[BALANCED]

Promoting & advancing integrated population, health, and environment approaches

BALANCED NEWSLETTER

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▲ Coral reef in the Verde Island Passage, Philippines

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▲ Foothills of the Himalaya mountains in Nepal

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▲ View from Khumjung village in Nepal

Population, Health and Environment (PHE) Approaches and Links to Climate Change Mitigation and Adaptation

Theme Editor: Karen Hardee

Welcome to the second issue of the BALANCED Newsletter on the theme of "Population, Health and Environment (PHE) Approaches and Links to Climate Change Mitigation and Adaptation."

The BALANCED Newsletter is a communication of the U.S. Agency for International Development (USAID)-supported global technical leadership project for Population, Health and Environment (PHE). The Building Actors and Leaders for Advancing Community Excellence in Development (BALANCED) project seeks to encourage the adoption and promotion of PHE approaches among champions and practitioners in areas of high biodiversity threatened by population pressures. In BALANCED and its Newsletter, we define integrated PHE projects as those that promote population, health and environment interventions that are conceptually linked and operationally coordinated in the field. Through this semi-annual Newsletter, we highlight insights and ideas from ongoing field experience on why PHE is important, delve into different PHE approaches, and examine best practices in applying PHE concepts on the ground.

In This Issue

Is There a Link Between Population, Health and Environment (PHE) and Climate Change Adaptation?

Karen Hardee, Visiting Senior Fellow, Population Reference Bureau and President, Hardee Associates LLC

Jason Bremner, Director, Population and Environment Program, Population Reference Bureau

Kathleen Mogelgaard, Senior Advisor, Population, Gender and Climate Change Program, Population Action International

The World Wildlife Fund Network Addresses Climate Change Adaptation

Terri Lukas, Manager, Population, Health and Environment, World Wildlife Fund

Judy Oglethorpe, Managing Director for People and Conservation, World Wildlife Fund

Climate Change Along the North Coast of Tanzania – Community-Based Adaptation Planning with a Population, Health, and Environment (PHE) Lens

Elin Torell, James Tobey, Jairos Mahenge, Wilbard Mkama, and Donald Robadue, Jr.

Integrated Program Approaches to Glacier Melt Impacts in Asia

Elizabeth L. Malone, Senior Research Scientist, Joint Global Change Research Institute, Battelle Memorial Institute.

(continued on next page)

USAID FROM THE AMERICAN PEOPLE

Coastal Resources Center, University of Rhode Island

PATH Foundation Philippines, Inc.

CONSERVATION INTERNATIONAL

We chose PHE and Climate Change as the theme for this Fall 2010 issue because of the increasing global and national attention on the growing threat of greenhouse gases in the atmosphere, the impacts of climate change on communities, and interventions to address these impacts.

This Newsletter issue begins with an introductory article describing the broad links between climate change and opportunities for PHE projects and practitioners to address climate change in their work and vice versa—i.e., for PHE approaches to inform climate change adaptation approaches. Our second article illustrates an evolving institutional approach to addressing PHE and climate change adaptation at the World Wildlife Fund (WWF). The third article describes a vulnerability assessment in Tanzania and potential links between a community-based coastal adaptation initiative and PHE activities. Another article from Batelle Memorial Institute commissioned by CDM International Inc. and USAID describes a state of the science report on glacial melt in the Asia Near East region and how integrated approaches can help reduce climate change impacts in the region. Lastly, an article on the Ethio-Wetlands Natural Resource Association (EWNRA) from Ethiopia highlights how a PHE project is helping to meet climate change objectives.

We hope you find this issue of the *BALANCED Newsletter* useful to your work. You can share your feedback, comments and questions by writing to us at Balanced@uri.crc.edu.

Regards,

Karen Hardee, Guest editor

Karen Hardee, a Visiting Senior Fellow at the Population Reference Bureau, has written extensively on population, reproductive health and climate change.

In This Issue *(continued)*

The Contribution of a PHE Approach to Climate Change Adaption in Ethiopia

Adapted from a December 2009 blog post by Karen Hardee, formerly with Population Action International, with contributions from Shewaye Deribe, Ethio-Wetlands and Natural Resources Association; Negash Teklu, Executive Director, PHE Ethiopia Consortium; and Janet Edmond, Population Environment Director, Conservation International.

PHE CHAMPIONS

Salua Osorio and Angela Andrade

Linking Disease Prevention to Climate Change Adaptation Efforts in Rural Colombia

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About The Newsletter:

The newsletter is published twice per year as a PDF document on the BALANCED website http://balanced.crc.uri.edu. Each issue has a theme and we are interested in garnering suggestions for future issue themes.

Newsletter Team:

Janet Edmond, Bob Bowen, Don Robadue and Lesley Squillante

PHE Toolkit:

Population, Health, and Environment (PHE) approaches strive to simultaneously improve access to health services and assist communities to manage their natural resources in ways that improve their health and livelihoods and to conserve the critical ecosystems upon which they depend. For more information on a wide range of PHE resources, please visit the USAID-supported PHE toolkit at:

http://www.k4health.org/toolkits/phe

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[BALANCED] NEWSLETTER

Population, Health and Environment (PHE) and Climate Change Volume 1 || Issue 2 || 16 DECEMBER 2010

IS THERE A LINK BETWEEN POPULATION, HEALTH AND ENVIRONMENT (PHE) AND CLIMATE CHANGE ADAPTATION?

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For communities directly reliant on natural resources, what approaches will enable them to effectively plan for and cope with changes in water availability, agricultural production, and extreme weather events that are brought about by changing temperatures and precipitation patterns? While integrated Population, Health and Environment (PHE) projects have not been designed and implemented to respond to climate change specifically, might PHE experiences and approaches have lessons to offer for community-based approaches to climate change adaptation?

This article reviews current approaches to community-based climate change adaptation and explores similarities and potential linkages with PHE approaches. It ends with a call to draw stronger connections between PHE experience and emerging practices for community-based adaptation, suggesting that both fields would gain from merging experiences and lessons.

Background

Historically driven by a build-up of greenhouse gases generated mostly by the industrialized world, the consequences of unabated climate change—floods, droughts, extreme weather, declining agricultural production—will affect everyone. Addressing climate change requires two major categories of action. The first is *mitigation*, or actions to reduce emissions of greenhouse gases stemming from the burning of fossil fuels and the loss of forests. Yet, by all accounts, the negative impacts of climate change will get worse before they begin to get better, even under the most optimistic mitigation scenarios. The temperature of the earth's surface has risen 0.74 degrees Celsius in the past 100 years (IPCC 2007). In many of the poorest areas of the world, shifting temperatures and precipitation patterns are already affecting agricultural production, making scarce water supplies even more difficult to manage. Storms of greater frequency and severity threaten growing coastal megacities, where millions of people live without adequate shelter or infrastructure.

Thus, there has been a growing recognition over the past decade of the need to figure out how to *adapt* to the changes that are already "locked in" the climate system. Various definitions of adaptation exist. The Intergovernmental Panel on Climate Change (IPCC) defines adaptation as "Initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects."[1] According to the United Nations Development Program (UNDP), climate change adaptation is "a process by which individuals, communities, and countries seek to cope with the consequences of climate change, including vulnerability," with the end goal being the reduction in both the vulnerability to and losses from climate change impacts.

© TCMP

▲ Freshwater pond in Kitonga village in Tanzania is susceptible to climate change impacts

Effective adaptation to climate change will require technological responses, including the construction of dykes and seawalls to protect coastal communities from sea level rise, the development of new seed varieties that can better withstand erratic rainfall patterns, and the establishment of high-tech early warning systems for extreme weather events. But, adaptation also requires more effective approaches to community development

[1] http://www.ipcc.ch/pdf/glossary/ar4-wg3.pdf

that can strengthen community and household resilience and coping capacity in the face of both the sudden and gradual impacts of climate variability. In addition, adaptation requires attention to management of ecosystems, so that they can continue to provide critical ecosystem services that support human communities even as the climate changes. Adaptation approaches that focus on locally specific solutions and target communities as the level of appropriate intervention are new and are collectively referred to as community-based adaptation.

Community-Based Adaptation

Community-based adaptation (CBA) has arisen recently as a means of meaningfully engaging the poorest communities that are highly reliant on natural resources for their livelihoods and who live in countries most vulnerable to the effects of changing climate. Like many PHE projects, the hallmarks of CBA are that it is a community-led process based on communities' priorities, needs, knowledge, and capabilities. CBA is a process that empowers people to plan for and cope with the impacts of climate change, and projects are developed based on climate science and local knowledge about weather trends changes. According to a 2009 International Institute for Environment and Development (IIED) report, Reid and colleagues note that, "CBA projects look a lot like development projects—the difference is that CBA work attempts to factor in the potential impact of climate change on livelihoods and vulnerability to disasters by using local and scientific knowledge of climate change and its likely effects (Reid *et al.* 2009)." The process of CBA is designed to help experts engage with communities to develop adaptation projects. "Once a community's vulnerability has been established, using the best available science on climate change impacts, the process of engagement with the communities can begin (Huq and Reid 2007)."

CBA has been embraced by multilateral organizations, including UNDP and non-governmental organizations (NGOs) such as CARE, Practical Action, and Oxfam. UNDP is implementing CBA projects in 10 countries through funding from the Global Environment Facility (GEF) small grants programs. These projects take a natural resource management approach and "will build resilience to climate impacts into resource-based livelihoods while generating global environmental benefits in GEF focal areas." The 10 focal countries (Bangladesh, Bolivia, Guatemala, Jamaica, Kazakhstan, Morocco, Namibia, Niger, Samoa and Vietnam) represent a range of ecosystems and socioeconomic contexts, in addition to varying impacts of climate change. UNDP's CBA project activities are designed to increase the resilience of land and biodiversity resources to the impacts of climate change, and diverse types of projects are currently in the planning or implementation stage. For example, Bolivia's CBA project seeks to build community capacity to adapt to climate change by integrating climate change risk management practices into community management of agricultural ecosystems, water, soils, and crop genetic resources.

One of the key tools UNDP uses in developing CBA projects is the vulnerability reduction assessment or VRA. The VRA is a form of participatory assessment that measures communities' perceptions of climate change risk and adaptive capacity, and in addition provides CBA project managers the ability to qualitatively and quantitatively measure the impact of their efforts.

© EWNRA

▲ PHE Provider outlet promotes messages encouraging healthy behaviors for a healthy environment

CARE has also developed a framework for CBA and produced the Climate Vulnerability and Capacity Assessment (CVCA) handbook. CARE's CBA approach includes reducing the risk of disasters, making livelihoods more resilient, strengthening local capacity in adaptive management and supporting social mobilization and policy engagement. CARE's advocacy efforts

focus on empowering women and on enabling vulnerable groups to participate in local decision-making and governance and ensuring equitable access to resources and services vital to adaptation.

Studies indicate that women and girls face the greatest vulnerability to the impacts of climate change because women's lives tend to be more intimately tied to the environment than men's lives since women make up the majority of the world's farmers and they are the primary source of water for their families. Women are more likely than men to live in poverty (UNFPA 2009). At the same time, women are recognized as key agents of change in developing adaptive mechanisms in vulnerable areas. As such, UNDP's Gender Team has developed a guidebook to ensure that new CBA projects integrate a gender perspective and promote gender equality and women's empowerment in all aspects of project planning, implementation, and monitoring. The guidebook goes as far as specifically including questions within the community VRA that integrate gender awareness.

Entry Points for Population or Reproductive Health in CBA?

Despite the special attention paid to integrating gender into CBA, aspects of vulnerability related to reproductive health, childbearing, and childrearing do not receive any particular attention within the UNDP's gender guidebook. Population and reproductive health issues are also missing from CARE's CVCA handbook. Furthermore, none of the CBA projects implemented through UNDP include components related to health and reproductive health; nor do they address underlying issues of population growth that may contribute to vulnerability or adaptive capacity and that are a result of unintended pregnancies and unmet need for family planning. Table 1 shows the percent of married women who are fecund and who desire to postpone childbearing, but who are not currently using a contraceptive method in the 10 countries in which UNDP is implementing CBA activities. The table illustrates that in several countries where CBA projects are being implemented, women face challenges related to family planning.

Four international conferences have been held on CBA since 2005. All four conferences have highlighted the potential impacts of climate change on communities and how to enable communities, including the most vulnerable groups such as women and children, to strengthen their resilience in the face of climate variability and change. Again, absent from these conferences has been dialogue on how population trends should be incorporated into vulnerability assessments, whether these trends impact vulnerability and adaptive capacity, and if so whether CBA should include voluntary family planning as a means of addressing population growth.

Table 1: Unmet Need for Contraception in 10 Countries with CBA Projects

Country	Unmet Need Among Married Women (Percent)	Year
Bangladesh	17.1	2007
Bolivia	20.2	2008
Guatemala	27.6	2002
Jamaica	11.7	2002/3
Kazakhstan	8.7	1999
Morocco	10	2003/4
Namibia	6.7	2006/7
Niger	15.8	2006
Samoa	45.6	2009
Vietnam	4.8	2002

Source: National surveys, various years.

Despite the absence of population, reproductive health, and family planning (FP) in the CBA process and CBA projects, the theoretical connections between addressing unmet need for FP and reducing vulnerability are clear. The impacts of early childbearing on girls' education could be a key factor linked to women's greater vulnerability. In addition, lack of access to FP can result in frequent and closely-spaced births that negatively affect the health and well-being of mothers and children, further exacerbating vulnerability. Unintended pregnancies and larger-than-desired family size also likely affect both women's ability to participate in the labor force and their ability to participate in CBA projects.

Finally, population growth due to high fertility increases population density and therefore the number of people exposed to climate risk in vulnerable areas, including floodplains and coastal zones. Rapid population growth is linked in some contexts to deforestation, declining fisheries, and land shortages

for farming and grazing, all of which may affect communities' ability to cope with climate change. These population growth and adaptation connections are clearly identified in National Adaptation Programs of Action (NAPAs), which have been developed by Least Developed Countries and Small Island States under the UN Framework Convention on Climate Change (UNFCCC). Analysis of NAPAs found that 37 out of 41 identified population growth as a factor exacerbating the effects of climate change (Mutunga and Hardee 2009).

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▲ Members of the "Save for Change" women's group in Ethiopia

There are very few studies, however, that empirically examine population, family planning, and climate adaptation relationships. One case study from Ethiopia (Kidanu *et al*. 2009) does explore these links at the community level and reveals that people do relate fertility and reproductive health to climate change vulnerability. People made the connection between unmet need for family planning, local population growth, land shortages, deforestation and agricultural adaptive capacity. As one young woman in the study put it, "...if a family has limited children, he will have enough land for his kids and hence we can protect the forests. In earlier years we had a lot of fallow lands, but now as a result of population growth we don't have adequate fallow land. Therefore, limiting number of children will help us to cope with the change in climate." There is clearly a need for more research on the topic.

PHE and CBA

The pathway for better integrating population and family planning issues into CBA, however, has precedent. Over the last decade, many organizations—recognizing the complex linkages between population, health, and environment—have developed integrated approaches to addressing these challenges. These diverse efforts—often referred to collectively as the population, health, and environment (PHE) approach—aim to simultaneously meet the health and development needs of remote underserved communities while sustaining the natural resources, environmental services, and biodiversity upon which they depend. A key component of the integrated PHE approach has been the explicit focus on addressing women's unmet need for reproductive health care, including family planning. In PHE project areas, communities have specifically identified lack of access to family planning services as a priority due to the impact that unintended pregnancies and larger-than-desired family size have on women, their families, their communities, and the local environment.

Could PHE interventions be considered a special case of CBA in which particular attention is paid to an often-overlooked aspect of women's vulnerability—i.e., enhancing women's ability to plan the number and spacing of their children? Comparing CBA and PHE approaches, one finds that they have several similarities, although they generally differ in their main objective (improving communities' ability to cope with climate change vs. improving communities' health status and livelihoods while sustaining local resources).

Both approaches prioritize the poorest communities that are highly dependent on natural resources and underserved by government, the private sector, or NGO services. CBA and PHE efforts engage communities in participatory processes to identify their own needs and priorities and to select and implement appropriate approaches that will meet those needs. Both also tend to be multi-disciplinary and interventions tend to cut across traditional sectoral boundaries. Both approaches seek to enable community stewardship and sustainable use of forests, soils, watersheds, coastal areas, and other climate-sensitive resources.

Institutions implementing a PHE approach are just now beginning to factor into their projects the future impacts of climate change on health, livelihoods, and ecosystems, and few NGOs implementing a PHE approach are specifically examining local and scientific

perspectives of climate change and the likely effects in their local areas. While some such as World Wildlife Fund (WWF-US) have made steps to adapt existing NGO tools such as CARE's CVCA to specifically assess vulnerability and adaptive capacity, these efforts are not yet explicitly linked to existing PHE projects.

While PHE projects could be strengthened through more intentional incorporation of CBA approaches, the lessons learned from more than a decade of PHE efforts would also be useful for implementers of CBA. Among the defining hallmarks of PHE are building local awareness of the connections between environmental conditions, human health, and behavior; as well as strengthening community capacity to plan and manage resources in the context of those connections. In the Philippines, Nepal, Cambodia, Vietnam, and throughout Sub-Saharan Africa, PHE projects have shown that it is feasible to integrate services to simultaneously improve management of fisheries, improve agricultural practices, conserve biodiversity and at the same time address health needs. The successes suggest that CBA projects in their current form are more narrow than necessary, and perhaps are not taking advantage of cost and program efficiencies that can come through integration of various health components.

PHE approaches also offer lessons in assessing ecosystem values and function that could provide a useful bridge between CBA and efforts to advance adaptation through an ecosystem-based lens. CBA is new and most programming is in the pilot phase. In that regard, PHE approaches should be considered for funding under CBA programs. To qualify, PHE projects, which have not been planning interventions nor measuring their impact in relation to climate change adaptation, should begin doing so. Incorporation of CBA tools such as the VRA into current PHE efforts is a logical step toward planning and measuring the climate change adaptation benefits of PHE projects, thus perhaps rendering them an effective approach for addressing vulnerability, building resilience and contributing towards adaptation to climate change.

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GLOSSARY OF CLIMATE CHANGE TERMS

Adaptive Capacity	Ability of a society to plan for and respond to change in a way that makes it better equipped to manage its exposure and sensitivity to climate change
Exposure	Types of valued assets that are at risk of being impacted by changes in the climate system—including social assets (people, health, and education), economic assets (property, infrastructure, and income) and ecological assets (natural resources and ecological services)
Sensitivity	Degree of likely damage if exposed to climate change
Resilience	Ability to withstand and absorb impacts from climate change and to rebound
Vulnerability	The degree to which a human or natural system is susceptible to or unable to cope with adverse effects of climate change, with vulnerability defined as a function of the character, magnitude and rate of climate variation to which a system is exposed, its sensitivity and its adaptive capacity
Adaptation	Adjustment in a natural or human system in response to actual or expected climatic changes in their impacts, so as to reduce harm or exploit beneficial opportunities
Mitigation	In the climate change context, a human intervention to actively reduce the production of greenhouse gas emissions (reducing energy consumption in transport, construction, at home, at work, etc.), or to remove gases from the atmosphere (sequestration)

Source: United States Agency for International Development (USAID). 2009. *Adapting to Coastal Climate Change: A Guidebook for Development Planners.*

[BALANCED] NEWSLETTER

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THE WORLD WILDLIFE FUND NETWORK ADDRESSES CLIMATE CHANGE ADAPTATION

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Background

The World Wildlife Fund (WWF) Network has a strong program to address climate change mitigation—reducing the anthropogenic emission of greenhouse gases into the atmosphere, a driver of climate change. Even if these emissions were to stop immediately, the planet would still experience a certain amount of warming, with profound effects on economies, ecosystems and local communities. Changes are already being seen, often manifested as increased climate variability, including but not limited to more extreme weather events, floods, droughts, and severe storms.

Those most vulnerable to the effects of climate variability and climate change are poor people in the developing world who have had the least to do with contributing to climate change. Those living in rural areas are often highly dependent on natural resources and subsistence agriculture for their survival. Human health is already being affected by changes in climate, with increasing incidence of malnutrition and exposure to vector-borne diseases such as malaria and water-borne illnesses resulting from the consequent floods, drought, etc. Adaptation includes initiatives and measures to reduce the vulnerability of natural and human systems to actual or expected climate change effects (IPCC 2007). At the community level, adaptation involves making adjustments to people's livelihoods and use of natural resources. It should also include a focus on the health of community members, especially women and children, in order to build resilience to meet the challenges of climate change.

WWF's Approach to Adaptation

Now, WWF-U.S. is playing a leading role in scaling-up a program to enhance the capability of the WWF Network's worldwide programs and partners to address climate change adaptation. The WWF Network created the Network Climate Adaptation Team (NCAT), a group of over 30 people from around the world working on climate adaptation. The NCAT coordinator is based at WWF-U.K., and WWF-U.S. climate adaptation efforts support the broader NCAT mission of catalyzing and supporting adaptation globally. The immediate objective of WWF-U.S. is to build capacity and enable staff and partners to think strategically about climate change in order to mainstream adaptation activities into ongoing and future projects and programs. To date, the WWF-U.S. climate adaptation team has conducted training for staff in East Africa, Madagascar, Latin America, India, U.S. and Europe.

©WWF-US/Cara Honzak

▲ Rural residents like this young girl selling dried fish are highly dependent on natural resources for subsistence

WWF wants to instill in its managers and field staff working in its priority places the need to focus strategically on climate change adaptation at the local and wider ecosystem levels, as well as at the national policy level. Focusing on these different levels simultaneously poses challenges, as illustrated by the example of climate change and water. A short term localized solution to a community's threat of flooding from a rising river, caused by increases in rainfall, could be to build a dam upstream. At the same time, a dam built upstream could exacerbate flooding for other communities, reduce biodiversity and diminish the overall productivity of the river's fisheries. Thus, adaptation to increased rainfall must include both local- and watershed-level perspectives in order to avoid maladaptive outcomes for communities over the long term.

Facing Challenges

The challenges for reducing vulnerability to climate change are enormous and the WWF approach acknowledges this by starting at the beginning: bringing people in countries and communities together; making the best scientific information available to them and documenting on-the-ground changes that people are already experiencing to feed into vulnerability assessments; using scenario planning to manage risk; integrating adaptation measures into conservation strategies; sharing experiences and perspectives; and learning lessons about which approaches work best. WWF's training helps field staff to ask the right questions to understand how current changes are affecting people and nature, both in communities and the broader ecosystems.

Projections from climate impacts and species modeling with partner organizations feed into training and strategy development at the ecosystem level. This modeling is developing projections of species movements and losses for over 50,000 plant and animal species globally as a result of climate change, including crops and commercial marine species. For example, results indicate areas that may become less suitable for a particular crop in the future, under different climate scenarios. Possible adaptation measures in the future could include introducing cultivation techniques to conserve soil moisture, using drought-resistant strains of that crop, growing different crops, or developing alternative forms of livelihoods.

©WWF-US/Cara Honzak

▲ Community members gather for climate change adaptation training

Working with Partners

WWF is not working in a vacuum. Private foundations, corporations and governments provide financial support, and WWF has formed partnerships with a number of organizations that are involved in climate adaptation activities. For example, with support from the U.S. Agency for International Development (USAID) through the SCAPES Project, WWF is partnering with CARE in Coastal East Africa, the Himalayas and the Amazon. Together, WWF and CARE are working to harmonize vulnerability assessments within single geographic areas and to modify planning and adaptation tools so as to build resilience of both humans and ecosystems. WWF's adaptation effort also reaches out to virtual partners through its blog: www.climateprep.org.

PHE as a Promising Approach

WWF sees that Population, Health and Environment (PHE) interventions offer a promising approach to adaptation to climate change. As currently implemented, PHE field programs are community-based, linking improvements in people's health with the health of their environment. Thus, PHE programs, which integrate human development with natural resource conservation and sustainable management, can be relevant to reducing people's vulnerability to a changing environment and climate.

In fact, WWF incorporates PHE into its climate change adaptation training around the world, discussing how vulnerability can be reduced through PHE approaches. In remote places of high biodiversity where health is a major issue for local communities, WWF's PHE program advocates strengthening the health infrastructure and training health personnel to improve services that can help reduce and prevent existing disease burdens on the population. As the climate changes, it is critically important to also build capacity to monitor changes in disease patterns and institute feedback mechanisms to alert service providers about changing health care needs. In order to function as adaptation mechanisms in the face of climate change, health interventions that are components of PHE programs will be required to simultaneously respond to and address local and larger ecosystem changes as a result of increased pressures on natural resources. Changes in rainfall, crop production, vectors of infectious diseases will have differential effects and require different adaptation responses

©WWF-US/Judy Oglethorpe WWF

▲ Pygmy Baaka woman at work in central African forest

depending on whether the focus is at the level of the community or broader ecosystem. Responses at both levels are needed, yet each approach has to avoid producing effects that cancel out the benefits of the other – an approach that integrates ecosystem and human wellbeing measures to is key. And many ecosystem services provided by healthy, intact ecosystems will help to build local people's resilience – such as clean water supplies from well managed catchments, and protection from storm surge flooding by intact mangroves.

Expanding the Role of PHE in Climate Change Adaptation

WWF anticipates establishing partnerships with health and conservation organizations to identify ways that existing PHE programs can be modified to reduce communities' vulnerability and increase adaptive capacity to climate change. For example, current messaging to families about the benefits of contraceptives for spacing births at least three years apart focuses on protecting the health of mothers and babies under current climatic conditions. Under the circumstances of a changing climate, such messages should be informed by national and regional level data, if available, demonstrating that smaller families can improve women and men's abilities to cope with impending climatic challenges. As with adaptation programs in other sectors, multisectoral partnerships are indispensible in contributing to reducing vulnerability. Engagement of people in local-level problem solving to address threats to the viability and health of communities in their particular environments should be linked to a broad-based scientific effort to anticipate the pending challenges and provide viable adaptive alternatives.

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CLIMATE CHANGE ALONG THE NORTH COAST OF TANZANIA – COMMUNITY-BASED ADAPTATION PLANNING WITH A POPULATION, HEALTH, AND ENVIRONMENT (PHE) LENS

Elin Torell, James Tobey, Jairos Mahenge, Wilbard Mkama, and Donald Robadue, Jr.

Background

Climate changes are already occurring in Tanzania and are likely to intensify, resulting in significant alteration of natural habitats and coastal ecosystems, and increased coastal hazards in low-lying areas. Coastal areas are experiencing altered precipitation and runoff and elevated sea surface temperatures. These climate change impacts affect coastal communities and resource users, by disrupting existing ecosystems and increasing vulnerabilities among poor and subsistence communities. Large developments, such as biofuel production,[1] which are aimed at helping the European Union meet its goals for emissions reductions, may exacerbate some of the adaptation issues for coastal people and wildlife. For example, these biofuel production facilities may block the migration corridors for elephants and other wild animals, reduce the land available for fire wood collection that coastal communities depend upon, and use large quantities of water from rivers with already reduced flows.

It is usually the poorest people who are most dependent on natural resources for their livelihood. As climate hazards and changes affect the environment, these individuals—who are the least equipped to deal with the consequences—are left vulnerable. While Tanzania has completed a National Adaptation Plan of Action (NAPA), under the auspices of the United Nations Framework Convention on Climate Change, that plan gives minimal attention to the coast and has yet to be implemented. However, progress on climate change adaptation measures is being made at the district and village levels.

Programming to Reduce Vulnerability

The USAID/Tanzania funded Pwani[2] Project "*Conservation of Coastal Eco-Systems in Tanzania*" aims to sustain the flows of environmental goods and services, improve critical coastal habitats, and improve the well-being of coastal residents in these threatened seascapes. Implemented by the University of Rhode Island's (URI) Coastal Resources Center (CRC) through the Tanzania Coastal Management Partnership (TCMP), the Pwani Project is piloting approaches to reduce vulnerability and harm from climate change impacts at the district and village levels. Pwani is working with the lead agency in Tanzania for climate change issues—the Centre for Energy, Environment, Science and Technology (CEEST)—to prepare community-based climate change vulnerability and adaptation action plans. This activity is implemented in collaboration with local coastal communities in the Bagamoyo and Pangani Districts, which are located north of Dar es Salaam towards the Kenyan border.

Table 2: Perceived Climate Changes in Pwani Project Area

Variable	% Yes
Increasing Drought	84
Irregular Rainfall	67
Water Scarcity	64
Salt Intrusion	53
Rising Sea Level	29
Ocean Pollution	21
More Frequent Flooding	10
Erosion	8

[1] Biofuels are defined as a range of fuels which are in some way derived from biomass. For example, bioethanol is an alcohol obtained by fermenting sugar from plants. Biodiesel is made from vegetable oil, animal fats and recycled grasses. (http://en.wikipedia.org/wiki/Biofuel.)

[2] *Pwani* means coast in Swahili, which depicts the project's target area.

The first step of the village level adaptation planning is to assess people's awareness of climate change and the perceived impacts on coastal communities. A preliminary assessment[3] of perceived impacts of climate change in eight villages surrounding the Saadani National Park, which cuts across the two districts, found that 84 percent of the individuals surveyed have experienced increased drought over the last three years. Irregular rainfall, water scarcity, and salt intrusion were also commonly seen by the respondents.

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▲ Freshwater well near old mosque in Mlingotini village, Tanzania

In a 2005 threats assessment in the area, focus group interviewees and key informants in four out of eight villages also mentioned drought as a serious issue over the past five years. While there is no scientific evidence that the average annual rainfall has changed over the last 90 years, measurements from the Bagamoyo rainfall station *do* indicate a change of patterns in rainfall distribution. Over the last five years or so, local communities also reported that the rain has been concentrated in the one primary rainy season rather than being spread out over all the rainy seasons (one primary and two smaller). Irregular rainfall and lack of rainfall has led to poor agricultural production, affecting the crops that depend on the shorter rainy seasons. For example, in some communities, the main food staple has changed from rice to maize, and bananas are no longer grown. In early 2010, the Pangani district had to apply for food aid from the central government. An associated issue is lack of water for household consumption. In the Buyuni village, for example, women have to walk over ten kilometers round-trip to collect water for drinking and cooking.

Community-Based Vulnerability Assessments

In mid 2010, the Pwani Project began preparing village level vulnerability assessments and adaptation action plans in the Mlingotini and Kitonga villages in the Bagamoyo district. These involve participatory rural appraisals that include exercises that tap into local knowledge to assess vulnerability and adaptive capacity, and to build people's local awareness of climate change and its impacts. While issues related to environmental impacts will take center stage, equally important issues such as population, health, equity, and food security will also be raised. Following are some of the themes and questions that arose during the first village level vulnerability assessments in Mlingotini and Kitonga:

1. **Population growth:** Approximately 40 percent of the population is between 0-15 years and roughly 20 percent is five years or younger. Such a large proportion of young people, many of whom will soon enter childbearing age—in combination with a relatively low contraceptive prevalence rate (40 percent) among women, largely due to lack of access to contraceptives—indicate a future of rapid growth in the absence of significant out-migration. *What impact will this have on resource use and food security and how will climate change exacerbate these pressures?*
2. **Migration:** Some coastal villages are experiencing a significant in-migration. As agricultural production declines due to drought, immigration to coastal fishing villages might increase even more. *How do coastal fishing villages prepare for this and what are strategies to address problems associated with marine resource over exploitation?*

[3] This assessment was part of a behavioral monitoring survey, conducted in 2009 in collaboration with the USAID-funded Building Actors and Leaders for Community Excellence in Development (BALANCED) Project. The survey, which included a broad range of population, health, and environment topics, covered 437 individuals between 18 and 49 years old.

3. **Food security:** Approximately half of those living in the area have difficulty meeting their basic needs, very few are able to save, and 38 percent have less than three meals per day (Torell et al. 2006). *How can communities adapt to changing rainfall patterns and food crop failure to prevent further deterioration of food security?*

4. **Health:** Between 70-80 percent of the population lives more than 5 km from a village dispensary and the closest hospital is between 36 and 133 kilometers from the village centers. Approximately 90 percent of those seeking treatment at Pangani Hospital are suffering from malaria, acute respiratory infections, diarrhea, intestinal worms, and pneumonia. Malaria is the most common and serious illnesses in the area and the first vulnerability assessments in Bagamoyo found that climate changes have led to an increase in Malaria prevalence. *How will climate change impacts, such as increased salt water intrusion and pollution of wells, warmer temperatures, and less precipitation for most of the year, contribute to the already poor state of community health?*

5. **Environment:** Mangroves and coastal forests are major "blue" carbon sinks that contribute to reducing emissions. Extensive mangrove areas are also thought to contribute to regional humidity and cloud cover, factors important in seasonal rainfall patterns. With the increasing population living around the Saadani National Park, the pressure of deforestation will likely increase. *How can mitigation and adaptation planning address this issue?*

6. **Gender equality:** Women in this coastal area of Tanzania have primary responsibility for rearing children and ensuring sufficient resources to meet family needs. Women also are the main managers of essential household resources like water, fuel for cooking and heating, and food for household consumption. *How do we ease the burden on women as these chores become increasingly difficult?* Seaweed farming—one of few income sources available to women—is on the decline, as higher water temperatures make it difficult to grow the high-value *E.cottonii* type of seaweed. *Are there any alternative income sources available to women living along the coast? What training and support do women need to establish new livelihoods?*

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▲ Climate change committee members in Kitonga village, Tanzania

Building Adaptation Approaches to Reduce Vulnerability

Through the adaptation planning process, we expect the villagers to select a range of actions they can undertake—on their own and without major external funding—to address the many integrated issues related to impacts of climate change and to organize these actions into a simple action plan that suits the specific contexts of the Bagamoyo and Pangani Districts. The fact that the plan will focus on simple, non-costly actions means the likely exclusion of larger scale adaptation measures such as improvements to roads or the water supply infrastructure. It remains to be seen if this will have a positive impact on adaptation planning by focusing more on local community needs.

Through this process of working with communities to develop adaptation action plans, *Pwani* seeks to increase communities' ability to proactively manage their exposure and/or sensitivity to climate influences. A community with a strong capacity to adapt is a community that is more resilient and better able to recover from stressful events and conditions.

Opportunities to Link to Existing Population, Health and Environment (PHE) Initiatives

In coordination with the Pwani Project, TCMP is also improving access to family planning commodities, working through trained PHE community-based distributers (CBD) in the communities targeted by the Pwani project. The CBDs and Peer

Educators also deliver integrated PHE messages that have been developed through community-based behavior change research. The PHE activities are implemented with funding from the USAID-funded Building Actors and Leaders for Advancing Community Excellence in Development (BALANCED) Project, which advances and supports wider use of effective PHE approaches worldwide.

Although the activities on village level vulnerability to climate change adaptation planning are not explicitly linked to ongoing family planning and reproductive health activities, TCMP is well positioned to incorporate "the P" into future adaption efforts. Illustrative opportunities for linking to PHE efforts include:

- Strengthen and grow TCMP as a local NGO that will act as a leader in coastal management in Tanzania, with leadership and expertise in promoting holistic community-based management and adaptation strategies focusing on resiliency building, health, economic growth, and conservation.
- Partner with local government, community leaders and user groups as an entry point for both PHE and climate change activities and leverage existing resources to maximize cost efficiencies.
- Wherever possible, conceptually link and operationally coordinate climate change and PHE activities, including developing behavior change communication materials that show the connections between climate change adaptation and family planning/reproductive health behaviors.
- Advocate to local authorities and decisionmakers to mainstream adaptation to climate change and PHE into local and national plans, policies and strategies.
- Strengthen local institutions, planning and coordination mechanisms, and local initiatives that will continue into the future after both the Pwani and BALANCED Projects are completed.

Taken together, these potential collaborations could help to improve the well-being of coastal residents in these threatened seascapes in a sustainable manner.

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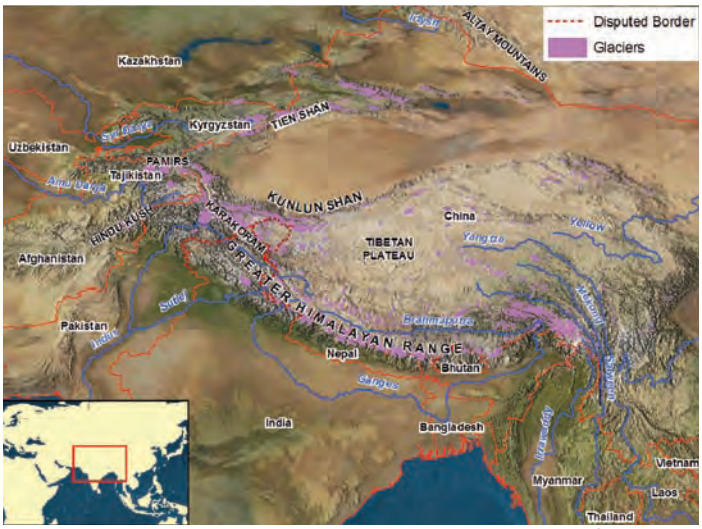
INTEGRATED PROGRAM APPROACHES TO GLACIER MELT IMPACTS IN ASIA

Elizabeth L. Malone, Senior Research Scientist, Joint Global Change Research Institute, Battelle Memorial Institute

Background

Integrated problems call for integrated approaches to deal with them. That is why the U.S. Agency for International Development (USAID) launched an initiative to address the complex, integrated impacts of accelerated melting of Himalayan glaciers through developing intersectoral programs designed to yield co-benefits across sectors.

The initiative focused on the region of "High Asia" (*please see map on the following page*), sometimes referred to as the Greater Himalayan region, and the countries whose river waters flow from High Asia. High Asia includes the Himalaya, Hindu Kush, Karakoram, Pamir, and Tien Shan mountain ranges—where current glacier coverage exists.



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▲ Map of the Himalaya region – countries and river basins

The USAID Asia and Global Health Bureaus tasked CDM International, Inc. with assembling a multi-disciplinary project team: a social scientist/climate change expert, a glaciologist, a researcher knowledgeable about relevant activities in the Himalayan watersheds, a specialist in geographic information systems (GIS), an activities manager, and four sector specialists (health, environment, agriculture, and disaster management). The team had the following tasks: generate a "state of the science" report about glacier melt in High Asia, survey the existing activities related to glacier melt, examine existing vulnerabilities using existing data and GIS tools, and develop integrated program concepts for consideration and use by USAID Missions in Asia.

The Science Perspective

The state-of-the-science report demonstrated, first and foremost, that long-term, comprehensive data for the remote glacierized areas of the Himalaya do not exist. As such, rates of retreat for the overall region remain unknown. Field measurements are often, by necessity, limited to a few local measurements on easily accessible glaciers, typically at the lower elevations. More recently, measurements over larger areas are becoming available from satellite remote sensing—but often lacking historical baselines.

Moreover, efforts to quantify the contribution of melting glacier ice to the regional hydrology are just beginning. Precipitation and basin runoff generally decrease from the east to west—a direct result of the summer monsoon's weakening. Also, glaciers in the west are a more important source of streamflow volume. However, the total runoff in the western mountains is considerably less than that in the east at all altitudes—as would be expected, given the relative aridity of the western mountains.

Under any reasonable scenarios for future warming, the projected melt rate of glacier ice would be relatively slow, and thus cannot, in itself, cause floods. Rather, actual environmental hazards come in the form of two distinct types of glacier lake outburst floods (GLOFs). One type is a debris-dammed outburst flood, which occurs when large volumes of water build up behind the terminal moraine of a rapidly melting, retreating glacier and the moraine dam fails. The other is associated with advancing glaciers. The glacier tongue first dams a river but as the glacier subsequently retreats or breaks up, the result may be an outburst flood.

Many of the glaciers in the Himalaya are indeed retreating, especially at the lower elevations in the eastern Himalaya. On one hand, no region-wide evidence supports the claim that the glaciers of the Himalaya are retreating faster than any other location in the world. On the other hand, although the melting process is not as fast as had been thought, the need for mitigation and adaptation remains.

Glaciers of the Himalaya provide a small amount of the runoff to the people living downstream, perhaps the smallest amounts corresponding to the regions of the highest population: China, India and the Southeast Asia mainland. In the eastern Himalaya, this contribution to the downstream river flow is most likely about five percent or less. But in the western Himalaya, and specifically the Indus Basin, the contribution of melting glacier ice to the rivers is thought to be considerably larger, perhaps 30 percent or more.

The scientific assessment thus shows a lack of scientific knowledge to answer questions about glacier melt and its impacts. This lack of knowledge is itself a vulnerability that programs can address.

The Vulnerability Perspective

A second perspective on vulnerabilities focuses on two assumptions that are underpinned by current knowledge: 1) changes in the hydrologic systems, of which glaciers are a

component, will have impacts on human health and ecosystems; and 2) current health, ecosystem, population, and pollution issues make communities more vulnerable to *any* changes in their water systems, whether too much water (floods), too little water (droughts and increasing aridity), or changes in the timing of water flows (e.g., earlier in the spring). In short, changes in glaciers and their associated river basins will likely exacerbate already existing vulnerabilities to people and the environment, including to biodiversity. Finally, where governance institutions have not achieved stable agreements to share cross-boundary water, the existing potential for conflict will be increased as the water system changes. In the Indus River Basin, several vulnerabilities combine: the aridity of the area, a high dependence on glacier melt for river water, and poor water infrastructure.

Current programs, projects, and activities related to glacier melt and retreat in Asia have focused on glacier monitoring although increasingly GLOF risks are receiving attention as key climate change hazards in High Asia. Less attention has been paid to downstream implications of glacier melt and adaptation strategies. Overall, there is very little assessment of the risks from glacier melt that exacerbate vulnerability on the ground. There are very few glacier-melt-related adaptation projects, and those that do exist tend to use large-scale, technological approaches to the issue. However, a few non-governmental organizations (NGOs) have begun work on community-based adaptation and integrated approaches, such as Population, Health and Environment (PHE), could be successfully implemented in these areas. In fact, the USAID report insists that all programs and projects related to glacier melt impacts should include reproductive health and other health dimensions, thus, transforming them into PHE programs and projects.

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▲ Local people access services at the health post in Thma Bang as part of a CI PHE project in the Cardamom Mountains, Cambodia

© CI/Russell Mittermeier

▲ Terraced lands outside Kathmandu, Nepal

How Integrated Approaches Address Glacier Melt Threats

USAID has three criteria for programs to address scientific and vulnerability concerns:

- address priority issues related to glacier melt and retreat in a cross-sectoral way designed to yield co-benefits in multiple sectors;
- complement or fill gaps, considering activities already underway; and,
- correspond with USAID interests and mandate.

Program concepts have been developed in three categories that would address near-term vulnerabilities related to glacier melt and build the resilience to face longer-term vulnerabilities/impacts as well. While each program concept has a specific focus, each also has a cross-sectoral design that can yield co-benefits across a range of issues. For instance, a focus on management of water resources should integrate concerns for governance, food security and nutrition, gender equality, good

health practices and family planning. Because conditions and opportunities will differ widely place by place, USAID Missions can select from and adapt the following program concepts, which reflect an integrated Population, Health and Environment (PHE) approach.

7. ***Respond to the Challenge of a Lack of Information.*** This approach addresses the need for collaborative and integrated scientific efforts to increase our knowledge about and to engage in monitoring changes in glaciers. The focus is on (1) improving regional scientific cooperation of glacier, snowpack and water resources in High Asia; and (2) strengthening monitoring capacity for climate and water resources in High Asia.

8. ***Respond to Vulnerabilities.*** The approach addresses both near-term preparedness and longer-term resilience-building to existing vulnerabilities, including GLOFs and the disappearance of some glaciers; water stress and associated food and nutritional deficits; health issues, particularly population pressures and diarrheal diseases associated with poor water quality, as well as malnutrition; threats to ecosystems, particularly biodiversity; and potential governance and conflict implications of an unstable water supply. The focus is on (1) improving the management of water resources, (2) protecting ecosystems, and (3) sustaining high-mountain communities.

9. ***Respond by Mitigation.*** This approach addresses two issues simultaneously – black carbon and other aerosols. The soot and smoke released from biomass burning likely change the regional climate and accelerate glacier melt when black carbon is deposited on reflective glacier surfaces. Reducing these emissions helps mitigate climate change and thus reduces vulnerability to glacier melt. Reducing these emissions also brings significant health improvements, particularly to women and children in households where cooking and heating are fueled by biomass, and to urban dwellers where multiple sources contribute to high levels of air pollution.

These integrated approaches, just as with integrated PHE programs, are designed to result in co-benefits such as but not limited to:

- improved health outcomes (from healthier ecosystems, reduced pollution, improved sanitation, more efficient water use)
- reduced fertility and easing of population pressures (by meeting family planning needs)
- strengthened governance institutions (through environmental, agricultural, and forestry management; development of national and local policies; establishment and empowerment of local resource user groups)
- improved regional cooperation (through scientific cooperation, shared monitoring and information programs; common educational outreach programs; community-based monitoring, strengthened cross-boundary institutions and treaties)
- protection of biodiversity and maintenance of ecosystem services (through improved water management and ecosystem management for health)
- better water management at all levels, from the transboundary/multi-country level to the level of farms and households
- more efficient, climate-change-resilient food production (irrigation systems, on-farm management, harvest of food and fodder from forests and rangeland, and homestead vegetable gardens)
- creative, effective approaches to monitoring and managing climate-change-induced threats, starting with glacier lakes
- effective disaster planning for both too much water (floods, GLOFs) and too little water (droughts)

Challenges

There has been much contradictory information/assessment about High Asian glaciers, ranging from 'they will disappear by 2035' to 'there is no evidence of excess melt.' The biggest challenge for science is to contribute to evidence-based programming by making available what is known, and what this means for vulnerabilities.

Another challenge is to coordinate across sectoral programs as doing so is difficult when budgets are allocated to single sectors. Challenging also is the coordination of programs across

countries that share watersheds in order to reap the benefits that come from an integrated approach. Also, integrated programs most often include significant stakeholder involvement, an approach that takes time—more time than the usual three to five years that most donors allot for their funded programs.

At the same time programs must design their activities to address vulnerabilities to current climate changes, they must try to predict and design for the longer term impacts of future climate changes and all its unknowns. Integrated programs—including integrated PHE programs—face these same challenges around climate change impacts and vulnerabilities and could only benefit by sharing lessons learned, past and present, on solutions to address them.

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THE CONTRIBUTION OF A PHE APPROACH TO CLIMATE CHANGE ADAPTION IN ETHIOPIA

Adapted from a December 2009 blog post by Karen Hardee, formerly with Population Action International, with contributions from Shewaye Deribe, Ethio-Wetlands and Natural Resources Association; Negash Teklu, Executive Director, PHE Ethiopia Consortium; and Janet Edmond, Population Environment Director, Conservation International.

Introduction

The old adage, "think globally and act locally," should be heeded in discussing solutions to climate change. While both changes in industrialized country consumption patterns and technological solutions are needed to help stop the flow of dangerous greenhouse gases into the atmosphere and rendering the planet hotter and hotter, they alone will be insufficient to address the other side of climate change—i.e., helping the most vulnerable people adapt to its effects. Adaptation requires community-based and integrated approaches to help people cope. Involving communities and devising solutions based on local environmental and social conditions is the only sustainable approach, which ultimately contributes to mitigation as well.

Ethiopia Environmental Challenges

The human face of climate change is apparent throughout the world, and the Wichi Wetlands watershed in southwestern Ethiopia is no exception. The watershed is an important part of the lives of the local people. But as a headwater of the Nile, the watershed has more than local importance. Protecting wetlands and making them healthier is not only good for individuals, families and communities, it is good for the climate too, since wetlands absorb more carbon than forests and are considered more sustainable as carbon sinks.

The Ethio-Wetlands and Natural Resources Association (EWNRA) began working in the Wichi watershed through a wetlands conservation project. EWNRA focuses its activities

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▲ Peer educator in Wichi wetlands area of southwestern Ethiopia

on integrated wetland-watershed natural resource management and diversifying livelihood bases to improve the well-being of people and of the ecosystems. In response to people's needs, EWNRA has expanded activities to include family planning and reproductive health (FP/RH) and general health promotion. It also addresses another critical issue facing farmers in the area—dwindling land holdings due to a succession of generations of large families. The current Wichi Wetlands Project works in close collaboration with the local government, a relationship described by one official as close as "water and life." This integrated Population, Health and Environment (PHE) Project provides a good model for community-based adaptation strategies. In addition to environmental protection, health promotion and provision of family planning information and services, the project also includes components addressing farming practices, agro-forestry, potable water, cleaner cooking facilities, and micro-credit for women.

One farmer, 44-year-old Gezahagn Gudeta, has already experienced the benefits of the program. In just a few years his fields have become a model in his *kebele* or ward. Using a new composite maize seed that he can replant and also sell to the government, growing interspersed with grasses to hold the soil and capture water, his farm has greatly increased its yield—and his income. Organic composting has also boosted this agricultural output. Near one field, Gezahegn has planted trees to reforest part of his land. Gezahegn, whose father also farmed this land, has seen changes in the local climate, most notably rising temperatures. Reversing the erosion of his farmland and restoring the wetlands is giving him a head start on adapting to these changes. (Please see BALANCED newsletter Issue 1 for more information on Gezahegn Gudeta's accomplishments.)

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▲ Women working in fields to produce healthy food and crops to sell

Expanding the agro-forestry system with multi-purpose trees, propagation of vegetables in home gardens and protecting the farmlands from soil erosion with Vetiver grass are among the activities of EWNRA, which have contributed to the success of farmers like Gezahegn in the Wichi and other watersheds of Metu. Vetiver grass plays a multifaceted role in the area, from trapping fertile soil in the farmyard and improving water infiltration into the soil, to sequestering carbon through its massive vegetative roots, blocking rodents (pests), thatching huts and generating income from its sale.

Around the wetlands, local farmers have agreed through village bylaws to control where their cattle graze. Partly as a result, the wetlands are regenerating to a lush green that can be seen for kilometers. The wetlands are surrounded by villages in five *kebeles* with different bylaws governing the wetlands. "We hope for the best that in a few years, all the bylaws will be equally protective," commented Afework Hailu, Executive Director of EWNRA.

Linking PHE and Climate Change

Protecting the wetlands is also having positive health effects on the communities—particularly on the lives of women. Throughout the project area, potable water is captured through community water pumps, which are installed adjacent to wetlands for dependable year round water supply. This frees up time that women used to spend collecting water, an activity that put them at risk of harm when traveling the long distances needed to reach the water source. In addition, installing cook stoves that use less wood and produce less smoke has reduced indoor pollution and reduced the burden women face cooking for long periods of time in smoky kitchens. Further, the Tulube health center reported that in 1998 water borne intestinal parasitic infections were the number one reason people sought care, but today such infections are sixth on the list.

The residents of the five *kebeles* surrounding the Wichi Wetlands are also taking action to plan their families through use of contraception. In Tulube, couples like Zerihun and his wife, Aster, are using the contraceptive injection Depo Provera and are happy with the three children they have. "We can educate and feed them well." They wonder why the government and non-governmental organizations have not been more proactive in ensuring access to family planning, noting the pressure they face providing for their children on increasingly small farm plots.

Another couple, Belainesh and Mebreku, in the village of Chabassa are also practicing family planning to space their children. They have two children and are discussing whether to have a third child if they have adequate resources. Belainesh's opinion matters in the decision and her economic strength means that her decision will prevail. Belainesh is a member of the area's women's microfinance cooperative and is busy raising bees to sell honey—a small livelihood she started with a first loan. A cow purchased with a second loan is about to give birth. Belainesh says how important it is to have a steady supply of contraceptives, explaining that supplies had previously been erratic but recently have been more consistent.

This sustained supply of family planning products is partly the result of EWNRA's collaboration with the U.S. Agency for International Development (USAID)-supported *BALANCED* Project. Using a small two-year pilot "seed grant" from the *BALANCED* Project, EWNRA has been integrating family planning and reproductive health services and information-education-communication materials into their existing wetlands conservation efforts in the Agelo Shenkora and Wichi Watersheds in 10 *kebeles* within the Metu Woreda, Ilu Aba Bora Zone, Oromia region.

As a strategic component of the seed grant, the *BALANCED* Project also helps EWNRA and partners to strengthen their PHE capacity with trainings for two types of field agents: PHE Providers and PHE Adult Peer Educators. Since February 2010, EWNRA has trained 63 PHE Adult Peer Educators and 32 PHE providers from the Wichi and Agelo-Shenkora watersheds and these volunteers as well as four PHE Providers now provide services in the community. Both trainings were carried out by facilitators who participated in an earlier PHE training-of-trainers in Ethiopia. EWNRA also executed agreements with the local Ministries of Health (MOHs) through the Metu Woreda and Illu Aba Bora zone Health Offices on providing family planning service delivery. Through the letter of permission to integrate family planning into the watershed management project from the Regional Health Bureau of Oromia and the agreements with the local MOHs, ENWRA was able to establish linkages with DKT Ethiopia, a social marketing and contraceptive supply organization, to provide family planning commodities to the 32 PHE Providers' outlets which are offering the FP services in the project sites and to establish a sustainable system for FP/RH supplies. This significantly reduces the distance a woman has to walk to obtain FP methods.

A lesson learned from this project is that the world's current approach to climate change adaptation needs a dose of the social sciences to focus a lens on the human face of climate change. In addition to technology, adaptation approaches require attention to all aspects of people's lives through community-based integrated strategies. Current PHE projects offer a promising model. In Ethiopia, the PHE Network (formerly the Consortium for the Integration of PHE) was established to strengthen these projects. In addition to hydropower and early warning systems, among other technological advances, community social capital needs to be enhanced – including meeting the needs of youth. Individual resilience will be enhanced by strengthening human capital through education, health, family planning and empowerment. In light of its integrated PHE activities, it is clear the people of Ethiopia's Wichi Wetlands are demonstrating how PHE approaches can help achieve effective climate change adaptation objective.

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PHE CHAMPIONS: SALUA OSORIO AND ANGELA ANDRADE

Linking Disease Prevention to Climate Change Adaptation Efforts in Rural Colombia

Ms. Salua Osorio from Colombia's National Institute of Health (INS) and Ms. Angela Andrade, advisor for Conservation International (CI) Colombia, are working with others to highlight the links between health and climate change in the country and to develop solutions to foster adaptation. Among all countries in Latin America, Colombia experiences the most natural disasters related to global climate change, according to the United Nations Development Program (UNDP).

Colombia borders the coasts of both the Pacific Ocean and the Caribbean Sea, and, after Brazil, has the second most abundant water availability in Latin America, according to the United Nations Food and Agriculture Organization. At the same time, this area of Latin America experiences some of the largest year-to-year climate variability in the world. Such variability and the expected longer-term changes in climate put significant pressures on agricultural production, water-resources management and human health.

Recognizing that global climate change is likely to alter the physical environment beyond the response capacity of its ecosystems, the Colombian Government developed the first National Pilot Project for Adaptation to Climate Change (INAP). With a multiyear climate change adaption grant from the World Bank and the Global Environment Facility (GEF) since 2005, Colombia's National Institute of Hydrology, Meteorology and Environmental Studies (IDEAM) is working with CI Colombia and other partners to strengthen the capacity of local communities and government authorities to better understand and address the impacts of climate change.

Ms. Salua Osorio from the INS serves as the Coordinator of a health component of the INAP Project to study the links between climate change and human disease transmission in remote, rural Colombia. The health component addresses the changing dynamics of disease transmission caused by climate change, focusing on malaria and dengue, diseases that are sensitive to changes in climate and are major public health challenges in the Latin American region.

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▲ Angela Andrade

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▲ Salua Osorio

In her role as technical coordinator of the integrated national adaptation pilot and a policy advisor for CI Colombia, Angela Andrade is supporting IDEAM and INS efforts to design and implement an integrated malaria and dengue surveillance and control system in eight municipalities.

Through their respective institutions, Salua and Angela are contributing to the knowledge base by documenting trends and impacts as well as assessing the expected consequences of climate change on strategic ecosystems. IDEAM, CI Colombia, and the Ministry of Health, are developing an Integrated Dengue and Malaria Surveillance System that incorporates ecological and socio-demographic components of dengue and malaria transmission. The goal is to reduce by 30 percent the transmission of malaria in five pilot municipalities and dengue in four.

Angela reports that the main achievement of the project so far in terms of malaria is the implementation of the Early Warning System for Malaria in pilot areas in settlements in the Pacific and the Amazon regions. This system includes a decision support system that can be used at local level to prevent the occurrence of the disease. The system will be implemented by the government: to predict the most vulnerable municipalities to climate change; improve multiscale capacity building efforts of the INS and IDEAM in the use of climate information; develop prevention-based interventions to reduce climate change related disease transmission.

For more information, please contact Salua Osorio, National Institute of Health (sosorio@ins.gov.co) and Angela Andrade, CI Colombia (aandrade@conservation.org).

BALANCED NEWSLETTER ACRONYMS

CBA	Community-Based Adaptation	**NAPAs**	National Action Plans for Adaptation
CBD	Community-Based Distributors (of contraceptives)	**NGOs**	Non-governmental organizations
CEEST	Centre for Energy, Environment, Science and Technology (Tanzania)	**PAI**	Population Action International
CVCA	Climate Vulnerability and Capacity Assessment	**PHE**	Population, Health and Environment
EWNRA	Ethio-Wetlands and Natural Resource Association (Ethiopia)	**PRB**	Population Reference Bureau
FP/RH	Family Planning/Reproductive Health	**TCMP**	Tanzania Coastal Management Partnership
GEF	Global Environmental Facility	**UNDP**	United Nations Development Program
GIS	Geographic Information Systems	**UNFCCC**	United Nations Framework Convention on Climate Change
GLOF	Glacial Lake Outburst Floods	**UNFPA**	United Nations Population Fund
IIED	International Institute for Environment and Development	**URI**	University of Rhode Island
IPCC	Intergovernmental Panel on Climate Change	**USAID**	U.S. Agency for International Development
MOH	Ministry of Health	**VRA**	Vulnerability Reduction Assessment
NCAT	Network Climate Adaptation Team (WWF)	**WWF**	World Wildlife Fund

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