

Do Population-Health-Environment (PHE) initiatives work? Evidence from WWF-sponsored projects in Africa and Asia

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Abstract

Do Population-Health-Environment (PHE) initiatives work? It offers to combine solutions to population-environment (PE) together with health-environment (HE) for the global conservation of natural resources in developing countries. In doing so, PHE recognizes the importance of considering “conservation, health, and family planning interventions” in the management of some of the world’s most impoverished as well as ecologically rich environments (Hahn et al. 2011). In this paper I probe the potential effectiveness of integrated PHE investments for conservation outcomes. The evaluation was conducted in 2007 in WWF high priority marine and terrestrial conservation sites with PHE programs in Philippines, Nepal, India, Mozambique, Madagascar, Kenya, Cameroon and the Central African Republic. I interviewed 754 individuals: WWF staff, health and environment partners and local men and women in individual and focus-group interactions. Quantitative and qualitative results indicate diverse, and in some cases dramatic, improvements in maternal and child health and conservation measures that appeared to synergized by the integrative PHE approach. Results also point toward the importance of investing in livelihoods in tandem with PHE interventions.

Introduction.

Do Population-Health-Environment (PHE) initiatives work? It offers to combine solutions to population-environment (PE) together with health-environment (HE) for the global conservation of natural resources in developing countries. In doing so, PHE recognizes the importance of considering “conservation, health, and family planning interventions” in the management of some of the world’s most impoverished as well as ecologically rich environments (Hahn et al. 2011). This integrative approach strives to combine the strengths of PE and HE solutions to maximize conservation efforts for some of the most biologically sensitive parts of the world.

Growing populations, migration, emigration, and family planning are among the many focuses of PE dynamics. The relationships embedded in PE solutions vary significantly due to the complexities of place. Often, PE is recognized as a significant determiner for land degradation (Miller et al. 2010; Carr 2005; Pan et al. 2004; Carr 2002; Mishra 2002; Walker et al. 2002; Carr & Bilsborrow 2001; Pichon 1997). Further, migrant remittances have been observed for their ability to increase consumption and place stronger local environmental pressures (Davis 2010).

The PE dynamics are far from simple. Case studies have proven that there is a large variation in regards to population determinants of land change (Carr et al. 2009; Carr 2008). The complexities of the issues at hand have been met with technological modeling in order to explain the relationships between populations and their environments (Arlinghaus et al. 2008; Miller 2010). PE dynamics may even reflect a positive feedback loop, in which environmental decline contributes to high population growth rates, which further degrades environmental conditions (Bhattacharya & Innes 2008).

HE dynamics cover a wide range of issues including disease transmission, nutrition, fertility success, and access to healthcare. These factors are significantly more problematic in developing countries, places where the surrounding natural environment is often compromised and leads to a variety of health problems. Climate change has been gaining an ever-growing infamy because of its potential to exacerbate the already existing HE problems that remain unsolved. Many HE interactions observe climate change as a key driver of the increasing rates of disease among populations, especially among children (UNICEF 2008; Shea 2007). Among the concerns regarding climate change, food security and nutrition are taken into consideration as well (Lobel et al. 2008; Brown and Funk 2008). Largely, climate change-based HE solutions are designed to provide mitigation measures for unstable developing regions.

Due to the relative regional success of terrestrial PHE projects, implementation is slowly moving towards the coast in an attempt to preserve its communities and their marine resources. Among the objectives of coastal PHE are climate change adaptation, Marine Protected Area establishment and monitoring. In the Philippines, Castro and D’Agnes (2008) were effective in demonstrating the success of integrated PHE in tackling both reproductive health and sustainable fishing practices as opposed to tackling the two goals independently. However, more attention will be required to scale-up PHE coastal projects through improved modeling and scientific technique (De Souza 2008).

This paper presents research on the effectiveness of WWF (World Wildlife Fund) PHE (Population, Health and Environment) projects sponsored by Johnson & Johnson and USAID (the U.S. Agency for International Development). The PHE sites are located where the human-environment penumbra is in constant flux, where human populations swell most rapidly, suffer from a host of ills, and depend directly on and affect profoundly some of the richest forest and marine ecosystems on Earth. The PHE projects facilitate basic health care and RH (reproductive health) provision with the thesis that improving human health and environmental conservation jointly adds value to each independently. The overriding question for this research is the following: How effective are integrated PHE investments (as opposed to E without the PH) for conservation outcomes?

Methods

Independent evaluation instruments were used with 754 individuals: WWF staff, health and environment partners and local men and women in individual and focus-group interactions. The evaluation was conducted in WWF high priority marine and terrestrial conservation sites with PHE programs in Philippines, Nepal, India, Mozambique, Madagascar, Kenya, Cameroon and the Central African Republic. The Bhutan PHE site, where the project had already finished, and the China PHE site, which has recently begun, were not evaluated. Similarly, the USAID-funded population analysis work by WWF-US is external to the evaluation.

Results

The WWF PHE programs were run at \$.37 to \$6.64 per capita annually. The impressive and inspiring results that were achieved for such a sum challenge two dominant paradigms. The first relates to the demographic transition and, more specifically, the urban transition. During the coming decades, all the world's several billion net additional people will live in the world's poorest cities. Yet this belies the fact that in many conservation priority areas the demographic transition has scarcely commenced. What about these areas? It also challenges the related notion that has predominated development assistance in recent years: Invest in urban areas to achieve the greatest yield on investments. Although certainly more people can be accessed at less cost per person in urban areas, the qualitatively distinct human-environment milieu of ecological priority regions demands a similarly distinct valuation.

The results of those WWF PHE programs also strongly point toward the importance of investing in livelihoods in tandem with PHE interventions. Invoking livelihoods is key for selling PHE: People think in terms of their livelihoods first and see their relationship with the environment through a livelihood lens. Livelihoods is also key for doing PHE: People struggling to make ends meet in priority ecoregions don't enjoy ample leisure time to practice conservation as a hobby; it must be integrated seamlessly into how people survive and thrive. Livelihoods are also important for stimulating demand for FP (family planning).

Some WWF PHE interventions built capacity or infrastructure. Others were aimed at direct impacts on outcomes. Among these were direct interventions, such as saving turtles. Other interventions were preventive, such as preventing human impacts on turtles by seizing illegal fishing gear. Similarly, some population and health outcomes were indirect and others direct. How successful were the WWF PHE programs in improving population, health and environmental outcomes in target sites?

Population

The projects have had mixed success regarding population outcomes. Capacity building for FP remains as diverse as the levels in the demographic transition in the target areas—from rudimentary or absent at one end of the spectrum to well advanced and sustainable at the other end. Several problems have limited success. First, the poorest sites, such as the Ba'Aka in the CAR, and Madagascar, have relatively low demand for FP. Relatively great demand exists for basic health care and nutrition, to prevent deaths, largely among infants, and to combat easily controllable infectious diseases. In these places, little progress in FP indicators may be observed in the first several years of a project. However, this is highly appropriate for populations in early stages of the demographic transition. In these areas, mortality must fall and subsistence must be ensured first before there is demand for FP. Working first on mortality and subsistence is almost certainly a more sustainable path to ultimately reducing family size through FP adoption. Unfortunately, in some sites where this would be a more appropriate way to proceed, e.g. Madagascar, such an approach is not undertaken because USAID funds are restricted to FP within a rather literal framework. Where this is the case, an argument can be made that USAID funds are worth pennies on the dollar relative to J & J funds.

Despite these restrictions, CPR (the Contraceptive Prevalence Rate among Women of Reproductive Age) has shown variable but notable changes. For example, CPR has increased dramatically in the Kiunga district of Kenya (although a reporting error from 2003 likely understated users), nearly doubled in Madagascar's Spiny Forest, increased by nearly 20 percent from 2006 to 2007 in Nepal's Khata region and increased slightly in Roxas district, Philippines (the site of most reliable data on this variable). Adequate data on CPR are not available for other sites.

Health

Modest financial infusions have had the effect of literally turning infant mortality around in a matter of months in several sites. Key to project success—and antecedent to any sustainable outcomes that can be attributable to the project—is the successful development of local health infrastructure and capacity building. Capacity-building results vary according to the number of years the projects have been funded, existing infrastructure and the education level of locals. Where some existing infrastructure exists and where at least some locals are literate, training has happened rapidly and impressively. These sites include Kenya and Nepal. For example, from 2005 to 2007 the number of community-based health volunteers trained in Kenya has expanded from an initial group of 47 to more than 80. In the Philippines, trained health volunteers swelled from 29 to 50 during the same period. Conversely, the CAR has had difficulty training local volunteers. Among the Ba'Aka, for example, it is rare to find even one literate person among many clans. This makes it very difficult to garner local buy-in to the need for health volunteers in the first place and further hampers the effective communication of skills and knowledge necessary for the position. Nevertheless, two Ba'Aka play important roles in the CAR PHE project and are fundamental reasons the Ba'Aka attend the clinic. Two exceptions here are India and Madagascar.

The locals in India's Terai are largely literate and enjoy at least elementary education. Yet, despite excellent relations between WWF and locals and their desire and ability to become more involved with improving health in their communities, local capacity has remained undeveloped. Conversely, in Madagascar, despite low literacy and education among locals and less flexible USAID funding, nearly 100 people have been trained.

Another way to build local capacity is through training locals to build their own infrastructure, the proverbial giving fishing lessons rather than fish. An excellent example of this is the pit latrine project from Cameroon. After initial training on how and why to build them, pit latrines have increased in number, thereby dramatically reducing diarrhea and helping to prevent cholera. Another example comes from Kenya where locals have begun to organize on their own volition to clear brush and areas where water collects to help prevent malaria.

A last issue regarding sustainability is the value accrued to health services when people must pay for them. In Nepal, for example, forest user groups already existed with a revolving fund. Extra money made and deposited in the revolving fund was then made available to help to run the clinic. Similarly, in the Philippines, CBDs (Community-Based Distributors) have made money from their services after only one year. This is quite an achievement, given the recent history of the project.

Improved water and sanitation efforts, basic health care provision and anti-malarial treatment and mosquito nets have reduced infant mortality. Estimates from the WWF director and health partners in Kenya's Kiunga National Reserve suggest that vaccination campaigns have resulted in complete coverage for children under five. Prior to these campaigns, coverage was about one-third of this age group. Although there is evidence that similarly impressive results were achieved elsewhere, these results are not supported by standardized data. In India, although seven core villages are the sites of the camps, a total of 25 villages are reached since villagers from nearby communities travel to the health camps. In Cameroon, following the buildup of pit latrines, the number of new childhood diarrhea cases plummeted.

Environment

In the Philippines, Kenya and Mozambique, communities have established "no-take" marine sanctuaries in collaboration with WWF. In the older sanctuaries, locals report that, in less than two years since the marine conservation zones were implemented, fish volume has at least doubled while fish diversity has also increased. These sanctuaries have had immediate impacts not only on conservation outcomes but also on fisher family well-being and nutrition.

In Mozambique, the increase in marine richness within the sanctuaries has had the spillover effect of enhancing fish catches outside of the sanctuaries. Population outcomes have also been influenced by the increased fish catches. Contrary to conservation outcomes in the short term, the impact has been through an in-migration rate exceeding 5 percent yearly following the establishment of the sanctuary. Although populations in the short term are increasing as a result of environmental conservation, over the longer term, a successful PHE message could help to limit in-migration where it threatens livelihoods. Such a message could also support an increasing demand for FP as people wish to improve education for their children, and thereby increase investments in fewer children.

Other measurable results include a 22 percent (from 50 to 72 percent) increase of marine turtle nests reported by communities in Kiunga Reserve. On the terrestrial side, there has been an 8 percent increase in the number of households within PHE target sites using fuel-saving stoves in Madagascar's Spiny Forest during the first phase of the project, and a 4 percent increase during the second phase of the project.¹ Further, the project has catalyzed the increase in tree nurseries from 3 to 7 and the number of tree plantings from 2,160 to 106,250, accompanied by government recognition of almost 98,000 ha. of new areas under community forestry management. In Nepal, the percentage of households using clean energy [ICS (improved cook stoves) or biogas] increased from 11.3 percent in 2006 to 13 percent in 2007 (projected target = 25 percent by 2008). As a result of this increase, an additional 225 metric tons of firewood were saved this year (projected target = an additional 682 metric tons saved by 2008). In addition, in the project site this year, the CFCC (Community Forest Coordination Committee) provided loans from the revolving fund for 1,029 solar lamps, which are another form of clean energy and savings for poor households because kerosene is saved. In India, households in the project area are changing energy use from locally collected firewood to LPG (liquefied petroleum gas) (less than 20 percent at baseline to an anticipated 50 percent or more by 2008). There has been an estimated 60 to 70 percent reduction in fuelwood collection. Lastly, in Mozambique, efforts to increase food security also promise important environmental conservation impacts. During this fiscal year, locals have been trained in composting and in the creation of "curvas

de nivel” (trench and dyke), a type of mini-terracing. Both practices promise to reduce soil erosion and capture soil nutrients and water for reuse. Early adopters are demonstrably enthusiastic about increased yields observed in their first harvest year with the new techniques; several other villages have adopted the approach, and results should be observed in the next harvest.

PHE synergy and value-added

Overwhelmingly, it is evident that WWF’s population and health work generate goodwill for environmental conservation outcomes. Indirectly, community commitment is fostered through an understanding of linkages between health and the environment. In other cases, the exchange is more direct. A second environment-health linkage is the improved health and increased quantity and quality of working hours enabled by improved health that can allow for better (or worse) stewardship of the environment. Lastly, a potentially positive feedback loop exists where conservation efforts lead to increased resource availability, which leads to better nutrition achieved in fewer hours of work, which ultimately gives people more time to spend on conservation efforts. A combination of scientific and anecdotal data supports each of these links.

Some PHE messages could be scaled up for use in other PHE sites. The FP action seminars conducted in the Philippines developed by Save the Children and the movies produced in the CAR are prime examples. However, some messages are best crafted at local levels. For example, in Kenya’s Kiunga district, Muslim men are largely opposed to FP. More effective messages in such a context are framed in terms of child spacing for education and economic reasons. Interactive messages are the most effective. To *whom* a message is directed is also important. Women of childbearing years are an appropriate cohort to target for the FP message when their infants are being immunized. Similarly, because the majority of the population in the PHE sites is young, targeting youth is highly appropriate.

Conclusion

A common denominator of success in all sites is effective collaboration with health partners. Building capacity in locals and health partners is necessary for effective outcomes and their sustainability. Where partnerships are more developed, partners yield benefits from the relationship as well, such as the Philippines and Kenya, where the involvement of both NGOs (nongovernment organizations) and GOs (government organizations), particularly the MoH (Ministry of Health) is present. Another common theme is the necessity to have local community members involved and trained as health partners. A last recurrent theme of note is the importance of regular coordinated meetings among partners, WWF and locals. For the sustainability of partnerships, it is imperative that the partners come into the agreement with equivalent investment and interest in the projects. Another key to partnership sustainability is the persistence of partner staff. Lastly, the MoHs need to be involved to ensure the greatest chance of sustainability.

A recurring theme among project successes was the identification of one or more champions who put the interests of the project before their own interests. Their passion, credibility and charisma are major catalysts for project success and expansion. Dona Aida in Mozambique is one of these champions. Her tireless advocacy of marine sanctuaries (documented in the country sections of this report) launched a national adoption of them along Mozambique’s coastline.

An important, perhaps underappreciated, aspect of a successful PHE program is the selection of an appropriate geographical target for integrated PHE interventions. With the exception of Mozambique, all PHE programs target between 5,000 and 50,000 people in 5 to 30 villages in priority biodiversity sites or landscapes where there are strong human-environment interactions. This order of magnitude appears appropriate for the combination of resources currently available, given the desired PHE outcomes. Mozambique is a heuristic counterexample. Priority places for PHE work should include the benefit of doing one for the other two. Lastly, the modest results from this report are highly suggestive of ample success of funding efforts within an order of magnitude of 37 U.S. cents (Mozambique) to 6.64 U.S. dollars per person (Kenya) per year. In addition to the internal synergistic effect of the PHE programs, external synergy has also been accomplished through leveraging PHE resources to acquire further funding. Several examples of this have achieved significant results and are documented in WWF’s 2007 Ridge-to-Reef report.

The ethical contradiction of protecting animals but not people is a thorn that can be removed by earnest PHE and livelihood interventions. The modest results from this report are highly suggestive of ample success of funding efforts within an order of magnitude of 37 U.S. cents (Mozambique) to U.S. \$6.64 per person (Kenya) per year. Although the former is much closer to sustainability, the potential demographic and environmental conservation payback is also lower.

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