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The Population, Health and Environment (PHE) Pathway to Livelihoods Improvement: Lessons and Best Practices from Nepal

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Author: Leona D'Agnes

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Improvement: Lessons and Best Practices from Nepal**

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ACRONYMS

ADRA	Adventist Development and Relief Agency
ARI	Acute Respiratory Infections
BCC	Behavior Change Communication
CBD	Community Based Distribution of contraceptives
CBO	Community Based Organization
CF	Community Forestry
CFUG	Community Forest User Group
CFCC-Khata	Community Forest Coordinating Committee of Khata (a CBO)
CFOP	Community Forest Operational Plan
DFO	District Forestry Office
DHO	District Health Office
DOH	Department of Health
EH IQC	Environmental Health IQC
FCHV	Female Community Health Volunteers (government-trained)
FECOFUN	Federation of Community Forestry Users, Nepal
FP/RH	Family Planning and Reproductive Health
HFP	Health and Family Planning
HIV	Human Immunodeficiency Virus
ICS	Improved Cook Stove
IEC	Information, Education and Communication
IGA	Income Generating Activities
NFE	Non-formal Education
NGO	Non-governmental Organization
ORC	Out Reach Clinic (lowest level public health service post)
PE	Peer Educator (project trained)
PHE	Population, Health and Environment
PHPA	Public Hearing and Public Auditing
PWBR	Participatory Well Being Ranking
RIMS	Resource Identification and Management Society
SAGUN	Strengthened Actions for Governance in Utilization of Natural Resources
TAL	Terai Arc Landscape (landscape conservation project of WWF-Nepal)

USAID

VDC

WWF

United States Agency for International Development

Village Development Council (local government unit)

World Wildlife Fund

EXECUTIVE SUMMARY

Since the 1980s, the U.S. Agency for International Development (USAID) has channeled assistance through a variety of projects to encourage Nepal's efforts at sharing forest management responsibility with local communities. An independent review (2006) of a recent USAID program, Strengthened Actions for Governance in Utilization of Natural Resource (SAGUN), confirmed the model's effectiveness in building the capacity of Community Forest User Groups (CFUG) to manage forest resources in a sustainable, democratic and socially inclusive manner. The same assessment, however, documented high levels of population density and unmet needs for family planning (FP) and health services in CFUG communities, which not only undermine human well-being, but also threaten the sustainability of the conservation gains realized under SAGUN.

Through the Environmental Health IQC (EH IQC), USAID/Nepal requested CDM to design and implement a pilot project to address these issues. The project was devised to build the self-help capacity of CFUGs to implement and sustain integrated approaches to population, health and environment (PHE) that also contribute to sustainable livelihood development. The pilot engaged 114 CFUGs in a variety of PHE advocacy, awareness-raising and service delivery activities during 2006-2008. Support by an external partner proved necessary to catalyze and guide the PHE integration process. Initially this was provided by the project staff of partner NGOs, with CFUG executive committees progressively assuming responsibility for sustaining the approach.

Three non-governmental organizations (NGOs) collaborated with CDM on this initiative. RIMS-Nepal worked with 82 CFUGs in nine villages of Dhading (Mid-Hills) in coordination with SAGUN. WWF-Nepal worked with and through an intermediate agency representing 32 CFUGs operating in three villages of Khata (Terai). ADRA-Nepal transferred family planning and preventive health knowledge to RIMS and WWF, and provided project coordination and supervision support throughout the pilot's two-year term. The NGOs were backstopped by an international technical advisor while USAID/Nepal provided program oversight and monitoring.

Using traditional media, interpersonal communications and non-formal education channels, the NGOs and CFUGs popularized the use of FP, clean-energy and other preventive health practices as the pathway to improved livelihood and sustainable forest management. At the same time, they implemented a number of actions that increased CFUGs' access to contraceptives, Human Immunodeficiency Virus (HIV)/AIDS prevention education, clean-energy technologies (improved cook stoves, biogas digesters and solar lamps) and other preventive health measures (i.e., latrines) and referral information. The partners also worked closely with existing Female Community

Health Volunteers (FCHV) to improve monitoring/management of acute respiratory infections (ARI) among children, while project-trained outreach workers worked to increase community awareness of the linkages between ARI and air pollution generated by traditional wood burning stoves. Moreover, the NGOs leveraged subsidies from CFUGs and local governments that enabled poor households to access clean-energy options.

Within a period of 24-months, the rate of contraceptive use among CFUG couples had increased by 20 percentage points or more in both project catchments, constituting a 50 percent increase over the baseline level. A dramatic decline in the number of child ARI cases was also observed in both project sites, possibly due to the rapid adoption of clean-energy technologies by CFUG households (which increased by 70 percent over the same period). By project end (September 2008), a total of 1,288 households in Dhading and Bardia were using improved cook stoves (ICS) or biogas digesters resulting in savings of 4,804 metric tons of firewood annually (equivalent to about 12,000 trees per year). The project's investments in promotion of clean-energy also generated tangible and immediate impacts on the living conditions of an estimated 7,084 children and adults residing in the same households via time and labor savings (social benefit), fuel savings (economic benefit), ARI-prevention (health benefit) and by averting productivity losses related to respiratory illness (economic benefit). All of these effects contribute directly to livelihood improvement and poverty alleviation and will persist as long as the households continue regular use of clean-energy technologies (sustained impact). Further, the long-term effects of continued FP practice (reduced fertility and population growth) will amplify these impacts by reducing consumption of forest resources and human pressures on forest ecosystems.

Several lessons and best practices emerged from this activity:

- Of the two different PHE implementation modalities tested under the project, a higher level of implementation efficiency was achieved by the NGO team that worked directly with CFUGs compared to the team that worked indirectly through an intermediate institution.
- The linked FP/health interventions reinforced the forest management interventions and, together, generated results (synergistic effects) that went beyond their sectoral impacts and contributed to livelihood improvement. Effective communication was an important enabler.
- Pitching the ARI-prevention benefits of ICS and biogas facilitated the rapid adoption of these energy-efficient technologies by CFUG households. It also helped to mobilize subsidies that enabled poor families to gain access to clean-energy options.
- Use of street drama to promote PHE emerged as a best practice in Dhading that made CFUGs more open to new ideas about FP, health prevention and alternative energy use. By casting peer educators (PE) as actors, the drama also

elevated the volunteers' statuses in the community, and may account for the lower PE turnover rate in Dhading as compared to Khata.

- Leveraging counterpart contributions (cash and in-kind) from CFUGs and local governments to support PHE activities fostered a sense of ownership among local stakeholders and encouraged cooperation among different authorities that enabled integration.
- Encouraging CFUGs and the District Forestry Office (DFO) to incorporate FP/health into community forest operational plans ensured the continuation of PHE through 2012 [beyond the project's duration] in 49 communities.

These and other results support the hypothesis that CFUGs make an excellent point of entry for integrated programming in conservation, FP/health and livelihoods improvement. Since the institutional platform already exists in over 14,000 CFUGs nationwide - and proved robust enough to embrace common interests from forest and health sectors, and because the groups are able to self-fund in many cases, CFUGs represent the most practical mechanism for scaling-up PHE in rural Nepal. The same expansion could also mitigate climate changes caused by black carbon which is emitted by traditional wood burning stoves, assuming funding is available for deployment of improved biomass-fuel stoves and other clean-energy options for households.

CHAPTER I. INTRODUCTION

Community forestry (CF) emerged in 1978 as an effort to address deforestation and habitat loss in Nepal. The main institution is the Community Forest User Group (CFUG) – an independent and self governing entity comprised of several households responsible for the protection, management and use of a tract of state-owned forest transferred to the group by the national government. CFUGs draft and negotiate a community forest operational plan (CFOP) with the DFO which is subject to renewal every 5-10 years. The arrangement allows group members to use products from the forest (timber, fodder, etc) for internal consumption at fixed prices, and to sell the surplus to outsiders at market prices. Twenty-five (25) percent of the income from the sale of forest products must be spent on the protection and management of the community forest while the remainder can be spent on community development and other activities. An executive committee elected by CFUG members holds responsibility for implementation of the CFOP and administration of the group funds¹.

The CF methodology that evolved in Nepal over the past 25 years is sophisticated and operationalized across the country. Currently 14,000 CFUGs are protecting 1.2 million hectares of forests engaging 35 percent of the country's population in natural resource management actions. Kanel reports that CFUGs have contributed significantly to increased forest cover, income generation, community development and grass-roots democracy building in Nepal¹, while others note that CF has become a means to increase social, human, financial and natural capital of forest users². These same reports, however, point to persistent issues with CFUG executive committees



which are often dominated by the elite and wealthy individuals that do not represent the interests of the poor, women and socially disadvantaged members of the group.

Figure 1. Elite or wealthy community members often “capture” executive positions in CFUGs and dominate the decision-making process. However, at this SAGUN project site in Dhading, the group elected an ethnic Chepang man (right) as their leader.

¹ Keshav Raj Kanel, Ram Prasad Poudyal & Jagadish Prasad Baral. (2005). Nepal Community Forestry. Regional Community Forestry Training Center for Asia and the Pacific website:

http://www.recoftc.org/site/fileadmin/docs/publications/The_Grey_Zone/2006/CF_Forum/policy_nepal.pdf

² Bharat K. Pokharel . Contribution of Community Forestry to People's Livelihoods and Forest Sustainability:

Experience from Nepal. World Rainforest Movement website <http://www.wrm.org.uy/countries/Asia/Nepal.html>

Participation of those groups in CFUG management has reportedly improved in recent years. The national database maintained by the Community Forestry Division shows that 25 percent of CFUGs now have female executives and about 600 user groups are operated by committees made up entirely of women¹.

Nepal ranks among the poorest and least developed countries in the world, with an annual per capita income of approximately US\$235 per year, life expectancy of 59 years, annual population growth rate of 2.3 percent, and population doubling time of 29 years. Nepalese women, on average, bear 3.1 children in their lifetime. The high



birth rate is largely due to early marriage (40 percent of girls are married by age 15), which has a cumulative effect on fertility. Poverty is one of the major factors underpinning early marriage, as young girls are often regarded as an economic burden³.

Figure 2. In Nepal, 40 per cent of girls are married by age 15 and about half of all females give birth by age 17. Early marriage has a cumulative effect on fertility and is associated with increased reproductive and child health risks. If a woman has an opportunity to postpone her marriage, she has the chance of getting a higher education and consequently, knowledge about contraception and health.

Eighty percent of Nepal's 24 million people live in rural areas and depend upon subsistence agriculture and forest products for their livelihoods. The growing population relies mainly on traditional energy sources – 90 percent of which is derived from firewood. The extremely high dependency on wood for fuel has also created air pollution and respiratory problems, in addition to deforestation. Moreover, there is a growing body of evidence to show that particulate air pollution (e.g., black carbon) emitted by inefficient biomass-fueled stoves (such as those traditionally used in Nepal) contribute to global warming.⁴

³ UNICEF. *Early Marriage Child Spouses. Innocenti Digest, Issue 7, 2001.* Downloaded at <http://www.unicef-irc.org/publications/pdf/digest7e.pdf>

⁴ For example, deposits of black carbon on snow packs and ice absorb sunlight, thereby heating the earth and melting glaciers.

A. USAID's Support to the Community Forestry Sector

For nearly 30 years, USAID has channeled assistance through a variety of projects to encourage Nepal's efforts to share forest management responsibility with communities living near state-owned forests and national parks. USAID's recently concluded program, SAGUN, focused on strengthening actions for governance in the utilization of natural resources among CFUGs, and promoting greater involvement of women and ethnic minorities in the management of community forestry institutions. Among other successes, SAGUN has enabled CFUGs to develop Public Hearing and Public Auditing (PHPA) systems and procedures that improve transparency in group financial management. It also transferred knowledge in Participatory Well Being Ranking (PWBR) methodology to CFUGs to promote inclusive and pro-poor decision making.

In 2006, USAID/Nepal commissioned a review of SAGUN's assistance to CFUG institutions that was performed by a team of community forestry and biodiversity conservation experts. A PHE specialist and a local public health professional were invited to join the team to assess health issues and activities of CFUGs and explore opportunities for integrative planning in PHE. The assessment team's findings confirmed the effectiveness of the SAGUN model in building CFUG's capacity to manage forest assets in a sustainable, democratic and socially inclusive manner and illustrated that such action was helping to conserve the biodiversity of Nepal's forests and national parks⁵. In the remote areas where SAGUN operates, however, the PHE team noted high levels of population density and unmet needs for FP and health services among CFUG communities. Frequency of pneumonia and other ARIs among children was a major concern voiced by community leaders and the leading cause of premature death among under-fives according to local health authorities. While SAGUN encourages the use of alternative energy technologies to reduce firewood consumption and deforestation, the need to educate communities about the links between traditional wood burning stoves, indoor air pollution and ARI was often overlooked. The threat of HIV/AIDS also looms in some communities where unemployment is a driver of seasonal migration to India among men who generally lack knowledge of sexually transmitted infections. Even though some CFUGs are allocating resources for health activities from their communal development funds, all too often these investments are for infrastructure development rather than preventative health measures.

⁵ ARD Inc. (July 2006). *Nepal User Group Natural Resource Management/Population, Health, and Environment Assessment, Final Report*. Contract No. EH-IQC-ARD-06-TOA-02-2. Available at http://www.ehproject.org/PDF/phe/nepal-phe_assessment.pdf



Figure 3. A Chepang (ethnic minority) community located in the Mid-Hill district of Dhading, Nepal, where PHE interventions were integrated into forest management and governance activities initiated under the USAID-supported SAGUN program.

In its report to USAID, the team identified several opportunities for building the self-help capacity of CFUGs to meet the basic health needs of their members by integrating family planning, HIV/AIDS education and ARI prevention measures into the natural resource management and environmental governance activities of community forestry institutions⁶.

⁶ARD Inc. (July 2006). *Opportunities in Population and Health for Community Forest User Groups in Nepal*. Contract No. EH-IQC-ARD-06-TOA-02-2. Available at http://www.ehproject.org/PDF/phe/nepal-phe_usergroups.pdf

CHAPTER 2. PHE PILOT PROJECT

A. Background

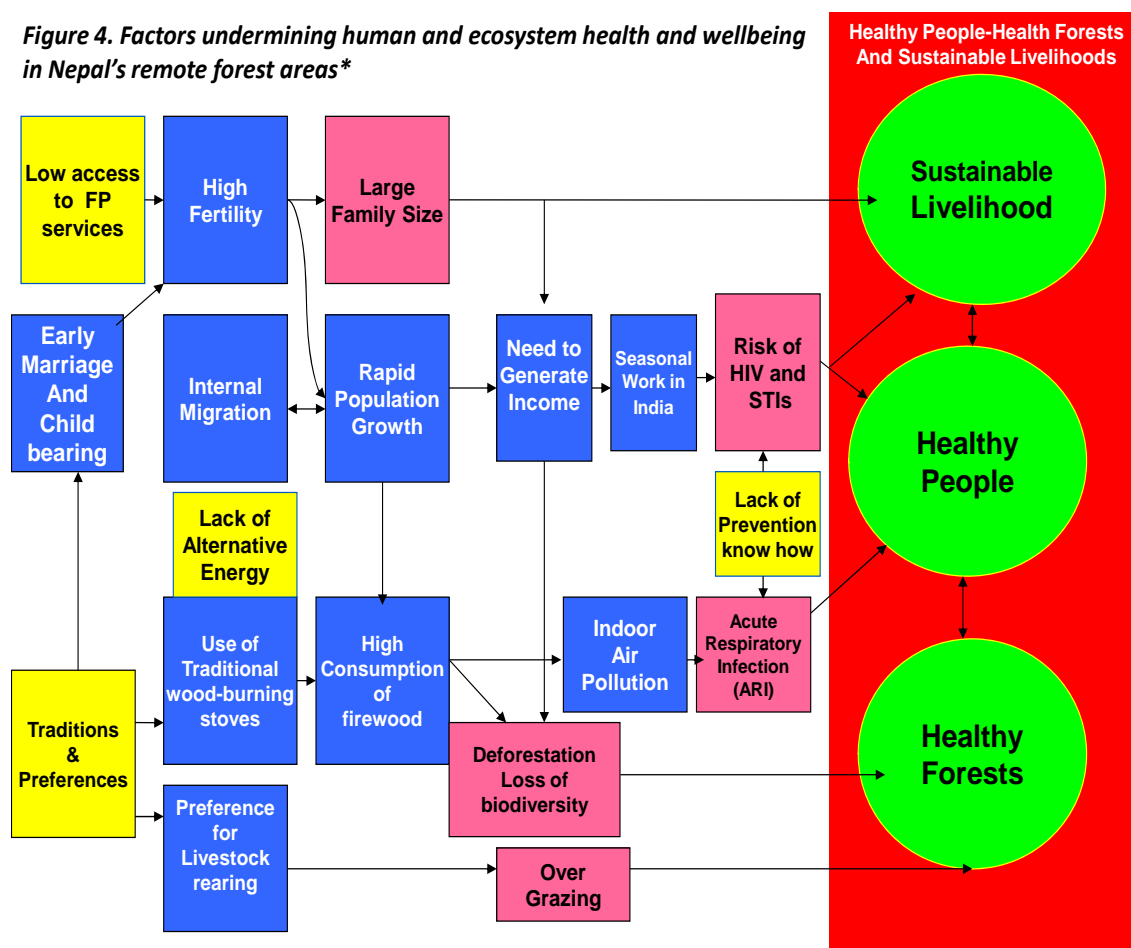
The SAGUN assessment, together with other available information, points to a number of demographic, environmental and social dynamics and interrelationships that undermine human and ecosystem health and sustainable livelihood development in Nepal's forest areas. The schematic below illustrates the direct threats (pink boxes), the indirect factors (blue boxes) and the root causes that also present opportunities for intervention (yellow boxes). High fertility associated with early marriage and low FP practice - together with internal migration - are the main drivers of rapid population growth in these areas which, in turn, spurs increased pressure on the natural resource base. Over-harvesting of wood and over-grazing of livestock constitute the main threats to healthy forests and the flow of ecosystem goods and services that sustain human populations. Underlying factors include peoples' dependency on wood for fuel and the dearth of alternative sources of energy and livelihood. A compounding factor is peoples' preference for traditional wood burning stoves that emit black carbon – a byproduct of incomplete and inefficient combustion – associated with ARI in children⁷ - the leading cause of fatality among under-fives in Nepal. Indoor air pollution emitted by inefficient biomass-fueled stoves has also been linked to premature death among in women in developing countries⁸. These health problems perpetuate poverty through loss of life and productivity (work days and school attendance), and increases in health-related expenditures.

Yet another risk to human wellbeing is the emerging threat of the HIV/AIDS in forest communities. Despite their remote location, HIV is penetrating these communities via seasonal migrant workers returning from bordering areas of India where prevalence is high. In the absence of prevention knowledge and practice, ARI and HIV can be life threatening for individuals and devastating for forest-dependent households – which already rank among the poorest in the nation.

⁷ Wallack, J.S and V. Ramanathan (Sept/Oct 2009). *The Other Climate Changers: Why Black Carbon and Ozone Also Matter. Foreign Affairs, Vol. 88, Number 5, pp 105-113.*

⁸ Colorado State University (CSU) e-bulletin, June 30, 2006

Figure 4. Factors undermining human and ecosystem health and wellbeing in Nepal's remote forest areas*



*Source: D'Agnes, L. and M. Slater. (2008). Program Design in Population, Health and Environment (PHE): Training Curriculum Session 3. Developed for CDM and USAID under the Environmental Health IQC Contract GHA-I 00-04-00006/Task Order #2.

In an effort to cope with unanticipated health care expenditures or the loss of a family member's income, some households resort to illegal logging and other damaging environmental practices in order to meet their immediate needs.

These complex factors and the interrelationships among them necessitate the use of integrated approaches toward population, health and environment (PHE) that are within the realm of local institutions and communities to implement and sustain. As such, the team recommended that USAID pilot a PHE project to test the concept of using existing community forestry institutions to implement family planning and preventive health activities in tandem with ongoing community forestry management/governance strategies. Two of Nepal's three eco-regions were recommended as pilot sites, namely the Terai (fertile river plain) and the Mid-hills. These regions were prioritized because they accommodate the bulk of the population and rank among the most endangered in terms of loss of forest coverage and biodiversity⁵.

B. Integrating Population and Health into Forestry Management Agendas in Nepal

The pilot project – entitled *Integrating Population and Health into Forestry Management Agendas in Nepal* – employed a mix of strategies and interventions to address to complex problems discussed earlier. While resource constraints precluded the project’s capacity to mediate factors driving internal migration and seasonal exodus to India, it was able to tackle access constraints to family planning and clean-energy technology and gaps in peoples’ awareness and practice for ARI and HIV/AIDS prevention. In particular, it sought to establish education and distribution channels within the CFUG to expand knowledge of, and access to, modern methods of family planning, HIV/AIDS prevention measures and emergency contraception. It also aimed to deploy clean-energy technologies and increase community awareness of links between burning firewood and ARI and ways to reduce exposure to air pollution by removing children from the kitchen during cooking and by using clean-energy options for cooking and lighting e.g., ICS, biogas and solar lamps.

Overgrazing of livestock was another challenge beyond the project’s scope of intervention. Some NGOs, however, were already working with CFUGs in the Terai to remove cattle from the forest and replace them with a smaller number of stall-fed

Objectives of the Nepal PHE Pilot and Indicators for Measuring Success

Objective 1: Improved health outcomes of people living adjacent to forests corridors and in buffer zones of national parks in rural Nepal

- Indicator 1.1 Percentage of eligible couples currently using any method of family planning (CPR)
- Indicator 1.2 Couple years of protection (CYOP)
- Indicator 1.3 Number of children with ARI signs/symptoms seen and referred to Health facilities by Female Community Health Volunteers (FCHV) in the past 6 months

Objective 2: Enhanced capacity of CFUG to promote human and ecosystem health using community-based and integrated PHE approaches

- Indicator 2.1 Percentage of CFUG households in the program area that adopt clean-energy (biogas or improved cook stove)
- Indicator 2.2 Metric tons of firewood saved annually from the use of clean-energy technologies (biogas or improved cook stove) by CFUG households
- Indicator 2.3 Number of local personnel trained and active in PHE effort by age/gender

Objective 3: Increased support in forest user groups for sustainable PHE approaches

- Indicator 3.1 Total value of contributions (cash and in-kind) leveraged from CFUGs and other sources to support local PHE initiatives and activities
- Indicator 3.2 Number of Community Forest Operational Plans (CFOP) developed by CFUGs (and approved by District Forestry Offices) that incorporate FP/RH and clean-energy activities and interventions

cattle whose dung was then recycled into biogas⁹. Such projects offered interesting opportunities for collaboration on PHE activities of mutual interest.

Recognizing that support from an external agency is needed to catalyze the dynamic of change and the integration process, the Nepal pilot incorporated a role for NGOs to progressively build CFUGs' capacity to implement and sustain community based and integrated PHE approaches. Three intermediate results or objectives were anticipated, each with a set of process and outcome indicators for measuring success (see Text Box on previous page).

C. Implementation Arrangements

The partnership involved USAID/Nepal, three NGOs with established presence in Nepal, and a U.S.-based company, CDM, responsible for managing the Environmental Health IQC Task Order through which the pilot was financed and backstopped. Using pre-determined selection criteria, CDM executed sub-contracts with two environmental NGOs that had established relationships with CFUGs, ongoing conservation and health activities in the target eco-regions, and were interested in incorporating a family planning component, including community-based distribution of contraceptives (CBD).

The two NGOs and their existing projects which served as the platform for PHE integration included: The World Wildlife Fund (WWF) Nepal and its Conservation-Health Project in the Khata corridor of the Terai Arc Landscape (TAL), and the Resource Identification and Management Society (RIMS) Nepal and its SAGUN activities in Dhading District (Mid-Hills). A third NGO – the Adventist Development and Relief Agency (ADRA) Nepal, was retained by CDM to deliver RH/FP capacity building assistance and oversee the two implementing NGO partners. CDM was responsible for overall management and administration of the Nepal project and provision of technical support for PHE integration. In addition to providing financial and commodities assistance, USAID/Nepal periodically visited the project sites and met with the NGOs on a quarterly basis to review their output reports and provide guidance on compliance and performance issues.

D. Implementation Modalities

The two NGO pilot projects differed in their implementation modalities which afforded occasion for comparison of distinct approaches to PHE integration. Whereas RIMS organized a field team that worked directly with CFUGs in nine Village Development Councils (VDCs) of Dhading, the WWF-Nepal designated an

⁹ Oglethorpe, Judy, Cara Honzak, & Cheryl Margoluis. (2008). *Healthy people, healthy ecosystems: A manual on integrating health and family planning into conservation projects*. Washington, DC: World Wildlife Fund. Available online at <http://www.worldwildlife.org/what/communityaction/WWFBinaryitem10254.pdf>

intermediate organization - the Community Forest Coordinating Committee (CFCC) - to serve as its local partner for implementation of project activities in three VDCs of the Khata corridor (Terai). CFCC is an umbrella organization of 32 CFUGs governed by an executive committee whose leadership rotates every 24 months. WWF personnel based at regional (Nepalgunj) and central (Kathmandu) levels backstopped the work of the CFCC.

Both RIMS and WWF had already incorporated health interventions into their environment programs which further enabled the development of comprehensive PHE models and allowed USAID to focus its resources on family planning, reproductive health and ARI interventions. With support from the Johnson and Johnson (J&J) Foundation, WWF-Nepal had established a community-run health clinic in Khata and trained volunteers in first aid and HIV/AIDS awareness-raising strategies. CFCC also received endowment funds from WWF which enabled it to offer subsidies to CFUG households for installation of biogas-latrines, solar lamps and household water filtration devices to reduce firewood consumption and exposure to gastro-intestinal pathogens and arsenic in the environment¹⁰. RIMS-Nepal had mobilized resources from the German Embassy to support latrine-construction in the same villages targeted for PHE implementation. Additionally, both NGO programs were running non-formal education (NFE) classes for illiterate females in their project areas that also served as an avenue for teaching women about forestry management and good governance. Although both NGOs were encouraging use of alternative sources of energy to conserve the forest, little effort was made to educate CFUGs about health risks associated with the use of traditional wood burning stoves.

E. Project Inputs

The pilot was inaugurated in October 2006 with an inception meeting convened in Kathmandu among the partner NGOs, USAID/Nepal, and CDM. The meeting enabled consensus among the partners on the main strategies and indicators that would be applied at each project site to facilitate PHE integration and measure success. The participation of NGO personnel with conservation evaluation expertise proved critical to the identification of outcome indicators for the alternative energy component of the project. Each NGO partner developed a detailed implementation plan for each of the project's three objectives and estimated an end-of-project result (quantifiable outcome) for each indicator. All three NGO partners received an equivalent amount of funding from CDM/USAID to manage, implement and monitor their subprojects (\$80,000 over a 24-month period). The two implementing NGO partners were also required to mobilize counterpart resources (cash and/or in-

¹⁰ D'Agnes, L., Oglethorpe, J., Thapa, S., Rai, D., Gryawali, T.P. (2009) *Forests for the Future: Family Planning in Nepal's Terai Region*. FOCUS, Issue 18. March 2009. Woodrow Wilson Center, Environmental Change and Security Project (ECSP) Washington D.C.

kind) from non-U.S. government sources to support the implementation of field-based PHE activities.

A variety of capacity-building methods were used to transfer knowledge to the NGO partners, including skills training workshops, individualized technical assistance, coaching of field personnel, mentoring of community volunteers and supportive supervision. At the onset, ADRA assisted each NGO to conduct a rapid assessment of existing health resources in their project areas and to link with government health personnel at district and lower levels. Using existing PHE training materials from the Philippines, ADRA adapted and applied a curriculum that incrementally developed the capacity of NGO/Community-based Organization (CBO) partners' staff to plan, implement and monitor community based FP and health activities linked to forestry management. The NGO/CBOs' field staff, in turn, trained and mentored CFUG members to serve as PHE outreach workers, peer educators (adult and youth), ICS promoters and community based distributors (CBD) of contraceptives. Following training, the NGO/CBO field staff convened monthly meetings with the trainees to provide mentoring support and trouble-shooting assistance. Throughout the process, ADRA extended supportive supervision to the partners and ad-hoc technical assistance in the field.

F. Field Activities

Using traditional media and interpersonal communications and non-formal education channels, the NGO partners organized and implemented a number of PHE advocacy and awareness-raising activities targeted to CFUG members, VDC leaders¹¹ and local staff of the District Health Office (DHO) and the District Forestry Office (DFO). Their efforts aimed to increase peoples' understanding of the benefits of family planning and alternative energy use, and how these practices complement forestry management and contribute to improved livelihood via increased savings (time and money), better health ("health is wealth") and reduced pressure on the environment. The partners also trained and mentored peer educators in the community who delivered behavior change communication (BCC) to adults and youth (15-24 years) and facilitated group interactions that encouraged the adoption of family planning, clean-energy and environmental hygiene practices among CFUG couples and members. The WWF/CFCC pilot, for example, introduced household latrines connected to biogas digesters where human and animal waste are mixed to produce methane gas which is piped to the nearby kitchen and used for cooking. Regular use of such systems can also reduce oral-fecal transmission of pathogens and gastrointestinal infections – another leading cause of child mortality in rural Nepal.

¹¹ *Local government officials*

RIMS also delivered PHE messages through street dramas, radio jingles and school-based initiatives while both NGOs organized NFE classes that disseminated RH/FP and PHE messages to women and girls in the community in combination with literacy skills building. In addition, ADRA mentored the NGOs' field staff in the use of flip charts and other visual aids to guide discussions with adult groups about safe motherhood, HIV/AIDS, reproductive health rights and other topics.



Figure 5. The PHE pilot in Dhading employed multiple strategies/PHE interventions to reach people living in remote forest communities, including outreach education, street drama, radio-listening programs, peer education, and poster display group discussion.



Figure 6. It is extremely important to reach youth with PHE interventions, as people aged 15 and under comprise 39% of Nepal's total population. As such, their attitudes and practices will impact future demographic and environment trends more than any other age group. This photo depicts a cohort of Youth Peer Educators (YPE) involved in the PHE pilot implemented by WWF/CFCC in the Khata corridor (Terai) where youth received training in adolescent reproductive and sexual health (ASRH), as well as PHE topics.

At both project sites, the NGOs worked to increase demand for, and supply of, clean-energy technologies. While RIMS concentrated mainly on ICS promotion, WWF/CFCC advanced the use of biogas and solar lamps. The NGOs also collaborated with government-trained FCHVs to improve preventive health practices and service delivery, particularly early detection and referral of child ARI cases. Routine meetings were convened on a monthly or quarterly basis with the FCHVs to discuss issues pertaining to family planning and health in the community and to track the number of child ARI cases that had been seen, treated and referred by FCHVs during that period.

ADRA-Nepal delivered basic training and refresher courses to peer educators (adult and youth) who were selected by the CFUG executives using criteria provided by the project. ADRA also monitored the progress of the NGOs' field activities on a regular

basis and deployed personnel to the project sites to assist with activity implementation when needed, as was often the case in Khata where CFCC required more frequent and intensive technical support compared to the RIMS team in Dhading. ADRA also facilitated cross-site learning between the RIMS and WWF/CFCC project teams, including site visits to each team's field location and exchanges between project outreach workers, peer educators, CFUG executives, VDC leaders and officers of the Federation of Community Forestry Users, Nepal (FECOFUN).



During the first project quarter, the NGO partners worked with and through the CFUG executive committees to gather up-to-date information on the number of households and eligible couples in the target VDCs and their family planning and clean-energy practices. The same process was repeated in the fifth project quarter for program monitoring purposes.

PHE integration was facilitated by the project's information, education and communication (IEC) strategy whose overarching theme focused on PHE as a pathway to improved health and sustainable livelihood. Messages communicating that "health is wealth" and "without health, there is no wealth" helped to improve peoples' understanding of how PHE can improve livelihood and alleviate poverty e.g., by reducing losses (foregone income and schooling due to respiratory illness), increasing efficiency (energy, time saving), improving household management (via smaller family size) and assuring continuity of forest resources (by reducing consumption). The NGOs employed similar communication in their advocacy efforts targeted to District Forestry officials who initially expressed concern that the project might distract CFUGs from their primary forest management and stewardship responsibilities. Subsequently the same government officials endorsed the PHE approach once they understood how it can help to sustain the gains of their conservation programs and enhance the livelihood of forest-dependent families.

Figure 7a. (left) Improved Cook Stoves (ICS) are smokeless, fuel-efficient and low-cost devices created from hand-made bricks and tailored to fit available space in the homestead. ICS use generates economic, social and health benefits for CFUG families as well as conservation benefits for Nepal's forests.

Figure 7b. (right) ADRA Nepal personnel inspecting an improved cook stove installed by a female ICS promoter trained under the PHE pilot and implemented by WWF/CFCC in Khata (Terai). This woman, who is a widow, reportedly earned sufficient income from ICS installation to put her two children through school, which they otherwise would have been unable to attend.

Use of existing local resource persons (developed for environmental conservation and governance work) to deliver PHE outreach education to the same communities was another way in which integration was aided. These agents of change linked with peer educators (PE) trained under the project to disseminate integrated IEC messages through interpersonal channels to their friends, relatives and other CFUG members.

Yet another means through which integration was achieved was through the partnerships and coordination activities supported by the project which encouraged cooperation among different sectors (health, forestry, and energy), authorities (local government, DHO, DFO, CFUG, FECOFUN etc.) and programs (SAGUN, TAL and the government's FP and HIV/AIDS programs). Not only did these partnerships leverage additional resources to support PHE implementation, but they also helped to reduce redundancies amongst the various programs operating in the project catchment areas.



Figure 8. Local resource person in Dhading proudly displays a handbag provided by the project that identifies her as a PHE outreach worker. The logo depicts a human eye and the caption explains that PHE is a new outlook and approach to a better life.

G. Project Outputs

By the project's end (September 2008), the partner NGOs had successfully completed their work plans and achieved or surpassed their performance benchmarks (see Table 1 on the following page). With technical support from ADRA, the WWF/CFCC team trained and supported 176 local personnel (outreach workers, peer educators) from 32 CFUGs to deliver PHE services to 3,095 households in Khata. Over 1,100 couples new to family planning were served by the project together with 884 children with ARI signs/symptoms. A total of 250 CFUG households were also served through installation of 120 ICS and 130 biogas-latrines that resulted in an annual savings of 715 metric tons of firewood. In addition, the WWF-CFCC team deployed 290 solar lamps and a number of water filtration devices in the same villages. It also mobilized resources valued at \$37,500 to support PHE-related activities (renovations to the community health clinic, subsidies for

installation of clean-energy technologies, funds for IEC material development and clinic supplies). By working closely with the DFO, the team also enabled 24 CFUGs to incorporate PHE into their CFOPs, thus assuring continuity of PHE activities through 2012 (beyond the life of project).

In Dhading, RIMS originally targeted 78 CFUGs for assistance but was able to extend services to four additional CFUGs with no additional budgetary support. Together, RIMS and ADRA trained 375 local personnel (outreach workers, peer educators, ICS promoters) from 82 CFUGs to deliver PHE services to 5,945 households. 1,400 couples availed of FP services offered by the program. The RIMS team also assisted 50 FCHVs and monitored 1,873 child ARI cases. In addition, the team installed 998 ICS and 40 biogas units that are collectively saving 1,178 metric tons of firewood annually. RIMS also secured financing from CFUGs, VDCs and even a local development bank that enabled families from poor households and socially disadvantaged groups (Dalits) to gain access to clean-energy options. They also leveraged resources from the CFUGs and the DHO to revive outreach clinics disrupted during the Maoist insurgency. Altogether, the value of resources (cash and in-kind) mobilized by RIMS for PHE-related activities totaled \$46,888 (equivalent). Of the 82 CFUGs that collaborated on the project, 25 had CFOPs that came up for renewal during the project term. With RIMS' help, all 25 incorporated FP/health activities into their CFOP amendments thus institutionalizing the PHE approach.

Table 1. Coverage and Outputs of PHE Pilots by Implementing NGO Partner, Nepal (2006-2008)

Statistics and Output Indicator	Performance Benchmark (by Sept 08)	Actual Output WWF-CFCC (Khata, Bardia)	Actual Output RIMS-Nepal (Dhading)	OVERALL TOTAL (Sept 08)
Total population of the district		332,454	372,592	705,046
Program Coverage (# CFUG)	32 (WWF) 78 (RIMS)	32	82	114
# HH among CFUGs		3095	5945	9040
# Eligible Couples among CFUGs		4405	6473	10,878
# PHE field personnel developed	177 (WWF) 370 (RIMS)	176	375	551
# Couples availing of FP services		1105	1400	2,505
# Child ARI cases monitored/managed		884	1873	2,757
# ICS units installed		120	998	1,118
# Biogas units installed		130	40	170
Additional firewood saved (metric tons)	681(WWF) 445 (RIMS)	715	1,178	1,893
Value of resources leveraged for PHE (US\$ equivalent)	US\$5,000	US\$ 37,500 (Equivalent)	US\$ 46,888 (Equivalent)	US\$84,388
# Community Forest Operation Plans (CFOP) incorporating PHE	15 (WWF) 18 (RIMS)	24	25	49

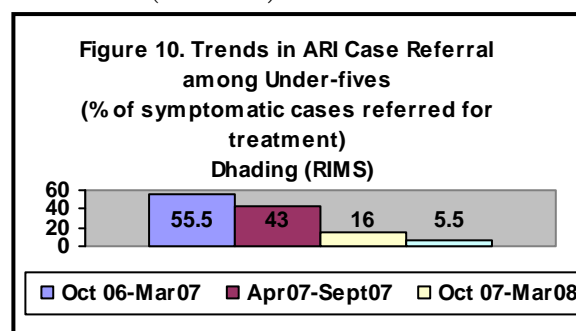
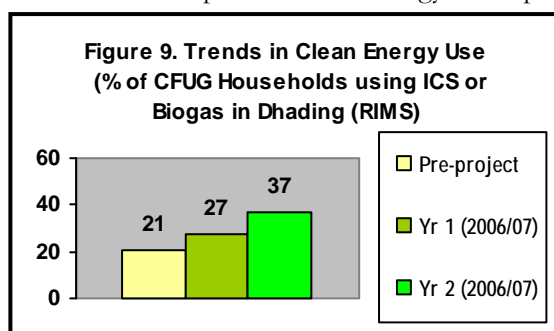
CHAPTER 3. INTERMEDIATE RESULTS

Results of PHE program monitoring (Table 2, below) indicate family planning practices increased significantly among CFUGs over the 24-month period of the pilot; rates of contraceptive prevalence increased by 20 percentage points or more in both project sites, constituting a 50 percent increase over baseline levels. In Dhading, RIMS noted an upsurge in adoption of both family planning and

Table 2. Cumulative results and outcomes of PHE pilots by implementing NGO partner (2006-2008)

Outcome Indicator	Projected Result (by Sept 08)	Actual Result WWF-CFCC (Khata, Bardia)		Actual result RIMS-Nepal (Dhading)		OVERALL RESULTS (Sept 08)
		Oct 06 (Baseline)	Sept 08	Oct 06 (Baseline)	Sept 08	
Contraceptive Prevalence Rate – Modern Methods (%)	53.0%(WWF) 55.0% (RIMS)	42.8%	72.6%	44.0%	63.1%	50% increase over the baseline
Couple Years of Protection (CYOP) against pregnancy			2061.95		1211.2	3273.15
ARI case referral rate (%)	Decreasing trend	11.5%	7.0%	55.0%	5.5%	Significant reduction
HHs using clean-energy (%)	25% (WWF) 30% (RIMS)	11.3%	18.9%	22.0%	37.2%	70% increase over baseline

clean-energy use following a series of street performances delivered by a professional drama troupe. The performances incorporated acting roles for peer educators from the communities in the skits. WWF/CFCC reported higher levels of FP acceptance following training of adult peer educators and linkages with government-sponsored sterilization camps in Bardia. In both sites, outreach workers observed an upsurge in demand for condoms by men following BCC about the “dual benefits” of condom use e.g., prevention of pregnancy and STIs. Additionally, the number of ARI cases among under-five children declined dramatically in both project sites, as did the case referral rate. The declining ARI trends were inversely proportional to the increasing trends in adoption of clean-energy in the project catchments (see charts).



However, a number of other factors may have also contributed to declining ARI incidence including government training of FCHV on ARI case management, improved ARI case monitoring and referral (facilitated by the project), and increased awareness of, and prevention practice for, ARI among CFUGs (project stimulated).

By September 2008, 37 percent of CFUG households in the Dhading catchment and 19 percent in Bardia were using clean sources of energy (ICS or biogas) constituting a 70 percent increase over the baseline level. Collectively, these CFUG households are helping to save about 4,804 metric tons of firewood annually (equivalent to about 12,000 trees) and as such, are helping to maintain the coverage and biodiversity of forest areas under their protection. The project's investments in clean-energy also produced tangible and immediate impacts on the living conditions of an estimated 7,084 children and adults residing in the same households. Impacts include reducing time and labor spent on foraging firewood and cleaning soot from cooking pots¹² (social benefit); increasing fuel efficiency in the homestead (economic benefit); preventing respiratory diseases and eye problems associated with indoor air pollution (health benefit); reducing expenditures on medicine and transportation cost to health centers (economic benefit) and minimizing productivity losses (labor, schooling) during episodes of respiratory illness (economic benefit). All of these contribute to improved livelihood and poverty alleviation and their effects will continue to accrue as long as the households continue to use clean-energy technologies on a regular basis (sustained impact). Further, the long-term effects of continued family planning practice (reduced fertility and population growth) will amplify these impacts by reducing consumption of forest resources and human pressures on forest ecosystems.

By integrating family planning and alternative energy into their community forest operational plan (CFOP) amendments, 42 CFUGs also made a commitment to continue PHE activities through 2012. This result did not come easily and necessitated additional effort on the part of the partner NGOs and the CFUG executive committees who had to justify to their members and the Department of Forestry why PHE interventions should be incorporated into plans for sustainable management of the forest. Planning workshops and general assemblies among CFUG constituencies also had to be organized to obtain the endorsements required to secure the amendments.

In terms of resource leveraging, the partners surpassed the amount anticipated, with the CFUGs and local governments both contributing substantial resources. The combined value of counterpart contributions totaled over \$84,000, compared to USAID's investment of \$160,000 in the two NGO subprojects.

¹² *Housewives report that pots used for cooking on ICS have less soot compared to those used on traditional cook stoves.*

CHAPTER 4. LESSONS LEARNED

A “lesson learned” is knowledge or understanding gained by negative experience *as well as* positive experience. A wealth of knowledge was gained in the process of implementing and monitoring PHE activities in Nepal.

1. ***Utilizing community forestry institutions to promote integrated PHE approaches is feasible and cost-efficient.*** PHE integration was achieved quickly and at relatively low start-up cost in both Dhading and Khata because the CFUGs were already fully functioning, providing a stable platform for the introduction and delivery of multiple health interventions. In Dhading, a cadre of local resource persons previously developed by SAGUN to promote forestry management/governance was available to facilitate the PHE integration process, which saved time and resources that otherwise would have been required for human capital development. Similarly, in Khata, WWF/CFCC had already established a community health clinic that offered curative as well as preventative services to CFUGs and provided a base for PHE outreach work. Also a number of CFUG members at both project sites were willing to volunteer their time as peer educators, which reduced the projects’ overall labor costs.
2. ***The NGO team that worked directly with communities achieved better results than the one that worked through an intermediate organization.*** The Nepal pilot presented an occasion to compare the operational efficiency of two distinct modalities of PHE implementation and to document learning from both the successes and shortcomings of the two NGO subprojects. Both NGOs received the same level of financial support, training and supportive supervision with additional technical assistance available upon demand. Judging from the overall results and the quality and timeliness of deliverables, the model where the partner NGO worked directly with CFUGs generated more effective teamwork and better efficiency of field operations compared to the model where the partner NGO worked indirectly through an intermediate institution. One factor that contributed to better performance of the former subproject was the NGO’s ability to maintain the same project management and field personnel throughout the duration of the pilot, which resulted in a maximum return on investment in human capital development and greater efficiency of field operations.
3. ***Timely and consistent mentoring of community volunteers – particularly during the initial year following training when attrition rates tend to be the highest – improves project results.*** Regular and frequent meetings among PHE project field staff and volunteers in Dhading proved essential for adaptive management and also provided opportunities to build self efficacy among peer educators which translated into improved performance and better retention rates compared to those in Khata where mentoring support was inconsistent and drop-out rates higher. The chance to be an actor in a street drama served as a “perk” for the PEs in Dhading and this may also have fostered retention.

CHAPTER 5. BEST PRACTICES

While there are no universally accepted definitions for the terms “lessons learned” and “best practices,” it is widely recognized that the need to document and share experiences is crucial to advancing PHE programming and policy. UNESCO¹³ describes best practices as having four common characteristics:

- **Best Practices are innovative.** A best practice has developed new and creative solutions to common problems of poverty and social exclusion.
- **Best Practices make a difference.** A best practice demonstrates a positive and tangible impact on the living conditions, quality of life or environment of the individuals, groups or communities concerned.
- **Best Practices have a sustainable effect.** A best practice contributes to sustained eradication of poverty or social exclusion, especially by the involvement of participants.
- **Best Practices have the potential for replication.** A best practice serves as a model for generating policies and initiatives elsewhere.

In an effort to filter the better practices from the experience documented in the NGOs’ narrative reports, we applied UNESCO’s criteria and offer the following:

1. ***Linking family planning and preventive health interventions with community forest management/governance interventions generated added value.*** The FP/health interventions reinforced the forest management/governance interventions and, together, created synergies and effects that exceed the sectoral outcomes (i.e., enhanced livelihood). An effective communication strategy can enable the attitudinal and behavioral changes essential to these processes. This was borne out by RIMS experience in Dhading where well-designed (integrated and persuasive) messages were disseminated through multiple channels and reached the intended audiences with information that increased CFUGs’ understanding of how managing small, healthy families can improve peoples’ living conditions and the sustainability of forest resources. At the onset of the project, RIMS was reportedly challenged by the CFUGs who demanded that the project support

¹³ UNESCO Management of Social Transformations (MOST) Clearinghouse. Available at: <http://www.unesco.org/most/bphome.htm#1>

alternative livelihood opportunities and small income generating activities (IGA) so as to enable CFUG households to diversify their income sources¹⁴. Had the project included such interventions, RIMS may not have developed such effective communications, which was guided by the need to demonstrate that PHE can generate multiple benefits that have greater and more lasting effects than IGA¹⁵.

2. ***Pitching the ARI-prevention benefits of ICS and biogas facilitated the rapid adoption of these energy-efficient technologies by CFUG households.*** It also helped to mobilize subsidies that enabled families most vulnerable to the ravages of ARI to gain access to clean-energy options. The partners used creative media such as street drama to increase peoples' awareness and understanding of the linkages between clean-energy use, forest conservation and livelihood improvement while simultaneously expanding access to low-cost improved cook stoves (ICS) and biogas digesters. As a result, 1,030 CFUG households in Dhading and an additional 250 households in Khata invested in clean-energy technology with the largest share adopting ICS use (87%). This practice generated tangible impacts for people and the forest, including reduced air pollution and respiratory disease (health benefit), time and work saved foraging for firewood and cleaning sooty cooking pots (social benefit), decreased forest degradation (conservation benefits) and reduction in household expenditures for firewood and medicine (economic benefit). Further, each year that CFUGs continue to use clean-energy technology, an additional 12,000 trees will be saved (sustained impact). Because of its very low cost and ease of installation, the ICS has a greater potential for replication compared to biogas, particularly in resource-scarce settings where PHE projects generally operate. Future projects should explore updated ICS designs that may further reduce black carbon emissions.

3. ***Resource leveraging for PHE implementation.*** Requiring recipients of grant funds to leverage contributions (cash and in-kind) from local stakeholders was a best practice that fostered a sense of ownership of the PHE agenda among participating CFUGs and local governments. It also encouraged cooperation among different authorities that enabled integration and increased the coverage of project interventions – particularly installation of ICS and biogas units which otherwise may not have reached the same level, as USAID funding only supported software elements (training, promotion, etc). In one community in Dhading, for example, RIMS was able to mobilize sufficient

¹⁴ *Resource Identification and Management Society (RIMS) of Nepal (2007). First Semi-Annual Report on the PHE Pilot in Dhading, Nepal.*

¹⁵ *RIMS Nepal (2009). Healthy People Healthy Ecosystem. Success, Challenges and Lessons from the RIMS PHE Project in Nepal. Unpublished document distributed at a Wilson Center event in Washington, DC.*

resources from the local government to enable all households to gain access to improved cook stoves (100% coverage).

4. ***Using traditional media and humor to promote PHE and reinforce the work of peer educators and change agents.*** To affect change, PHE strategies should mirror the livelihood strategies of poor households and communities and effectively communicate solutions to common problems of poverty. This was achieved in Dhading, where the partner NGO worked with a professional street drama troupe to develop a script that centered on a typical day in the life of CFUG household and employed humor in depicting the classic situation in a CFUG household (too many children to feed and clothe, smoke-filled house with coughing and sick children, exhausted housewife from hours of forging scarce firewood). Comedy was also inspired by casting the PHE change agents (peer educators, CBDs and ICS promoters) as supporting actors who presented creative solutions to the problems and illustrated the benefits that can accrue to households that plan their families, protect the forest, and participate in CFUG organizations and activities. The use of local personalities and comedy in the street drama proved to be intensely engaging for the CFUG audiences and increased their receptivity to new ideas about FP, health and alternative energy. It also increased the status of the PHE volunteers in the community and may account for the low PE turn-over rates in Dhading. While the street dramas themselves had a finite term, the local actors continue to perform their skit parts whenever asked (see Figure 11), and these reenactments help maintain interest in PHE (sustainable impact). Future street dramas can capitalize on these results by developing signature moves or soliloquies for each character and encouraging them to repeat them later.



Figure 11. Peer educators in Dhading reenact their roles in the PHE street drama for members of their CFUG, thus sustaining interest in FP, health and conservation issues.

5. ***Involving males in community-based FP/RH service delivery.*** While this practice is common in Thailand and other Asian countries where, for decades, men (as well as women) have served as community-based distributors (CBD) of contraceptives, it was a new approach for Nepal that the Dhading PHE project explored to redress access and cultural barriers to contraceptive use in remote forest communities. Government-trained FCHVs are generally responsible for the delivery of FP and health services at the grassroots level in Nepal, including CBD. However, some have reservations about talking to males about condom use while the men themselves often are too shy to approach FCHVs for free supplies of

condoms made available by the government's family planning program. As such, the level of condom use in the PHE project sites was low in 2006 despite the latent demand revealed through discussions with both FCHVs and men in the community. RIMS elected to empower a small number of men from among the CFUGs with CBD know-how, while at the same time strengthening the CBD knowledge and skills of FCHVs in the same villages. While the male CBD agents focused primarily on meeting the FP/RH needs of males, they also provided counseling and commodities to women whenever approached for such assistance. In addition to condoms, the CBDs also carried packets of oral contraceptive pills and Postinor (emergency contraceptives) with them whenever they performed their outreach duties to neighboring CFUGs. These inputs resulted in a 20-fold increase in the number of condom users in Dhading during 2006-2008. The WWF/CFCC project in Khata, on the other hand, elected to work solely with FCHVs to strengthen community-based distribution of contraceptives. While this approach also generated a marked increase in condom use among men, service delivery was interrupted when FCHVs went on strike in the Terai to press their demands for compensation equivalent to other government health workers. Following a site visit to the Dhading project, the WWF/CFCC field decided to incorporate male CBDs in the Khata project to better address men's needs and as a fallback in case of future FCHV strikes.

6. ***Creating opportunities for cross-institutional learning.*** USAID's support to the implementing NGO partners included money to finance trips to each others' PHE field sites. This afforded opportunities for NGO field staff, outreach workers, peer educators and CFUG and VDC leaders to share information and strategies. WWF/CFCC, for example, adapted their program to include male CBD agents based on RIMS successes, while RIMS borrowed lessons from WWF/CFCC's success with NFE support-committees.

7. ***Using existing Non-Formal Education (NFE) classes to disseminate PHE messages.*** The project invested a small amount of resources in developing modules on PHE and FP/RH which were integrated into an existing NFE curriculum developed under SAGUN (by CARE Nepal) to impart conservation knowledge in conjunction with literacy skills. Demand for literacy training is high among CFUGs, as many have come to realize that education is also a pathway to sustainable livelihood development. The NFE classes were mainly attended by women and girls (who have much lower levels of education attainment compared to males) and special support

committees were organized by the CFUGs to escort them to the NFE classes, which usually occurred in the evening¹⁶. It is often hard to reach rural Nepalese women with health information due to cultural and other barriers that limit their mobility and exposure. As such, the NFE classes benefited the project by enabling access to hard-to-reach female target groups. As literacy increases so does FP practice and the NFE classes undoubtedly were a factor in increasing CRP in both project sites.

8. ***Working together with the District Forestry Office and CFUGs to amend CFOPs*** and integrate FP/health activities is a cost-effective way to institutionalize PHE approaches. At the same time, it sensitizes DFO staff to population-health-environment dynamics and encourages replication. The need for an appreciable exit phase should be noted however, where the prime implementer only monitors and advises the long-term CFUG and/or government bodies that take on PHE.



Figure 12. Non-Formal Education (NFE) class in Khata (Bardia District). The project trained NFE facilitators on how to use specially-designed modules that transfer knowledge about PHE and FP/RH, while at the same time teaching literacy skills.

¹⁶ WWF Nepal (2007). *First Annual Report on the PHE Project in the Khata Corridor (Terai Arc Landscape)*.

CHAPTER 6. CONCLUSIONS AND IMPLICATIONS

These presented outcomes and results support the hypothesis that CFUGs make an excellent point of entry for integrated programming in conservation, FP/health and livelihoods improvement. Since the institutional platform already exists in over 14,000 CFUGs nationwide and proved robust enough to embrace common interests from forest and health sectors, and because the groups are able to self-fund in many cases, CFUGs represent the most practical mechanism for scaling-up PHE in rural Nepal. Stable CFUGs that use Public Hearing and Public Auditing (PHPA) systems to guarantee transparency in group financial management and Participatory Well Being Ranking (PWBR) systems to assure inclusive and pro-poor decision making should be prioritized for PHE assistance, as they offer the best chance for sustained eradication of poverty among forest-dependent communities in Nepal.

A number of high-quality training manuals, information, education, and communication (IEC) materials and mobilization techniques were tested and refined under this pilot, and are now available for adaptation and use by other NGOs and CFUGs. With this documentation of the best practices, the stage is now set for a rapid scale-up of effective PHE approaches in rural Nepal. The challenge is to get donors to fund integrated scale-up projects or local bodies to be supported and monitored in their adoption of PHE. Such scale-up could also help to mitigate the climate change effects of black carbon, assuming funding is available for deployment of updated ICS and other clean-energy



options for households. As noted by Wallack and others, “the Himalayan and

Figure 13. Particulate air pollution (black carbon) emitted by households in a village of Nepal where wood is used for cooking, heating and lighting. “Black carbon alters the environment in two ways,” according to a recent article in Foreign Affairs. “In the sky, the suspended particles absorb sunlight, warming up the atmosphere and in turn the earth itself. On the earth’s surface, deposits of black carbon on snow packs and ice absorb sunlight, thereby heating the earth and melting glaciers¹⁷.”

Photo downloaded at http://practicalaction.org/html/smoke/smoke_nepal.htm

Tibetan glaciers are melting as much as a result of the warming effects of black carbon as the result of the global warming caused by carbon dioxide¹⁷.

¹⁷ *Wallack, J.S and V. Ramanathan (Sept/Oct 2009). The Other Climate Changers: Why Black Carbon and Ozone Also Matter. Foreign Affairs, Vol. 88, Number 5, pp 105-113.*