



Healthy Families Healthy Forests

CAMBODIA | MADAGASCAR | PHILIPPINES

Improving
Human Health
and Biodiversity
Conservation



Janet Edmond, Marcelino Viernes Jr., Bunra Seng, and N'Aina Zo Zatovonirina prepared this document with assistance from CI staff members and other colleagues. We thank all CI field staff and partners for their contributions to and reviews of this publication. Thank you to staff and partners who reviewed previous drafts, including Fred Boltz, Patricia Zurita, Sarah Banks, Lisa Morales, Susan Stone, Daniela Raik, Kellee Koenig and many others. We offer special thanks to the USAID staff who have offered support throughout the project including: Heather D'Agnes, Elizabeth Schoenecker, Rose Park, Ellen Starbird, and other staff in the Office of Population and Reproductive Health. Many PHE colleagues from our collaborating partners offered insights into the production of this document as well. Special thanks to Cheryl Margoluis, and all the staff at Ellipse Design and Balmar Printing for their help in making this publication possible.

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Balmar Printing, Mary Memminger, 703-289-9047

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Conservation International Foundation

2011 Crystal Drive, Suite 500

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www.conservation.org



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Acronyms

ABE	Association of Buddhists for the Environment
ADSDPP	Ancestral Domain Sustainable Development and Protection Plan (the Philippines)
ARI	Acute respiratory infection
ASBC	Community-Based Health Agents (Madagascar)
ASOS	Action Sante Organisation Secours
BASIC	Building Action for Stability in Communities (the Philippines)
BHWs	Barangay Health Workers (the Philippines)
BTL	Bilateral tubal ligation
CADC	Certificate of Ancestral Domain Claim (the Philippines)
CADT	Certificate of Ancestral Domain Title (the Philippines)
CBD	Community-Based Distributors (of contraceptives)
CBNRM	Community-based natural resource management
CBFM	Community-based forest management
CCL	Cardamoms Conservation Landscape
CCPF	Central Cardamoms Protected Forest
CEDAC	Cambodia Center for the Study and Development of Agriculture
CI	Conservation International
CLUP	Comprehensive Land Use Plans
CPR	Contraceptive prevalence rate
CNRMC	Commune Natural Resource Management Committee (Cambodia)
CRMF	Community-based resource management frameworks
CSP	Conservation Stewards Program (CI)
CYP	Couple Year Protection
DENR	Department of Environment and Natural Resources
DMPA	Depo Provera
ECSP	Environmental Change and Security Program (Woodrow Wilson Center)
EFEN	Women's Nutritional Groups (Madagascar)
FA	Forestry Administration (Cambodia)
FFI	Fauna and Flora International
FP/RH	Family planning/Reproductive health
IEC	Information, education and communication
JGI	Jane Goodall Institute
JSI	John Snow International
LGU	Local Government Unit (the Philippines)
M&E	Monitoring and evaluation
MATEZA	Malagasy Teknisiana Ho Andry Sy Tezan'i Zahamena Sy Ny Ala Atsinana
MCC	Millennium Challenge Corporation
MCH	Maternal and child health
MENRO	Municipal Environment and Natural Resource Office
MHO	Municipal Health Office
MOA	Memorandum of Agreement

MOH	Ministry of Health
NCIP	National Commission on Indigenous People (the Philippines)
NFP	Natural family planning
NGOs	Non-governmental organizations
NRM	Natural resource management
NSV	Non-scalpel vasectomy
OPRH	USAID's Office of Population and Reproductive Health
PEPFAR	President's Emergency Plan for AIDS Relief (US)
PHE	Population, Health and Environment
PLUP	Participatory Land Use Planning
POs	People's Organizations
POPCOM	Population Commission (Philippines)
PRB	Population Reference Bureau
SCW	Save Cambodia's Wildlife
SEILA	Semi-government Decentralization Agency (Cambodia)
SMBC	Sierra Madre Biodiversity Corridor (the Philippines)
SRA	Improved Rice Production System (Madagascar)
SRI	Intensive Rice Production System (Madagascar/Cambodia)
TB	Tuberculosis
TBAs	Traditional birth attendants
TDMPCI	Three Diamonds Multipurpose Cooperative Inc.
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	U.S. Agency for International Development
VAM	Community-Based Health Volunteers (Madagascar)
VHSG	Village Health Support Group (Cambodia)
WHO	World Health Organization
WRA	Women of reproductive age
WWF	World Wildlife Fund

Executive Summary

Over the past few years a new generation of integrated projects has developed – one that aims to demonstrate the potential value that is added through integration itself. Population, Health, and Environment (PHE) projects are part of this new generation. These projects not only aim to achieve their goals, but also to build the science that can help us better understand the effects of integration. At Conservation International (CI), our extensive experience in designing and implementing allowed us to build upon this science – and create more effective PHE projects. CI's PHE projects improved access to family planning and health services (FP/RH) in vulnerable populations in rural, key biodiversity areas, while helping communities manage natural resources in ways that improved health and livelihoods. The idea behind these projects was to reduce population pressures that are driving the threats to biodiversity conservation in the world's hotspots.

With support from the U.S. Agency for International Development (USAID), CI began implementing the Healthy Families, Healthy Forests project in October 2002. The idea for this project came from language that was included in the Congressional Appropriations bill that encouraged USAID to provide family planning in areas of high biodiversity. USAID's Office of Population and Reproductive Health (OPRH) turned to the conservation organizations working in these high biodiversity areas—such as CI, World Wildlife Fund (WWF) and Jane Goodall Institute (JGI)—to implement these projects, often with health and development organizations as partners.

Since 2002, USAID has assembled a diverse portfolio of PHE projects, ranging from field-based integrated health and conservation projects, to communications

and outreach, and knowledge management and information dissemination. Throughout this period, CI worked closely with many of these partners, such as CARE Cambodia, Malagasy Non-Governmental Organizations (NGOs), local and regional government authorities, Population Reference Bureau (PRB), MEASURE Evaluation, the Woodrow Wilson Center, and the Global Health Fellows Program, in order to test out PHE models and gather data to better understand the effects of our projects.

This document reviews our achievements in some of the most remote, biologically diverse areas of the world: Cambodia, the Philippines and Madagascar. We worked in the Cardamom (Mountains) Conservation Landscape (CCL) in southwestern Cambodia, the Zahamena-Mantadia Biological Corridor in eastern Madagascar, and the Sierra Madre Biodiversity Corridor (SMBC) in northern Philippines. CI's PHE projects have achieved results in both health and conservation goals/outcomes – such as providing much needed health services to rural, poor populations; training cadres of local health care professionals in health and conservation; promoting behavior change and educating the next generation about the importance of conservation; and building the capacity to pursue alternative livelihoods through improved forest management. This document demonstrates how CI, and partners across the world, have worked to improve the daily lives of remote, vulnerable populations living in some of the most biodiversity-rich environments on the planet. We have increased human wellbeing, while at the same time conserving vital biodiversity. We have attempted to bridge the gaps that continue to separate the fields of conservation, health, population, and development by promoting integrated approaches that recognize conservation as a social issue.

Introduction

In some of the most remote pockets of biological diversity around the world, CI has worked hand-in-hand with local partners and communities to improve human health and foster biodiversity conservation. CI joined forces with local stakeholders – community members, local authorities, health and development organizations – in critical watersheds and forest corridors in Cambodia, Madagascar and the Philippines to bring valuable and much-needed health services to people in these remote areas. At the same time, we helped to empower community members to practice sustainable natural resource management and conserve their surroundings. We worked with partners to improve health, increase access to education, and broaden environmental understanding. These efforts, supported in large part by USAID, linked improved human health with improved ecosystem health. They represented CI’s commitment to improving the wellbeing of the world’s stewards of biodiversity, those individuals on the frontlines of conservation.

The goal of this document is to review the impacts of CI’s PHE projects, in terms of the improved health of remote, poor communities, and the conservation of some of the world’s most biodiversity-rich environments on the planet. We have increased human wellbeing, while at the same time conserving vital biodiversity. We have

attempted to bridge the gaps that continue to separate the fields of conservation, health, population, and development by promoting integrated approaches that recognize conservation as a social issue.



CREDIT: Carol Bender

Cambodia mother and child in Cardamom Mountains



A woman tending to her garden in Madagascar's Manakambahiny Est

PHE as a Biodiversity Conservation Approach

CI recognizes that for biodiversity conservation to be sustainable, it must improve the lives of local people. CI's mission is to conserve the Earth's living natural heritage, our global biodiversity, and demonstrate that human societies are able to live harmoniously with nature. Our experience over the last 21 years has shown that conservation will not succeed in the absence of people-oriented strategies to enhance stewardship of the land and natural resources. Since the 1990s, we have worked with communities to empower them to conserve biodiversity while improving their health and wellbeing at the same time.

CI's approach to conserving biodiversity targets 34 biodiversity hotspots – areas of the biologically richest places, with the highest numbers of species found nowhere else on Earth. Hotspots, by definition, face extreme threats and have already lost at least 70 percent of their original vegetation (CI 2005a). According to a 2004 analysis, the hotspots are home to just under two billion people – about one-third of our global population (CEMEX 2004). Many of these inhabitants are poor, living on less than one dollar a day and directly depending on the products of healthy ecosystems to meet basic human needs, such as shelter, food, clothing and medicine. In addition, they represent considerable resource demand near localities of critical importance to biodiversity conservation (Gorenflo *et al.* forthcoming).

One of the major conclusions of the 2005 United Nations Millennium Ecosystem Assessment was that during the past half century, humans have changed our planet's ecosystems more rapidly and extensively than any comparable period in history (Chivian & Bernstein 2008). The increasing media and political attention to the assessment's findings have highlighted the potentially devastating impacts that environmental problems can cause, such as climate change, global warming,

tsunamis and other natural disasters. Due in large part to the assessment, the conversation in the conservation community around healthy people and healthy ecosystems has evolved, with an increased focus on empirically proving the links between improving human health and the impacts on biodiversity.

A great deal of the pressures on biodiversity comes from large, poor families. The search for fuelwood, water and other basic needs creates the direct threats that drive environmental change. In poor countries, it is women and children who are usually in charge of collecting these resources and are therefore the agents of change (UNFPA 2008). Deteriorating environmental conditions associated with expanding agriculture or deforestation can pose threats to human health, especially for women, and infants less than five years of age. Ninety percent of the wastewater in the developing world is released into local watersheds, and more than three million people per year, mostly children, are killed by preventable waterborne diseases such as cholera, typhoid, diarrhea, and gastroenteritis (OECD 2003). Diarrhea is still a leading cause of infant mortality and morbidity in areas where we work. In Madagascar, for example, the Population Reference Bureau (PRB) reports that, in 2002, 30 percent of population was using inadequate sanitation (Nash & De Souza 2002).

Dramatic changes in forest cover and land use have implications for human wellbeing because there are direct linkages between ecosystems and the essential services they provide, including provisioning services (e.g., food, fresh water, fuel); regulating services (e.g., climate regulation, flood regulation, disease regulation); and cultural services (e.g., spiritual, recreational, educational). These changes have historically led to irreversible loss of biodiversity (Sanderson *et al.* 2006).

2.1 Threats to Human and Ecosystem Health

In our target countries, human population growth rates impact conservation through a series of indirect human induced pressures on natural resources, such as:

Lack of access to health services, such as FP/RH services, vaccinations, and services that ensure a safe motherhood. CI works in some of the most pristine biodiversity areas of the world. These areas are, by definition, rural and remote, where residents have limited access to basic government services, such as health care and education. These factors result in high fertility and low contraceptive prevalence rates (CPR). They also contribute to birth complications, low rates of pre- and post- natal care, and infant and maternal mortality rates above the regional average. Residents of Cambodia, Madagascar and the Philippines have some of the highest population growth rates, maternal and child mortality, and unmet need for family planning (ORC Macro DHS Surveys 2000-2004). In the rural target areas, inhabitants often have the greatest health need and therefore exert considerable pressure on local resources in order to afford medicines, transport to distant health facilities and other critical health services.

Slash-and-burn agriculture. Loss of habitats due to the conversion of forests to agricultural land is a pressing threat to biodiversity worldwide. In Baggao, Philippines, 88 percent of households practice slash-and-burn agriculture within secondary growth forest. In Madagascar, despite a government ban on the practice, poor rural farmers still burn parcels of land for rice production in order to meet family nutritional needs. In Cambodia, the average rural family does not have enough rice to meet its basic nutritional needs for three to four months out of the year. These economic pressures increase intensification of natural resource exploitation and lead to irreversible soil erosion and species loss.

Degradation of water resources. Freshwater is essential for human health, food production, hydropower generation, transportation, and economic growth and development. During the twentieth century, global human population increased fourfold. During that same period, water withdrawal from



CREDIT: Haroldo Castro

Slash-and-burn practices destroy forest in Madagascar

freshwater ecosystems increased eightfold (Chivian & Bernstein 2008). Unfortunately, freshwater resources in areas where CI has worked are often threatened by destructive slash-and-burn practices that cause unmitigated soil erosion. In the Cardamom Mountains in Cambodia, a wave of new dam construction threatens to block virtually all free flowing rivers in the Cardamom (Mountains) Conservation Landscape (CCL). Local residents who rely on freshwater there for their livelihoods and survival may be forced to move into more remote and vulnerable areas in order to find freshwater.

Unsustainable natural resource management practices. Community residents who rely on resource harvesting, such as hunting or fishing, contribute to destructive environmental practices as they lack the knowledge of alternative practices and access to other employment opportunities. They therefore continue to exert pressures on already threatened resources. Poverty is an additional driver in this situation as, in many cases, people lack the economic stability to explore other options. In all three target countries, CI worked with partners and donors to address this threat by building the capacity for sustainable resource use in both the communities and NGOs; addressing policy issues; and fostering coalitions to improve species, landscape and corridor conservation in a holistic manner.¹

¹ Human migration is also a primary threat to biodiversity but it is not included in this project document. For more information on this topic, please refer to Oglethorpe *et al.* 2007

2.2 CI's PHE Approach

One way in which CI is trying to reduce the human footprint on biodiversity is to implement community-based programs in key biodiversity areas to improve human and ecosystem health at the same time.

Recognizing the critical links between human health and biodiversity conservation, in 2002, CI began implementing the Healthy Families, Healthy Forests program, a USAID-supported initiative in three countries with highly threatened biodiversity. The purpose of this project was to improve conservation and use of health services, including FP/RH services, in areas where high population growth threatens biodiversity and endangered species.

The conservation-based rationale for integrating health services into community-based efforts is designed to increase community buy-in, participation and ownership over conservation in the long term. By improving the health of the mothers, fathers and children in the target areas, people can be more productive, take advantage of economic opportunities such as microcredit, and have a range of options to satisfy basic human needs such as food, shelter and income. As demonstrated by many field-based health and conservation projects, health services also open the door to collaboration on activities such as environmental training and livelihood diversification (JGI 2004).

CI implemented integrated PHE projects in three critically endangered landscapes – the Cardamom (Mountains) Conservation Landscape (CCL) in southwestern Cambodia, the Zahamena-Mantadia Biological Corridor in eastern Madagascar, and the Sierra Madre Biodiversity Corridor (SMBC) in northern Philippines. CI's specific goals were to build and strengthen local communities, empowering them with knowledge, expertise and sense of ownership of vital ecosystem resources, such as forests and watersheds.

We achieved our goals by working with health and development partners and community-based health workers to improve access to and use of FP/RH and maternal and child health (MCH) services (see Table 1). We built networks of locally trained community health workers and educators. These local networks promoted the links between improving family health and decreasing pressures on natural resources through targeted Information, Education and Communication (IEC) campaigns. Participatory community activities delivered messages that were designed to change individual and family behavior through improved health and conservation practices. We implemented alternative livelihood strategies, fostered community-based natural resource management and promoted conservation friendly enterprises, all of which ultimately led to improved stewardship of biodiversity.



Pincanuwan River in Penablanca, Luzon, Philippines

CREDIT: C/John Tidwell

Table 1. CI PHE Project Partners and Collaborators, 2002-2008

Global	Philippines	Cambodia	Madagascar
PRB	Local Government Unit (LGU)	CARE Cambodia	Action Sante Organisation Secours (ASOS) ²
Woodrow Wilson Center Environmental Change and Security Program (ECSP)	Barangay Health Workers (BHWs) and midwives	Cambodian Center for the Study and Development in Agriculture (CEDAC)	Malagasy Teknisiana Ho Andry Sy Tezan'i Zahamena Sy Ny Ala Atsinana (MATEZA)
MEASURE Evaluation	Department of Environment and Natural Resources (DENR)	Association of Buddhists for the Environment (ABE)	Voahary Salama ³
Global Health Fellows Program	Municipal Environment and Natural Resource Office (MENRO)	Forestry Administration	Ministry of Health (MOH) health centers
University of Michigan Population Environment Fellows program ⁴	MHO	Save Cambodia's Wildlife (SCW)	United Nations Children's Fund (UNICEF)
CDM International	PHE Network	Wildlife Alliance (formerly WildAid)	
John Snow International (JSI)	PROCESS Luzon	Flora and Fauna International	
US Environmental NGOs with international focus - Sierra Club, Izaak Walton League, National Audubon Society	National Commission on Indigenous People (NCIP)	Semi-government Decentralization Agency (SEILA)	
WWE, JGI and other international environmental NGOs	CBFM POs		

² ASOS works in the southern part of the Zahamena-Mantadia Biological Corridor, while MATEZA works in the northern part around Zahemena National Park.

³ Voahary Salama is a consortium of NGOs working on PHE in Madagascar. The name means human health along with all that is natural (Kleinau *et al.* 2002).

⁴ This fellowship program ended in 2006 and Public Health Institute launched the Global Health Fellows Program.

Summary of Overall Project Achievements⁵

Throughout our work in the past six years, we have improved our ability to monitor and evaluate our progress toward goals. With the assistance of a new USAID PHE framework implemented in 2006 and technical input from the MEASURE Evaluation project, we developed a robust monitoring framework and systematic data collection system.

Our overall project accomplishments from 2005 to 2008 include:

- Increased the rate of use of FP/RH services in Cambodia, Madagascar, and the Philippines. From 2005 to 2008, the CPR in Madagascar increased from 17 percent to 30 percent. In the Philippines, in the same time period, it increased from 59 percent to 70 percent. In Cambodia, the Couple Year Protection (CYP) rose from 35 in 2005 to 134 in 2008.
- Steadily increased the number of new users of FP/RH services from 2005 to 2008, with a total of almost 1,700 new users over three years. The most common methods were the pill, Depo Provera (DMPA) and IUD. Other modern methods of family planning employed by the project include condom, no-scalpel vasectomy (NSV) and bilateral tubal ligation (BTL) and natural family planning (NFP) methods (e.g., the beads/standard days necklaces, lactation amenorrhea method, Ovulation/Billing's Ovulation, basal body temperature, and sympto-thermal methods).
- Increased male involvement in family planning awareness sessions and couples counseling, in order to promote male decision-making in reproductive health. More than 700 men have participated in the FP/RH education sessions over three years.
- Increased the number of vaccinations in remote populations of young, vulnerable children and pregnant women to about 1,700 vaccinated over three years.
- Trained more than 2,300 health workers, community agents and volunteers to promote PHE messages.
- Protected more than 1,720 hectares and developed 196 hectares of agroforestry farms in the Philippines and 3.6 hectares in Madagascar through reforestation and conservation efforts in conservation corridors and landscapes.
- Replanted more than 83,000 trees and plants as part of alternative livelihood income generation, reforestation, and agroforestry initiatives.
- Promoted improved rice production among more than 3,400 farmers in order to protect the environment, and improved the production of more than 520 hectares of land.



Malagasy children participate in PHE IEC and school nursery project

CREDIT: John Williams

⁵ Please note data for 2008 includes only the period January to June 2008.

- Monitored nutrition, and distributed Vitamin A to children and pregnant women in order to improve health and diet.
- Constructed more than 2,949 simple construction latrines and 2,825 waste pits in Madagascar, in response to community needs for improved environmental sanitation.
- Reached more than 35,000 people through more than 2,700 IEC events from 2005 to 2008.
- Increased female involvement in non-traditional natural resource management (NRM) activities, such as beekeeping, goat raising, fish ponds and other livelihoods activities.
- Worked with more than 25 partners in three countries and around the globe to demonstrate technical leadership and share our models, challenges and successes.



Population and Health Achievements

The goal of the projects was to engage communities living in and around biodiversity hotspots in activities that integrate biodiversity conservation with improved access to FP/RH services. The projects aimed to help local communities and policy-makers understand the relationship between having smaller and healthier families with an improved stewardship of natural resources.

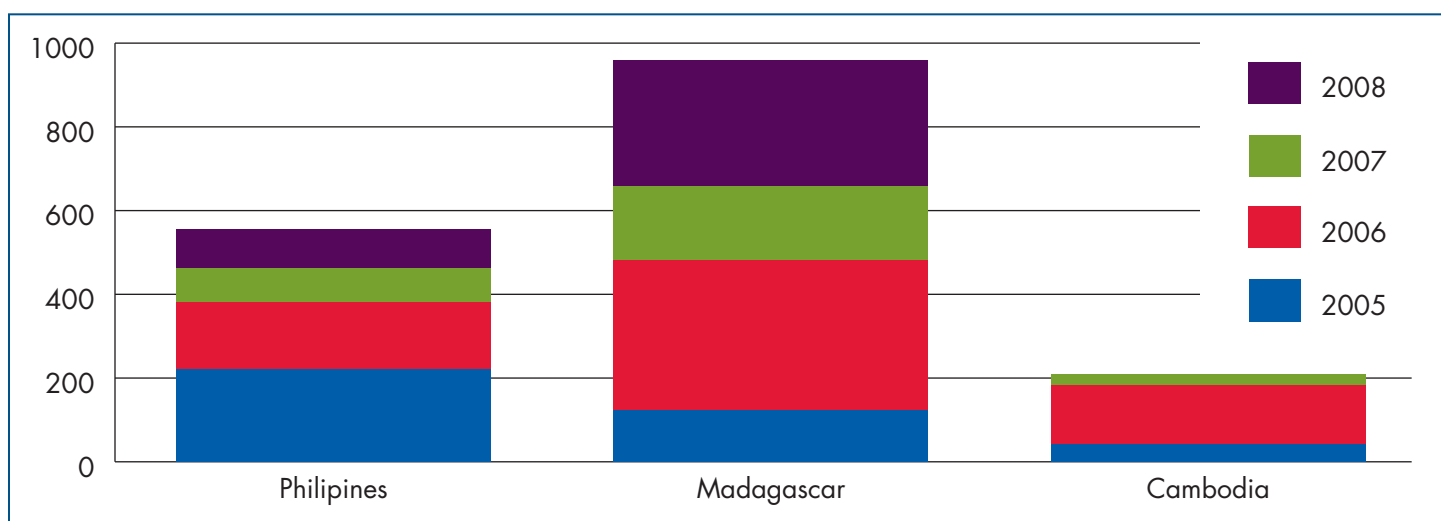
4.1 Delivery of Health Services to Vulnerable Populations

Our approach started with FP/RH activities and services outreach in order to reduce family size and improve overall family health outcomes, including maternal and

family is healthier, women are able to increase their participation in activities outside the home, such as natural resource management.

Throughout our three project sites, we worked with local authorities and health NGOs to bring health services and information to people living in some of the most remote parts of the planet. We used different models in order to increase access to health care in the different country programs, depending on the local and national health care framework. In Cambodia, we worked with CARE Cambodia to establish the first ever health post in the CCL, bringing needed services to populations who previously would have traveled several hours to reach care. In the Philippines we focused on

Figure 1. Increase in New FP/RH Users

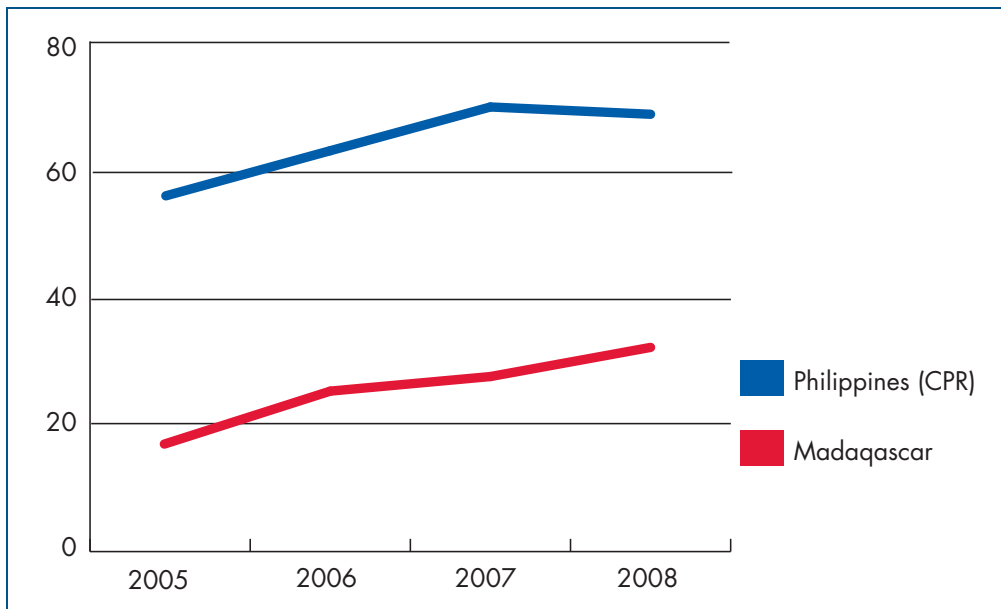


*No data available for 2008 for Cambodia

child health, safe deliveries, and vaccinations. If a family is healthy, less time is spent on pursuing medicines and treatment and more time is spent on income generation, education, and other quality of life improvements. This leads to more time available to pursue non-subsistence income generating activities, which can then contribute to the conservation of biodiversity. Additionally, if the

increasing the ability of local government agents, such as the BHWs and midwives, to provide services at the most basic community level. In Madagascar we worked through local NGOs who had a relationship with the local health centers, and we referred clients to the posts for services.

Figure 2. Increase in CPR



*Cambodia data was collected as CYP and is not comparable to CPR.

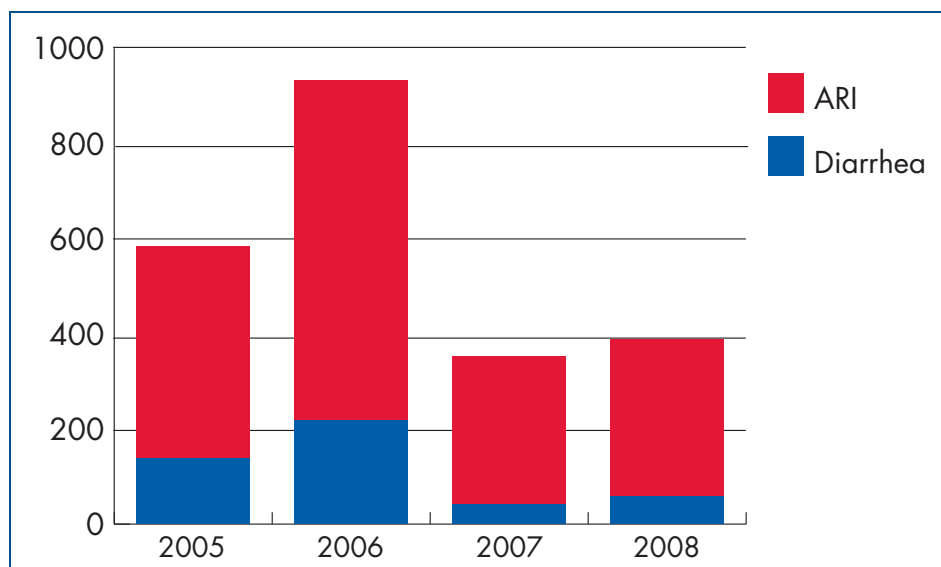
4.1.1 Highlight on Cambodia

In Cambodia, health care is frequently cited as among the top three community priorities – particularly in isolated areas (Rao 2008). In response to these needs, CI worked with CARE Cambodia in the remote Cardamom Mountains to operate a village health post staffed by doctors and nurses who performed basic health checks and provided medicines and information to almost 3,000 local residents. Before the PHE project began in 2004, residents had to travel on poor roads to clinics and hospitals located half a day’s drive away. The interventions focused on the promotion of voluntary birth spacing, ante- and post- natal care, the provision of outreach services, and an emergency referral system for pregnant women and infant children.

Additionally, we provided equipment to the health post (situated in Russei Chrum commune), strengthened the general management of the post, and increased the capacity of health workers. The training of health workers included one-on-one training in ante-natal care and safe delivery practices; obstetric referrals; post partum and newborn care; breastfeeding; immunization including management of vaccines and treatment of common diseases, including malaria and tuberculosis (TB).

The outreach team was comprised of health post staff, health officials from the provincial health department, and CARE staff. The team worked with CI staff to provide itinerant vaccination and health services in the surrounding villages, deep in the forest, usually a day’s trek on motorbike away from the health post. The health staff members delivered basic health information on topics such as nutrition, vaccinations, assisted births, birth spacing, emergency care, respiratory ailments, and waster-based issues of sanitation and hygiene. At the same time, the outreach workers promoted the importance of caring for the river, preserving the forest and keeping families healthy.

In our target populations, we successfully increased the use of FP/RH services. We measured the increase in Couple Years Protection (CYP), which rose significantly, from 25 in 2005 to 134 in 2008. This includes 209 FP new users. These services helped families better space the births of their children and improve the health of the children they currently have. They also helped reduce maternal and infant mortality. In doing so, we expect to see fertility rates decrease due to the reduced need to have extra children to guarantee support for oneself in older age.

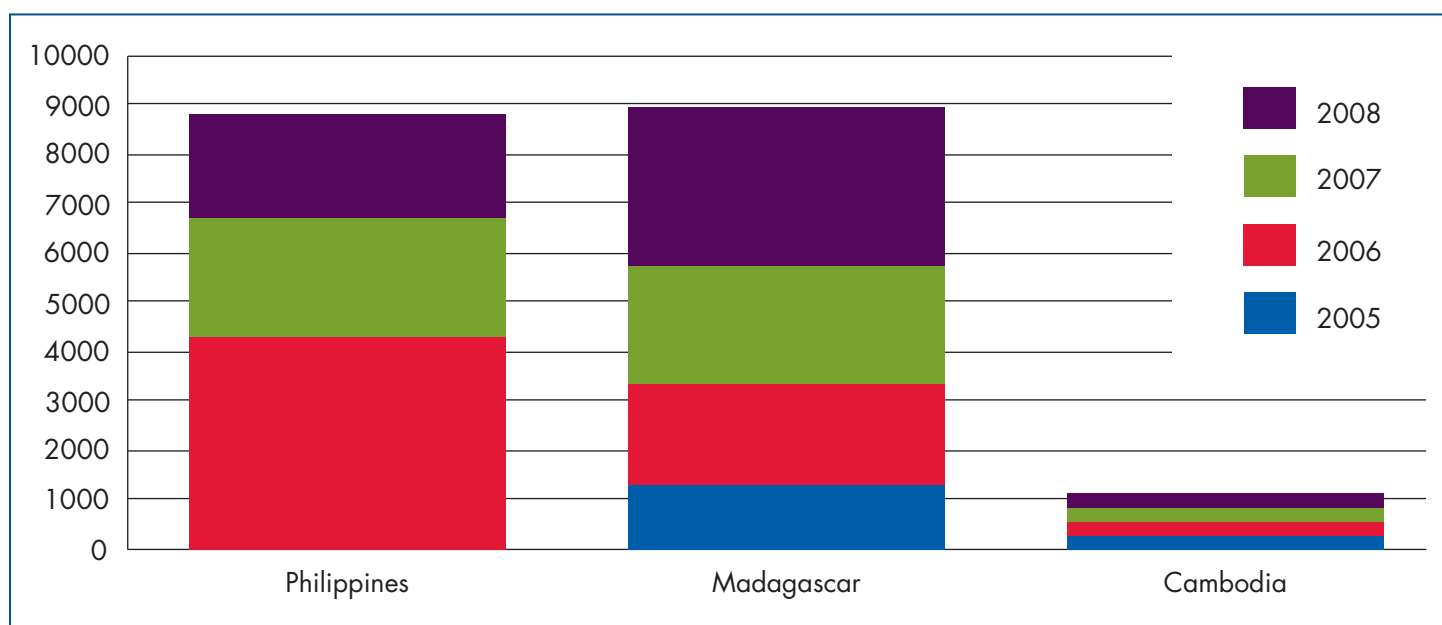
Figure 3. Number of Cases of Children Treated at the Cambodian Health Post

CI and partners also worked to increase child survival rates. Interventions included maternal and child care services, such as vaccinations among children under five, tetanus vaccinations for pregnant women aged 15-49, nutrition supplements, assisted deliveries, and other treatments for malaria and TB. In the past four years, we have helped to vaccinate over 1,150 children against potentially fatal childhood diseases.

CARE will continue to support the emergency referral system so that obstetric emergency cases and serious child illness can be treated in a timely manner at the

referral hospital in Koh Kong. In Cambodia, these cases often become life threatening and result in high levels of maternal and child mortality. An emergency referral system reduces this risk and reduces the possibility of household bankruptcy. This, in turn, reduces the local need for poaching high-value wildlife to pay for medical emergencies.

We also worked to promote knowledge and positive behavior change in regards to health and the environment; and increase communications about the links between health and conservation.

Figure 4. Increase in Vaccinations for Children under 5 and Pregnant Women

4.2 Reaching Remote Populations through Community-Based Distributors

One challenge in the delivery of FP/RH services in many of the remote, often upland, communities where we work is the lack of trained health workers and limited municipal government resources to deliver health services. To address this, CI and partners developed an initiative to establish a system of community-based distributor (CBD) centers for FP/RH services and commodities. The idea of the CBD Center was to bring the FP/RH supplies to the communities and make them more accessible to the users. The success of CBDs in health and development projects has been well documented.

4.2.1 Highlight on the Philippines

In all three countries, we used CBDs to ensure the improvement of access to FP/RH services and information. We have been particularly successful in the Philippines, where we worked with local government partners – such as BHWs, midwives, LGU-MHO staff, and Barangay Officials – to establish six CBD Centers in strategic areas within the project site. The centers are

commodities will be available at a reasonable price even after the project ends. CI and the LGU provided the initial stocks at the distribution centers.

Since 2005, CI Philippines increased the number of new FP/RH users by 307 clients, and the CBDs have sold more than 26,000 pesos worth of commodities. Based on the rural health workers monitoring records on the CBD operations, a total of 2,206 cycles of pills and 149 vials or shots of DMPA were sold to current users. The income generated from the sales from the CBD stocks was deposited into a rural bank (Banko Faire) in the municipality for safe keeping and was used to replenish contraceptives as CBD stocks run low. To sustain and increase the supply of CBD stocks provided by the project, the users and health workers agreed to add a minimal amount on top of the wholesale price from the medical suppliers.

While now very successful, the CBDs initially faced several challenges. For example, the selling price at the distribution centers was initially higher than in the local drugstore downtown and in the stocks (DMPA and contraceptive pill) from the municipal LGU. Once the donor funds and support ended, the stocks from LGU were depleted.

Table 2. CBD Outreach to New FP/RH Users in the Philippines

	2005	2006	2007	2008	TOTAL
# of users	55	96	63	93	307
Cycles of pills	288	885	605	428	2,206
DMPA shots or vials	12	35	15	87	149

being managed by the assigned midwives and selected trained BHWs. We also trained local agents to deliver supplies to clients in outlying areas. The positive performance of the CBD centers in the Philippines has been attributed to the efforts of rural health workers in following up and monitoring the FP users in their area.

As part of the CBD system in the Philippines we established a revolving fund, so that FP/RH users could purchase the commodities for a small price, and the funds continue to grow over time. This ensures that the

Given the successes and positive results of the CBDs in Baggao, the POPCOM Regional Office (Region 02) documented this scheme as a “best practice” in delivering FP commodities. The CBD Operational Guidelines, designed and refined by CI and partners to guide activity implementation, have been used as a model for other LGUs in the greater SMBC areas. The goal is to encourage them to replicate this approach to ensure a sustainable, accessible, and affordable supply of contraceptives in their area.

Biodiversity Achievements

CI defines its institutional conservation outcomes at three scales: species, areas and corridors. We build our conservation strategies and articulate conservation outcomes in terms of avoiding species extinctions, protecting key biodiversity areas, and consolidating biodiversity conservation corridors (CI 2004).

The PHE program builds on CI's biodiversity investments in our three target countries, and we leverage existing resources to help support the biodiversity conservation strategies, such as alternative livelihoods and NRM training, as well as the conservation outcomes we have achieved. Over the course of the PHE project, we have leveraged significant resources from foundations and private individuals and groups, as well as bilateral development agencies and multilateral institutions.

The PHE program supported the achievement of these outcomes by building the capacity of target communities to effectively manage biodiversity resources, based on an overall assessment of the state of and pressures on biodiversity in our project sites. Building local capacity allowed us to promote compatible land and resource use in the critically endangered conservation corridors where we were working. This type of project, that creates an enabling environment, builds the social foundation to make conservation possible. While we may not target a specific species, we work in protected areas and corridors in our target sites in order to help create and support the conditions necessary to achieve conservation goals. In this manner, we supported CI's efforts to improve local knowledge and capacities for environmental stewardship and wise development, in order to provide win-win opportunities that enabled local stakeholders to protect their own interests and those of the global community (CI 2004).

The PHE program worked at a scale that included areas within and around conservation corridors and protected areas. While a corridor can refer to a narrow strip of vegetation linking larger blocks of native habitat, we employ the term to refer to broader landscape that is comprised of a mosaic of land uses. An advantage of working at this scale is the ability to plan at a larger scale and therefore address biodiversity loss proactively. Working at a scale that includes protected areas is also important as these areas help maintain ecosystem functioning; support livelihoods and indigenous cultures that are based on natural resources; and help mitigate potential effects of large scale changes in an ecosystem or region, such as flooding. Protecting these ecosystem services is important as the maintenance of environmental goods and services underpins all aspects of human health and wellbeing (WHO & UNEP 2008).

Under the PHE program, our specific contributions to biodiversity conservation include:

- Protected more than 1,620 hectares in the Philippines and developed more than 196 hectares of agroforestry farms, as well as 3.67 hectares in Madagascar through agroforestry, reforestation and conservation efforts in conservation corridors and landscapes.
- Replanted more than 83,000 trees and plants as part of alternative livelihood income generation, reforestation, and agroforestry initiatives.
- Promoted improved rice production among more than 3,400 farmers in order to protect the environment and more than 520 hectares under improved production.

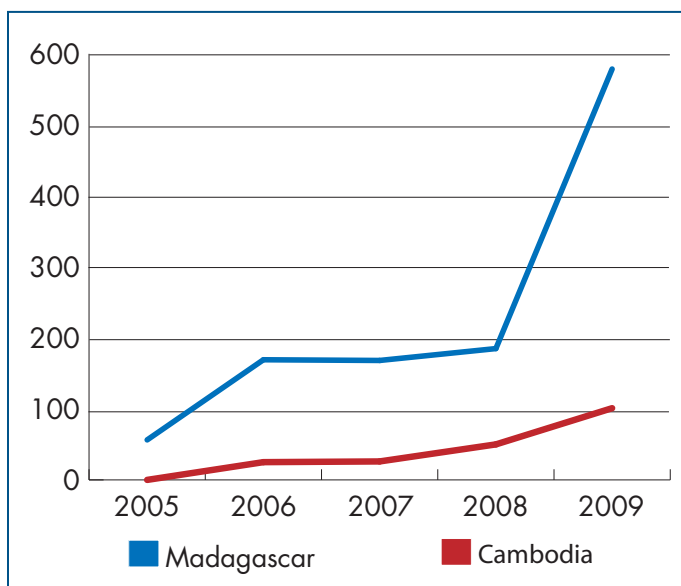
Two activities which illustrate our contribution to efforts to protect biodiversity are: community planning for conservation and promoting livelihoods that benefit health and biodiversity.

5.1 Planning for Community-Based Conservation

One of the biggest threats to biodiversity is the unsustainable use of natural resources. In order to address this threat, CI's PHE projects aimed to create the capacity for community-based decision-making and planning for sustainable resource use. All of our PHE projects involved community planning for health and conservation in a consensus-based manner. We worked with partners to build more than 50 community plans that designated conservation areas and management zones, through a transparent, participatory system.

Each community-based planning process has a different name, depending on the national and cultural context. In Cambodia, the government's decentralization arm, SEILA, promoted a nation-wide community-based planning process called Participatory Land Use Planning (PLUP). In the Philippines, where a highly decentralized system of governance has devolved power to the LGUs at the local level, we worked on municipal Comprehensive Land Use Plans (CLUP). Finally, in Madagascar, where decentralization of local government power is emerging, a plethora of community-based groups were working on community action plans for development and conservation. The goal in all of these processes, regardless of the name, was to create community ownership and buy-in so that the communities would enforce decisions.

Figure 5. Hectares under Improved Rice Production



*No rice production activity in the Philippines

5.1.1 Defining Conservation Areas in the Cardamoms

CI Cambodia implemented community development and land use planning activities to mitigate the migration-driven expansion of the subsistence farming population through PLUP. PLUP provided a framework and new opportunities to: improve land use practices, both agricultural and nontimber forest product based, for increased productivity and reduced environmental impact; build local capacity to manage natural resources; and undertake development activities that are in support of conservation efforts. CI used innovative approaches to engage communities in the PLUP process, in order for them to own the results and better conserve the CCL's critical biodiversity resources.

In addition, PLUP laid the foundation for alternative livelihood interventions through its integration with current Government Development Planning methodologies. They created an enabling social and institutional environment for community-based conservation and livelihood activities within the PHE target area through:

- community mapping processes, which contributed rules and regulations for the management of commune natural resources;
- the development of community-based institutions, in the form of commune natural resource management committees (CNRMC's); and
- the development of cross-sectoral ties between community-based, district and provincial institutional authorities.

The process of community mapping was particularly important to the program because villagers, CI staff, and local authorities worked together to map use areas and establish rules and regulations for the use of these locations. The resulting maps and use rules provided a foundation for the creation of other activities. For example, by designating certain locations as rice growing zones, CI determined the locations where it could support livelihood activities. This formalization of rights and responsibilities also transformed commune areas from a mixture of different property rights (open, private, state and community) into a more clearly defined and defensible property right regime. In turn, the process of mapping itself, including the formation of CNRMCs to coordinate the process at the village level, helped to foster social capital

among the key actor agencies (in the form of network ties and trust). This combination of factors made community mapping a central element in the PHE program, through both its physical and process outputs (McCallum & Seng 2006).

Over the past five years, CI worked with the five main communities in the CCPF to develop a set of clearly defined maps and boundaries for conservation areas and development zones. Five plans were developed and are in various stages of being approved. The maps were widely viewed by the community, and both the Forestry Administration (FA) and community patrols were enforcing the agreed upon areas. While this process worked well in some communes, CI did encounter challenges, such as resistance from community leaders and delays due to rainy seasons.

Based on our successes with the PLUP process, other conservation approaches built on the planning frameworks to yield impressive conservation gains. One example of a leveraged conservation activity was the conservation stewardship initiative, which encouraged communities to conserve specific biodiversity targets through the use of community agreements that were tied to concrete community participation and benefits (See Box 1).

5.1.2 Securing Indigenous People's Rights in the Philippines

In many biodiversity areas in developing countries, community residents have limited or no property rights or control over use of lands. Throughout the past six years, CI staff in the SMBC worked to build the capacity of the local stakeholders and law enforcement activities of the DENR. They worked in collaboration with three Community-based Forest Management People's Organizations (CBFM POs), the indigenous Agta people, and the LGU. Together with the NCIP, these PHE partners facilitated the conversion of the Agta's CADC to a title (CADT) in Baggao, approved by the NCIP. Members of the Special Provincial Task Force, composed of NCIP, DENR, LGU-Baggao, CI and local NGO PROCESS-Luzon, provided technical assistance and some logistical support for the realization of the Ancestral Domain Sustainable Development and Protection Plan (ADS DPP), which is the basis for managing, developing, and protecting the area.

Working with the indigenous peoples to secure their rights was part of CI's broader conservation approach. It included efforts to include community-based forest

Box 1. Leveraging Conservation Initiatives

CI's Conservation Stewards Program (CSP) worked with communities to negotiate agreements in which resource owners commit to protecting specific habitats or species, in exchange for a steady stream of benefits. These agreements recognize that conservation of biodiversity must be economically viable and attractive to resource owners and users. CSP collaborated with partners around the world to create and manage these agreements with the explicit goal of conservation.

In Cambodia, CSP provided the framework and financial support for livelihood initiatives in the Thma Bang district since 2006. CSP entered into conservation agreements with the Tatai Leu and Russei Chrum communes (to protect forest areas), and Prolay commune (to stop wildlife hunting and protect forest). Existing agreements with the Chumnoab (to protect crocodiles, their habitat and surrounding forests) and Thma Doun Pov (to protect dragon fish and forest), were re-negotiated in 2008. In the case of the Chumnoab commune, the amount of support provided to the commune was actually reduced in light of some infractions during the agreement period. Enforcing this reduction was important as it demonstrated to villagers the power of the agreements – that violations will incur a cost to their communes in the form of the reduction of benefits.

In terms of key reporting indicators, the coverage of forest that was protected through these conservation agreements was 25,000 hectares, with two key biodiversity species protected (Siamese crocodiles and dragon fish). Numerous other forest species including pangolin, guar, serow, mutjab and elephant were also protected by the agreement that prohibits wildlife trade in the Prolay commune (Prolay lies at the nexus of illegal wildlife trade in the western portion of the Central Cardamoms).

management plans to be integrated to the municipal CLUP. CI and partners facilitated the formation and implementation of integrated land use and conservation zoning plans. These plans included areas for tourism, agroforestry, and sustainable use. In addition, they included strict conservation areas within the six target barangays through the CLUP. Such integration helped guide the LGU and communities in more effectively managing their resources, and planning for conservation and development over the long term.

5.1.3 Community Mobilization for Conservation and Development in Madagascar

Throughout our work in Madagascar, we have focused on the importance of building local capacity to design and implement successful, lasting PHE interventions. First, we have worked with ASOS and MATEZA to help lay the groundwork for broad-based community understanding and awareness of the links between population, health and the environment. Then we facilitated community mobilization around biodiversity conservation—an area around which it is often difficult to mobilize communities because they fear the potential loss of their traditions and livelihoods. Our community mobilization took many forms, from participatory rapid appraisals of development and conservation needs in some areas, to community engagement approaches such as “Champion Communities.”⁶ All of these approaches relied on strong community buy-in and empowerment.

The champion community approach achieved widespread recognition in Madagascar, and our partner Voahary Salama played a key role in promoting, testing and refining this model over the past few years. Using this approach, CI and partners worked with communities to identify and set basic development goals, such as increased vaccination rates, understanding of FP or reduced slash-and-burn agricultural practices. Community members worked together through a transparent, consensus-based process to: determine existing community needs, agree on realistic targets within a certain time frame, implement achievable activities given limited resources, measure progress in an open and participatory way, and celebrate successful results achieved.

Using this approach, we found significant results in raising vaccination rates, monitoring childhood nutritional status, implementing alternative livelihoods

such as fish ponds, establishing fruit tree nurseries, and planting vegetable gardens. These efforts have helped us create synergies which increase the impact of interventions in health and conservation sectors, helping to break the “vicious cycle” of poverty and food insecurity which contributes to environmental degradation. We have found that these approaches have helped to increase women’s participation in agriculture, economic development and natural resource management, as well as increase men’s participation in health and social development initiatives—thereby helping break down traditional gender roles and ensuring more equitable access to community services.

Making effective use of limited financial and human resources for community development initiatives, we have promoted community planning of more comprehensive development interventions than are possible through vertical programming. Over the life of the project, we worked with more than 60 community based groups or associations to become legally-recognized institutions, and we have fostered the development and implementation of 40 community management plans that include conservation, health and development goals.

5.1.4 Population and Conservation Planning in the Philippines

CI and partners also worked to build the capacity for planning from a demographic perspective, through the Participatory Demographic Appraisal Techniques for Environmental Management Workshop. Although the Philippines has abundant natural resources in both coastal and upland areas, these resources are threatened by a number of factors, including population pressures and poverty. The population of many communities is growing rapidly as a consequence of a young age structure, the arrival of migrants from other areas, and high fertility. Even if fertility were to decline, populations are projected to grow rapidly for several decades. Planning can help local communities to better cope with the expected population growth, maintain the economic viability of local resources, promote stability, and enhance community health and well being.

PRB, together with CI and other local partners, built the capacity among Filipino project managers to develop tools to better understand and manage the effects of a changing human population on the local

⁶Subsequently, this approach has been scaled up to Champion Communes.

5.2 Livelihoods Benefiting Health and Biodiversity

Many of the world's poorest communities depend on natural resources for their basic needs and their livelihood. To reduce these pressures on biodiversity, CI and partners implemented different strategies to alleviate poverty by integrating alternative livelihood options into our PHE programs. This approach aimed to prevent environmentally destructive practices, such as slash-and-burn agriculture, and to foster more conservation-friendly income generating activities (CI 2005b). Two of our approaches that illustrate these livelihood activities focused on agroforestry (in the Philippines and Madagascar), and improved rice cultivation (in Cambodia and Madagascar).

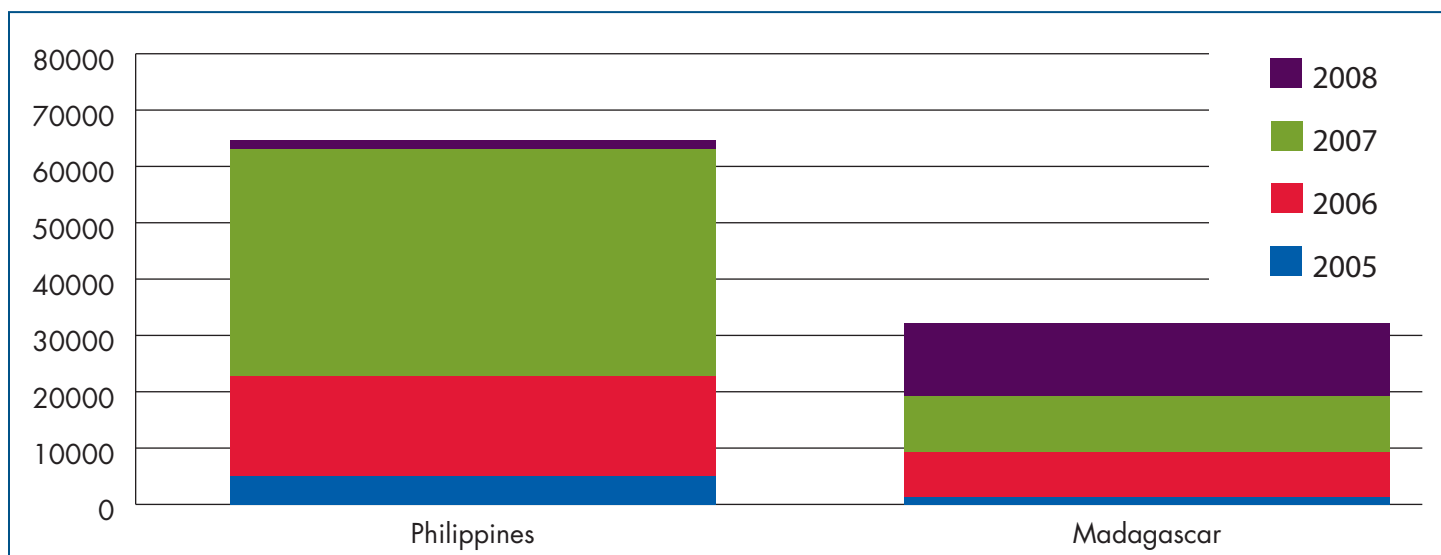


CREDIT: CI/Marcelino Varnes, Jr.

CI Philippines PE project delivered goats to indigent families in Baggao as supplemental livelihood activities

Empowering local communities and officials with powerful tools for conservation planning is essential to ensure biodiversity conservation benefits local stakeholders. Without these consensus-driven planning frameworks, communities are powerless against external pressures and influences who may want to exploit resources unsustainably. Given the process of vetting and debating land use practices and zoning, the communities are better able to protect their interests in the long term.

Figure 6. Number of New Plantings in Reforestation Activities



*No data available for Cambodia

5.2.1 Agroforestry

In the Philippines and Madagascar, farmers have increasingly realized the potential multiple benefits derived from agroforestry: food, income, fuelwood, prevention of soil erosion, soil and water conservation, and micro-climate enhancement. In these countries, we promoted crop diversification through appropriate agroforestry techniques. We also helped communities to develop 196 hectares in the Philippines and 3.6 hectares in Madagascar in agroforestry, replanting more than 20 varieties of fruit trees. Often these agroforestry activities grew out of community planning processes described in the previous section.

In the Philippines, many communities were interested in reforestation or tree planting activities – inquiries into these activities were often raised in monthly assemblies and school symposia. Baggao is currently experiencing the effects of global warming and climate change. In response, the newly-elected municipal chief executive Mayor Rolando T. Uanang (a forester by profession) designated a Municipal Environment and Natural Resources Officer. This is a great opportunity to strengthen the partnership between the LGU and the local DENR office and CI– which will help them pursue the government’s Green Philippines Program, a priority of President Gloria Macapagal-Arroyo.

In addition to agroforestry, CI and partners organized a goat rearing activity as part of the supplemental livelihood project for the community. To assist the community with augmenting their income, CI provided 30 indigent upland families with 30 native female goats (does) and six male goats (bucks) to rear and sell. A Memorandum of Agreement (MOA) was signed by



Philippines PE Project agroforestry farm in Barangay. Sta. Margarita, planted with mango inter-cropped with food crops such as beans and banana

the farmer beneficiaries, Barangay Councils and CI to ensure that the project will benefit other farmers in the future.

In Madagascar, CI and partners helped communities implement a diverse range of alternative livelihoods projects and agroforestry activities, in response to local needs. Over the life of the project, ASOS helped to plant fruit trees, in order to reforest degraded areas and to generate income as part of a diversified livelihood strategy. MATEZA worked with Women’s Nutritional Groups to demonstrate the benefits of vegetable market gardening, providing vegetables for family nutrition and sale. Both groups also worked with communities to construct and maintain fish ponds for protein consumption and sale, as well as small-scale bee keeping operations.

5.2.2 Improved Rice Production

CI worked with farmers in Cambodia and Madagascar to improve their food security through improved rice cultivation techniques. Improving food security will help to reduce the threat of slash-and-burn agriculture, and therefore reduce the threat to the surrounding forests.

In Cambodia, CI partnered with CEDAC, a nonprofit research and development NGO specializing in the fields of ecological agriculture and rural development. The center was established in 1997 in an attempt to improve the well being of small farmers by empowering them to decide their own fate. CEDAC helped support communities in the CCL with agricultural training that allows farmers to adopt alternative practices and form cooperatives through a participatory process. For example, CEDAC worked in two communes in the Thma Bang District to introduce the System of Rice Intensification (SRI) to villagers and stakeholders in the commune. As a result, more than 100 hectares were under improved rice cultivation.

In Madagascar, ASOS and MATEZA helped communities develop alternative farming practices that emphasized new agricultural technologies. For example, communities adopted soil conservation practices and now use natural fertilizers and low-impact tilling. These activities promoted sustainable production in existing agricultural areas—helping communities meet their needs without burning and clearing additional land. As a result, more than 3,100 farmers adopted new practices and increased rice yields on 520 hectares.

CREDIT: CI/Marcelino Viernes, Jr.

Proven Integrated Approaches

Throughout our work on the ground, we have aimed to empower the people living on the frontlines of biodiversity to meet their basic human needs for food, shelter and health, in tandem with sustainable environmental practices. We worked to build capacity at grassroots levels, and decision-making capacity at national levels. During the past three years, we have learned the value of building capacity in local stewards who will carry on PHE efforts in the future. We have used five successful approaches which integrate FP/RH, basic health care and environmental protection with the common goal of improving human health and conservation. These five approaches are:

- Fostering community agents of change
- Delivering integrated IEC messages
- Protecting water resources through hygiene and sanitation infrastructure
- Improving food security and nutrition
- Strengthening multi-sectoral partnerships

Due to the single-sector structure of funding and government in many developing countries, many field level initiatives have one goal, such as to increase family planning access or increase the number of children vaccinated in a given period. These initiatives have achieved many concrete achievements in the past, but we believe that integrating multiple objectives can be more effective. As people live their lives in an integrated manner, we believe that an integrated approach can best meet their basic needs. Integrated health and conservation interventions acknowledge the interdependencies that exist between nature and the human world, such as the need for clean drinking water for human health and environmental processes (Gaffikin 2007).

Integrated projects, such as PHE projects, also provide an added value in comparison to single sector projects. In some cases, there is greater involvement of females in traditionally male dominated activities, such as natural forest management. Similarly, these projects have increased male participation in family planning activities.

We found several additional advantages in working in an integrated approach:

- **Synergy.** Diverse NGOs often come together to form coalitions that create synergies that improve the quality and increase the impact of development interventions.
- **Unifying themes.** Water and other natural resources can serve as a “unifying theme” to garner community support for initiatives through an ecosystem and watershed management approach.
- **Capacity building.** The capacity of government offices are strengthened at multiple levels – which then supports multi-sectoral approaches, such as Champion Commune approach.
- **Creation of goodwill.** Goodwill is created for conservation, which encourages community engagement in and support of conservation activities.

This section describes some tools of integration that we have implemented in the course of our PHE efforts.

6.1 Fostering Community Agents of Change

Over the past five years, CI has engaged local communities – the most powerful constituencies in our mission – to help build their conservation capacity. We have increased our involvement with partnerships and built strategic alliances in order to achieve efficiencies

in conservation. CI's PHE program includes a diverse set of NGO partners, ranging from large, internationally recognized NGOs such as CARE International in Cambodia, to smaller, more grassroots NGOs, such as MATEZA and ASOS in Madagascar, PROCESS Luzon in the Philippines, and Association of Buddhists for the Environment (ABE) in Cambodia. The trusting relationships we built with these organizations helped further our mission while strengthening their capacity to meet their own organizational goals. In forging these working relationships, CI learned from them and refined its understanding and expertise in working with diverse stakeholders as we tried to establish common objectives to achieve PHE goals.

We worked with these NGOs to build the capacity of the communities in an effort to have a more sustainable impact on health and conservation. We targeted community leaders in order to train them in a range of PHE interventions – such as health services, awareness raising campaigns in environmental education, improved community-based forestry, improved sustainable agricultural techniques, and conservation and development planning. These leaders become agents of change who are empowered to voice their needs and the needs of their communities.

In Madagascar, our two local NGO partners, ASOS and MATEZA, trained field agents across the biological corridor to be the champions of PHE by becoming experts on a range of health and conservation topics, such as vaccinations, family planning, vegetable gardening,

reforestation, and improved rice production. These men and women were recognized leaders in the community, and they represented the frontline in protecting and caring for their ecosystems.

In the Philippines, CI worked with local government agencies and NGOs to build a trained group of local health workers known as barangay health workers (BHWs). They served as health care providers in the community and also as trainers and educators for environmental protection. This was an effective approach as the local governments are empowered with more authority and budget making capacity than in many other countries. The BHWs participate in a range of PHE outreach activities, such as educational campaigns in schools and youth groups, FP/RH counseling and responsible parenting sessions for married couples, and community based natural resource trainings. In fact, the BHWs and local midwives demonstrated their commitment to the environment by reporting to local law enforcement officials incidences of timber poaching, slash-and-burn agriculture, and illegal logging activities, proving that they are committed environmental stewards as well as health workers.

6.2 Delivering Integrated IEC Messages

In all our PHE work, we implemented informal education campaigns to increase community knowledge of the links between healthy behaviors and healthy ecosystems. We reached out to a diverse set of target audiences, such as youth, local schools, women's associations, and other community-based organizations. We developed, produced, and disseminated locally-generated IEC materials, generally in local languages, focusing on the links between biodiversity conservation, FP/RH, and natural resource management.

In each country we tailored our IEC according to the local context, while tying the conservation message back to the local conservation corridor. We experimented with different methods and used monitoring and evaluation tools to determine the effectiveness of our messages. We adapted our methods to changing conditions and involved stakeholders in the design and implementation of materials.

Figure 7. People Trained to Promote PHE

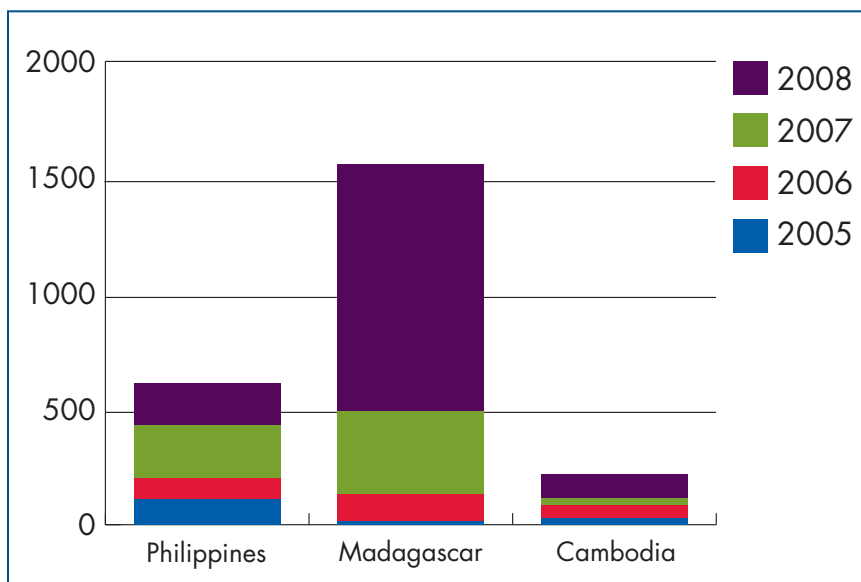
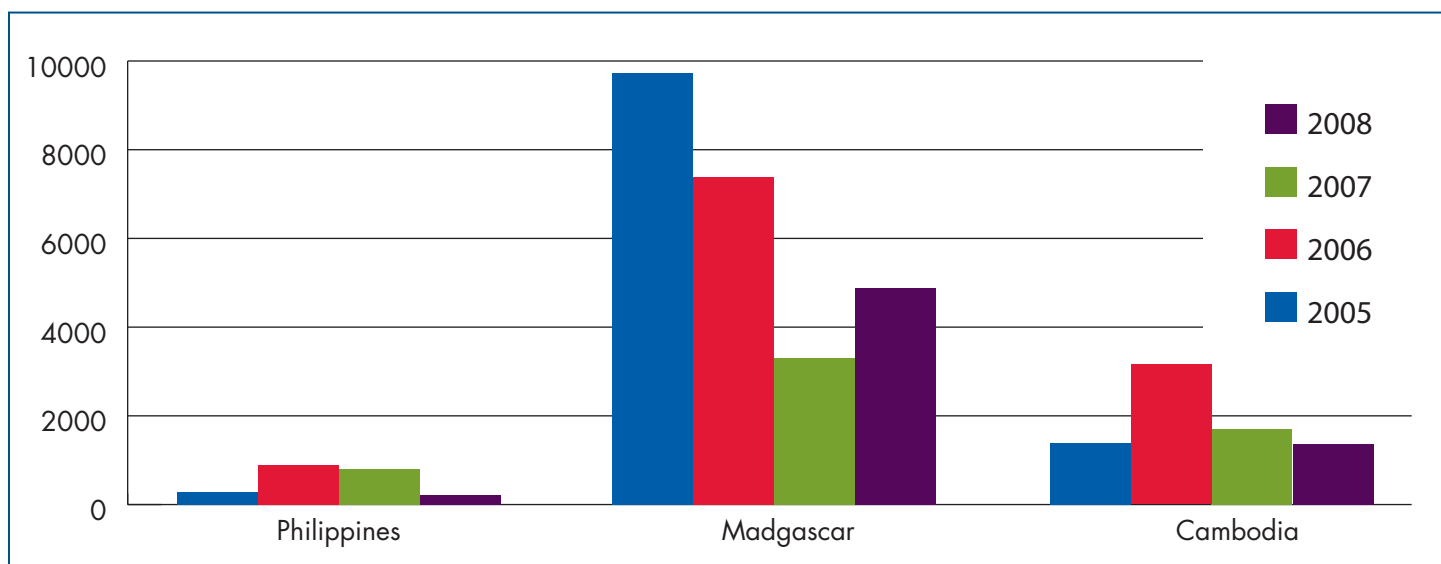


Figure 8. Number of People Reached with IEC Messages

6.2.1 Philippines

In the Philippines, CI and partners used a range of IEC methods, approaches and tools to deliver messages and encourage behavior change among the communities in our target sites. Our IEC outreach messages reinforced the on-the-ground activities we conducted with partners. Our messages were delivered via outreach groups, radio spots, campaigns, film festivals, photo essay competitions, skits and theater groups, and materials such as T-shirts. Highlights included:

- *Dalaw Turo* – an IEC team composed of community leaders, women’s groups, and youth groups – conducted outreach and education through skits to reinforce PHE messages. Over the past three years, they have reached more than 2,171 community residents in the project site.
- The health workers who are members of the *Dalaw Turo* team also conducted awareness programs during the family planning month celebration and the couples’ classes.
- The PHE project produced and distributed IEC materials such as fliers, posters, and stickers during community assembly meetings. CI printed 180 T-shirts depicting FP/RH and environment scenarios, which were given to the PHE promoters and clients during the BTL and NSV medical missions.

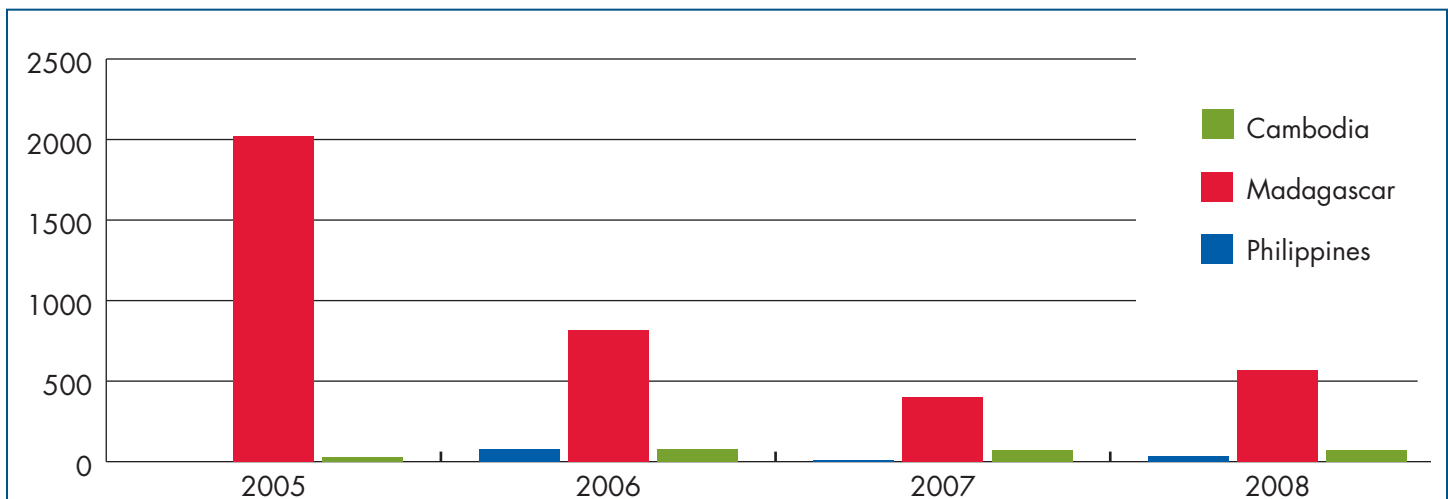
- CI collaborated with local governments, universities, DENR, and municipal officials to conduct special seminars on environmental education. More than 250 males attended a session entitled Men as Partners in Maternal Health at the World Population Day (July 30, 2007).
- Utilizing another communication medium, the project also regularly discussed relevant PHE issues during the weekly “Conservation on Line Program” with a local cable TV network (RBC Channel) in Tuguegarao City.

6.2.2 Madagascar

ASOS and MATEZA employed a variety of IEC approaches in their grassroots activities across the conservation corridor. Their IEC approaches included:

- Theater groups featuring marionettes and folklore specialists who delivered community-based education. The presentations covered a range of PHE topics such as FP/RH, health promotion for women and children (including vaccinations, family planning, health care at home in the case of malaria, diarrhea and other diseases), environmental conservation (reforestation, management of forest fires), and basic hygiene (using latrines and waste pits).
- Home visits and informal education sessions focusing on the above topics.

Figure 9. Number of IEC Outreach Trainings



*No data available for 2005 in the Philippines

6.2.3 Cambodia

CI and partners implemented a diverse IEC program throughout the past four years. In collaboration with CARE Cambodia and ABE, we produced a 24-minute film on the CCL called, *The Cardamoms: "Have Forest, Have Life."* The film was a collaborative effort between Flora and Fauna International, CI, Wildlife Alliance (formerly WildAid), the Ministry of the Environment, and the Ministry of Agriculture, Forestry and Fisheries. The film aimed to educate people who live in and around the Cardamoms forest about the importance of the Cardamoms to their livelihoods and well being, to demonstrate the link between smaller families and the well being of the local environment, and to highlight the current projects that promote local livelihoods and conservation in the Cardamoms. The film was shown in the remote communes as part of the health center outreach activities. Often quizzes were given on the film; residents who participated could win t-shirts. The film was completed in June 2006 – since that time it has been shown to more than 2,000 people.

In addition, CARE created the Youth Information Center in Thma Bang to provide health information and PHE materials that explain the links between health and conservation to youth living in the area. More than 100 youth have participated in play groups and discussions at the center.

As a result of the continuing community awareness campaigns involving the different sectors (youth, schools, POs, rural health workers, local leaders, and

women), community residents became more receptive to the PHE program, as evident by the increasing number of couples engaged in family planning (both permanent and temporary methods). It was also evident in the observed project impacts in NRM, including: the reduction of families engaged in slash-and-burn farming within the natural forest; active community participation in tree planting and agroforestry activities; and the improved attitude of the local people in reporting illegal activities in their areas.

Box 2. Religion and Conservation

In June 2007, CI began working with the Association for Buddhists for the Environment (ABE) to strengthen Buddhist efforts to protect the environment. The main goal of ABE is to promote a cleaner and healthier environment in order to conserve natural resources. Buddhism reinforces CI's conservation goals – natural harmony, balance and environment are key concepts of the religion. This is important as there is a pagoda in every Cambodian village. CI and ABE worked in the communes in the CCPF to train monks as environmental educators and to increase community education efforts. These outreach activities included tree ordination ceremonies, peace walks, teachings on 'greening the pagoda', tree planting ceremonies, and other environmental education and improvement projects. The project staff reported that the communities seemed more open to CI's messages and willing to participate in conservation efforts since the ABE activities began.

6.3 Protecting Water Resources through Hygiene and Sanitation Infrastructure

Water is not just an environmental issue – it is linked to every aspect of life, such as health, nutrition, livelihoods, security, and gender. Since 2007, freshwater conservation has been an institutional priority for CI. We recognize that freshwater is a vital resource for human livelihood and survival – it must be readily available, clean, and suitable for multiple purposes, such as agricultural irrigation and human consumption (CI 2007). Water is a unifying theme for stakeholders; individuals from different sectors and different levels recognize its relationship to human health and the environment, as well as the need for coordinated local action to manage it (Gaffikin 2007).

One way that CI and partners worked to protect the freshwater resources in our PHE project sites was through improvements in environmental health conditions, such as sanitation and waste disposal. According to WHO, approximately 94 percent of 1.8 million annual deaths that are caused by diarrheal diseases can be attributed to environmental causes, such as unsafe drinking water and inadequate sanitation (WHO & UNEP 2008). In Madagascar, communities voiced needs for improved hygiene and sanitation in order to protect their health and the health of the local watersheds. Since 2005, CI and partners ASOS and MATEZA have helped families construct more than 2,900 latrines and 2,800 waste pits in more than 30 rural communities. Latrines were designed and built using a very simple model that did not depend on key resources of the forest but rather used resources that the villages already had available and used for handicrafts or other purposes. In addition, this activity included an education component which linked the outreach and education messages being delivered at the village level with improvements in environmental health, such as improved sanitation and waste disposal. These improvements helped to reduce drinking water contamination and improve hygiene behavior, thereby reducing the potential spread of water borne illnesses such as diarrhea.

CI also worked in reforestation and soil conservation activities in order to conserve water. We replanted trees, including new varieties and seeds to restore ecosystems, and fruit trees to help to supplement family diets. In

2007, CI worked with local communities to protect 25,952 hectares of forest in the Philippines and Cambodia.

6.4 Improving Food Security and Nutrition

Achieving food security is particularly important in developing countries such as Madagascar where malnutrition, in the form of stunting, affects nearly 50 percent of all children under five in remote, rural communities (Voahary Salama 2001).

In order to help meet basic food and nutritional requirements in poor communities, CI and partners worked with community members to link agricultural practices with community health. We worked to improve the nutrition of women and children by planting vegetables, beans and other crops to improve the nutrition of the local population. These alternatives helped to improve soil fertility and protect against deforestation by locating agricultural production closer to communities rather than in the forest. While it may be easy to mobilize a community around improving access to safe drinking water, it is much more challenging to convince them to change their traditional agricultural methods that are a threat to natural resources. Our experience has shown, however, that once communities understand the links between improved livelihoods, improved health and environmental conservation, it is easier for them to make choices that allow them to contribute to all three goals.

In both Cambodia and Madagascar, CI worked with partners to conduct participatory analyses of the agricultural production systems, and solicited local input on the initiatives to improve local food production through environmentally sustainable practices. In Cambodia, a government agency helped plow fallow lands and worked with farmers to introduce innovative improved rice production techniques, which showed positive yields.

Since 2005, Madagascar, MATEZA has worked with 11 Women's Nutritional Groups (EFEN groups) to

implement green gardens, improve understanding of the importance of diversified diets and highlight the role of protein and vegetables in nutrition (particularly for children). Since 2007, the number of EFEN groups has doubled, demonstrating the critical need in the communities for improved food security. We also helped farmers to increase the amount of land devoted to improved cultivation practices – totaling more than 400 hectares in three years.

6.5 Strengthening Multi-sectoral Partnerships

It is generally agreed that there is no perfect model or intervention package for PHE projects – which intervention is appropriate depends on local needs, site conditions and environmental threats. The table below summarizes some of the perceived advantages and disadvantages to CI of different PHE operational models that we use.

Table 3. Relative Advantages & Disadvantages of PHE Operational Models

	<i>CI and large NGO partners</i>	<i>CI and smaller, national NGO partners</i>
<i>Advantages</i>	<ul style="list-style-type: none"> • May bring resources and experienced staff even if low budget collaboration • Draw on resources of other parts of organization and network • Systems in place for technical and financial reporting • Have name recognition, which can make it easier to approach community members • May have more sophisticated communications 	<ul style="list-style-type: none"> • Closer to the ground • Know the area they are working in (if grass-roots organization) • May be more innovative and less constrained by institutional structures • Know how to work effectively in remote areas
<i>Disadvantages</i>	<ul style="list-style-type: none"> • Health groups may see environment as mission drift 	<ul style="list-style-type: none"> • Thin margin of resources • Hard to fundraise given small size • May need capacity building • May not have very sophisticated systems in place (financial, administrative, M&E)

Challenges

In our work we have confronted a number of challenges to achieving our health and conservation objectives in a timely and effective manner. These challenges have provided us with insights and lessons learned. Some of the challenges we faced were:

- Logistical difficulties working in very remote areas with limited electricity. For example, we had trouble keeping immunizations cold (cold chain) to ensure their effectiveness. At times, we also experienced gas shortages which prevented us from reaching the most remote areas.
- Communication difficulties, such as delays in partner technical and financial reporting, which resulted in delays in disbursements.
- Lack of face-to-face meetings in the partnerships. These are important to facilitate relationship building and honest discussions of project objectives.
- Inadequate organizational capabilities to meet these anticipated objectives.
- Lack of community awareness and support for changing the dynamics of the existing relationships in the gender equity in health and conservation initiatives.
- Lack of clear interest and awareness of the potential benefits of partnerships by private sector partners.



Women and children tend to rice paddy in Madagascar

Opportunities for Future PHE Efforts

As we conclude our USAID-funded PHE field efforts, we recognize the importance and challenge of moving forward the PHE agenda. At the most local levels, we have built the tools and capacities for these efforts to go on.

At the same time, we recognize the need to scale up our projects and programs. Scaling up is a term that means different things to different people. According to literature, one can think in terms of four dimensions to scale up a project or intervention: time, space, breadth, and depth (Gaffikin 2007). For the most part, we talk about expanding our approaches in terms of geography and breadth, as we progress from site level projects to regional, national level policy and advocacy efforts.

For CI and our partners, we intend to pursue three strategies to continue our work in the global PHE community:

1. Increase efforts to “make the case” for PHE, increasing documentation of and advocacy for PHE project results and experiences.

During the last two to three years, many NGOs have demonstrated impressive technical leadership by producing a diverse range of PHE products, such as tools, publications, videos, policy briefs and literature – all of which help us spread our messages to new audiences and veteran practitioners. This has highlighted the role of PHE in international development circles, and spread the word about the approach. PRB and the Wilson Center continue to work with policymakers in the US and internationally to promote PHE. MEASURE Evaluation has helped draw together a menu of indicators, which can be used to monitor and evaluate PHE projects, and therefore help us build the science of PHE. In the past few years,

PHE professionals have written manuals and other living documents to assist NGOs that are new to the approach. An important tool for dissemination has been the USAID-sponsored PHE website, hosted by the Environmental Health Project, which serves as a central place for information and learning that is easily accessed and regularly maintained. Without these tools, scaling up PHE would not be possible. In addition, last year a group of U.S.-based environmental groups and international environmental groups formed a Washington, DC-based coalition called the PHE Policy and Practice Group. The goal of the coalition is to find ways to advocate for more PHE funds and increase the awareness of the links between population, health and the environment.

2. Increase and strengthen partnerships at all levels – with NGOs, government and communities.

In order to continue to promote PHE as a valuable approach, we need to expand our partnerships with health, development, and conservation organizations; and draw on resources and capacity in order to promote synergies. The Philippines PHE network is an excellent example of an effective partnership, bringing together PHE advocates and practitioners, and advancing the community of practice and expanding the knowledge base. Other regional or national PHE networks are emerging and we hope that some South-South exchange can happen to facilitate their development.

Several examples of successful partnerships have emerged in recent years, such as the partnership between WWF and Johnson & Johnson, a health care company. Johnson & Johnson supported health activities in eight countries where WWF is working and WWF implements complementary livelihood or conservation activities in conjunction with the health

work. This partnership is growing and evolving, and is bringing much need services to WWF's target sites.

CI has a human wellbeing strategic objective for its work in the 34 biodiversity hotspots around the world. In the Philippines, CI has worked with partners in country to produce a Framework for Strategy in Human Wellbeing, which was recently published by the United Nations Development Programme (UNDP). This framework recognizes that a range of partners have to be involved in CI's work – ones that can support our work with multidisciplinary stakeholders in interventions involving, for example, livelihoods, health and education.

Finally, according to a recent case study in Madagascar, the potential to scale up is greater now than ever before, even though this potential is far from realized. Currently there is a wide base of PHE experience, a favorable political climate, supportive policies, and the existence of a numerous advocates, tools, and materials. Realizing a vision of scaling up will require increased capacity at decentralized administrative levels and greater community engagement (Gaffikin 2007). This requires partnerships at multiple levels to bring about lasting change.

3. Expand outreach to new funding sources and support for projects.

USAID and, to some degree, the Packard Foundation, are currently the primary funders of PHE projects. In the manager's report of its annual appropriations bill, the U.S. Congress urges USAID to build upon past investments in PHE programs by expanding and scaling

up projects in communities that inhabit areas rich in biodiversity, particularly in Africa and Asia (Pielemeier *et al.* 2007). We consider this very encouraging as it is the first time that "scaling up" has been used in the context of the PHE Congressional language, and is a clear call for action.

However, we do need to be cautious of funding cycle problems, fluctuations and changes in the U.S. government's foreign assistance program and how these changes have impacted funding. For example, a Congressional report recently reviewed the impact of the revised foreign assistance framework, or F process. It noted that the proliferation of new programs, such as the Millennium Challenge Corporation (MCC) and the President's Emergency Plan for AIDS Relief (PEPFAR), have brought significant new funding to countries, but traditional programs have declined (US Senate 2007). Therefore we need to diversify our funding base.

The ultimate results of these linked health and conservation activities are that we have built strong, educated, motivated and dynamic agents of change. These agents are well versed in PHE and able to advocate and implement community health outreach, implement hygiene and sanitation initiatives, and promote biodiversity conservation – simultaneously, in an integrated fashion. These individuals make up networks of locally empowered stewards for conservation, working to achieve healthier families and healthier ecosystems. Our hope is that they will continue to share and promote the PHE vision, and conserve their ecosystems for generations to come.

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CI Cambodia and CARE host an IEC event at the health post in Thma Bang, Cardamom Mountains

Appendix 1. Country Summary Data

A.1 Philippines Summary

The Philippines hotspot contains more than 7,100 islands and is one of the world's most biologically rich countries. Many endemic species are confined to the fragmented forest that covers only a small percent of the original extent of the hotspot. With only three percent of original primary forest cover remaining, the Philippines are in critical danger of losing some of the world's most unique flora, fauna, and marine life.

The Sierra Madre Biodiversity Corridor (SMBC) in northern Luzon is a critical area for biodiversity, where rapid population growth due to high fertility rates and internal migration threatens both natural resources and the livelihood of rural Filipinos who depend on these resources. One of the key municipalities in this area is Baggao, where surveys have shown pressing needs for both increased access to reproductive health care and strengthening of community forest management and forest protection.

As part of the Healthy Families, Healthy Forests project supported by USAID, CI and partner organizations focused efforts on reducing population pressure on natural resources and improving the quality of life in communities surrounding key biodiversity areas within the proposed Northeastern Cagayan Protected Landscape and Seascape and SMBC. CI and their NGO and government partners attempted to address the lack of access to FP/RH services in communities inside or near the forests where in-migration and fertility were high. The lack of these services contributed to rapid population growth, thereby causing increased unsustainable use of forest resources. Many of these forests were included in concessions as community-based forest management (CBFM) areas and Certificate of Ancestral Domain Claims (CADC) of indigenous peoples. However, they remained inadequately managed. Thus, uncontrolled timber poaching and clearing of forestland continued to destroy the forest. This further reduced the forest's capacity to: meet the future needs of the communities, serve as habitat to diverse flora and fauna, and sustain environmental services critical for the communities' survival, including supplying water for irrigation of their farms and for domestic use.

The project objectives were to:

- Encourage and enable residents of reproductive age (15 to 49 years) in six barangays to adopt safe and appropriate FP/RH practices; and
- Build the capacity of target communities to effectively manage their CBFM and CADC projects for sustained resource yields and biodiversity protection.

Results of the project include:

- Strengthened FP/RH services by building the capacity of LGUs and more than 490 barangay health workers and other local health workers in Baggao.
- Promoted effective delivery of FP/RH supplies and related services to the local communities in the target area.
- Raised the CPR in our target zone from 59 percent in 2003 to 70 percent in 2008.
- Strengthened the IEC awareness campaign to build a conservation- and population-conscious constituency, reaching more than 2,000 people since the project inception.
- Provided technical assistance and support for the overall integration of barangay plans, Community Resource Management Frameworks, and Ancestral Domain Sustainable Development and Protection Plans with the Municipal Comprehensive Land-Use Plan of Baggao.
- Built capacity of people's organizations, indigenous people, and the LGUs to effectively implement their development plans and enforce conservation policies and initiatives.



Rural health workers in the Philippine Barangay of Hacienda Intal, Baggao, deliver infant immunizations and Vitamin A services and education

CREDIT: CI/Marcelino Venas, Jr.

- Provided technical assistance for agroforestry and promoted other biodiversity-compatible economic activities in order to engage men, women, and youth within the barangays in the project area.
- Worked with the local communities and other key stakeholders (LGUs, the DENR, and the NCIP) to set up a community-based monitoring and evaluation system for sustainable natural resource management and biodiversity protection of the project site.
- Improved management systems for the sustainable protection and maintenance of biodiversity in three CBFM areas and one CADC.
- Assisted in the creation of LGU and community policies that addressed links between FP/RH, in-migration, and natural resource management.

A.2 Madagascar Summary

There are eight plant families, five bird families, and five primate families that are endemic to the Madagascar and Indian Ocean Islands hotspot – in other words, they are found nowhere else on Earth. Madagascar’s 61 lemur species and subspecies are charismatic worldwide ambassadors for conservation, although tragically 15 species have already been driven to extinction (since humans arrived).

The Zahamena-Mantadia Biological Corridor protects some of the island’s last remaining tropical forests and lemur habitats. This band of forest represents some of the last remaining lowland and mid-elevation primary forest ecosystems in the country. Zahamena National Park and Mantadia National Park, located in the northern and southern ends of the corridor, respectively, are anchors for CI’s corridor conservation strategy.

Table 4. Summary of Conservation and Health Outcomes, Philippines

October 2005-September 2008

<i>Indicator or Result</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>Total</i>
CPR (%)	59	65	71	70	
# New FP users	220	161	81	93	555
# Children and pregnant women vaccinated	n/a	4,306	2,406	2,110	8,822
# Newly trained health workers/extensions agents trained	108	91	229	182	610
# Males involved in FP/RH education Sessions	48	179	290	73	590
# IEC outreach trainings	n/a	77	7	32	116
# People reached with integrated IEC messages	278	881	800	212	2,171
# IEC Materials produced/disseminated	180	277	333	12	820
# Community NRM management plans approved trainings	3	3	n/a	3	9
# Farmers adopting improved livelihood practices (e.g., agroforestry, agriculture)	n/a	182	n/a	273	455
# Hectares reforested or protected	20	452	296	952	1,720
# Trees planted through reforestation activities	5,000	17,739	40,369	1,500	64,608

n/a = not available for that period

The project began in July 2003, with generous support from USAID. CI worked closely with its Malagasy partners, ASOS and MATEZA, to build local capacity and ensure project activities could continue after USAID funding ended in 2008. These two NGOs were selected for their ability to mobilize effective teams of health and conservation professionals on the ground, and for their experience in the field working at the grassroots level.

In 2003, the president of Madagascar, Marc Ravalomanana, committed to tripling the surface area of protected areas in his country. In a country rich in biodiversity but socioeconomically poor, he recognized that conservation is essential for socioeconomic development. This conservation commitment presents a formidable challenge in rural areas, where the absence of alternative economic practices forces farmers to convert forest to subsistence agricultural practices, known as *tavy*, or slash-and-burn. In addition, minimal access to FP/RH care,¹ high fertility rates, poverty, and minimal education levels combine to produce increasing pressures on natural resources.

The project's objectives were to:

- Increase local capacity in child and maternal health and improve access to quality FP/RH services in the target communities.
- Enable corridor communities to manage their forest resources more effectively for both sustainable livelihood and biodiversity conservation.

CI and partners have achieved the following results to date:

- Reached more than 25,000 village residents with IEC messages to improve understanding of FP/RH and its importance to healthy families and a healthy environment.
- Increased the CPR in target zones by an average of 3 to 4 percent each year, from 17 percent in 2005 to 30 percent in 2008. This is a significant increase over the national average CPR.
- Vaccinated more than 8,500 children and pregnant women in the target zones from 2005 to 2008.

- Trained more than 1,500 community health promoters in basic FP/RH with links to environmental mhealth in all communities and priority sites.
- Fostered the approval and adoption of 48 community action plans that included the aspect of biodiversity conservation.
- Helped more than 3,000 poor farmers adopt improved livelihood practices, such as improved rice production on more than 578 hectares.
- ASOS and MATEZA contributed to reforestation of more than 32,000 trees on more than 4.8 hectares, a critical step to restoring biodiversity and helping to mitigate climate change in this fragile ecosystem.
- The project implemented alternative livelihood and nutrition training and capacity building for 55 Women's Nutrition Teams and more than 1,500 members. In 2006 and 2007, MATEZA conducted activities to weigh children from birth to three years of age in order to determine nutritional status. In 2006, 80-93 percent of infants were weighed and achieved normal nutritional status in two villages. In 2007, 673 infants had normal nutritional status, while 89 had not achieved normal status.
- CI and partners constructed almost 3,000 latrines and 3,000 waste pits or composts in response to community needs for improved hygiene and sanitation infrastructure.

Through this project, CI was able to improve the health of these local, remote communities. In addition, due to the integrated nature of the project, CI gained the confidence and trust of the communities, which allowed them to implement conservation efforts that might not have otherwise been possible. For example, they were able to delineate new protected areas under the President's plan. Therefore improving conditions of human wellbeing has strengthened our ability to achieve concrete conservation outcomes at a larger scale.

¹ In the Madagascar PE project, the term reproductive health care includes attention to maternal and child health.

Table 5. Summary of Conservation and Health Outcomes, Madagascar

October 2005-September 2008

<i>Indicator or Result</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>Total</i>
CPR (%)	17	24	26	30	
# New FP users	124	357	177	302	960
# Children and pregnant women vaccinated	1,313	2,043	2,382	3,230	8,968
# Health workers/extension agents trained	16	114	360	1,066	1,556
# Males involved in FP/RH education sessions	n/a	119	70		189
# Latrines and waste pits constructed	984 L 959 W	1,048 L 973 W	742 L 717 W	175 L 176 W	2,949 L 2,825 W
# IEC outreach sessions conducted	2,019	816	399	569	3,803
# People reached with integrated IEC messages	9,719	7,398	3,294	4,870	25,281
# Community NRM management plans approved trainings (e.g., agroforestry, agriculture)	n/a	28	12	8	48
# Farmers adopting improved livelihood practices (e.g., agroforestry, agriculture)	755	1,352	425	607	3,139
# Hectares under improved management	56	169	168	195	578
# Hectares reforested or protected	1.1892	.6583	1.4454	1.5207	4.8136
# Trees planted through reforestation activities	1,333	7,970	9,900	12,926	32,129

n/a = not available for that period

A.3 Cambodia Summary

The Central Cardamom Protected Forest (CCPF) in Cambodia is a lush, biodiversity hotspot that is home to 30 globally threatened species. Despite their rich surroundings, the area's 5,000 human inhabitants suffer some of the worst socioeconomic conditions in the world. The country's poor economy, especially in rural areas such as the CCPF, forces many citizens to rely intensively on natural resources to survive. The biodiversity of the area faces a number of threats: illegal logging, clear-cutting for agriculture, and wildlife hunting that in part satisfies a growing wildlife trade. In addition, the population is growing quickly, has access to only minimal social services and, due to years of civil conflict, is fairly distrustful of outsiders. Now, there is a renewed sense of urgency to protect the natural legacy of the CCPF.

In 2004, CI began working with CARE Cambodia, and other NGOs in the villages in and around the CCPF to explore and implement activities that promoted the relationship between healthy communities and environmental protection. The goal of the project was to reduce population pressures on biodiversity in the CCPF – which would reduce the number of people that must rely on illegal use of the natural resources that exist within the protected areas.

CARE provided essential support and capacity building to the provincial health care system, for the delivery of primary health care and FP/RH services to remote areas. In addition, CARE conducted outreach health and IEC visits to the remote communities, and implemented a youth center to increase adolescent knowledge of PHE approaches.

At the same time, CI helped foster the adoption PLUP to determine the best use of local lands for both economic and conservation purposes. Members of the communities created maps to illustrate the current uses of their land, and then worked with CI to determine how to change their practices to ensure environmental preservation. PLUP, besides proving to be logistically successful, carried special significance in Cambodia. The democratic process is just beginning in this country, and the free democratic elections used to select environmental leaders for PLUP were among the first such elections in which the people participated. Since the process began, more than 1,000 men and women have participated.

CI and partners have achieved the following results to date:

- Reached more than 7,500 village residents with IEC messages to improve understanding of FP/RH and its importance to healthy families and a healthy environment.

- Increased the CYP significantly, from 25 in 2005 to 134 in 2008. This includes 209 FP new users.
- Vaccinated 1,150 children and pregnant women in the target zones from 2005 to 2008.
- Trained more than 216 community health promoters in basic FP/RH and environmental health, to work in all communities and priority sites.
- Fostered the approval and adoption of four PLUP plans that included biodiversity conservation.
- Helped farmers adopt improved livelihood practices, such as improved rice production on more than 101 hectares.

Table 6. Summary of Conservation and Health Outcomes, Cambodia

October 2005-September 2008

<i>Indicator or Result</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>Total</i>
CYP	35	108	124	134	
# New FP users	41	141	27	n/a	209
# Children and pregnant women vaccinated	268	290	280	312	1,150
# Health workers/extension agents trained	29	53	34	100	216
# IEC outreach sessions conducted	30	76	71	72	249
# People reached with integrated IEC messages	1,383	3,152	1,695	1,353	7,583
# Community NRM management plans approved trainings (e.g., agroforestry, agriculture)	n/a	1	1	2	4
# Hectares under improved management	n/a	25	26	50	101

n/a = not available for that period

