, promote sustainable livelihoods, and strengthen the capacity of local communities to sustainably manage natural resources.

Many factors contribute to the poverty in ARMM, but two of the most important are the lack of access to education and health services. These are key challenges that must be addressed if the region's health, development, and environmental conditions are to improve.

Several initiatives offer encouragement and hope in the region:

### Health Initiatives

The Department of Health (DOH) in ARMM has recently refocused its efforts on improving the delivery of basic health. Previous budgetary allocations for health service delivery were inadequate (80 percent of the DOH health budget went to personnel services and only 18 percent to operations)<sup>26</sup> and therefore could not effectively improve health services in the region. In 2007, a bigger allocation for operations, including health service delivery, was approved and is expected to translate to improved health services.

The United States Agency for International Development (USAID) has supported several health initiatives in ARMM, including a child survival program that expands vitamin A provision and immunization coverage. Family planning programs have also been supported by USAID, especially in far-flung communities. An effective entry point for the DOH and USAID is garnering support from the Muslim religious leaders, some of whom (such as the *Muftis* or Head *Ulamas*) have already issued *fatwas* or religious edicts that encourage Muslim couples to use modern family planning methods. These efforts are supported by community mobilization activities between and among the local governments and members of the civil society.

### Environmental Initiatives

The Institute of Bangsamoro Studies and the Ligawasan Marsh Research and Development Council have implement-

ed the Bantay (Watch) Ligawasan Marsh and the Ligawasan Marsh Reforestation projects. These two projects, launched in 2006, use a community-based approach to protect the marsh's natural resources and reforest the area. Education outreach is a key component and the Bantay Ligawasan Project supports alternative livelihood opportunities.<sup>27</sup>

The National Economic and Development Authority (NEDA) of neighboring Region 12 developed the comprehensive Liguasan Marsh Development Master Plan in 1999. It supports socioeconomic enhancement through livelihood opportunities, infrastructure and agricultural development, and environmental conservation and management.<sup>28</sup> Conservation of the marsh and economic development for the people in the area are believed to be a catalyst for the development of ARMM. Unfortunately, due to the conflicts around the marsh, the plan has been temporarily called off.

DENR is also exploring the use of Liguasan Marsh in Maguindanao province as a primary source of natural gas in Mindanao and as a means to reduce the country's oil imports from petroleum-producing countries.<sup>29</sup>

Other environmental initiatives include:

- The Alliance for Mindanao Off-Grid Renewable Energy Program (AMORE), funded by USAID, provides electricity to far-flung villages in Mindanao using solar or micro-hydro power systems. By 2006, the program electrified 570 households with solar home systems. AMORE officers launched a battery awareness campaign to ensure appropriate disposal of batteries so that the benefits of clean energy are not reversed by the careless disposal of batteries.<sup>30</sup>
- Lake Lanao, a source of power, water, and food, is threatened by increasing amounts of garbage from Marawi City. In an effort to protect the lake, Marawi City has recently signed an agreement with the USAID-EcoGov Project and the DENR-ARMM for a new solid waste management program. This program focuses on diverting 25 percent of Marawi City's waste to recycling and composting.<sup>31</sup>
- ARMM's Regional Sustainable Forest Management Act (RSFMA) integrated the Shariah and other Muslim cultural norms, as well as multisectoral, community-based approaches, into the forest management policy. The RSFMA empowers the local people of ARMM, including indigenous peoples, to address the destruction and degradation of forest. It also gives the people of the region preferential rights to use the critical forest resources.<sup>32</sup>
- Twenty-five percent of the remaining coral reef structures in the Philippines are within the provincial boundaries of Tawi-Tawi in ARMM. However, the area has experienced

## FISHERIES IMPROVED FOR SUSTAINABLE HARVEST (FISH) PROJECT

The USAID-supported Fisheries Improved for Sustainable Harvest Project (FISH) works in Tawi-Tawi and Surigao del Sur provinces in ARMM. In both provinces, Path Foundation Philippines, Inc. (PFPI) implements the reproductive health component of FISH in collaboration with Tetra Tech EM, Inc., which manages the overall project on behalf of USAID. In Tawi-Tawi, PFPI partnered with Culion Foundation Inc., a local NGO, and the local government of Bongo to deliver an integrated package of reproductive health/family planning, conservation, and alternative livelihood services designed to enhance food security from the sea. The project also applied integrated programming of population, health, and the environment to promote responsible sexual and reproductive health attitudes and behaviors among men, women, and youth, and to work with the community to adopt environmentally friendly enterprises. Communication and advocacy efforts directed at local policymakers also aim to mainstream population and FP/RH dimensions into eco-governance and local development agendas.

high environmental stress from population pressures and illegal fishing practices that have degraded its coastal ecosystems. In 2004, the WWF-Philippines implemented a Coastal Resources and Fisheries Conservation (CRFC) Project in Tawi-Tawi that developed the capacity of communities to establish marine-protected areas (MPA) for the regeneration of mangroves, coral reefs, and associated reef fish. At the request of WWF, the private nonprofit PATH Foundation Philippines Inc. (PFPI) introduced community-based family planning (CB-FP) in some of the same areas with funding support from the United Nations Population Programme (UNFPA). This was the first initiative of its kind in ARMM to experiment with integrated approaches to population-environment.

## REFERENCES

- <sup>1</sup> Population Reference Bureau, *Making the Link in the Philippines: Population, Health, and the Environment* (Washington, DC: Population Reference Bureau, 2006).
- <sup>2</sup> The ARMM region has a history of internal religious conflict as groups within the Muslim community have fought for an independent "Moro homeland" separate from the Republic of the Philippines. While the overall situation has improved in recent years due to peace negotiations, conflicts between the military and armed groups persist, with adverse effects on the region's health, environment, and socioeconomic status.
- <sup>3</sup> Unless otherwise noted, the data presented in this profile reflect the available data for ARMM from its previous configuration of Lanao del Sur, Maguindanao, Sulu, and Tawi-Tawi.
- <sup>4</sup> National Statistics Office (NSO) and ORC Macro, *Philippines National Demographic and Health Survey* (1998 and 2003).
- <sup>5</sup> National Statistical Coordination Board (NSCB), *Regional Accounts*, accessed online at [www.nscb.gov.ph/grdp/2006/2006concap.asp](http://www.nscb.gov.ph/grdp/2006/2006concap.asp), on Feb. 5, 2008.

- <sup>6</sup> NSO, “Table C. Labor Force Participation Rates by Region: January 2008,” accessed online at [www.census.gov.ph/data/sectordata/2008/lf080121.htm](http://www.census.gov.ph/data/sectordata/2008/lf080121.htm), on May 20, 2008.
- <sup>7</sup> NSCB, *Poverty Statistics*, accessed online at [www.nscb.gov.ph/poverty/2004/table\\_1.asp](http://www.nscb.gov.ph/poverty/2004/table_1.asp), on April 7, 2008.
- <sup>8</sup> NSCB, *Net Enrollment Ratio In Primary Education by Region and Year*, accessed online at [www.nscb.gov.ph/imdgs/index.asp](http://www.nscb.gov.ph/imdgs/index.asp), on April 8, 2008.
- <sup>9</sup> NSCB, *Simple Literacy Education*, accessed online at [www.nscb.gov.ph/secstat/d\\_educ.asp](http://www.nscb.gov.ph/secstat/d_educ.asp), on April 8, 2008.
- <sup>10</sup> Asian Development Bank, *Technical Assistance to the Republic of the Philippines for Development of Basic Education in the Autonomous Region in Muslim Mindanao*, (2004).
- <sup>11</sup> NSO and ORC Macro, *Philippines National Demographic and Health Survey* (1998 and 2003).
- <sup>12</sup> NSO and ORC Macro, *Philippines National Demographic and Health Survey* (2003).
- <sup>13</sup> NSO and ORC Macro, *Philippines National Demographic and Health Survey* (2003).
- <sup>14</sup> Mindanao Economic Development Council, accessed online at [www.medco.gov.ph/medcoweb/regprofl.asp?RegAreaID=RAR](http://www.medco.gov.ph/medcoweb/regprofl.asp?RegAreaID=RAR), on June 24, 2008.
- <sup>15</sup> NSO, *A Review of the Agriculture Sector*, accessed at [www.census.gov.ph/data/sectordata/sr04119tx.html](http://www.census.gov.ph/data/sectordata/sr04119tx.html), on June 18, 2008.
- <sup>16</sup> Department of Environment and Natural Resources (DENR), *Summary of Protected Areas in the Philippines by Region: 2004*, accessed online at [www.denr.gov.ph/section-facts-figures](http://www.denr.gov.ph/section-facts-figures), on Nov. 27, 2007
- <sup>17</sup> Forest Management Bureau, *2005 Philippines Forestry Statistics*, accessed online at <http://forestry.denr.gov.ph/stat2005.htm>, on May 29, 2008.
- <sup>18</sup> National Solid Waste Management Commission, *Success Stories*, accessed online at <http://eia.emb.gov.ph/nswmcl>, on May 29, 2008.
- <sup>19</sup> Conservation International, *Philippines Threatened Species*, accessed online at [www.biodiversityhotspots.org/xp/hotspots/hotspotsscience/key\\_findings/Pages/default.aspx](http://www.biodiversityhotspots.org/xp/hotspots/hotspotsscience/key_findings/Pages/default.aspx), on Jan. 24, 2008.
- <sup>20</sup> UNESCO, “World Heritage,” accessed online at <http://whc.unesco.org/pg.cfm?cid=81>, on April 18, 2008.
- <sup>21</sup> Conservation International, Haribon Foundation, and DENR, “*Priority Sites for Conservation in the Philippines: Key Biodiversity Areas (KBAs) Map*,” (2006).
- <sup>22</sup> Global Environment Facility, “Biodiversity Conservation and Restoration of the Ligawasan Marsh,” accessed online at: <http://sgp.undp.org/index.cfm>, on June 28, 2008.
- <sup>23</sup> Philippine Information Agency, “Amore Sets Safeguard for Ligawasan Marsh,” accessed online at [www.pia.gov.ph/?m=12&fi=p070502.htm&no=28](http://www.pia.gov.ph/?m=12&fi=p070502.htm&no=28), on June 28, 2008.
- <sup>24</sup> Abhoud Syed M. Lingga, “Building Peace Infrastructure in Ligawasan Marsh,” presentation at the Institute of Bangsamoro Studies, Dec. 18-19, 2006
- <sup>25</sup> “Rehab Drive for Ligawasan Marsh Spins Off,” *Sun Star*, May 1 2006, accessed online at [www.riverbasin.org/newsmaster.cfm?&menuid=45&action=view&retrieveid=244](http://www.riverbasin.org/newsmaster.cfm?&menuid=45&action=view&retrieveid=244), on May 29, 2008.
- <sup>26</sup> ARMM DOH Secretary Tabir Sulaik, *Bureau of Public Information*, ARMM, 2007
- <sup>27</sup> Lingga, “Building Peace Infrastructure in Ligawasan Marsh.”
- <sup>28</sup> National Economic and Development Authority, *Liguasan Marsh Development Master Plan (1999–2025)*
- <sup>29</sup> Philippine Information Agency, Davao Region, “*Liguasan Marsh as a Source for Natural Gas*,” accessed online at [www.pia.gov.ph/davao.htm](http://www.pia.gov.ph/davao.htm), on May 29, 2008.
- <sup>30</sup> Alliance for Mindanao Off-grid Renewable Energy Project (AMORE), [www.amore.org.ph](http://www.amore.org.ph).
- <sup>31</sup> USAID-Philippines, *Weekly Highlights for January 8-14, 2007*, accessed online at [http://philippines.usaid.gov/whatsnew/dec\\_4to10\\_06.htm](http://philippines.usaid.gov/whatsnew/dec_4to10_06.htm), on April 14, 2008.
- <sup>32</sup> USAID, *Fisheries Improved for Sustainable Harvest (FISH) Project*, accessed online at [http://philippines.usaid.gov/oe\\_envgov\\_marine\\_fish.php](http://philippines.usaid.gov/oe_envgov_marine_fish.php), on April 14, 2008.

### Acknowledgments

Maria Corazon Guevara De La Paz, Balay Rehabilitation Center, Inc. and Lisa Colson, PRB, prepared this profile. We gratefully acknowledge the assistance of individuals who reviewed and commented on this profile, including several members of the Philippines PHE network and staff at PRB. This work was made possible through the generous support of the David and Lucile Packard Foundation.

©2008, Population Reference Bureau. All rights reserved.

### PRB's Population, Health, and Environment (PHE)

**Program** works to improve people's lives around the world by helping decisionmakers understand and address the consequences of population and environment interactions for human and environmental well-being. The PHE Program engages in similar activities in other countries and regions around the world. For more information on PRB's PHE Program, please write to [popref@prb.org](mailto:popref@prb.org).

The Population Reference Bureau informs people around the world about population, health, and the environment, and empowers them to use that information to advance the well-being of current and future generations. For more information, including membership and publications, please contact PRB or visit our website: [www.prb.org](http://www.prb.org).

# PRB

## POPULATION REFERENCE BUREAU

1875 Connecticut Ave., NW, Suite 520 | Washington, DC 20009-5728

Tel: 202-483-1100 | Fax: 202-328-3937 | E-mail: [popref@prb.org](mailto:popref@prb.org) | [www.prb.org](http://www.prb.org)