Healthy People in a Healthy Environment: Impact of an Integrated Population, Health, and Environment Program in MADAGASCAR
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Impact of an Integrated Population, Health, and Environment Program in
Madagascar

Final Report

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Cover and report photographs – Eckhard Kleinau

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Washington, D.C. 20523

# Results at a Glance: 44 Key Population, Health, and Environment Indicators
Comparison between 2001 baseline and 2004 follow-up surveys’ and between integration and non-integration groups†

<table>
<thead>
<tr>
<th>#</th>
<th>Indicator</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Smaller families: contraceptive prevalence rate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Contraceptive prevalence rate: all modern methods (all women 15-49)</td>
<td>11.7</td>
<td>16.8</td>
<td>2.4</td>
<td>7.6</td>
<td>Large increase in type 1(I)</td>
</tr>
<tr>
<td>2</td>
<td>Contraceptive prevalence rate: injections (all women 15-49)</td>
<td>5.9</td>
<td>9.0</td>
<td>2.4</td>
<td>3.6</td>
<td>Lowest in type 3.b(I/NI)</td>
</tr>
<tr>
<td>3</td>
<td>Contraceptive prevalence rate: pills (all women 15-49)</td>
<td>4.8</td>
<td>6.4</td>
<td>0.0</td>
<td>3.6</td>
<td>Lowest in type 3.a(NI) and type 3.b(NI)</td>
</tr>
<tr>
<td>4</td>
<td>Knowledge about family planning</td>
<td>76.9</td>
<td>78.9</td>
<td></td>
<td></td>
<td>Lowest in type 3.b(I/NI)</td>
</tr>
<tr>
<td></td>
<td><strong>Child health: vaccinations and vitamin A coverage</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Children 12-23 months fully immunized before 12 months (N=114,180)</td>
<td>51.2</td>
<td>58.7</td>
<td>37.4</td>
<td>56.2</td>
<td>Highest type 2(NI), lowest type 3.b(NI); SS increase NI</td>
</tr>
<tr>
<td>6</td>
<td>Children with a health card</td>
<td>79.2</td>
<td>82.5</td>
<td>73.5</td>
<td>77.0</td>
<td>Highest in type 1(I) Lowest in type 3.b(I/NI)</td>
</tr>
<tr>
<td>7</td>
<td>Vitamin A received during past six months</td>
<td>41.2</td>
<td>59.8</td>
<td>44.2</td>
<td>48.4</td>
<td>Highest in type 3.b(I) Lowest in type 3.b(NI)</td>
</tr>
<tr>
<td>8</td>
<td>Caretaker heard about child health and nutrition</td>
<td>68.0</td>
<td>69.7</td>
<td>58.5</td>
<td>56.1</td>
<td>Highest in type 3.a(I) Lowest in type 3.b(NI)</td>
</tr>
<tr>
<td>9</td>
<td>Caretaker source about child health: village motivator, health agent, group</td>
<td>52.9</td>
<td>73.6</td>
<td>23.5</td>
<td>64.1</td>
<td>Highest in type 3.b(I) Lowest in type 2(NI)</td>
</tr>
<tr>
<td></td>
<td><strong>Disease prevalence (two-week): diarrhea, fever, and acute respiratory infections</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Diarrhea prevalence (two-week)</td>
<td>14.1</td>
<td>23.0</td>
<td>16.1</td>
<td>25.2</td>
<td>Very high in type 3.b(I/NI)</td>
</tr>
<tr>
<td>11</td>
<td>Fever prevalence (two-week)</td>
<td>47.0</td>
<td>40.0</td>
<td>45.0</td>
<td>29.9</td>
<td>Highest in type 3.a(I/NI)</td>
</tr>
<tr>
<td>12</td>
<td>ARI prevalence (two-week)</td>
<td></td>
<td>12.8</td>
<td>15.3</td>
<td></td>
<td>Highest in type 3.a(NI)</td>
</tr>
<tr>
<td></td>
<td><strong>Disease prevention through hygiene improvement and use of mosquito nets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Access to an improved drinking water source</td>
<td>19.1</td>
<td>24.6</td>
<td>2.6</td>
<td>13.6</td>
<td>Large increase in type 2(NI)</td>
</tr>
<tr>
<td>14</td>
<td>Use of Sur Eau</td>
<td>10.1</td>
<td>3.7</td>
<td>5.5</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Use of an improved toilet facility</td>
<td>52.1</td>
<td>50.2</td>
<td>36.4</td>
<td>34.2</td>
<td>Large increase type 1(I); lowest type 3.b(I/NI)</td>
</tr>
<tr>
<td>16</td>
<td>Soap available</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Soap used in last 24 hours</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Slept under a mosquito net last night</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Women's health: sexually transmitted diseases (STDs), HIV/AIDS, antenatal care (ANC), assisted deliveries</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Women 15-49 who had heard about STDs</td>
<td>63.2</td>
<td>77.5</td>
<td>64.0</td>
<td>65.5</td>
<td>Lowest in type 3.b(I/NI)</td>
</tr>
<tr>
<td>20</td>
<td>Source of STD knowledge: village motivator or village health agent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Women 15-49 who know about HIV/AIDS</td>
<td>84.8</td>
<td>82.9</td>
<td>83.4</td>
<td>76.4</td>
<td>Lowest in type 3.b(I/NI)</td>
</tr>
<tr>
<td>22</td>
<td>Source of HIV knowledge: village motivator or village health agent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Women 15-49 who know about condoms to prevent STDs</td>
<td>31.6</td>
<td>56.4</td>
<td>14.8</td>
<td>47.8</td>
<td>Lowest in type 3.b(I/NI)</td>
</tr>
<tr>
<td>24</td>
<td>Women 15-49 who know about one sexual partner to prevent STDs</td>
<td>46.9</td>
<td>66.1</td>
<td>48.9</td>
<td>50.0</td>
<td>Lowest in type 3.b(I/NI)</td>
</tr>
<tr>
<td>25</td>
<td>Women 15-49 who know about abstinence to prevent STDs</td>
<td>3.2</td>
<td>7.4</td>
<td>3.7</td>
<td>7.8</td>
<td>Highest in type 3.a(NI) Lowest in type 1(I)</td>
</tr>
<tr>
<td>26</td>
<td>Women 15-49 with a health card</td>
<td>76.4</td>
<td>83.7</td>
<td>72.9</td>
<td>73.6</td>
<td>Lowest in type 3.b(I/NI)</td>
</tr>
<tr>
<td>27</td>
<td>Women 15-49 with one birth having at least four or more ANC visits</td>
<td>30.9</td>
<td>48.3</td>
<td>28.7</td>
<td>32.0</td>
<td>Lowest in type 3.b(I/NI)</td>
</tr>
<tr>
<td>28</td>
<td>Women 15-49 received at least 2 tetanus vaccinations during last pregnancy</td>
<td>45.0</td>
<td>46.5</td>
<td>37.1</td>
<td>42.5</td>
<td>Lowest in type 3.b(I/NI)</td>
</tr>
<tr>
<td>29</td>
<td>Last delivery by trained personnel</td>
<td>51.7</td>
<td>61.0</td>
<td>46.8</td>
<td>46.8</td>
<td>Lowest in type 3.b(I/NI)</td>
</tr>
</tbody>
</table>
Results at a Glance: 44 Key Population, Health, and Environment Indicators (cont.)
Comparison between 2001 baseline and 2004 follow-up surveys* and between integration and non-integration groups†

<table>
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<tr>
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<th>Notes (increase from '01-'04, highest/lowest '04)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>Prevalence of moderate and severe stunting (z &lt; 2SD)</td>
<td>52.4</td>
<td>46.9</td>
<td>✓ 46.3</td>
<td>51.9</td>
<td>Lowest in type 3.b(I/NI)</td>
</tr>
<tr>
<td>31</td>
<td>Prevalence of moderate and severe underweight (z &lt; 2SD)</td>
<td>46.2</td>
<td>40.2</td>
<td>37.6</td>
<td>40.5</td>
<td>Lowest in type 3.b(I/NI)</td>
</tr>
<tr>
<td>32</td>
<td>Prevalence of moderate and severe wasting (z &lt; 2SD)</td>
<td>10.4</td>
<td>10.4</td>
<td>6.0</td>
<td>10.4</td>
<td></td>
</tr>
</tbody>
</table>

Year-round food security: agricultural production

| 33 | Food security for an entire year                                         | 15.5      | 21.9      | 14.9          | 27.5          |                                                   |

Improved natural resources management: use of fire in agriculture, reforestation

| 34 | Slash-and-burn agriculture admitted                                      | 51.8      | 22.5      | 65.1          | 24.2          | Highest in type 2(I/NI)                            |
| 35 | Household head knows soil degradation as effect of slash and burn         | 61.8      | 68.3      | ✓ 46.4        | 57.6          | Lowest in type 3.b(I/NI)                           |
| 36 | Household head knows loss of biodiversity as effect of slash-and-burn     | 17.8      | 15.4      | ✓ 18.2        | 9.5           | Highest in type 3.a(I)                             |
| 37 | Household head knows fire block as preventive measure against fire        | 65.5      | 69.6      | ✓ 67.8        | 47.0          | Lowest in type 3.b(I/NI)                           |
| 38 | Household head knows DINA as preventive measure against fire             | 9.8       | 17.1      | 6.5           | 29.8          | Highest in type 3.b(I/NI)                          |
| 39 | Household head knows law about forest use                                 | 63.6      | 63.0      | ✓ 54.0        | 51.0          | Lowest in type 3.b(I/NI)                           |
| 40 | Eucalyptus tree planting practiced                                        | 58.4      | 70.2      | ✓ 41.7        | 57.7          | Highest in type 1(I)                              |
| 41 | Participation in agricultural training                                    | 26.7      | 37.0      | ✓ 24.2        | 32.3          | SS increase in (I) between 2001 and 2004           |
| 42 | Visit by agricultural extension agent                                     | 22.4      | 31.1      | ✓ 21.2        | 24.2          | Highest in type 3.b(I)                             |

Community participation: gender

| 43 | Women's membership in community groups                                   | 29.5      | 33.2      | ✓ 31.0        | 25.8          | Largest drop in type 2 (I/NI)                      |

Most frequent groups joined:
- Women's group
- Village development association
- Farmers group (Kolo Harena)

Frequency of group meetings weekly or monthly

|attended last meeting during past quarter| 42.4 | 59.9 | 49.2 | 64.7 | Past quarter includes past month attendance |

| 44 | Women were members of groups and participated in community mobilization  | 36.2      | ✓ 36.2  | 25.4          | Highest in type 3.a(I)                             |

Most frequent type of mobilization:
- Environmental campaign
- Health campaign
- Festival

Household livelihoods

<table>
<thead>
<tr>
<th>Wealth index (%) households in each tercile</th>
<th>Lowest tercile</th>
<th>Middle tercile</th>
<th>Highest tercile</th>
</tr>
</thead>
<tbody>
<tr>
<td>30.0</td>
<td>30.0</td>
<td>39.0</td>
<td>39.0</td>
</tr>
</tbody>
</table>

Notes:
* Surveys done by DDSS/INSTAT under contract with EHP and Voahary Salama Association
† Int. = PHE Integration Group (I). Non-int. = Non-PHE integration Group (NI). SS = Statistically significant.
☐ 2004 results favoring integration or non-integration communities at p ≤ 0.05 level of significance and power = 0.8
✓ 2004 results favoring integration or non-integration communities at p ≤ 0.10 level of significance and power = 0.8
Where not indicated, statistical tests did not allow a distinction.
Executive Summary

This report summarizes a five-year program in the integration of population, health, and environment (PHE) in three environmental corridors and other threatened ecosystems in Madagascar. On behalf of the U.S. Agency for International Development (USAID), the Environmental Health Project (EHP) implemented the activity, the purpose of which was to determine if activities implemented in an integrated manner achieved better results than if the activities were implemented separately. Integrated PHE activities target sector-specific projects to foster greater collaboration and increase the integration of the respective activities in such a way as to increase the efficiency of each. This synergy is produced through a better understanding of how the interaction between human health and the environment affects communities located near regions that depend heavily on natural resource use and through the design and implementation of activities that address this interaction. In this concept, the environment is broadly defined to encompass the use of natural resources and natural processes, which include agriculture, forestry, and biodiversity conservation. Unsustainable population growth is one important threat to ecosystems; offering reproductive choices as a critical program element not only reduces this threat but also improves women’s and children’s health.

The “Household Food Security and Livelihood Concept” served as a roadmap for guiding the design and program implementation of PHE integration and provided the analytic framework for the baseline and impact surveys (see chapter 4) and program monitoring. This concept implies that people’s choices and actions related to PHE are based on economic forces that can be influenced by various programmatic interventions on different levels in the framework.

The program pursued the integration of PHE through the Household Food Security and Livelihood Concept for three reasons:

- Due to high levels of poverty, food shortages, and limited knowledge, the people living in areas bordering Madagascar’s forest corridors lack the incentives and skills to conserve natural resources.
- Meeting people’s needs and conserving the environment can only be attained by simultaneously implementing interventions in all PHE sectors. Focusing on one sector does not ensure benefits in another, especially in communities located near endangered ecosystems.

Community-centered PHE interventions (Fianarantsoa Province) based on the Household Food Security and Livelihood Concept
The programmatic integration of PHE results in program outcomes in multiple areas because of synergies that increase program efficiency and effectiveness, something that single-sector approaches cannot achieve.

For the purposes of this activity, PHE interventions focused on 10 themes and a few key interventions within each that lead to improved health, agricultural production, nutrition, and household income:

1. Smaller families: contraceptive prevalence rate
2. Child health: vaccination and vitamin A coverage
3. Disease prevalence (two-week): diarrhea, fever, and acute respiratory infections
4. Disease prevention through hygiene improvement and use of mosquito nets
5. Women’s health: sexually transmitted diseases (STDs), HIV/AIDS, antenatal care, assisted deliveries
6. Children’s nutritional status: stunting, underweight, wasting
7. Year-round food security: agricultural production
8. Improved natural resources management: reported use of fire in agricultural activities (slash-and-burn), reforestation
9. Community participation: gender
10. Household livelihoods

Three social marketing and social mobilization approaches based on an early adopter or innovator model played a central role in achieving PHE results:

- **“Champion community”** (community target setting, monitoring, celebration)
- **Child-to-community** (increasing life-skills, school enrollment, and school attendance through PHE themes)
- **Farmer-to-farmer** (model farmers teaching others improved agricultural techniques)

The very nature of the integration of PHE programs requires a partnership among a range of organizations. In order to better coordinate activities through such a partnership, EHP together with other projects supported by USAID and the Packard Foundation established the Malagasy Vohary Salama Association (VS), a partnership of organizations working in PHE in Madagascar. VS helps its nine member NGOs develop their capacity to better implement integrated activities. One of the components of this activity was the provision of funds to VS member NGOs to implement field activities.

### Key Findings and Lessons Learned

**Key Lesson:** The integration of health, population, and natural resource management programs can achieve good results in each sector compared with programs implemented separately because of complementarities of interventions and program synergies that occur when local NGOs work in partnership.

This report compares results from baseline and post-intervention surveys to answer the question whether integrated activities are more effective and finds that the community-centered and integrated PHE program achieved a greater impact over a three-year period. As shown in the summary table at the beginning of this document and the figure on the next page, 29 out of 44 key PHE indicators had clearly higher outcomes in integration communities than in non-integration communities. Non-integration communities showed better results for only two indicators, which could have occurred by chance alone. For the remaining 13 indicators, the evaluation methodology was a limiting factor and unable to establish 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 in which interventions were also implemented with the comparison group, 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.

1 The difference in outcomes was statistically significant at the 0.05 level for 24 indicators and at the 0.1 level for five indicators (all at a power of 0.8).
2 The evaluation of PHE integration in Madagascar had four methodological limitations that are not uncommon in social science research and that overall may have led to underestimating the effectiveness of integration when comparing baseline and impact surveys and integration and non-integration communities. These limitations were sample size, quasi-experimental design, multipurpose survey instrument, and a short implementation period between baseline and follow-up surveys and external events.
Three results illustrate the impact of integrated PHE when comparing integration communities with non-integration communities and baseline surveys with follow-up surveys:

- The contraceptive prevalence rate reached 17 percent in integration communities in 2004 (about a five-percentage point increase from 2001), compared with 8 percent in non-integration communities.

- The prevalence of moderate and severe chronic malnutrition (stunting) dropped by almost six percentage points from 2001 and was five percentage points lower in integration communities (47 percent compared with 52 percent).

- Tree planting increased by 12 percentage points from 2001 and was practiced by 70 percent of households in integration communities, compared with 58 percent in non-integration villages.

The achievements of communities where activities were integrated compared favorably with 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. Together, these considerations indicate that important synergies exist in an integrated approach that covers multiple sectors.

Lesson 1: At the community level, people’s choices related to PHE must be seen in the context of their livelihood and food security, which are major drivers of health outcomes. Basic economic needs have to be met to maximize the impact of the interventions in PHE. As the higher diarrheal disease prevalence and unchanged high levels of child malnutrition show, factors other than program interventions seem to play a major role in health outcomes. Based on the asset index included in the household surveys and field observations, the majority of households in the program area live well below the poverty line. Three in four households do not produce enough food to last an entire year, and cash income to supplement harvests is not readily available. VS NGOs and other partners (for example, the USAID-funded ecoregional conservation and development project) have promoted cottage industry and income generation. Data from two surveys, however, indicated that these activities were still at a small scale, and few families benefited from credits or were provided equipment to improve productivity.

Lesson 2: The most cost-effective way to reach target populations at scale in ecologically sensitive areas is through local NGOs that have the interest in and capacity to reach these communities. Most ecologically sensitive areas are in remote locations, and this is the case in Madagascar. Few governments have the capacity and resources to work in remote communities, and often NGOs are the only actors willing and interested in working in these areas. The total population living along three major environmental corridors is estimated to be 500,000 people, living mostly in about 650 small communities under 1,000 inhabi-
Lesson 3: Local NGOs offer a good return on investment. Except for one, all the NGOs implementing integrated PHE activities were small local organizations. These NGOs had annual budgets ranging from US$100,000 to $200,000, counting all sources, compared with US$1 million to $2 million or more available to large donor-funded programs. Organizations with relatively limited funding may be more efficient than better-funded organizations, and they may serve more people per dollar and thus achieve a better investment return, as measured by key indicators. With their modest funding, the small local NGOs achieved results for some indicators, such as contraceptive prevalence, that compared favorably, in relative terms, with the results of larger donors' investments. For example, small organizations that spent $1 to $2 per capita to increase the contraceptive prevalence rate by two to three percentage points had a better return than larger organizations spending $10 to $20 per capita to increase the rate by 10 percentage points.

Lesson 4: PHE integration is effective when actors stay focused on small doable actions. Although the aim was to limit community-centered and integrated PHE interventions to a few small doable actions, the NGOs addressed a relatively broad range of issues. Where efforts were focused on a few key interventions, often driven by available funding, the NGOs showed consistently better results. For example, family planning efforts resulted in a greater number of women using contraceptives in all areas, but vaccination coverage did not improve as clearly, and in the case of sanitation the indicator did not change.

Lesson 5: Different mechanisms can successfully implement integrated PHE. From the outset, the evaluation of the integrated PHE program in Madagascar was designed as a natural experiment to compare three different implementation modes: multidisciplinary teams within one organization (the gold standard); different health and environment teams within the same organization; and field agents from different sector-specific organizations – health, agriculture, and environment working together. While the two surveys showed clear differences among the three intervention modes, they all produced positive outcomes in some areas, although not necessarily the same areas across all three. Available resources, organizational capacity, and the socioeconomic and cultural context can explain the differences in achievements.

Lesson 6: Community-centered PHE fosters participation, especially by women. Women in integration communities seemed to be more engaged in mobilization efforts and community groups, including groups that are traditionally dominated by men, such as farmers associations. Women’s participation increased by four percentage points in integration communities to 33 percent, while it decreased by five percentage points in the non-integration group to 26 percent.

Lesson 7: Better government services make a difference, and NGOs depend on them. Although higher levels were achieved for most indicators in integration communities, at times the non-integration group experienced substantial increases as well. This was especially true for services provided by government institutions such as health centers, which were often supported by donor projects. Better supplies of contraceptives through public providers, for example, benefited NGOs directly, because they procured contraceptives from government facilities. In other cases, such as immunization, NGOs may help public providers increase outreach services. However, integration communities achieved substantially higher levels for two-thirds of the key PHE indicators than the non-integration group. The integration sites showed improvements between 2001 and 2004 for 30 out of 37 key indicators, compared with 23 indicators in non-integration sites.

Lesson 8: Despite limitations, the evaluation methodology was able to measure PHE synergies. The evaluation methodology has its weaknesses, but it measures “real life” synergies and is one of only a few attempts to use a social science approach to measure the impact of PHE integration. (The only other country where integrated PHE interventions are evaluated using a similar quasi-experimental design is the Philippines. The CEMOPLAF project in Ecuador did pre- and post-integration comparisons but did not include a non-integration group.) Despite the methodological limitations, important differences between integration and non-integration communities were identified. Because the comparison group included sector-specific interventions in health or environment, the greater achievements by integration sites were likely due to synergies attributable to the integration of PHE activities. Due to the methodological limitations, the true effectiveness of PHE integration was probably underestimated.

Lesson 9: The Anosy region (type 3.b) is a high-need and underserved area. For many key indicators, communities in the Anosy region (in both integration and non-integration sites) performed lower than all other sites. They also posted the lowest scores for indicators related to poverty, such as the wealth index and the availability of soap. Knowledge about basic public health issues such as STDs and access to services seem lowest here as well. This may be explained in part by the absence of major
donor-funded projects in this area, such as USAID projects that focus on such issues. However, when donors invest heavily, such as in the World Bank’s SECALINE nutrition project, which has targeted malnutrition since 1994, they seem to be effective, which could explain why malnutrition rates were lowest in this region. Given the poor socioeconomic situation in Anosy, such a finding would otherwise be unexpected.

Lesson 10: Successful integration at scale depends on establishing effective mechanisms on which a range of partners can collaborate. The very nature of the integration of health, population, and environment programs requires a partnership among a range of organizations. Funds for integrated activities may come from those organizations interested only in protecting the environment or from those whose primary concern is protecting human health. Implementing organizations might specialize in either environment or health and population. In addition, many of the activities in communities are small-scale in nature, and, in some countries, only small NGOs work in those communities. In Madagascar, the principal role of VS is to build the capacity of its member NGOs by acting as an umbrella organization that provides training and technical and financial assistance to member NGOs; coordinates efforts among its members; plays a monitoring and evaluation role; and disseminates information and lessons learned.

The experience of the integrated PHE program in Madagascar has shown that NGOs can play a significant role in improving family planning and maternal and child health services and in making improvements in agriculture and natural resource management for inaccessible and underserved populations. NGO support by donors and their projects in the form of direct funding and technical capacity building has been critical to the success of integrated PHE. As a result of being part of VS, these NGOs have increased their capacity to implement integrated activities and now see themselves as part of a larger effort. Future programs in the health and environment sector should consider expanding the roles of NGOs as a cost-effective way to rapidly extend the coverage of interventions that promise to have a health impact and protect natural resources and remaining ecosystems in the longer run to difficult-to-reach populations in vast geographic areas. Bringing together all partners in a collaborative effort is the only way that an impact at scale is possible.

Recommendations

Recommendation 1: Enhance the technical aspects of PHE integration. The technical competency of VS has been driven by its funding, which was mostly family planning and health-related. To better support member NGOs in the full range of PHE activities, the environmental component of VS needs to be strengthened. VS should have a small core staff to cover the critical technical PHE areas and management functions and a network of consultants known for the quality of their work. Once the range of PHE-related competencies exists within VS, the staff can form a truly multidisciplinary team that provides comprehensive services to NGOs by linking health with environmental concerns as a package.

Much of the success of community-centered and integrated PHE depends on effective community mobilization and behavior change. Approaches such as the “champion community” and “champion commune” have been used effectively but often just for health-related targets and with substantial outside support. VS is in a unique position to demonstrate how environmental targets and improved health outcomes can be achieved at scale.

Because different sectors use different coordination and competency-based learning approaches, successful PHE integration needs to be able to achieve an interface (between, for example, the champion commune and ecoregional approaches). VS can facilitate the dialog and communication between actors to link programs that address the environment, health, economic growth, education, local governance, and the recently developed “nature, wealth, and power” framework.

Recommendation 2: Strengthen organizational capacity. VS has developed within a short time from an informal partnership into a Malagasy association with all the necessary administrative systems to receive and manage donor funding. However, an association under Malagasy law faces constraints of how it and its members can be funded. NGO status would allow greater flexibility and strengthen the institutionalization of VS. Pursuing NGO status successfully depends on clarifying organizational roles and ensuring appropriate staffing. Functioning as an umbrella NGO, VS’s niche has always been that of a service organization to its member NGOs working in PHE integration. For its long-term survival and growth potential, VS needs to reinforce its technical and organizational identity and communicate it clearly to potential clients seeking a unique set of experiences and skills. This is crucial for scaling up PHE integration further to reach the goal of serving most of the population around Madagascar’s
forest corridors. To raise funds successfully in the PHE niche, VS needs to build partnerships with other organizations for responding to requests with high-quality proposals. By allowing sufficient time, setting a clear time line and milestones, and providing support, VS has good potential for becoming such an effective organization.

**Recommendation 3: Increase the evidence that sustainable development and conservation of biodiversity are compatible.**

One important reason for increasing agricultural production, raising income through sustainable natural resource use, and reducing family size is their potential positive impact on natural resource and biodiversity conservation. However, this relationship remains largely a hypothesis. Linking survey data to spatial datasets about vegetation coverage and land use (available from environmental conservation organizations) may further expand the evidence that supports this hypothesis. Another more resource-intensive step may involve the design and implementation of special studies of the postulated linkages. Such studies may become necessary to gather data (on, for example, household income or participation in civil society organizations and local governance) otherwise not available.

Thanks to USAID’s support, EHP and VS were able to evaluate the success of PHE integration more thoroughly than would normally be possible. For mainstreaming PHE integration, the evidence base needs to be solidified by adding experiences from other countries and programs. This would be greatly facilitated by developing and testing the validity of simpler monitoring and evaluation approaches that provide reliable data for a broad range of PHE interventions. Developing, testing, and disseminating new indicators and measurement methods should be done in partnership with organizations that have such a mandate but with a sector-specific focus, such as the MEASURE Evaluation Project and Foundations of Success.