

Do Integrated Population, Health and Environment Programs Work? Gathering evidence using a quasi-experimental design.

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Introduction

New concepts and programs such as the integration of population, health and environment interventions must demonstrate that the outcomes merit the investment. Impact evaluations based on randomized controlled trials are the gold standard for proving that one intervention produces better outcomes than another. Randomization is notoriously difficult in the case of social programs that work at a community level. Instead, evaluations frequently use a quasi-experimental design to assess whether social experiments works.

In a world where population growth in many developing countries is still unsustainable, poverty is on the rise, and ecosystems are under constant threat, it has become more important than ever to demonstrate the enhanced value of integrated population, health and environment programs.

Integrating interventions from different sectors such as population, health and environment constitute a recent social experiment that intends to maximize program impact building on synergies created by integration. Starting around 2000, these integrated programs have produced much anecdotal information about their benefits in different countries. So far, limited quantitative evidence exists about the benefit of integrating population, health and environment interventions compared to vertical interventions along sector lines.

This article proposes the use of quasi-experimental or, if possible, randomized controlled designs to evaluate ongoing and future population, health and environment programs. Using the example of a population, health and environment program in Madagascar, the authors show how a quasi-experimental evaluation design can be built into the program design and implemented as the program matures.

Research Question

This evaluation of a five-year program about the integration of population, health and environment in three environmental corridors and other threatened ecosystems in Madagascar was designed to test the following working hypothesis and operations research question:

1. Is an integrated approach more effective than a single-sector approach (health or environment alone or no known program other than government services)?
2. What is the most effective model to integrate multi-sector programs that include population, health, and environment (agriculture and natural resource management) interventions?

Methodology

Eighty-five communities along Madagascar's largest remaining forest corridors participated in the evaluation of the integrated program, split into two groups. Fifty-six communities received

integrated population, health and environment interventions, and 29 kept their support through vertical programs. Forty-four key population, health and environment indicators were measured at the start of the program and again three years later. These communities were further stratified by geographic area and operational approach (a total of three) used to deliver integrated population, health and environment services.

Data were collected by using household surveys where each operational type was represented in the survey by an equal sample size of approximately 256 households per type. Households were selected randomly. In 2001, at baseline, 1,025 households and in 2004, follow up, 1278 households participated in total. Households responded to five survey questionnaires with information about the village, the household, the head of household, a caretaker of a child under five and a child under five. Most of the questions used for the baseline survey were retained unchanged for the follow-up survey to ensure maximum comparability.

While quasi-experimental designs impose constraints on the validity of inferences and generalizability of the findings, these threats have been reduced during the evaluation design and analysis. Surveys were carried out by an experienced research group, survey instrument design allowed for internal consistency checks, and basic population characteristics from the survey sample were consistent with findings from other large population surveys such as the Demographic and Health Survey.

Findings

Results show that the integrated PHE program has achieved measurable impact over a three-year period. Twenty-nine out of 44 key indicators resulted in higher outcomes in integration (24 statistically significant at the 0.05 level and five at the 0.1 level, all at a power of 0.8) than in non-integration communities. For only two indicators non-integration communities showed better results, although these could have occurred by chance alone. For the remaining 13 indicators the evaluation methodology was a limiting factor and not able to tell whether any differences between integration and non-integration groups existed.

Thirty out of 37 key indicators that were measured repeatedly showed improvements between the 2001 and 2004 surveys for the integration group. As expected in a social experiment where the comparison group also benefited from interventions, though not integrated, the non-integration sites saw improvements as well, but only for 23 out of 37 key indicators, and these lagged behind the integration sites for most indicators. In the analysis variables were weighted by population size for each village.

Fertility rates are high along Madagascar's forest corridors, which are largely cut off from essential services such as health care and education. Contraceptive Prevalence Rate (CPR) is one of the 44 key population, health and environment indicators. CPR reached 17 percent in integrated communities in 2004 compared to 8 percent in communities without integration or about a 5 percentage point increase compared to 2001 in each.

Conclusions

The achievements of communities where activities were integrated compare favorably to those achieved by vertical sector programs. This is noteworthy for three reasons. First, results were achieved in multiple sectors, not just in a narrow subset of technical interventions. Second, without the integrated PHE program the underserved populations living around forest corridors would not have benefited from essential health and agricultural services. Third, these results were achieved at relatively low costs, rapidly, over a three-year period, and at scale reaching about 125,000 people. All this indicates that important synergies exist in an integrated approach that covers multiple sectors.

The population, health and environment program in Madagascar has produced one of the few datasets that allow an in-depth and rigorous analysis of an integrated program that cuts across sectors. The experience from Madagascar has shown that robust evaluations can be built into programs of modest means, if planned in advance. However, integrated population, health and environment programs face unique challenges and opportunities in each setting and in different countries, which need to be quantified and documented. As new population, health and environment initiatives are planned and implemented, serious consideration needs to be given to deepening our understanding of whether these programs work and how they produce results in different program environments. Selectively, new programs must include properly designed impact evaluations using either randomized controlled or quasi-experimental designs right from the start to broaden the evidence about population, health and environment integration.

References

Kleinau, E., Randriamananjara, O., & Rosensweig, F. (2005). Healthy People in a Healthy Environment: Impact of an Integrated Population, Health, and Environment Program in Madagascar. Washington, D.C./USAID: Environmental Health Project.

Pielemeier, J. (2005). Lessons From the First Generation of Integrated Population, Health, and Environment Projects. USAID and The Woodrow Wilson Center.

Pielemeier, J., Hunter, L., Layng, R. (2007). Assessment of USAID's Population and Environment Projects and Programming Options. USAID.

Theme and Session information

2301 “Cross-Cutting Issues”: David Carr and Lori Hunter have been in touch with Van Nimwegen and LeGrand regarding submission of a cluster of papers intended to form a session on Population-Health-Environment Integrated Development Initiatives. This submission, in addition to the others noted below have been submitted for this consideration.

Hunter. Submitted Abstract. “Population, Health and the Environment: Integrated Development Bridging Reproductive Health and Conservation” Submitted for Presentation Consideration in

“Cross-Cutting Session” on Population-Health-Environment Development Interventions. Carr and Hunter, organizers.

Carr. Submitted Abstract. “XXX” Submitted for Presentation Consideration in “Cross-Cutting Session” on Population-Health-Environment Development Interventions. Carr and Hunter, organizers.

Dougherty, Leanne, Eckhard Kleinau, Yung-Ting Kung. Submitted Abstract. “Healthy People in a Healthy Environment: Measuring Impact Using Propensity Scores and a Difference-in-Difference Analysis” Submitted for Presentation Consideration in “Cross-Cutting Session” on Population-Health-Environment Development Interventions. Carr and Hunter, organizers.

Kleinau, Eckhard, Odile Randriamanajara, Fred Rosensweig. Submitted Abstract. “Do Integrated Population, Health and Environment Programs Work? Gathering evidence using a quasi-experimental design.” Submitted for Presentation Consideration in “Cross-Cutting Session” on Population-Health-Environment Development Interventions. Carr and Hunter, organizers.

[A separate analysis of these data using a difference-in-difference methodology will be presented in a separate paper by Leanne Dougherty et al.]

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Bio:

Dr. Eckhard F. Kleinau has 28 years of experience managing, implementing and teaching about public health programs and multi-sector approaches with an emphasis on monitoring, evaluation and operations research, including impact evaluations. He is currently the Project Director/Senior Technical Officer of the USAID funded Analysis, Information Management, and Communications Activity (AIM) and responsible for a staff of 40 professionals. Prior to this position, he was responsible for research, evaluation and quality management as the Senior Technical Director of the USAID-funded Environmental Health Project (EHP). Earlier, Dr. Kleinau has provided leadership in evidence-based program planning and management of child survival programs and primary health care, as the Evaluation and MIS Director of the USAID-funded BASICS project as well as a Party Chief for the German development agency. Extensive consulting experience included such clients as USAID, The World Bank, The Kellogg Foundation, GTZ, NGOs, and other professional companies. Dr. Kleinau has extensive teaching experience, including courses in operations research and statistics for graduate students at the University of New Hampshire, and short courses in monitoring and evaluation and information systems for health professionals. He is the author or co-author of several peer-reviewed papers and numerous other publications, papers and abstracts. He has chaired meetings of international organizations related to monitoring and research. Dr. Kleinau is a native German speaker, fluent in English and French, and basic Spanish.