



TECHNICAL BRIEF

June 2015

SUSTAINING HEALTH, RIGHTS, AND THE ENVIRONMENT IN THE LAKE VICTORIA BASIN

Communities in and around the Lake Victoria Basin experience a number of interconnected challenges, including dependence on diminishing natural resources for survival, pervasive poverty, food insecurity, poor sexual and reproductive health outcomes, and inaccessible health services. At the same time, the ecosystem itself—the foundation for life in the Basin—faces substantial degradation. To address these intertwined challenges and foster healthy, engaged communities, Pathfinder International is currently implementing the second phase of the Health of People and Environment—Lake Victoria Basin (HoPE-LVB) project (2014–2017) in partnership with Ecological Christian Organization in Uganda, several environmental and health partners in Kenya, the Population Reference Bureau, and ExpandNet. Funded by the David and Lucile Packard Foundation, the John D. and Catherine T. MacArthur Foundation, USAID via the Evidence to Action project, and the Barr Foundation, the HoPE-LVB project is implemented in a combination of island, lakeshore, and inland sites in Uganda and Kenya. This brief discusses project experience from phase one (2011–2014), and offers considerations for implementing a scalable, integrated population, health, and environment project.



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Context

Stretching across parts of Uganda, Kenya, Tanzania, Rwanda, and Burundi, the Lake Victoria Basin (LVB) is home to approximately 42 million people who rely on the lake itself, the Basin's watersheds, and the ecosystem services* provided by the LVB for survival.¹ A multitude of factors converge to affect the health status of these people, driving food insecurity, high maternal mortality rates, and poor sexual and reproductive health (SRH) outcomes. In addition to the Basin's importance for sustaining life, its intrinsic ecological value is also of vital global significance as it houses a network of critical wetlands, 52 key biodiversity areas,[†] and more than 200 species of fish.² Over the last half century, the LVB has witnessed substantial environmental degradation, evidenced by declining fisheries, poor water quality, deforestation, and loss of biodiversity. The myriad underlying drivers of degradation in the Basin include climate change, agriculture, pollution, deforestation, overfishing, and increasing industrialization (including both the commercialization of Lake Victoria's fisheries and growing oil and gas exploration in the region), coupled with weak national enforcement of environmental regulations.³

Given the LVB's significance for both human and environmental health, its precarious and deteriorating condition warrants concern across multiple domains. In response to these multifaceted challenges, the Health of People and Environment-Lake Victoria Basin (HoPE-LVB) project aims to reduce threats to biodiversity conservation, enhance the capacity of local communities to manage natural resources, and improve SRH outcomes. The project catchment area comprises sites located in Uganda's Mayuge and Wakiso districts, as well as in Kenya's Siaya and Homa Bay counties, as shown in the map above.

HOPE-LVB PROJECT SITES, PHASES 1 AND 2



Problem Diagnosis

In 2011, at the time of project start-up, structural and commercial forces were contributing to degradation of LVB resources—which local communities depend on for survival—and health indicators were disproportionately poor in the project catchment area. Taken together, these factors were driving a cycle of increasing insecurity for LVB residents, as detailed in the following sections.

Insecure livelihoods and depletion of natural resources

More than 80 percent of HoPE-LVB residents rely on fishing and agriculture for sustenance and economic gain.⁴ At project start-up, both these sources of livelihood had become increasingly insecure as the complex systemic and structural characteristics of the LVB had changed over time. For communities dependent on fishing, the introduction of invasive fish species (most notably the Nile perch),[‡] extinction of native species,

eutrophication,[§] and overfishing had contributed to declining fish stock and decreasing fish diversity and size. The dwindling productivity of small-scale fisheries was juxtaposed with—and partially driven by—Lake Victoria's thriving commercial fishing industry, which today generates more than \$600 million in annual revenue.⁵ Mostly channeled to an export market, the industry's profits remained concentrated among a small number of large-scale companies located outside of the LVB, and thus brought little benefit to local communities.⁶

At the same time, communities dependent on farming for security faced declining land productivity, soil degradation, and livestock and crop diseases, rendering reliance on agriculture increasingly untenable. With no alternatives and in the face of pervasive poverty and food insecurity, communities dependent on the LVB for livelihood and security had defaulted to unsustainable fishing and farming practices to survive.[¥]

* Although multiple definitions exist, the term 'ecosystem services' broadly encompasses a number of invaluable services provided by nature, such as "food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services, such as nutrient cycling." (United Nations Environment Programme, *Ecosystems and Human Well-being: A Framework for Assessment*). † Key biodiversity areas are "globally significant sites for biodiversity conservation." Identification of these sites is based on diversity of amphibians, birds, butterflies, crabs, fish, mammals, mollusks, dragonflies, plants, and reptiles. (The John D. and Catherine T. MacArthur Foundation's Conservation and Sustainable Development Program). ‡ Although the Nile perch was introduced into Lake Victoria relatively recently (in the 1950s), its effect on the fish ecosystem has been stark, resulting in the decimation of several hundred native fish species and fueling commercialization of the lake's fisheries. § Eutrophication refers to increasing levels of oxygen in the lake's waters which lead to algae blooms and create an inhospitable environment for fish. ¥ Resulting practices include the use of illegal gillnets, capture of juvenile fish, slash and burn agriculture, farming along the lakeshores, cutting trees for charcoal, and over-cultivation of land.

Adverse health outcomes and social norms

At project start-up, SRH needs in the HoPE-LVB catchment area were apparent and health outcomes were poor. The HoPE-LVB baseline assessment found that of the currently-pregnant respondents, 44 percent would have preferred to become pregnant at a later time or not at all, indicating a significant unmet need for contraception.^{**} Partner disapproval, fear of perceived side effects, and limited accessibility of services were common constraints to contraceptive uptake.⁸ The baseline assessment also revealed that a large proportion of women who had given birth in the previous two years had delivered without the benefit of skilled birth attendance (46.7 and 32.2 percent in Ugandan and Kenyan project sites, respectively).⁹ Commonly cited barriers to seeking safe delivery included poorly equipped facilities and distance to services.¹⁰ Inequitable gender norms also influenced SRH outcomes within families in the project catchment area, as well as on a larger scale in the LVB. Within families, unequal power dynamics between men and women precluded joint household decision making about issues pertaining to SRH, particularly for younger co-wives in large polygamous families. Gender norms also impacted natural resource use, as a larger share of household chores such as cooking and gathering wood fell to women and girls. For a further illustration of gender dynamics at play in this context, see the “fish for sex” phenomenon excerpt.

Inadequate structural response to local need

Aligning with ethnographic research documenting a fatalistic attitude among LVB residents,¹¹ community members in the HoPE-LVB catchment area reported a feeling

of systemic abandonment by local government authorities and the health system at project start-up.¹² Communities reported rarely receiving support from government officials and none of the nine health facilities in the catchment area met a set of minimum criteria for quality maternal and newborn health, contraceptive, or youth-friendly services. Further illustrating the health system’s limited response to local need,

community-based providers (i.e., village health teams [VHTs] and community health workers [CHWs]) were inactive at project start-up, and outreach services to the community were rare. Despite the fact that almost all facilities in the project catchment area reported conducting outreach at project start-up, less than 1 percent of residents reported obtaining contraceptive information and services from a community-based source.¹³

Illustrating environmental & sexual and reproductive health at play in LVB: the “fish for sex” phenomenon

Lake Victoria’s gendered fishing economy and the so-called “fish for sex” phenomenon exemplify the interdependence of health and security, natural resource availability, gender power dynamics, and lake degradation in the LVB. Within the fishing economy, gender norms prescribe distinct roles for men and women in the LVB fish value chain: men typically fish, whereas women are expected to purchase the catch from fishermen, and then dry, process, and sell the catch at market. Due to the diminishing productivity of small-scale fisheries, fishermen increasingly arrive at the lakeshores with fewer and fewer fish to sell. As demand increasingly dwarfs supply, female vendors report a need to garner favor with these fishermen beyond payment of the selling price itself in order to obtain a sufficient supply of fish to sustain their livelihood. As a result, informal relationships develop and are sustained by transactional sex

as supplemental currency for fish.¹⁴ While some vendors actively choose to engage in these relationships, ethnographic research suggests that growing competition for the limited supply of fish places pressure on female vendors to participate in these relationships to guarantee access to fish, thereby jeopardizing their health and security.¹⁵ Reflecting unequal gender and power dynamics, this phenomenon is one of the many contributors to the disproportionately high incidence of HIV and other sexually transmitted infections in the Basin. In Homa Bay County, HIV prevalence is more than double the national Kenyan rate (15.3 and 6.3 percent, respectively) and among fishing communities in Uganda, HIV prevalence is estimated to be three times the national rate (22 percent and 7.3 percent, respectively).^{16,17}



** Widely used in the sexual and reproductive health domain, unmet need for contraception is a measure of women “who are fecund and sexually active but are not using any method of contraception, and report not wanting any more children or wanting to delay the next child.” (WHO Sexual and Reproductive Health Factsheet).

With regard to environmental protection, although local mechanisms to mitigate degradation and uphold sustainable practices had been established, they were largely ineffective at project start-up. For example, beach management units (BMUs)—formal, community-based co-management committees responsible for enforcing sustainable fishing practices⁴ at the community level—existed, but their ability to uphold regulations had been stymied by limited coordination, a lack of essential supplies necessary for enforcing bylaws, and the perception among BMU members that their efforts were ineffectual given the magnitude of the lake's decline.¹⁸ Similarly, community actors charged with promoting sustainable agricultural practices⁵ at the community level such as village environmental committees, sub-county council members, and district environmental and natural resource officers had largely become dormant. Many of those still operating lacked the capacity and requisite institutional support to effectively carry out their mandate.

At project start-up, these livelihood- and health-related pressures in the HoPE-LVB catchment area had converged to disempower communities, suppress stewardship, exacerbate environmental degradation, and drive poor SRH outcomes.

Project Strategy

Recognizing the shortcomings associated with standalone, single-sector responses to the complex, interconnected challenges apparent in the LVB, the HoPE-LVB project assembled a multisectoral team to implement an integrated population, health, and environment (PHE) strategy. In concert with local stakeholders, the project team analyzed and addressed the drivers of both environmental degradation and poor SRH outcomes

at the individual, community, and structural levels, as shown in Figure 1. At the individual level, the project tackles the cycle of increasing insecurity by fostering opportunities for people to recognize and act upon their own agency^{6,7} across both the environmental and health domains, generating mutually beneficial dividends. Also at the individual level, the project works to ameliorate the effects of poverty and counter adverse gender norms, thereby addressing two upstream social determinants that drive insecurity, poor health outcomes, and unsustainable practices.

At the community level, the project builds the capacity of a range of diverse community-based resource groups—BMUs, VHTs, CHWs, women's groups, youth groups, farmers' groups, and savings and loan groups—to promote positive health and environmental practices. Concurrently, the project works with relevant government authorities to increase availability of health services at the community level and to bolster community-based mechanisms in place for sustainable natural resource management.

At the structural level, the project strengthens health and natural resource management systems, and works toward institutionalizing the integrated PHE approach across sectors. Because many potential avenues for remedying environmental degradation (most notably, broad-based oversight and regulation of industry) require cross-border action and collaboration, the HoPE-LVB project also supports regional efforts for greater enforcement of existing environmental regulations. Finally, cognizant that sustainable, long-term solutions to the LVB's challenges must demonstrate scalability, the project partnered with ExpandNet⁸ to systematically test the viability of the integrated approach throughout the project's first phase (2011–2014) in order to inform scale-up in its second phase (2014–2017).

Implementation

Individual level

Creating opportunities to experience agency

To address the pervasive sense of fatalism identified among community members at baseline, the HoPE-LVB project works to create opportunities for individuals to experience agency, enabling them to shepherd sustainable management of natural resources and to engage in healthful behaviors. The project team trained and supported individuals to lead discussions about the HoPE-LVB approach and advocate for environmental regulations with others through a network of PHE champions and model households. Selected by the community, PHE champions and model households are trained using the HoPE-LVB project's integrated PHE curriculum comprising content pertaining to: sustainable agricultural and fishing practices; alternative livelihoods; gender; maternal health; and healthy timing and spacing of pregnancies. They then promote both healthful behaviors and sustainable natural resource use with others through group and one-on-one peer education sessions, as well as through advocacy at multiple levels. Throughout the project's first phase, a total of 233 PHE champions (126 in Uganda and 107 in Kenya) were selected and 479 model households (200 in Uganda and 279 in Kenya) were established.

Supporting individuals to tackle social determinants driving poor health and environmental outcomes

Recognizing that pervasive poverty perpetuates unsustainable environmental practices, food insecurity, and poor SRH outcomes, the project supports individuals and households to diversify their sources of livelihood and transition away from sole reliance on fishing and farming. During

⁴ Sustainable fishing practices include: using gillnets of the correct size; avoiding capture of immature fish and the use of chemicals/fish poisoning; use of poles and hand lines; and adhering to community environmental regulations. ⁵ Sustainable agricultural practices include: agro-forestry, mulching, minimum tillage, terracing, composite manure, and water conservation. ^{6,7} Agency refers to "the ability to define one's goals and act upon them. [The term] also encompasses the meaning, motivation, and purpose which individuals bring to their activity, their sense of agency, or 'the power within.'" (N. Kabeer, "Resources, Agency, Achievements: Reflections on the Measurement of Women's Empowerment" *Development and Change* 1999;30(3): 435-64.)⁸ ExpandNet is a network of professionals working toward advancing the science and practice of scale up. HoPE-LVB was the first project to systematically apply the ExpandNet methodology for scale. See *Beginning with sustainable scale up in mind: Initial results from a population, health and environment project in East Africa* for a synthesis of this process: [http://www.rhm-elsevier.com/article/S0968-8080\(14\)43761-3/abstract](http://www.rhm-elsevier.com/article/S0968-8080(14)43761-3/abstract).

FIGURE 1: ILLUSTRATIVE COMPONENTS OF THE HOPE-LVB STRATEGY

INDIVIDUAL

Create opportunities to experience agency

- Build capacity of PHE champions and model households to engage in and promote healthy behaviors and natural resource management with others



Support individuals to tackle social determinants driving poor outcomes

- Support community members to develop new skills enabling diversification of livelihoods (e.g., tree nurseries, energy efficient stoves)
- Engage men in SRH through non-traditional channels
- Connect women and girls for increased social cohesion and capital



COMMUNITY

Support community-based groups to promote positive health and environmental practices

- Train a sub-set of community groups in healthy behaviors and sustainable natural resource use
- Strengthen capacity of BMUs to protect fish breeding grounds



Expand community-based health services and referral networks

- Advocate with health authorities to permit all community-based groups to refer for health services



Improve accessibility of SRH services at the community level

- Increase the frequency with which health outreach services are provided within communities
- Initiate targeted moonlight outreach services for hard-to-reach populations



STRUCTURAL

Strengthen health systems

- Support improvements in commodity security, health information systems, and provider skill sets
- Procure solar suitcases for project-supported health facilities to help improve availability of services and mitigate fuel costs
- Work with authorities to reclassify health centers, allowing facilities to offer more services



Institutionalize and scale the integrated HoPE-LVB approach

- Establish cross-ministerial committees to oversee HoPE-LVB
- Engage with Lake Victoria Basin Commission to foster cross-national initiatives



consultations with community members, the construction and sale of energy efficient stoves, initiation of tree nurseries, and beekeeping emerged as attractive alternative livelihoods, given their added value as mechanisms for mitigating environmental degradation. Energy efficient stoves, in particular, exemplify how a single project output can yield multiple environmental, health, and gender-related benefits: these stoves are smokeless, built from local materials, and require significantly less firewood than traditional methods of cooking, thereby decreasing the amount of time spent on firewood collection. Throughout the project's first phase, community groups constructed 7,383 energy efficient stoves (4,544 in Uganda and 2,839 in Kenya) and planted a total of 258,977 trees (240,884 in Uganda and 18,093 in Kenya). The sale of stoves and trees resulted in profits exceeding \$10,000, and community groups have invested this money in other income-generating activities, such as poultry keeping and construction of water harvesting tanks.

Coupled with poverty, unequal gender norms suppress full community participation in natural resource management and simultaneously drive poor health outcomes. To foster greater gender equality, the project: 1) works to increase women's and girls' social capital by creating opportunities for women-led groups to initiate income-generating activities, and by supporting networks of peer groups to foster greater social support for health-seeking behavior; and 2) utilizes non-traditional entry points, such as BMUs and other traditionally male community-based groups to engage men in SRH.

While the HoPE-LVB project team recognized the importance of gender parity from the project's inception, achieving this goal proved challenging, demonstrating the extent to which gender norms are entrenched. At the end of the project's first year, a routine review of monitoring and evaluation data revealed a gender disparity in training opportunities for PHE champions: from July to September 2012, 31 male PHE champions had been selected as



Members of a women's group in Bussi Island tending a tree nursery, Uganda

PHOTO: Linda Suttenfield

compared with 12 female champions. This discovery prompted a rapid gender analysis during the project's second year to assess whether other project interventions might also be inadvertently perpetuating inequality, and also to identify the underlying factors that contribute to gender inequality in the HoPE-LVB catchment area. The outcomes of this process have resulted in more intentional, gender-aware programming, including focused community mobilization and sensitization pertaining to gender equality, and more equitable distribution of training and income generation opportunities.

One such outcome of this rapid gender analysis—the creation of young mothers' groups (for mothers or pregnant women aged 24 and below)—has proven to be particularly effective. Initially, young mothers were part of community-based women's groups (discussed in greater detail in the following section); however, project staff observed that younger women were reluctant to express their ideas and share their challenges during group meetings. Upon further investigation, young mothers expressed their discomfort speaking freely among older women. To address this, the HoPE-LVB team worked with women's groups to establish separate young mothers' groups, creating a safe space for an open

exchange of ideas pertaining to the unique challenges of this cohort, and intensifying social support for younger women.

Members of these young mothers' groups assume a peer educator role, educating other young mothers in the community on sustainable natural resource use, as well as the importance of skilled birth attendance and contraception. If requested, members of these young mothers' groups accompany young pregnant women to health facilities for antenatal or delivery services.

Community level

Building the capacity of community-based resource groups to promote positive health and environmental practices

Recognizing the power and potential of community groups to lead health and conservation initiatives, the HoPE-LVB project team invests heavily in building the capacity of a set of preexisting, diverse community groups—beach management units, village health teams, community health workers, women's groups, youth groups, farmers' groups, and savings and loan groups—to mobilize communities to adopt healthy behaviors and engage in sustainable practices. While critically important community assets, these groups were largely operating in silos when the project began. In order to increase

cross-functionality, the HoPE-LVB project used its integrated PHE curriculum to train 792 community group members (337 in Uganda and 455 in Kenya) on: sustainable agricultural and fishing practices; alternative livelihoods; gender; maternal health; and healthy timing and spacing of pregnancies during the project's first phase.

Given that each of these groups has a discrete purpose and necessarily reaches disparate community members, inserting integrated messaging into their platforms serves to cross-pollinate health and conservation messaging, and reinforce the importance of sustainable practices across groups. For example, the HoPE-LVB project worked with BMUs, farmers' groups, and village environmental committees to demarcate fish breeding grounds (protected areas where fish spawn) and strengthen their collaboration and collective capacity to uphold sustainable fishing and farming practices. At the same time, these traditionally male-dominated groups were also provided with information about the importance of healthy timing and spacing of pregnancies and maternal and child health. By delivering SRH messages in tandem with information pertaining to natural resource use in a non-traditional setting, the project found men and boys to be more receptive to SRH messaging and willing to discuss family health and SRH with their partners.

Expanding community referral systems

To further build on the platforms and influence of these diverse community groups, the HoPE-LVB team advocated with health authorities to permit all project-supported groups to refer clients for health services (previously, only CHWs and VHT members were allowed to refer clients). Once permission was granted, the project saw an incremental increase in overall referrals in both countries throughout the project's first phase. As illustrated in Figure 2, while referrals from all non-traditional community groups increased, the most striking jump in referrals over time was observed in the young mothers' groups directly following

the project's efforts to target their specific needs, separating them from the broader women's groups. These findings indicate the potential value of using targeted peer group messaging and delivering health information in non-traditional settings to increase uptake of health services in this context.

Improving accessibility of health services at the community level

In response to the pervasive feeling of systemic abandonment expressed by communities at baseline and to improve accessibility of health services, the project team worked with health authorities to increase the frequency with which health outreach services are conducted within communities. The project supported monthly outreach services during which facility-based health workers provide health education and information, contraception, immunizations, HIV testing and counseling, and referrals for further care. Although these outreach services mitigated accessibility barriers, the project team observed that uptake of health services still lagged among hard-to-reach populations, such as transient fisher folk. Further investigation into the reasons for limited service uptake revealed that outreach services were typically conducted during the day when fisher folk were either fishing or at the market. In response, the project supported targeted "moonlight outreach services" in Kenya and "campfire sessions" in Uganda

held at night to reach this population in a more conducive environment. This strategy also succeeded in reaching sex workers and other vulnerable, hard-to-reach populations.

Structural level

Strengthening health systems

The HoPE-LVB project complemented efforts at the individual and community levels with a number of interventions to strengthen health systems across the two countries. The project's baseline survey revealed health facility infrastructure issues and deficiencies in provider training, particularly with regard to emergency obstetric care and insertion of long-acting and reversible contraceptives. In response, HoPE-LVB supported improvements in commodity security, health information systems, and health provider skillsets. In collaboration with government trainers and using the Ministry of Health curriculum, the project facilitated training for 28 health workers across both countries on: emergency obstetric care; contraceptive services; life-saving skills; and interpersonal and counseling skills. By the end of phase one, facilities had broadened the contraceptive method mix available to include long-acting methods, with the number of methods offered in Ugandan project-supported facilities increasing from four to eight, and increasing from five to six in Kenyan facilities.

FIGURE 2: HEALTH REFERRALS MADE BY NON-TRADITIONAL, NON-HEALTH COMMUNITY GROUPS ACROSS COUNTRIES

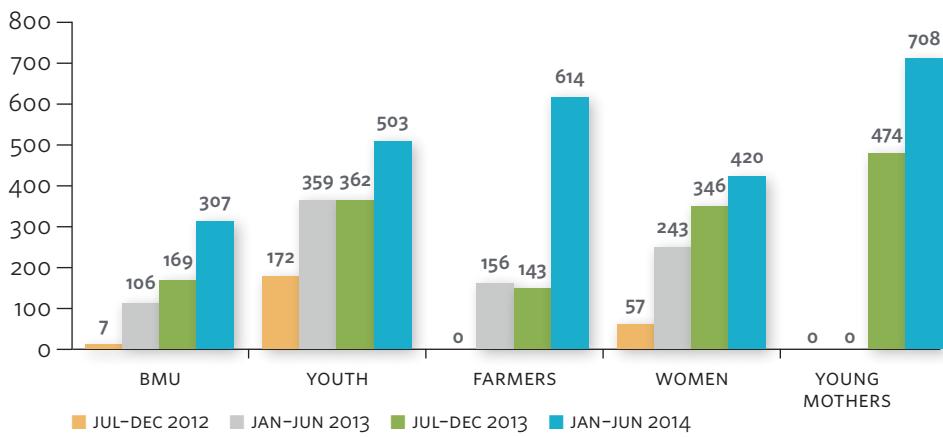




PHOTO: Jake Lyell

Antenatal care provided at a health facility and aided by light from a solar suitcase, Uganda

In both countries, the lack of consistent electricity at health centers effectively closed facilities at sunset each evening, discouraging clients from seeking services later in the day. This was a particularly acute deterrent for pregnant women, given the likelihood that labor will extend into the evening. The intermittent availability of electricity undermined client confidence that services would still be available at night. To address this challenge and also to restore trust in facilities to provide quality care throughout the entire day, the HoPE-LVB project partnered with We Care Solar to procure five solar suitcases (two in Uganda and three in Kenya), enabling facilities to stay open later and save fuel costs, as these solar suitcases are more energy efficient.

Finally, the HoPE-LVB project successfully advocated for two lower-level health centers (i.e., Health Center II) serving the Ugandan catchment area to be reclassified as higher designation facilities (i.e., Health Center III). By nature of their designation, Health Center II facilities are unable to offer many essential services, such as emergency obstetric care and long-acting contraceptive methods. To institutionalize and sustain project efforts, the project team worked with district and

county health authorities in Uganda to reclassify these health centers to Health Center III, allowing them to sustainably provide a broader range of essential services (including additional contraceptive methods), offer staff accommodations, and command a larger budget. These upgrades were followed by subsequent support and health provider trainings to ensure the capacity to deliver a full range of services.

Institutionalizing and scaling the integrated HoPE-LVB approach

In order to institutionalize the project's integrated approach, the HoPE-LVB team worked with relevant government authorities to establish a cross-ministerial steering committee (comprising health, environmental, and youth stakeholders) responsible for overseeing HoPE-LVB interventions, and advocated with local policymakers to pass bylaws to formalize bans on unsustainable fishing and farming practices. In Kenya, the project began as devolution of the government and health system was unfolding. Recognizing the opportunity to institutionalize the HoPE-LVB approach, the project team intensively and continuously engaged with the newly elected government in Homa Bay County. As a result, the project's PHE steering committee is now embedded in the governance structure of the county government and an autonomous department has been created to coordinate PHE activities in the county.

At the regional level, the project's engagement with the Lake Victoria Basin Commission (LVBC)—the intergovernmental body tasked with coordinating natural resource management in the Basin—has proven to be particularly influential in advancing institutionalization goals for the project's integrated approach. The HoPE-LVB team has collaborated with the LVBC from the project's inception and supports regional PHE champions within the LVBC. As a direct result of the project's engagement with the LVBC, this entity is now in the process of engaging with all five countries in the Basin to promote supportive national PHE policies.

Results

During phase one, the HoPE-LVB project achieved promising results across both health and environmental domains at the individual, community, and structural levels. To explore the effects of the integrated PHE strategy, the project's monitoring approach and midterm assessment employed a mixed methods design. This enabled the project team to assess both the quantifiable outcomes of implementation as well as the social dynamics unfolding alongside these outcomes. For this reason, the following section discusses results stemming from the project's quantitative monitoring data and the qualitative findings from the project's midterm review, which consisted of key informant interviews with diverse stakeholders as well as focus group discussions with representatives from the community-based resource groups involved in the project.

Increased demand for and uptake of essential SRH services

Over the project's first phase, the HoPE-LVB team observed an increase in uptake of essential SRH services. For example, in Uganda, the number of new contraceptive users accessing their method of choice at the community level, facility level, and through outreach services jumped exponentially from 263 at baseline (July–September 2012) to 3,369 during the project's third quarter (January–March 2013). This rapid increase in new users likely indicates a preexisting latent demand for contraception which the project helped to satisfy early on. Following this initial spike, a steady influx of new users sought contraceptive services each quarter at rates greater than ten times the baseline on average.

Similarly, in Kenya, the number of new contraceptive users increased nearly five-fold from 102 at baseline (July–September 2012) to 485 by the final quarter of the first phase (July–September 2014). Qualitative data from the project's midterm review suggests that project efforts to engage non-traditional,

non-health community groups, such as BMUs and farmers' groups, in delivering SRH messages helped to normalize broader participation in SRH and address common myths and misconceptions about contraception. As expressed by a BMU member:

"At 44 years, I have 3 wives and 18 children and my main job is fishing. Whenever I went fishing and the weather turned bad (strong waves), my family would go without food for that day unless I picked something from the house and sold it [...]. Since the BMU training, there is a difference; I encouraged my wives to go for family planning and life has changed for the better.

—BMU MEMBER

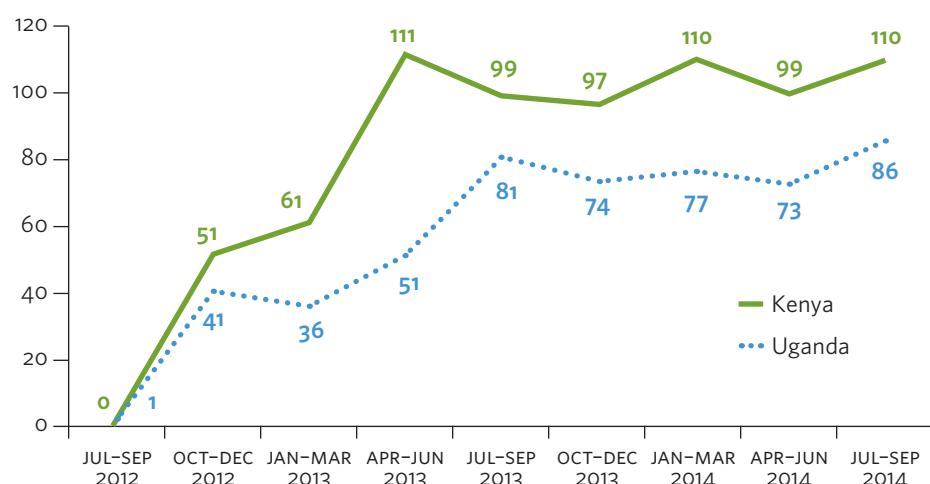
Respondents also pinpointed community outreach services as an important component spurring increased uptake of services. As one respondent stated:

"They have brought health services nearer—the mobile clinics. Bringing health services close has helped because now ... everyone is able to attend and get sensitized and counseled; unlike in the past when one would get to the facility late because it was far and they would just go straight for a particular service other than professional counseling [sic]. During dialogue, health care workers are close to us; we discuss the problems that we face so that health care workers get to know them. This way the health care workers are able to treat patients well because they now understand them better."

—CHW RESPONDENT

During the project's first phase, uptake of institutional deliveries also increased across the two countries from 124 at baseline (July–September 2012) to 393 by the final quarter of the first phase (July–September 2014). As shown in Figure 3, a particularly notable increase occurred among young women (aged 12–24), especially given that almost no young women sought facility-based delivery services at baseline. Respondents in the qualitative assessment highlighted both

FIGURE 3: INSTITUTIONAL DELIVERIES AMONG YOUNG WOMEN AGED 12–24 IN THE HOPE-LVB CATCHMENT AREA, PHASE ONE



improved service quality at facilities alongside efforts in the community to generate demand as key factors driving the increasing number of institutional deliveries. The significance of the project's efforts to engage men in SRH also emerged as an important factor influencing uptake of maternal health services.

One CHW's response illustrates this well:

"Nowadays, our husbands are involved in antenatal care unlike in the past when you could get pregnant and go through it alone without the husbands getting involved. But because of this project, our community knows that child bearing is a collective responsibility. Right now a man comes to me (as a CHW) and asks about his wife, expected date of delivery, and other issues. This helps avoid mothers giving birth to children with health problems."

—CHW RESPONDENT

The expansion of community-level referral mechanisms was also found to have played a role in improving male engagement, which in turn emerged as an enabling factor for seeking maternal health services as well as HIV testing. As another VHT respondent reflected:

"Ever since HoPE trained VHTs, we have managed to convince men to be supportive of their expectant wives and accompany them for both antenatal care and delivery. This has enabled service providers to test both partners for HIV."

—VHT RESPONDENT

Finally, the qualitative data reflect a clear shift in respondents' perceptions of health facilities from unresponsive and inaccessible entities to reliable structures capable of providing consistent, quality services during the project's first phase. Improvements at static health facilities coupled with expanded outreach at the community level and increased acceptability of SRH services appear to have contributed to increases not only in service uptake but also in confidence in the health system.

Improved household interpersonal dynamics

In a compelling demonstration of the social effects of the project's integrated approach, qualitative evidence from the midterm review points to a notable and positive shift in household interpersonal and gender dynamics. This shift was attributed as often to the

project's targeted efforts to promote SRH awareness and services as to the support community members received to pursue alternative, sustainable means of livelihood. Respondents' discussion of changes in household dynamics centered on two key themes: 1) the greater degree of financial independence experienced as a result of both female and male partners having the means to generate income, and 2) the role that contraceptive service access and the ability to time and space pregnancies has played in enabling partners to care for themselves, their partners, and their existing children. Across these themes, the concept of "love" was clearly and frequently cited. As an example, one respondent explored the link between financial independence and the experience of greater affection and ease within the household:

"Love has also increased among children and between my husband and me because it is not always that I ask for money for food. I am now doing well because I don't ask for money to buy clothes, shoes, or to do my hair. If I sell enough energy saving stoves, I buy a dress of my own taste. I can also sell some vegetables from my kitchen garden to buy the things my family lacks."

—CHW RESPONDENT

As another response illustrates, engaging both partners to advance contraceptive knowledge and service uptake was also associated with partners' improved interpersonal dynamics:

"[The project] has taught us that both partners should attend clinic to get trainings on family planning. This reduces struggles between partners, as we are transparent with one another. A pregnant mother can go together with her husband to the clinic. This even encourages couples [HIV] testing. During such clinics, women are encouraged to eat a balanced diet in the presence of the husband; this brings more understanding in families."

—FARMERS' GROUP RESPONDENT

Interestingly, energy efficient stoves appear to have had unexpected contributions to the felt change in household-level interpersonal dynamics. As expressed by a member of a women's group in Kenya:

"HoPE has taught us to make energy saving jikos [stoves], with no smoke. Since I started using the energy saving jiko, my husband can stay longer in the house, because there is no smoke that will drive him away. He can even stay with me longer in the kitchen as he waits for food and keeps me company. Energy saving jikos has increased love in our families."

—WOMEN'S GROUP RESPONDENT

Use of these stoves had far-reaching environmental, social, and health benefits, alleviating wood fuel use, providing a means of income generation through sale of the stoves, easing the burden of wood gathering (which primarily falls to women), and reducing vulnerability to respiratory diseases. Their additional apparent value as a facilitator of improved household interpersonal dynamics has been an unforeseen and positive finding.

Acceptance of sustainable practices and associated experience of agency

Project monitoring data and midterm qualitative data support the observation that communities have adopted sustainable fishing and agricultural practices. During the project's first phase, BMU members demarcated a total of 16 fish breeding grounds which—combined with adoption of sustainable fishing practices—led to improvements in related project indicators. For example, in one illustrative Ugandan project site, yield for Nile perch increased from an average of 5.5 pounds per boat per day to 55 pounds during phase one. Similarly, yield for tilapia increased from 9 pounds to 40 pounds following demarcation of the fish breeding grounds. This change suggests that sustainable practices are being adopted, and juvenile fish are more able to reach maturity before being harvested. Though the project cannot claim a

causal relationship, this change is notably positive and has had the added benefit of bolstering fisher folks' and BMUs' motivation to work toward continued improvements in fisheries' management practices.

In addition, qualitative findings reflect an association between the adoption of these sustainable practices and respondents' expressed sense of control over their future and the future of their environment. This represents a marked departure from baseline findings, which reflected a fatalistic perspective and limited perceived capacity to effect change. One respondent's comments nicely illustrate the relationship between the value attributed to adoption of these sustainable practices (in this case, an observed greater yield of mature fish), and a shift toward planning and saving for one's future:

"We used to catch small fish in large quantities, and sold them cheaply. [This is] unlike today—we catch big mature fish which are sold at good prices. This is an income-generating activity that has enabled us to save."

—BMU MEMBER RESPONDENT

Of note, the expression of hope for positive, structural change associated with sustainable fishing practices was reflected not only among BMU respondents—who may have been more likely to identify with the merits of sustainable fishing practices by nature of their role—but also among lay community members themselves. As the following quote illustrates, even community members with no direct role in fishing observe the positive changes that fisher folk, BMUs, and the government have collectively spurred for the greater good of the community:

"Since I was a child, I have gone fishing, but the population increased, fishing practices worsened, and fish reduced. However, HoPE trained fishermen to practice good fishing methods, they got rid of under-sized fishing nets and also trained BMUs to supervise the fishing activities, and now there are fish. HoPE caged a breeding area for fish. With the help of the bylaw that governs the breeding area, fish

have increased in number. This is visible because fish are even seen playing and jumping around the lakeshores..."

—YOUTH ASSOCIATION RESPONDENT

Similarly, sustainable farming practices have been widely adopted by the disparate community-based resource groups. Respondents associated these practices with perceived improvements in their capacity to effect positive change. As the following quotes illustrate, respondents derived a sense of pride and agency from their ownership of these practices:

"HoPE trained us in sustainable agriculture—which leads to high yields—and tree planting. When an orange is squeezed, we know how to plant the seed and graft the plant for better oranges. We can graft an orange with a lemon to get a bigger and quality orange."

—WOMEN'S GROUP RESPONDENT

"I have a lot of knowledge to employ myself; I am looking for capital to start a personal business."

—YOUTH ASSOCIATION RESPONDENT

Given the longer timeframe necessary to measure broader environmental changes, quantitative assessment of the HoPE-LVB's environmental effects are scheduled to occur at a later point in time. In the project's second year, baseline assessments of soil fertility in Kenya and fishery productivity and water quality in Uganda were established; these will be used in subsequent years (at minimum, five years) to assess broader ecological changes.

Institutional acceptance and ownership of the integrated approach

In its first three years, the HoPE-LVB project succeeded in fostering an unusually high degree of ownership among government stakeholders. Awareness of the HoPE-LVB integrated approach is high, with a total of 12,300 participants attending advocacy

events and discussing PHE integration during phase one. A number of governing bodies are working toward institutionalization, and the LVBC is actively promoting the HoPE-LVB approach across the five riparian countries. Midterm review findings indicate that project-supported communities also perceive this change, in the form of greater government recognition of and response to their challenges and needs. Respondents repeatedly noted and attributed value to the increase in government officials' visits to HoPE-LVB communities which, for many, represented the first experience of direct engagement with the communities' government counterparts.

The results of this institutional acceptance are also supported in documentation. National commitment to the integrated approach is demonstrated by the inclusion of a byline for PHE programming in Uganda's recently released Family Planning Costed Implementation Plan. Similarly, funding for PHE is now included in the Homa Bay County Development Plan, including allowances for combined PHE training event costs, supervision visits, and government extension worker visits. In addition to these institutional indicators of PHE adoption and scale, geographic scale-up is also occurring, both through the HoPE-LVB project's partnership with ExpandNet as well as through spontaneous diffusion in communities neighboring project sites. This diffusion of innovation phenomenon was reflected powerfully in midterm respondent interviews:

"The local government budgeted for the provision of tree seedlings to all government institutions. So, in the first year, we supplied pine; in the second year, we supplied fruit trees; and [from now on], we are going to still supply fruit trees. We copied this [intervention] from HoPE after seeing the need to protect our environment, as well as for nutrition."

—DISTRICT PLANNER, UGANDA

Lessons Learned

Implementing and monitoring integrated programming

Despite the added value conferred by integrated programming across sectors, the siloed structure and reporting lines of respective government ministries (e.g., standalone ministries addressing health, environment, and agriculture) and the funding environment still favor single-sector interventions, which poses challenges for further institutionalization of the HoPE-LVB approach.

Measuring the effects of integrated programming is also challenging. Addressing this, the HoPE-LVB project leverages existing entry points for gathering relevant data when possible. For example, at baseline, fishery authorities were already collecting data on fish yield and diversity; the project used these data as proxy indicators for the impact of demarcated fish breeding grounds. Given that fish weight and length are more accurate indicators for tracking changes in sustainable fishing practices than yield and diversity, the HoPE-LVB team also advocated with the Department of Fisheries to revise its data collection forms to include fish weight and length to enable a more accurate assessment of the impact of fish breeding grounds. Ensuring that the project's monitoring and evaluation system remains nimble and utilizes (and improves upon) existing data sources where possible are good practices; however, obtaining timely, accurate data without doubling collection burdens continues to present challenges.

Porous community borders

Porous community borders have affected the project in two key ways. First, on several occasions the project team has started to develop relationships with BMU members only to have the entire unit move to a different beach when fish stock wane. External environmental factors that affect migratory patterns are almost impossible to predict, making it difficult for the project team to anticipate and plan for such interruptions. The

often-changing composition of communities also takes a significant toll on social cohesion and the ability to nurture collective action for sustainable natural resource management.

Conversely, because community borders are fluid, benefits stemming from HoPE-LVB efforts regularly spill over into other communities. As project interventions yield larger, more profitable fish stock, outsiders move into HoPE-LVB communities. Since these individuals were not involved in protecting fish breeding grounds, community members sometimes resent that they benefit from community efforts, representing a potential source of discontent and conflict. As noted by a Ugandan BMU member, "Many people migrate to this island, we have no way of stopping them.... All the migrants rush to this same lake and practice their own fishing practices. Farmers at times also fish because of the income they can earn from selling big fish."

Reaching hard-to-reach fisher folk

As described earlier, the "fish-for-sex" phenomenon encapsulates the interdependence of SRH outcomes, gender, and

dwindling natural resources, and concurrently undermines women vendors' agency and their capacity to determine their own life course. While certainly not the only driver of the disproportionately high HIV prevalence among fisher folk along Lake Victoria's shores, this practice does fuel incidence of HIV and other sexually transmitted infections, and is therefore cause for concern across both the environmental and health domains. Despite this, integrated PHE projects in the region have not adequately addressed this issue. Future, rights-based PHE programming across the region should incorporate more intentional interventions targeted at better understanding the dynamics between male and female fisher folk and more comprehensively meeting the needs of this population.

Next Steps

Now in its second phase (2014-2017), the HoPE-LVB project team is institutionalizing and scaling up aspects of its integrated PHE approach to additional sites across Uganda and Kenya. As the global community continues to refine the post-2015 development agenda,

increasing priority is placed on sustainability, equity, and inclusive development. Integrated PHE projects rooted in community needs and geared toward advancing their rights represent an avenue for holistically addressing the complex web of integrated challenges affecting communities.

ENDNOTES

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COVER: Village health team member providing contraceptive counseling to a couple, Uganda PHOTO: Jake Lyell

PATHFINDER INTERNATIONAL WISHES TO RECOGNIZE ITS PARTNERS AND PROJECTS:



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