



Integrating Human and Animal Health for Conservation and Development: Findings from a Program Evaluation in Southwest Uganda

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FOREWARD

The health of the natural environment is closely linked to the health and livelihood of people, especially but not limited to those living in close proximity to and dependent upon its resources. At least as far back as the 1980s, the importance of the environment to both local and national development was recognized by the United Nations (UN). This was initially conceived in the next of *sustainable development*—defined in a 1987 UN meeting as: “development that helps populations meet current needs while at the same time not compromising the ability of future generations to meet their basic needs.” [1] Five years later, in 1992, the Rio Declaration on Environment and Development identified population dynamics—changes in the number and age component of populations, and how people’s distribution and practices affect the environment - as a crucial element for achieving sustainable development. The strong linkages between poverty and population-environment interactions were also emphasized at the 1994 International Conference on Population and Development (ICPD), together with a call for integrated action as part of the conference’s 20 year Programme of Action.

Almost a decade later, at the 2002 World Summit on Sustainable Development in Johannesburg, the world’s nations reaffirmed their commitment to the principle of sustainable development and the programs of previous international conferences. Around that same time, the US Congress lent support to integration by adding language to the Foreign Operations Bill supporting funds for reproductive health/family planning (RH/FP) “including in areas where population growth threatens biodiversity or endangered species.” [2]

Experiences with integrated environmental conservation and development projects of the late 1980s and 1990s provided a decade’s worth of lessons learned, most of which are still relevant to today’s realities [3]. To make real headway, however, efforts needed to be expanded—geographically, temporally, and contextually—taking into consideration key local factors contributing to environmental degradation, poverty and lack of community welfare. An important factor limiting expansion was and continues to be the lack of evidence demonstrating the value of trans-sectoral integration [4,5]. This and other reports describing more recent experiences linking population, health and the environment (PHE) aim to help fill this information gap [5-9].

The situation above is not news to John Snow Inc (JSI), which supported this evaluation. To the contrary, JSI has played a leadership role among health organizations, supporting the linkages between health and environmental initiatives through advocacy, research and project implementation in the US and overseas. This includes the JSI Center for Environmental Health, whose staff work at international, national, regional and local levels advocating sound environmental policy, enhanced capacity for managing programs, and strengthened grassroots organizations at the community level to implement environmental health action [10]. As part of these endeavors, JSI documents its research and programs to increase the understanding of how environmental elements contribute to people's health, and vice versa. This evaluation is an example of this “best practice.”

Specifically, this report documents the process through which a Ugandan conservation organization, Conservation through Public Health (CTPH), successfully integrated interventions—traditionally seen as from different “domains” or “sectors”—for the dual purposes of i) reducing threats to mountain gorillas and their habitat and ii) improving the well-being of local communities directly dependent upon the health of the former (for ecotourism and natural resource use). JSI, with USAID/Population Office funding, was instrumental in helping CTHP integrate family planning (FP) as a key primary health care intervention into its program around Bwindi Impenetrable National Park. Family planning was a new health area for CTPH and JSI mentored them in how to integrate the service to a quality standard, and also how to make the service relevant, and wanted, by rural communities with little previous FP use. The need for innovative examples of ways to successfully increase FP access and uptake in remote, hard to reach places, has been a repeated message including, most recently, in 2010, by U.S. Secretary of State, Hillary Clinton in a speech about the president’s new Global Health Initiative [11].

This report mainly describes activities undertaken between Oct 2006 and December 2008 and key end-of-project results. The extent to which project efforts have since been sustained is also covered. It ends with a brief assessment of the potential for this model to be replicated to increase coverage around this important Ugandan and World Heritage conservation area. Also presented are some lessons learned applicable to other initiatives aimed at extending access to FP around remote, biodiversity-priority areas and conserving the world’s biological richness.

JSI has a long history of involvement in health and education in Uganda and this report also describes how its other projects contributed to the success of these integrated efforts through extending a technical “helping hand.” This is another practice organizations should model to help support trans-sectoral efforts that are otherwise challenged by traditional, uni-sectoral funding tendencies.

The integration process described herein involves numerous steps that helped CTPH establish a model approach that it continues to follow and strengthen to this day. The model incorporates needs assessments; buy-in from local leaders and other stakeholders; partnering with content experts where expertise is lacking; engagement of local community members as volunteers to promote (and themselves model) positive practices; integrating new interventions, as appropriate and needed, to maintain momentum towards long-term objectives; and, an emphasis on data

collection, routine monitoring and periodic evaluations as the basis for knowing what works and where changes are needed.

These are steps that JSI itself has modeled in the context of its integrated PHE efforts. For example, in Madagascar, with funding from USAID’s Environmental Health Project (EHP) II, JSI spearheaded a quasi-experimental research study (from 2000 to 2005) to document change in health and hygiene knowledge, attitude and practices subsequent to integrated programming in three regions of the country, located close to biologically-diverse and economically important forest corridors. Change in household practices that threaten natural resources in a food and livelihood security context was also investigated as part of this effort [12]. Additionally, between 2001 and 2005 with funding from the Packard Foundation, JSI piloted a successful integrated PHE project “Madagascar Green Health Communities” in a few sites throughout the country.¹ That project demonstrated the value of a “champion” approach for motivating community members to participate in improving their own wellbeing [13]. Based on this initial positive experience, the champion approach was subsequently adopted “at scale”, by donor and government alike, as an innovative means of extending health services including FP to rural areas including remote locales adjacent to and dependent upon the country’s dwindling natural resource base [14].

Taking integration to scale is well described as part of JSI’s series “Best Practices in Scaling Up” in its Madagascar case study “Scaling Up Across Sectors: The Growth of the Population-Health-Environment Program” [15]. The case study describes seven steps to scaling up integration, most of which CTPH has similarly embraced in its Uganda initiative in which JSI is a key partner. Over the years, JSI has helped get the word out about the need for and value of integration in numerous other ways, including support for and active participation in international conferences, advocacy groups and networks in which integration is a key theme. Consistency in this message will hopefully be a key that opens the door to understanding and additional support for cooperation and coordination across sectors. This more truly reflects our relationship with the environment and other species sharing this planet and is what is needed to successfully meet the challenges of our interrelated world.

¹ *This project built on interest generated as part of JSI’s USAID/Madagascar bilateral child survival project—Jereo Salama Isika (JSI)—that was working near three critical environmental corridors in the country in concert with Landscape Development Interventions— a large natural resource management project implemented by a consortium of partners including Chemonics International; Cornell International Institute for Food, Agriculture and Development; and PACT Madagascar.*

ACKNOWLEDGEMENTS

This report represents the joint effort of many people and organizations that deserve to be acknowledged and credited for their contribution. This project would not have been possible without the support of USAID, in particular, Heather D'Agnes and previously Tom Outlaw of USAID's PHE Program; in addition, Krista Stewart's advocacy was much appreciated. At the USAID/Uganda mission, Jody Stallings was instrumental in promoting linked human/wildlife health as a viable approach to biodiversity conservation. Subsequently, Kathryn Panther and Serene Thaddeus lent support as part of their reproductive health portfolio. JSI played a strong technical and facilitation role and Carrie Hessler Radelet deserves special recognition for her unwavering belief in the effort. Others at JSI who helped make the PHE project possible include Sandee Minovi and Charlotte Ndiaye. Special thanks go to Penelope Riseborough and Jane Phelan for their expertise and help in producing this document. Fred Rosensweig (TRG) facilitated the USAID/EHP subcontract arrangements including CTPH deliverables. Appreciation also goes to the John D. and Catherine T. MacArthur Foundation and the UK Whitley Fund for Nature for support that enabled CTPH to more comprehensively integrate PHE interventions.

Conservation through Public Health owes the success of this effort to all its staff members, current and past, who toiled to initiate something different, something that intertwined multiple sectors and required the uptake of a new set of trans-disciplinary skills. The specific role of key staff members and their contributions are described within this report. The specific role of other key staff members and their contributions are described within this report. Specific credit of course goes to the community volunteers who have dedicated their time for over 4 years and have remained committed to the integrated nature of this effort. They are the connecting thread weaving community needs and capabilities with support from CTPH and other partners.

The positive health outcomes described in this report result equally from the efforts of CTPH and its affiliated community volunteers as from the two referral clinics, Kayonza HC II—the MOH public facility in one parish—and Bwindi Community Hospital (BCH) - the private referral facility in the second parish in which CTPH operates. Dr. Paul Williams, previous Medical Superintendent of BCH, and Charles Byarugaba, Hospital Administrator, played important roles in helping to initially establish a continuum of care in Mukono Parish, currently being maintained and strengthened by the extant Medical Superintendent, Dr. Birungi Mutahunga, collaboratively with his RH staff (especially FP clinic provider, Florence Ninsiima).

Conservation through Public Health also strengthened existing relationships and entered into relations with a new set of human health /FP partners to launch and maintain this initiative. Key government partners that have played and continue to play a pivotal role, at the local and national levels, include UWA, the MOH (in particular, Dr. Sebudde, Kanungu District DHO during the period covered by this report) and local government leaders. IGCP and AWF and WCS, under PRIME/West and Wild West, respectively, have provided CTPH the

opportunity to continue to integrate human and wildlife health interventions as part of its holistic approach to development and conservation. A number of USAID-supported health projects operating in Uganda, including UPHOLD, DELIVER, AFFORD, and Health Communications, welcomed CTPH to become an informed health partner and shared their materials and expertise so that the project could be of quality and to standard. FHI has also played a particularly important role in this regard—both its Uganda and US offices. Local Ugandan NGOs: Mango Tree, Straight Talk, RWODEC, contributed content expertise to help ensure the project was not only of quality but also relevant to local needs. PACE/PSI is currently collaborating closely to expand access to long-term FP methods. Dr. Amy Voedisch, SPIRES/Stanford University, contributed substantially to this evaluation and also to helping expand access to long-term methods as has Dr. Paul Blumenthal.

Obviously, neither the project nor the results would be possible without the trust and participation of the local community members including, but not limited to, those directly receiving FP and health services, those attending information and educational activities, the leaders who supported the roll out of project activities, the volunteer and the HUGOs. We applaud the truly collective quality of this effort and hope that the contents of this report will help to maintain momentum and enable this integrated initiative and others like it to go more “to scale,” to other needy parishes around Bwindi and to other remote rural locales near areas of biodiversity importance.

Photo credits (unless otherwise noted): L. Gaffikin and G. Kalema-Zikusoka.

LIST OF ACRONYMS

AFFORD	Health Marketing Initiative
AWF	African Wildlife Foundation
BALANCED	Building Actors and Leaders for Advancing Community Excellence in Development
BASICS	Basic Support for Institutionalizing Child Survival
BCH	Bwindi Community Hospital
BMCA	Bwindi and Mgahinga Conservation Area
CBDepo	Community-Based Distribution of Depo-Provera (injectable contraceptive)
CB-DOTS	Community-Based Directly Observed Treatment Short Course Therapy
CBO	Community-Based Organizations
CCP	Center for Communication Programs
CDM	Camp Dresser Mckee
CPE	Couple Peer Educator
CPR	Contraceptive Prevalence Rate
CREHP	Community Reproductive Health Project
CRHW	Community Reproductive Health Workers
CTPH	Conservation Through Public Health
CYP	Couple Years Protection
DANIDA	Danish International Development Agency
DELIVER	JSI Logistics Program
DFID	Department for International Development
DHO	District Health Officer
DISH	Delivery of Improved Services for Health
DOTS	Directly Observed Treatment of Short Course Therapy
DRC	Democratic Republic of the Congo
DTC	Development Through Conservation
EARTH	Evaluation and Research Technologies for Health
EHP	Environmental Health Project
FHI	Family Health International
FP	Family Planning
HC	Health Center
HIS	Health information System
HIV	Human Immunodeficiency Virus
HUGO	Human Gorilla Conflict Resolution
ICDP	Integrated Conservation and Development Project
ICPD	International Conference on Population and Development
IEC	Information, Education & Communication
IGCP	International Gorilla Conservation Programme
IQC	Indefinite Quantity Contract
INTRAH	International Training in Health
IUCN	International Union for Conservation of Nature
IPC	Interpersonal Communication
IUD	Intra Uterine Device
JSI	John Snow, Inc.

MBIFCT	Mgahinga and Bwindi Impenetrable Forest Conservation Trust
MCH	Maternal and Child Health
M&E	Monitoring and Evaluation
MGVP	Mountain Gorilla Veterinary Project
MOH	Ministry of Health
MOU	Memoranda of Understanding
MSI	Marie Stopes International
MUST	Mbarara University's School of Science and Technology
NGO	Nongovernmental Organization
NTP	National TB and Leprosy Programme
OC	Oral Contraceptives
ORS	Oral Rehydration Salts
PATH	Program for Appropriate Technology in Health
PHE	Population, Health, and Environment
PoA	Program of Action
PPIUD	Post-partum intrauterine device
PRB	Population Reference Bureau
PRIME/West	Productive Resources Investment for Managing the Environment
PROGRESS	Program Research for Strengthening Services
RH	Reproductive Health
RWODEC	Rukungiri Women Development Company
SOMARC	Social Marketing Program
SPIRES	Stanford Program for International Reproductive Education and Services
TA	Technical assistance
TB	Tuberculosis
TFR	Total Fertility Rate
UBOS	Uganda Bureau of Statistics
UDHS	Uganda Demographic Health Survey
UN	United Nations
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UPHOLD	Uganda Program for Human and Holistic Development
US	United States
USAID	United States Agency for International Development
UWA	Uganda Wildlife Authority
WASH	Water, Sanitation, and Hygiene
WCS	Wildlife Conservation Society
WVS	World Veterinary Service
WHO	World Health Organization
WWF	World Wildlife Fund



INTRODUCTION

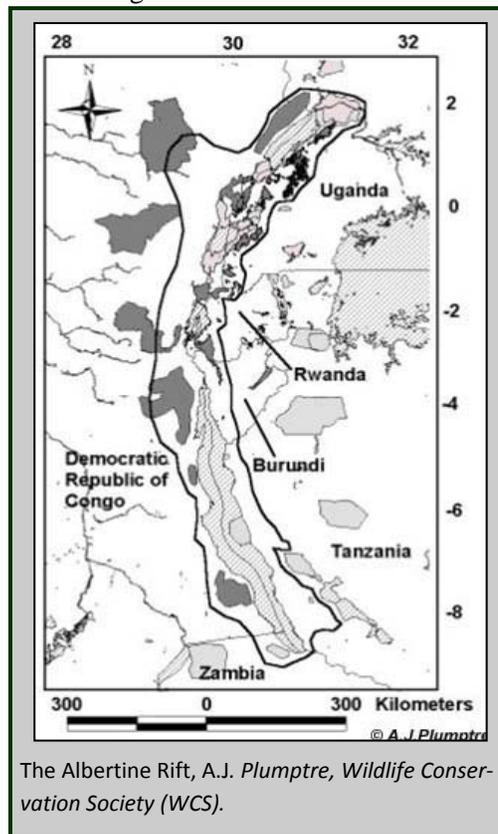
Geographic and Conservation Context

The Albertine Rift is an important conservation area due to its species “richness” and “endemism.”² It is part of the Great Rift System and encompasses five countries running from Lake Albert in the north to Lake Tanganyika in the south.³ The western region, where the activities described in this report have taken place, includes 12 districts along Uganda’s western border. Five of these lie in the country’s southwest (SW) region, an area hosting much of Uganda’s unique biodiversity and ecosystems. In fact, much of Uganda’s potential for eco-tourism is located within this region [18].

One of these tourist destinations is Bwindi Impenetrable National Park

(Bwindi). The park occupies the highest block of the Kigezi Highlands, historically referred to as the “Switzerland of Africa.” Its forests alone contain more endemic species than anywhere else on the continent [18]. Included in these species are half of the world’s remaining 720 or so mountain gorillas (*Gorilla beringei beringei*) [19].⁴

Bwindi now covers 331 sq km, 215 sq km of which is a mountain gorilla population home range. The park’s forested area was early recognized for its ecological and economic importance and over a period of 60 years, its status changed from forest reserve to game sanctuary to national park [18].⁵ Since 1994, it has also had the distinction of being one of two World Heritage sites in the area. The forests are particularly important to local people in the surrounding districts for their watershed function.⁶



² Richness refers to its very high total number of species and endemism means that large number of species are only found in this region of the world. Specifically, the Albertine Rift contains 40% of all bird and 25% of all mammal species, and is considered an endemic Bird Area by Birdlife International, an Ecoregion by the World Wildlife Fund (WWF), and a Biodiversity Hotspot by Conservation International [16].

³ The Democratic Republic of the Congo (DRC), Uganda, Rwanda, Burundi and Tanzania. If all of Lake Tanganyika is included, then Zambia comprises a sixth country [17].

⁴ The mountain gorilla is a great ape subspecies listed as critically endangered on IUCN’s Red List [20].

⁵ It was gazetted as a protected area in the early 1930s by the colonial government.

⁶ The park protects 6% of all Uganda’s water catchment area [21].

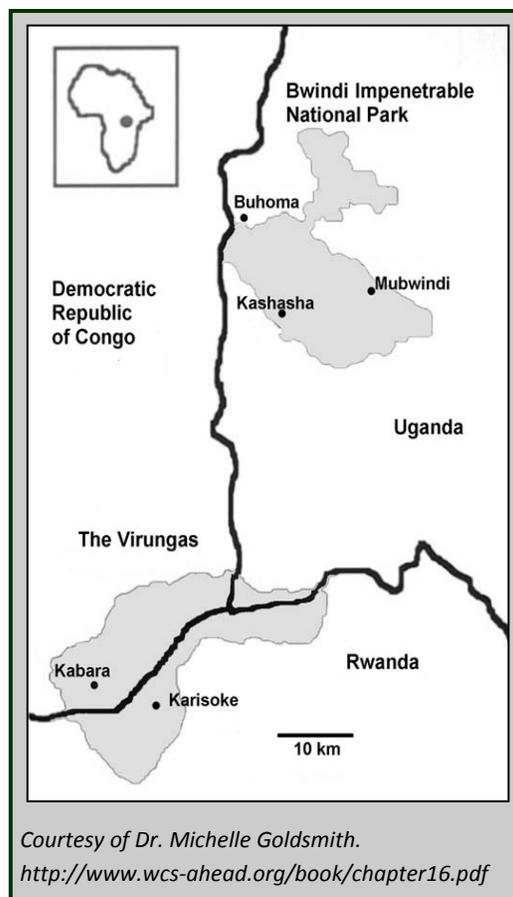
Human Profile and Pressures

Uganda as a nation is growing quickly. It has one of the world's highest national fertility rates (6.5) and population growth rates (over 3%) [22]. In the last half century, its population has grown from 6.5 million (in 1959) to 28.5 million citizens in 2002 [23]. Given this trend, the country's population could almost double to 56 million by 2025. Population growth has cut deeply into per capita Gross Domestic Product, estimated at \$250 by the World Bank in its 2004 World Development Report which, in turn, has negatively affected achievements in the social sectors [23].

The majority of Uganda's population still lives in rural areas and total fertility in those areas remains high at an average of 7.1 children per woman [24]. According to the Uganda Bureau of Statistics (UBOS), thirty percent of the country's residents live in the SW region⁷ due to high natural growth rates and in-migration associated historically with natural resource availability. This contributes to the region ranking among the most densely populated rural areas in all of Africa—with an average of 200 - 300 people per square kilometre [25]. The park in its entirety is bordered by 3 districts (Kabale, Kisoro, and Kanungu), home to approximately 880,000 people in 2002 [26]. Within those



Community member harvesting wood from the forest.



districts, 23 parishes actually border the park including approximately 10,000 families belonging to three Bantu peoples (the Bakiga/Bachiga, Bafumbira, and Barwanda). These people are mainly agriculturalists who cultivate the land immediately surrounding the park for their livelihood. They are also some of the poorest peoples in the region.

Land tenure is mostly private ownership and the majority of land is owned by just a small group [18]. Land is acquired through borrowing, purchasing, or renting which contributes to land fragmentation and ecosystem degradation [18]. Polygamy is still commonly practiced among the Bakiga (main ethnic group) and the male head of household customary divides his land among all the sons. With consistently large-sized families, over the generations, new household plot size has diminished.

⁷ Districts in this region include: Bushenyi, Ibanda, Isingiro, Kabale, Kanungu, Kiruhura, Kisoro, Mbarara, Ntungamo, and Rukungiri.

Another ethnic group represented around Bwindi is the Batwa, displaced forest-dwellers who were evicted from the forest in the 1960s. Numbering between 50 and 100 families, some currently work as laborers on Bantu farms to support themselves. Where permissible, timber and non-timber resource extraction from the forests helps meet their survival needs. Still, the Batwa are among the most marginalized and poor peoples in Uganda [27].

Population densities were high historically around this forested area as migrants from within the country, Rwanda and the DRC were all attracted to the fertile afro-montane soil and local climate favoring year-round farming (2-3 annual harvests) [18]. Local communities used the forest for food, timber and non-timber resources (e.g., bee keeping) and converted the land for agriculture. Burning practices and subsequent erosion led to soil loss and reduced land productivity. Over time, the marginally productive agricultural practices, compounded by overall low economic activity, and increasing numbers of people led to a cycle of dependency—for people's health, livelihood, and overall survival—on a dwindling natural resource base. These practices and circumstances resulted in substantial forest loss until 1991 when the forests were ultimately declared a national park [28].⁸

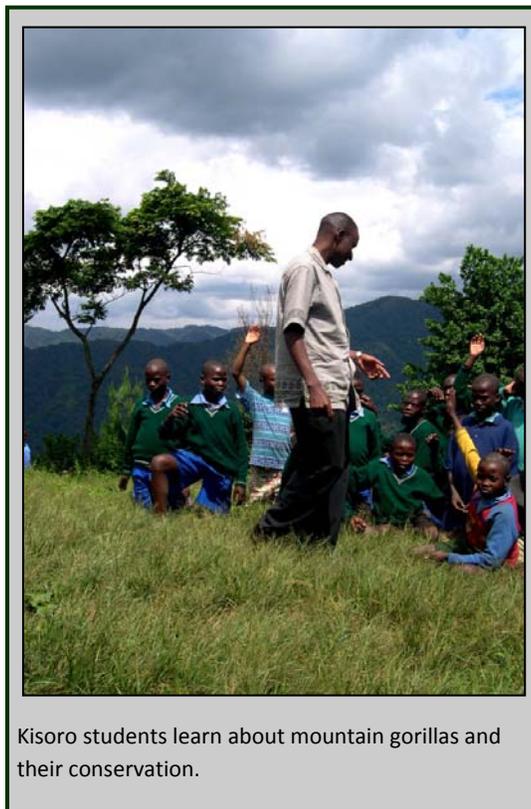
History of Local Development

In 1992, the non-governmental organization (NGO) CARE began to support interventions in the area around Mgahinga Gorilla and Bwindi National Parks [called the Bwindi and Mgahinga Conservation Area (BMCA)] through a project called Development through Conservation (DTC). The goal was to conserve natural resources and support livelihoods of the then 9600 farming families living in the conservation area by working collaboratively with local forest conservation efforts [29].⁹ The project aimed to gain community support by better understanding their economic

needs and developing viable alternatives to unsustainable harvesting of Bwindi forest products.

That same year, with assistance from DTC, the park developed its first General Management Plan. Acknowledging the interdependency between community needs and conservation goals, the plan incorporated a community development component that supported sustainable use of local natural resources. The underlying philosophy was that local communities should benefit *directly* from park management, through active participation in ways

that address both social and economic needs. A few years later, in 1996, the Uganda Wildlife Authority (UWA) was established through the Uganda Wildlife Statute which merged the respon-



Kisoro students learn about mountain gorillas and their conservation.

⁸ As in many parts of the world, the initial forest gazettement process was met with resistance by local inhabitants and conflict ensued over divergent land use interests. Conversion to national park status in 1991 added even more land-use restrictions that further conflicted with local traditional practices and population survival needs [28].

⁹ Interventions in the area actually first began in 1988 when WWF/US sub-contracted CARE/Uganda to assist in agricultural extension services.

sibilities of the Uganda National Parks and the Game Department into one unit [30]. Since then, Bwindi has been under the ownership and management of this parastatal government body. UWA strongly adheres to the principle, promoted as part of Bwindi's first management plan, that any benefits accruing from the conservation of areas under its management must be shared with neighboring communities. To this end, while Bwindi is fully protected, to reduce resentment and increase community benefits from the park, a multiple-use program was established through which surrounding communities can legally access some of the parks resources. To formalize this arrangement, UWA developed memoranda of understanding (MOUs) with local communities about extracting non-timber products from the park (e.g., bee keeping, traditional medicines). UWA also supported, and continues to support, community tourism, conservation education, and revenue-sharing programs whereby a percentage of the park entrance fees are allocated for financing community projects (e.g., schools and health clinics.)



Over the years, the amount of fertile land available around Bwindi's forests have dwindled and migration has leveled off. With the introduction of community plans for sustainable forest-product harvesting, and other support from NGOs, historic

conservation threats (e.g., illegal harvesting of forest products, agricultural expansion, mining, and fires) have been brought mostly under control. Key remaining challenges include the livelihood needs of local populations and their dependence on the limited/dwindling natural resource base.

A critical challenge to local communities that has increased in importance over time is crop raiding of their fields by park animals [31]. Wild animals including gorillas leave park boundaries to eat peoples' crops as there is no buffer zone between the park and the surrounding community land (i.e., there is no forest immediately outside the park). Crop raiding not only contributes to reduced income but can lead to nutritional issues. It also disrupts children's education as local parents sometimes keep children home from school just to chase away nuisance animals [32].

An early strategy developed by UWA to support families most affected by crop damage was small income-generation grants to support animal husbandry or improved seeds to increase crop yield. UWA also worked through various NGOs to improve community relations including the International Gorilla Conservation Programme (IGCP) and the Mgahinga and Bwindi Impenetrable Forest Conservation Trust (MBIFCT) project.^{10,11} For example, with assistance from IGCP, UWA set up human gorilla conflict resolution (HUGO) committees specifically organized to reduce crop damage. The committees function by community members volunteering to guard against crop damage whenever gorillas exit the park.

Disease as a Conservation Threat

As described above, crop raiding has economic, educational, nutritional, and, potentially, other health consequences for the farmers and their families. It also increases health risks in the other direction—from humans to the mountain gorilla. In fact, with the reduction in conversion of forest

to agricultural land and containment of other threats, disease has increased in importance to be considered a key factor affecting mountain gorilla survival [35]. Because humans and gorillas are closely related genetically (98% shared DNA), we can potentially suffer from the same infectious diseases.¹² Transmission risks are increasing with increases in human/gorilla contact. In addition to crop raiding, increased intensive gorilla ecotourism in the park by foreign tourists increases the potential for transmission as does high population growth and increased density at the household and community levels. The risk of interspecies pathogen sharing is further exacerbated by community livestock (e.g., cattle) that graze in the same area frequented by gorillas and humans [36].

Studying transmission risks and rates among humans, livestock, and mountain gorillas in their natural habitat is challenging.¹³ Evidence, however, is accumulating to substantiate this risk and, with this has come increased support for health interventions—both preventive and curative in nature. For example, guidelines exist regarding the minimum distance tourists should allow between themselves and mountain gorillas in the wild to reduce risk of pathogen transmission [37]. Additionally, guidelines have been developed and programs established to ensure conservation employees are healthy—defined, in part, as free of infectious diseases transmissible to the gorillas [38, 39].

For mountain gorillas, strict convention governs conditions under which veterinary clinical interventions can be undertaken in the field. These policies render veterinary preventive care strate-

gies all that much more important as a conservation “tool”. To this end, preventing and/or curing human infectious diseases—potentially transmissible, directly or indirectly, to mountain gorillas—is now considered an important veterinary preventive care strategy for ensuring species survival [39]. The fact that disease prevention and health maintenance are also key needs of local communities around Bwindi strengthens the rationale for linking human/wildlife health projects on-the-ground as a “win-win” strategy.

Recognizing this, in July 2002, UWA hosted a workshop to strengthen linkages between wildlife, livestock, and human health issues in the BMCA.¹⁴ Local district livestock and human officials attended as well as national representatives from the Ministries of Health and Agriculture, Animal Industry and Fisheries, UWA, and numerous NGOs. The workshop focused on the concept of “ecosystems” shared by humans and wildlife and public health approaches to health maintenance. Specific objectives of the workshop included iden-



Gorilla foraging outside park boundary near community fields and cattle.

¹⁰ IGCP was formed in 1991 by three international conservation organizations and three protected area authorities: The African Wildlife Foundation (AWF), Fauna and Flora International and WWF, and the Institut Congolais pour la Conservation de la Nature, the Office Rwandais de Tourisme et des Parcs Nationaux and UWA. Its goal is the sustainable conservation of mountain gorillas and their habitats [33].

¹¹ MBIFCT was set up in 1994 under the Uganda Trust Act as an NGO to provide long-term funding for the conservation of the biodiversity and ecosystems of the two parks. A large proportion (60%) of its funds were mandated to support community development activities including non-consumptive use of the forest and its products, proposed and established by local community groups [34].

¹² Disease transmission from humans to animals is technically anthroozoonoses although many use the term zoonoses to represent disease sharing in general between or among species [35].

¹³ Mountain gorillas live only in the wild, not in any zoological park. A few young, orphaned animals are being raised in a sanctuary in the area with the aim of potential future reintroduction back into the wild.

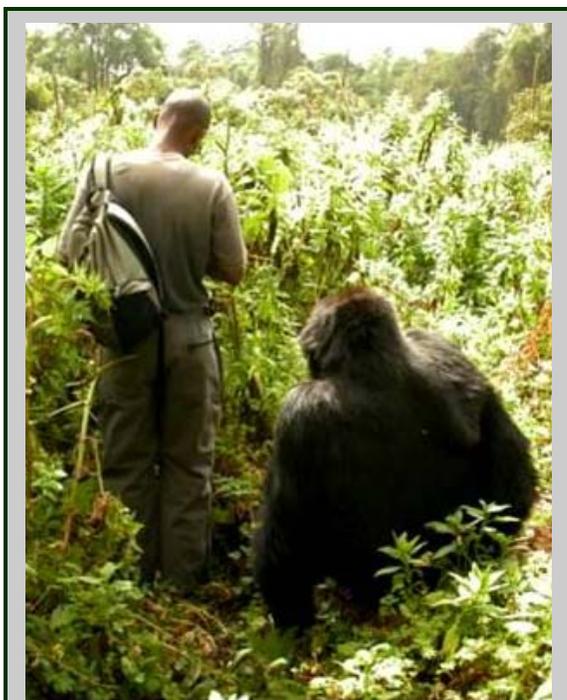
¹⁴ The workshop was conducted with joint support from IGCP and the Mountain Gorilla Veterinary Project (MGVP) [40].

tifying mechanisms for integrating public health and conservation issues and developing action plans targeting those mechanisms [41].

To help implement workshop action plans, a temporary committee headed by the Kisoro District Health Officer (DHO) was established with support from IGCP called the Bwindi Mgahinga Public Health Conservation Technical Support Unit. Its role was to promote an integrated (wildlife, human, and livestock) approach to improved health and to obtain financial support for coordinated interventions on-the-ground. IGCP requested a local NGO—Conservation through Public Health (CTPH), founded December 2002—to coordinate the unit and the action plan activities. This leadership role evolved into a long-term commitment by CTPH to integrating health interventions across and among “beneficiaries,” including through its Population Health Environment (PHE) program, described in full in Chapter 2.

Reproductive Health Context

Support for FP in Uganda goes back to the mid-1950’s when the Family Planning Association of Uganda was established as the country’s first



Close human/animal contact can increase the risk of disease transfer between the two genetically-related species.

(volunteer) FP organization. However, it took another thirty years before the government acknowledged the importance of this service—FP becoming incorporated as part of the Ministry of Health’s (MOH) primary health care package in 1986 [42]. In 1994, the year of the Cairo ICPD, Uganda endorsed the conference’s Programme of Action (PoA), committing the country to its recommendations. A year later, in 1995, the National Population Policy for Sustainable Development was introduced which freed women to obtain FP services without requiring the husband’s permission.

A Uganda RH assessment conducted four years later revealed that key elements of the PoA had been translated into action, some even before the conference, through the government’s Maternal and Child Health (MCH) and FP Programme. [43]¹⁵ The assessment also reported that ICPD recommendations were not being well implemented in *lower* administrative levels e.g., districts, as the capacity to support health programming at decentralized levels remained poor.¹⁶ This limitation continues to this day in many areas of the country, especially rural zones. This is due, in part, to the continued heavy dependence on donor support for RH/FP programming for which USAID has historically been the prime funder in the BMCA.^{17,18}

¹⁵ Subsequently, under Ministry restructuring, the MCH/FP Division became the RH Division under which a FP Revitalization Working Group was established. In addition, a Population Secretariat was established to promote ICPD recommendations and to link central government population and RH initiatives to other ministries and stakeholders.

¹⁶ In 1977, Uganda’s Local Governments Act established an administrative hierarchy including the district, sub-district, and four other levels or “administrative units.” In keeping with that act, the MOH formed health sub-districts through which decentralized health programming operated.

USAID Support

USAID assistance to Uganda for general development began over two decades ago, in the 1980s. Shortly thereafter, in 1989, the Uganda mission initiated support for RH/FP as part of its bilateral “Expanding Family Health Services” project. Following this, around the time of the Cairo conference, USAID funded the Delivery of Improved Services for Health (DISH) Project, aimed at increasing the availability of RH/FP and other services in select areas of the country as well as improving district and national program management capacity [44]. DISH was funded for two program cycles: 1) DISH I (1994 - 1999) provided TA, training, and other support to reduce fertility and HIV transmission in 10 districts;¹⁹ and 2) DISH II (1999-2002) increased service utilization through targeted RH/FP *and* MCH behavior change in 12 of Uganda’s 56 districts.²⁰

In 2002, JSI launched a six-year bilateral project, UPHOLD, designed to strengthen capacity in 34 districts for the improved delivery, management and use of social services in three integrated social sectors: Health, education, and HIV/AIDS.²¹ RH/FP was an important sub-component of the former. Investments made under UPHOLD aimed to be catalytic—to accelerate going to scale nationally; foster the emergence of sustainable approaches to providing social services; leverage other sources of funds; and, create opportunities for communities to have an active role in decision making. In so doing, the project formed and organized itself as a learning organization that

would leverage partners’ combined expertise and knowledge to nurture Ugandan institutions to continuously produce and deliver high quality health and educational services [45].

Also in 2002, JSI provided assistance to the Uganda MOH to improve its logistics system for essential drugs and contraceptives through its USAID-funded DELIVER Project [46].²² DELIVER was followed by the three-year USAID | DELIVER PROJECT, launched at the end of 2006, that sought to improve the health and well-being of people and communities globally by increasing the availability of essential public health supplies to health care providers and customers [47].²³ In Uganda, the DELIVER Project contributed to USAID/Uganda’s Strategic Objective 8, Improved Human Capacity, by providing technical support to strengthen policies and supply chains associated with the country’s RH, immunization, tuberculosis, and essential medicines programs.

Earlier, in 1995, USAID/Uganda began a social marketing program (SOMARC) to introduce branded condoms, injectables, and oral contraceptives (OCs). This effort was expanded first through the follow-on Commercial Market Strategies project (1998- 2003) and subsequently, through the AFFORD Project—a five year (2005-2010) health marketing initiative with a health product distribution component including contraceptives.^{24,25} Over the life of the project, AFFORD put into place a local distribution network incorporating Small Scale Entrepreneurs based on a com-

¹⁷ Development at the district and local levels is financed through District and Local Development Plans as well as donor-financed projects.

¹⁸ Other donors supporting RH/FP in Uganda include the World Bank, DFID, UNFPA, DANIDA, UNICEF, and the World Health Organization (WHO) [43].

¹⁹ DISH I was implemented through a contract with Pathfinder International in collaboration with the Johns Hopkins Center for Communication Programs, the University of North Carolina Program in International Training in Health (INTRAH) and E. Petrich and Associates.

²⁰ DISH II involved a consortium of organizations led by CCP/ Johns Hopkins Bloomberg School of Public Health. Other consortium members included Management Services for Health, INTRAH and Jhpiego.

²¹ UPHOLD was implemented by JSI Research & Training Institute, Inc., in collaboration with Education Development Center, Inc. Constella Futures (formerly the Futures Group), the Malaria Consortium, the Manoff Group, Inc., and World Education, Inc.

²² DELIVER was a worldwide, five-year TA support contract implemented by JSI with subcontractors Manoff Group, Program for Appropriate Technology in Health (PATH), Social Sectors Development Strategies, Inc., and Synaxis, Inc..

²³ The USAID | DELIVER PROJECT was implemented by JSI in collaboration with PATH, Crown Agents Consultancy, Inc., Abt Associates, Fuel Logistics Group (Pty) Ltd., UPS Supply Chain Solutions, The Manoff Group, and 3i Infotech.

munity-based distribution model. Its model was piloted in numerous parts of the country including the two districts of Kabale and Kanungu; it did not, however, extend to parishes closely bordering Bwindi. Similarly, the districts supported through USAID's health bilateral projects (DISH and UP-HOLD) covered rural areas with high unmet need for FP but for various reasons did not include the areas immediately surrounding Bwindi. This did not mean that the high rates of fertility in the SW contributing to poor MCH indicators and poor economic potential went unnoticed. Rather, given the challenges of accessing these remote communities, USAID support for RH/FP in that area was and continues to be provided through other, special funding mechanisms.

CARE/CREHP

Specifically, USAID early recognized the lack of access to RH/FP services in the BMCA and for close to a decade (1992-2001), it funded CARE to implement a Community Reproductive Health Project (CREHP) in the area. The project was implemented in two phases: CREHP I (1992-1996) and CREHP II (1996-2001). CREHP was designed to complement CARE's USAID-funded DTC project, described above, that focused on environmental conservation, agricultural and livelihood interventions in the same area. *As such, these two CARE projects were an early example of integrated population and environment programming incorporating FP interventions in this country* [48].

²⁴ Commercial Market Strategies was implemented by Deloitte Touche Tohmatsu and subcontractors Abt Associates, Inc. and Population Services International.

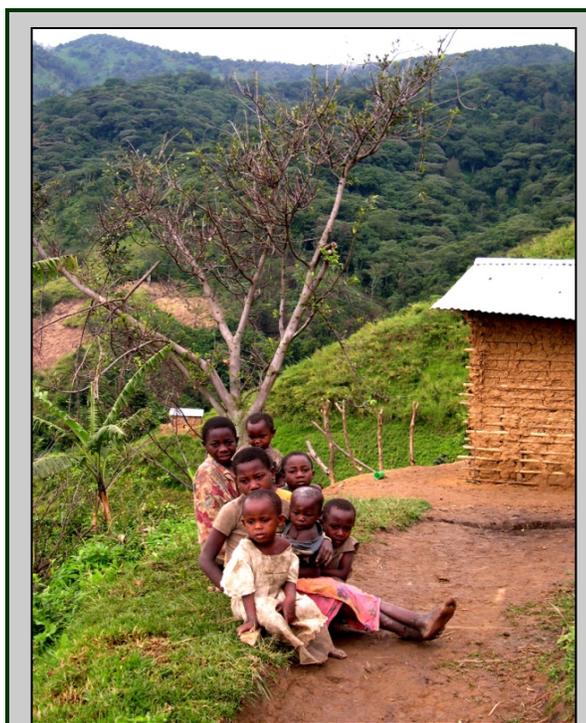
²⁵ AFFORD is led by CCP/The Johns Hopkins Bloomberg School of Public Health. The consortium includes Constella Futures, the Malaria Consortium, and three Uganda-based organizations [48].

CREHP I began in three districts (Kabale, Kisoro, and Rukungiri) and focused solely on FP, strengthening services at both health facilities and in communities. It reinforced a network of community volunteers who were responsible for distributing select contraceptive methods and disseminating information. When Rukungiri district split into two (Rukungiri and Kanungu), CREHP II covered 4 of the country's 56 districts. This second phase, initiated after ICPD/Cairo, had an expanded mandate and focused on safe sex, maternal

health and sexually transmitted infections as well as FP. The role of community volunteers in phase 2 was expanded to promote a number of RH services and their title, correspondingly, was revised to community reproductive health workers (CRHWs) [49].

Both phases raised awareness and demand for RH/FP services in the context of "manageable" families. Over its life span, CREHP contributed to

an increase in the proportion of married women using modern contraception in target communities from 9.6% to 14.3% [49]. These project report findings were corroborated by the UDHS in which the CREHP districts were oversampled. Those findings revealed an increase between 1995-2000 from 7% to 12% in CREHP-supported communities [50].²⁶ This compares to an increase nationally of 7.8% to 18.2% and from 13% to 21% in the



Remote parish household close to the park boundary.

10 DISH I districts over a similar four-year time frame (1994-1999) [51].²⁷ While the end-of-project contraceptive prevalence rate (CPR) of 14.3% for CREHP is lower than levels achieved nationally (and in the DISH districts) for approximately the same time period, it is nonetheless impressive given the remoteness and poverty levels of the area.

Of the various positive components of CREHP, support to the CRHWs was considered among the strongest [49]. Through the CRHWs, the project helped strengthen community-facility linkages as well as ties among local political structures, the communities, and health clinics. CREHP also strengthened facility-based RH/FP services and supported interventions to try to help improve district capacity to provide MCH services in an integrated manner [49]. While focusing in the BMCA, the project did not specifically target households located adjacent to the park—often the most remote and most vulnerable. This subgroup has been

a key target for many integrated conservation and development projects (ICDPs) around Bwindi, and considerable need remained after CREHP ended for focused health including RH/FP interventions. Over the years, the CPR for modern methods nationally has remained stable (17.8% in 2006). In the BMCA, the rate has undoubtedly dropped given that, until CTPH's PHE program (described below), no special donor-funded RH/FP efforts since CREHP have focused specifically in that area.²⁸ This speculation also derives from the finding that strengthened district capacity for RH/FP programming was not fully realized under CREHP [49].²⁹ These and other factors jointly affected the trajectory for health (including RH/FP), poverty, and environmental indicators in the intervening years, setting the stage for the low level of coordinated conservation and community development existing in early 2003, when CTPH first initiated its integrated work around Bwindi.

²⁶ The oversampling allowed for a special analysis of change over a five-year period (1995 - 2000) in the project areas for a number of RH/FP indicators.

²⁷ 2000/1 UDHS data showed a further increase to 28% CPR for all 12 DISH II districts [50].

²⁸ BMCA-specific UDHS data are not available after 2000 but district statistics and other data sources suggest this to be the case (see below).

²⁹ Recall that challenges related to decentralization in general were identified in the 1998 USAID RH assessment.



DEVELOPMENT AND INITIAL TESTING OF CTPH'S INTEGRATED MODEL

Background

Conservation Through Public Health (CTPH) promotes wildlife conservation and human public health by improving primary health care to both groups around protected areas in Africa [52]. The organization focuses on the interdependence among wildlife, human, and livestock health in two complementary ways. One considers the potential for inter-species disease transmission. The other considers the cyclic dependence of villagers near protected areas upon livelihoods created by a fledgling ecotourism industry that, in turn, depends on healthy wildlife, particularly mountain gorillas [53]. To address this, CTPH promotes interventions that will prevent the spread of disease among wildlife, people and their animals—focusing on infections potentially transmissible between species (e.g., scabies, measles, TB) and that are locally prevalent. Connecting the improvement of people's health to conservation initiatives is considered key to securing long-term commitment of local communities to protect wildlife and their habitat for future generations, a basic tenet of sustainable development.

The impetus for establishing CTPH as an NGO derived, in part, from personal experiences of co-author Kalema-Zikusoka, one of the founders and current CEO of the organization. In 1996, Dr.

Kalema-Zikusoka, then veterinarian for UWA,³⁰ was called upon to help manage a scabies outbreak among the Bwindi mountain gorillas that resulted in a gorilla infant death. Another outbreak in 2002 led to a two-year postponement of tourist visits to a newly-habituated gorilla group while the group was being clinically treated. This carried a large price tag in terms of the cost of the clinical intervention itself, as well as lost ecotourism revenue



³⁰ Dr. Kalema-Zikusoka was UWA's first veterinarian between 1996 and 2000.

nationally and to the local communities.³¹ Comparative DNA analysis of the scabies mite from gorilla and human samples from the same area revealed the species to be the same (*Sarcoptes scabiei*). This strongly suggested that the infection had been transmitted between the two [54]. As hygiene practices are poor among communities near where the gorilla scabies outbreaks occurred, and scabies is also a human health problem in the area, it is generally believed that the ectoparasite spread from community members to the gorillas via fomites—for example, clothes left in the fields where gorillas crop raid [55].

Additionally, in 2002, Dr. Kalema-Zikusoka initiated TB research in the area. Her study showed that 25% of chronic coughers from local human communities had TB positive acid-fast sputum tests as did 5% of Bwindi park staff. This observation was probably not an isolated event around a great ape protected area as Uganda is one of 22 countries in the world with the highest TB levels, collectively contributing to 80% of the global TB burden [56]. This situation is exacerbated by a greater than 35% TB/HIV co-infection rate nationally.

The government has addressed the problem, in part, by providing free treatment for anyone diagnosed with TB. However, many community members live too far away from government health units to either receive a diagnosis or to adequately benefit from the offer of free treatment. Another challenge to TB control in Uganda is poor treatment compliance. This problem was given a human face when two people in the local community died from not completing their treatment regimen during Dr. Kalema-Zikusoka's TB research [57]. These two experiences, together with mounting evidence from other studies on shared gorilla/

human pathogens, confirmed the potential for cross-species disease transmission and underscored the need for linked human/animal health interventions [58-60]. Shortly thereafter, in December 2002, CTPH was established as an NGO specifically to meet this need.

CTPH's Three Strategic Programs

In September 2003, CTPH organized a strategic planning workshop with key stakeholders to identify priorities and specific ways of improving the health of humans, livestock, and wildlife in targeted rural areas that would also improve economic opportunities. Ideas from the workshop were incorporated into a multi-year strategic plan as the basis for “win-win” approaches.³² The plan was organized around three strategic but interrelated CTPH programs: Wildlife Health Monitoring; Information, Education & Communication (IEC); and Human Public Health.

Wildlife Health Monitoring

In this program arm, CTPH is helping to establish an early warning system for disease outbreaks as a means of limiting their impact on wild animal population survival. In Bwindi, in collaboration with other organizations including MGVP and IGCP, CTPH has trained UWA rangers, trackers and field assistants (170) and HUGO volunteers (90) on how to recognize clinical signs of gorilla ill-health as a critical component of routine health monitoring. Additionally, whenever possible, fresh fecal samples are collected from gorilla night nests and the trails. Select samples are then tested for the presence of disease-causing pathogens at CTPH's Gorilla Research Clinic in Buhoma and at partner facilities.³³ Test results are shared with

³¹ As noted, 20% of the tourism revenue from the park is shared within neighboring parishes to build schools, clinics, and roads. The local communities also economically benefit indirectly by providing low budget accommodation, food and crafts for visiting tourists.

³² The plans were consistent with the goals and objectives of the Ugandan Ministries of Health and Agriculture, Animal Industry, and Fisheries and USAID/Uganda's Economic Growth programs, all of whom were represented at the July 2002 IGCP/MGVP workshop.

³³ Bwindi-associated personnel gather mountain gorilla fecal samples weekly and community volunteers from the HUGO teams collect samples whenever gorillas forage onto community land. To date, over 4,000 samples have been analyzed for harmful pathogens[61].

UWA and local health clinics /officials to assist them in identifying any potential areas of human health concern. The data also constitute part of a gorilla health “baseline” profile being developed by multiple partners to increase understanding of current and future gorilla health status and threats.

Information, Education & Communication

CTPH supports IEC components within its other two arms but has this as a separate strategic program to ensure adequate focus on reaching out to, engaging, and educating the community. A key intervention within this arm, organized under CTPH’s IT Director and CTPH Co-Founder Lawrence Zikusoka, has been establishing a solar-powered telecenter in the town of Buhoma, the northern gateway to Bwindi, as a means of i) reducing the isolation of local community members, ii) increasing their ability to learn from the international community and iii) expanding their access to the job market. At the telecenter, community members, primarily youth, learned computer skills that would enable them to become more actively involved in the ecotourism industry. Through posters in the telecenter, its trained staff and customized computer applications, community members concurrently learned about important linkages among gorilla conservation, public



health, ecotourism, and sustainable livelihoods. Importantly, the telecenter attracted tourists wanting to email friends and family about their trekking experiences. This served as a small source of income to keep the center running as well as an opportunity to teach tourists about risks of infectious disease and the linked themes being promoted by CTPH.³⁴

By 2010, CTPH had trained more than 200 youth, 40% female, in basic computer applications at the Bwindi telecenter [63]. It had also provided opportunities for more than 3,000 people in local communities to access internet services for conservation and health education purposes.³⁵ An underlying philosophy of the telecenter is that the more community members are exposed to the international community (e.g., via the internet and sharing terminal space), the more open they may become to new ideas and messages including new health and hygiene practices promoted through CTPH’s Human Public Health program. In this way, the programs are mutually reinforcing and all contribute to reducing disease at the wildlife/human/ live-stock interface while concurrently improving community well being.

Human Public Health

CTPH works with local health officials and centers to improve the health of communities sur-

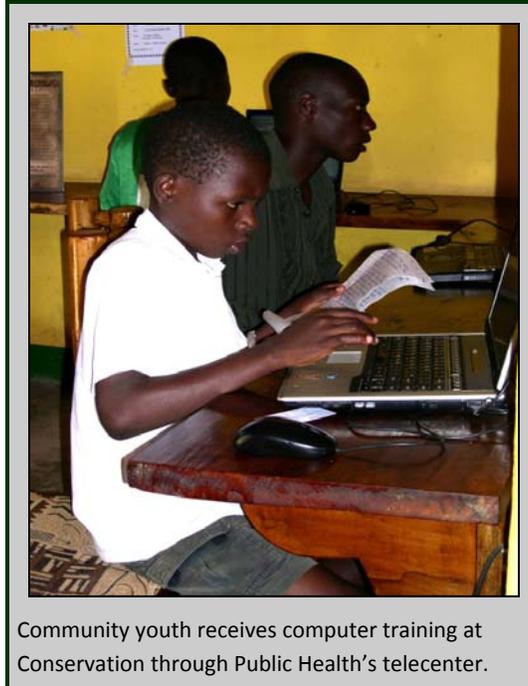
³⁴ A community website was developed in the local language (Rukiga) spoken around Bwindi that contains information on these links [62]. At the time of writing, the Buhoma community telecenter is temporarily not operating until CTPH establishes its new Bwindi headquarters at a nearby site—although David Matsiko, CTPH’s community telecenter officer, continues to keep internet communications functioning at CTPH’s headquarters in Buhoma.

³⁵ However, its telecenter at Queen Elizabeth National Park continues to operate and provides CTPH with lessons learned and new opportunities for program innovation and expansion. For example, in that site, CTPH has piloted a “roving” tele-effort through which computer access is made possible via trained persons who bring the computer to remote communities on a bike. Community members are then instructed how and helped to send emails—for a small cost—that are forwarded later on when the bicycler has returned to where there is internet connection.

rounding the park. It uses an integrated approach that improves community health while also reducing threats to wildlife by consolidating community-based health care for relevant disease—e.g., TB, scabies, and dysentery—linked with RH/FP.

CTPH’s integrated programming model incorporates a number of key actions:

- needs assessments;
- stakeholder planning workshops including local leaders (local council members, religious leaders, government officials, and various civic leaders) who play a key role in mobilizing the community, identifying community volunteers, and providing general support;
- formation of networks of community volunteers—chosen by their community—whose responsibility it is to educate and encourage members to be more hygienic and engage in better health and pro-environment practices;
- support for community sensitization and education—focusing on the relationship between good health, small family size, and hygiene habits which, in turn, affect gorilla health, ecotourism, and sustainable livelihoods. This education is accomplished through several methods:
 - local drama groups disseminating targeted messages;
 - village health talks and home visits by the volunteers using visual aids (e.g., flip charts that incorporate the message of “gorilla conservation through public health”);
 - distribution of educational brochures and newsletters;



Community youth receives computer training at Conservation through Public Health’s telecenter.

- promoting health messages via sign posts in key areas.
- volunteer training in specific health services so they can provide these services at the community level;
- strengthening linkages between the communities and local referral clinics for services not provided by the volunteers (e.g., other FP methods, diagnostic tests, counseling for non-tolerated side effects, etc);
- developing strong linkages with local conservation and health authorities to

share health data and draw upon their expertise;

- collaboration with other content experts (organizations and individuals) in all three program areas to ensure promotion and implementation of best practices;
- routine supervision of community volunteers by CTPH staff including ensuring data collection on relevant indicators;
- motivation of volunteers (e.g., free computer training) to maintain their continued commitment and involvement;
- incorporation of new, needed, interventions as the opportunity and funding allows;
- continued collaboration and partnering to transition out of direct program support while helping to ensure sustained program impacts;
- ongoing monitoring and periodic evaluation.

Details regarding how this general model has been piloted and how it has evolved in one district (Kanungu) around Bwindi are described below.

Testing the Model

TB as a Target Disease

CTPH's first integrated human/wildlife health initiative aimed to reduce the threat of TB transmission to mountain gorillas through increasing human case detection, treatment completion, and/or referral for persistent cases. TB was selected as the priority disease for a number of reasons including:

1. concern within the wildlife conservation community that if introduced, TB could have devastating effects on mountain gorilla survival [64],
2. its high prevalence in Uganda, and
3. Dr. Kalema-Zikusoka's personal experience documenting the burden of this disease in target communities.

Given the severity of HIV and high co-infection rates in Uganda, focusing on TB also helped contribute to mitigating the negative impact of HIV on conservation and development in the area.

In keeping with CTPH's community and primary care intervention focus, its first TB activities in-

involved support for community-based directly observed treatment, short course therapy (CB-DOTS).³⁶ CB-DOTS is the approach promoted by WHO for countries most affected by TB—Uganda among them—as a means of improving treatment completion and cure rates, and to break the cycle of disease transmission [65].³⁷ It is also the approach officially adopted by the MOH's National TB and Leprosy Programme (NTLP) as part of its Health Sector Strategic Plan.³⁸ While the national policy supporting CB-DOTS extends to all districts, the approach has been difficult for the gov-

ernment to fully implement in many of the country's more remote, rural parishes. CTPH has assisted in extending this policy to remote parishes around Bwindi though its integrated program (including partnering with local referral health facilities, see below).

When CTPH first initiated this effort, TB prevention and control in communities around Bwindi was low. Specifically, according to official 2005 statistics for Kanungu district, 13% of patients who started did not complete TB treatment, in part because CB-DOTS was not widely instituted

throughout the area (only 48% of the district's TB patients were enrolled in a CB-DOTS program at that time). And, in Kayonza sub-county, where the



Engaging in Q&A about disease risk with the community.

³⁶ CB-DOTS involves the patient nominating someone whom they trust who, with approval of the local community leader, agrees to observe the patient taking their medication daily for the full duration of the treatment course. In addition to watching their neighbor patient take drugs daily, volunteers chart their treatment course on TB treatment cards, and encourage the patients not to default and to finish treatment (6-8 months).

³⁷ WHO TB-related targets are 85% treatment completion, 70% case detection and 100% DOTS [65].

³⁸ The MOH made this decision after a country pilot in Kiboga District revealed substantially improved treatment completion compared to TB cases who took medication without supervision (i.e., from 51% 87% over a two year period) [66].

parishes in Kanungu district that touch the park are located, the rate was even lower, only 33.3% [67].

With one-year funding provided by the Irish Government, CTPH's CB-DOTS activities were initially carried out in one parish—Kyashero—in collaboration with Kanungu District Local Government and health officials. Subsequently, a second parish, Mukono, was added. These two were

PRIME/West

In 2005, lessons learned from the pilot were incorporated into a follow-on effort supported by USAID/Uganda's Productive Resources Investment for Managing the Environment (PRIME/West) Project.⁴⁰ CTPH's involvement in this project was organized under funding to AWF, tasked under PRIME/West to “reduce the loss of impor-



CTPH uses theater performances to increase awareness of health and environmental issues.

tant biodiversity assets and degradation of buffer zones areas adjacent to Bwindi and Mgahinga Gorilla National Parks in SW Uganda.”⁴¹ In preparing its overall strategic plans for the BMCA, AWF (in collaboration with IGCP) identified disease in mountain gorillas, a flagship species for the area, as a direct conservation threat.⁴² It also identified high population density, crop raiding, and inadequate access to health care as indirect conservation threats [69]. The strategy chosen to help mitigate these threats focused on

selected among all district parishes because they met the profile for CTPH's priority areas:

- where human/gorilla (or other wild animal) interaction is high;
- hard to access areas with minimal health services;
- areas with consistently poor health indicators; and
- where CTPH could develop or already had relationships with referral clinics to ensure a continuum of human health care.³⁹

locales with the greatest human/wildlife conflict and the most vulnerable human populations within these locales. CTPH was invited as a partner to implement action on the ground because of i) its targeted focus on vulnerable human populations in the area and ii) its experience addressing both identified direct and indirect threats—including TB.⁴³

CTPH activities under PRIME/West covered community-focused TB control and prevention in two parishes—Mukono and a new parish, Bujengwe—

³⁹ Mukono is considered a “first line parish” as it directly borders the park and is a target area of high human and wildlife conflict. Kyashero is considered a “second line parish” as it borders Mukono and benefits from ecotourism. For both parishes, there have been anecdotal reports of many TB cases.

⁴⁰ PRIME/West initially aimed to reduce ecosystem threats (thereby conserving biodiversity) through increased economic opportunities and community conflict resolution. In 2005, the project was reoriented to better reflect its biodiversity earmark which provided an ideal opportunity for CTPH involvement in terms of reducing risk of human/wildlife disease transmission [68].

⁴¹ CTPH's funding was organized through an AWF's sub-contract with IGCP.

⁴² AWF focused on three key strategies for mitigating threats to the conservation of these two key forests in the Albertine Rift: i) addressing key threats to the forest habitat and to mountain gorillas, ii) addressing the areas associated with the greatest human/wildlife conflict, and iii) targeting the most vulnerable populations.

⁴³ The strategy built on AWF's human-wildlife conflict mitigation in the BMCA by incorporating HUGO teams.

added at the request of local leaders and because it is also a “first-line parish” with very high human and gorilla conflict.⁴⁴ CTPH also undertook other activities with PRIME/West funding including ranger training in mountain gorilla health and ecological monitoring to complement their health interventions in the BMCA area, consistent with an integrated approach. This report, however, focuses primarily on their human health interventions linked to conservation in the BMCA area.

Strategies and activities

Community sensitization and training of resource persons

Following the steps outlined above under its “model” approach, CTPH mobilized the target communities to support CB-DOTS as a TB control and prevention intervention. Traditional healers (herbalists) and traditional birth attendants were included among key community resource persons as they play a key role in local communities. For example, most community members in this part of the country consult traditional healers first, before seeking help from “modern” health workers.⁴⁵ Their involvement was agreed upon with the understanding that they would advise community members who had TB symptoms to seek appropriate care. After participating in a CTPH-sponsored educational session, the traditional healers shared that, in fact, they were unable to effectively treat TB or HIV patients and thus needed and agreed to refer such people to local clinics for medical assistance.

Education activities for the whole community included interactive drama shows by local theater

groups. The shows intertwined the themes of TB, household hygiene and environmental sanitation, as well as gorilla conservation and livelihoods. CTPH guided and facilitated two local drama groups who produced the dramas, highlighting critical information on TB in the context of “real life” issues and available solutions (including TB testing, treatment, and prevention options). Local talent was used in the performances to encourage community participation and ownership. CTPH undertook grassroots advertising using the local radio, existing local leaders, and community volunteers to encourage attendance and the shows were performed at different pre-arranged venues including schools. CTPH also developed educational materials including brochures and pamphlets about interrelated health and environment issues for distribution to the general public during the drama shows.

This phase was followed by training of the community volunteers, some sub-county government health workers and select health care providers from the two partner referral clinics in the parishes where TB testing was available. These were Kayonza sub-county Health Center (HC) III (a public facility in Bujengwe parish) and Bwindi Community Health Clinic, now Bwindi Community Hospital (BCH), (a faith-based NGO facility located in Mukono parish).^{46,47,48} Specifically, CTPH organized a formal training workshop for the volunteers on the diagnosis, treatment, risks, and prevention of TB and their role in treatment via CB-DOTS. Informal training of the volunteers continued thereafter during bimonthly outreaches between them and CTPH staff.

⁴⁴ Kyeshero parish was beyond the scope of PRIME/WEST as those funds were targeted specifically at reducing health threats to biodiversity and could therefore only be used in parishes directly bordering the park.

⁴⁵ For this reason, the MOH officially recognizes traditional healers as “Health Center Level 1” providers.

⁴⁶ Of note, while there are 47 modern health centers in Kanungu district (22 of which are run by the government and 25 by private not-for-profit organizations) and an estimated 70% of people in this district live within 5 km of one of these 47 centers, parishes bordering Bwindi have the lowest level of access to any of these health facilities.

⁴⁷ BCH (then health center) was initially established with funds from community revenue-sharing from ecotourism income.

⁴⁸ BCH later became a designated HIV/AIDS and TB center with support from a variety of sources [70].

Case identification, treatment enrollment and case follow-up

Following community education and resource personnel training, the initiative launched the clinical intervention phase. This included:

- active surveillance and identification of chronic coughers in the community,
- sputum-test based screening,
- enrollment of test positives into the CB-DOTS program, and
- follow-up at people's homes to ensure compliance/treatment completion.^{49,50}

Lists of chronic coughers considered suspect for TB were compiled during the drama shows and the suspects subsequently provided a sputum sample during a home visit. If the results were positive, they were registered as a TB patient and enrolled in CB-DOTS through CTPH.⁵²



Local partner Bwindi Community Hospital.

Once confirmed TB positive, CTPH helped the communities and referral clinics select community members who would continuously supervise the administration of TB treatment to their sick neighbors, according to the NTLP CB-DOTS protocol. This aimed to increase TB treatment completion and cure rates.

CTPH staff conducted bimonthly field visits to monitor patient treatment progress as well as to support the CB-DOTS volunteers. They also met with patients to encourage them to complete their treatment, to determine whether the treatment card had been filled out correctly and to monitor any side effects or other illness. In the case of any major illness, CTPH staff advised the patient to seek help from a medical professional, especially at one of the two referral clinics. To ensure program continuity, CTPH helped collect TB drugs from regional supply offices and to distribute them to the volunteers.⁵³ CTPH initially provided the volunteers with non-monetary incentives including shirts and small bags.

Contribution toward “Proof of Principle”

In addition to specific TB accomplishments, through these activities, CTPH also successfully achieved its objective of piloting a health model to reduce disease threats to mountain gorillas (and other wildlife) through primary and secondary prevention activities for people, wildlife, and livestock. Focusing initially on one disease important to all three species—TB—CTPH was able to set up systems and test a health model

⁴⁹ The strategy involved chronic coughers for a number of reasons. For one, coughing is a behavior that allows them to be identified by volunteers, family members, and the community at large from among the large pool of potential persons infected with TB. Second, those with a chronic cough are most likely to be infected and in need of treatment. This strategy misses some cases (false negatives) and incorrectly identifies some who are not diseased (false positives) but is practical and feasible at a community level.

⁵⁰ Three samples per patient were obtained, as per MOH guidelines. Recently, the MOH changed their recommendation to two sputum samples per patient.

⁵¹ Later, when FP was added to the model and home visits became routine for FP couple counseling purposes, chronic coughers were identified during these visits as part of the integrated PHE model (see below).

⁵² As needed, some suspects were sent for TB testing to one of the two referral clinics to increase disease detection and treatment enrollment rates.

⁵³ Under the NTLP, drugs and vaccines are provided free for all patients enrolled in CB-DOTS.

that could be both replicated across additional ecosystems and adapted to include other priority diseases (e.g., scabies in mountain gorillas and anthrax in hippos).

To that end, once the TB activities had been successfully launched, CTPH expanded its model to include scabies and HIV/AIDS education and referral in both parishes. Scabies was introduced as another disease because, as described earlier, it was the first disease demonstrated to have spread from people to mountain gorillas [55]. CTPH's focus on HIV aimed to educate people about the importance of this infection and to encourage them to go for testing at the local health centre—especially TB suspects who had been coughing for more than 3 weeks and had lost weight.

Finally, the health model also involved testing of innovative strategies to ensure that the community volunteers continued to function and intervention momentum was maintained beyond the life of CTPH project support. This included, among others, the formation of community-based organizations (CBOs), described in more detail below.⁵⁴

Expanding the Model to a PHE Approach⁵⁵

Family Planning as a Complementary Intervention

AWF's Heartland Conservation Planning process, undertaken prior to the PRIME/West award, recognized population growth as a key, indirect threat

to long-term conservation of the greater Virunga landscape within the Albertine Rift [69]. This acknowledgement set the stage for CTPH to incorporate FP as a population component in its project around Bwindi. This was a logical addition because FP also serves as an important primary health care intervention, positively affecting human health. The latter is strongly supported by the fact that FP is part of the MOH's minimum care package as an important means of improving health [72]. CTPH's strategy was to build on its community-based health model in a few parishes, starting where the organization already had a presence and trust established through its CB-DOTS efforts—expanding, as possible, to cover all UWA-priority parishes surrounding the park. Funding from USAID's Population Office PHE Program helped jump-start this strategy.

Since 2002, USAID/Washington has financially supported integrated PHE projects in areas considered critically important to the goal of globally conserving biologically-diverse ecosystems [73].⁵⁶ As described in the introduction, in 2006, Uganda's Bwindi national park qualified on many accounts, as did CTPH's program. Specifically:

- Uganda was a high priority country for USAID's Population Office;
- contraceptive use was low in the communities surrounding Bwindi;
- fertility rates remained high in the area;
- MCH indicators were poor for this region;
- limited other donor support was being provided for RH/FP interventions;
- CTPH's emphasis on inter-species disease

⁵⁴ Official CBO status allows groups to generate income and also provides a means for the government to track income generation at the community level.

⁵⁵ The PHE approach recognizes that humans in rural areas that depend upon natural resources cannot be positive stewards of the environment unless their basic needs for health, nutrition, and livelihood are met. Coordinating community development interventions in these areas together with natural resource management in an integrated way respects this tenet and is a means of achieving both domain-specific outcomes as well as synergies across domains [71].

⁵⁶ USAID's PHE program was established (through U.S. Congressional language) to address the negative effects of demographic pressures on fragile natural environments and the mounting evidence that degraded natural ecosystems, in turn, negatively impact the health and livelihoods of local communities. Projects supported under these USAID funds aim specifically to improve: i) access to RH/FP (and other select health services) and ii) community management of local natural resources in ways that improve community members' health while also conserving the critical ecosystems upon which they depend [74].

transmission was novel as the focal conservation threat;

- USAID/Uganda had expressed interest in integrating domains;⁵⁷
- CTPH had a track record under PRIME/West as a USAID sub-contractor.

In August, 2006, a scoping exercise determined how a PHE initiative could best help expand access to RH/FP in communities around Bwindi. The scoping team comprised USAID/PHE's Technical Advisor, someone representing JSI and CTPH's CEO.⁵⁸ JSI was invited to participate based on the organization's history of in-country presence, its experience with and commitment to integration (in particular, in Madagascar) and its partner role in USAID's EHP/IQC under Camp Dresser McKee (CDM) (the prime contractor) that

specifically facilitated this kind of TA. In-country, the team met with health, conservation and community officials, USAID/Uganda staff and donor-supported organizations involved in health and/or FP initiatives in the SW and nationally to gain insights into needs and opportunities.⁵⁹ This led to a one-year (extended for a second year) USAID/PHE award to CTPH for them to expand their health model to include FP, linked to mountain gorilla conservation and improved community well being.⁶⁰ CTPH subsequently referred (and continues to refer) to this effort as their PHE initiative, described in detail below. Technical assistance to CTPH to strengthen its monitoring and evaluation (M&E) activities as well as its FP and integration efforts was provided through a separate USAID funding mechanism to JSI.⁶¹

⁵⁷ At the time, USAID/Uganda was funding CTPH to provide a human health (TB) intervention as a strategy for protecting unique biodiversity through its SO7 biodiversity conservation program— itself an innovative approach.

⁵⁸ The latter two, Drs. Gaffikin and Kalema-Zikusoka, have been involved in all phases of the initiative and are co-authors on this report.

⁵⁹ This list included JSI's UPHOLD and DELIVER Projects, CCP's Health Communications and AFFORD projects, AWF, IGCP and CARE/Uganda [75].

⁶⁰ While the project start date was October 2006, project implementation did not officially begin until December, 2006.

⁶¹ This TA was provided by Dr. Gaffikin, EARTH Inc. as a sub-contractor to JSI under their USAID EH/IQC award with CDM. Follow-on TA to CTPH to strengthen its M&E system is being provided by FHI through its USAID-funded project, "PROGRESS."



CTPH'S PHE PROGRAM EXPERIENCE

Project Description

Establishing Need

Following its model, CTPH carried out participatory assessments to more accurately document current use of and need for FP in the communities surrounding Bwindi. The assessments also identified key supply and demand factors that could inform project design. Specifically, in August 2006, a survey was conducted by an independent group, with support from CTPH through PRIME/West, to document community members' knowledge, attitudes, and behaviours regarding health issues [76].⁶²

The second assessment, completed in September/October 2006, was undertaken by students attending Mbarara University's School of Science and Technology (MUST)—a local partner educational institution that trains nurses and doctors through direct field involvement [77]. As part of their field practicum, students were asked to identify specific barriers to FP uptake that could be addressed as CTPH project interventions in one year, the initial duration of project funding.⁶³ The assessment was conducted via community workshops and group discussions, home visits and a review of records at the two designated referral health facilities.

Next, in February 2007, CTPH held a planning workshop with area policy-makers, health providers, and other stakeholders to determine their interests and needs, to obtain buy in into the integrated nature of the PHE project, and to finalize a one-year work-plan. CTPH also held meetings with 44 local leaders in the focal parishes to identify their needs and concerns, introduce the project, and to obtain their support for conducting activities in their communities.

Baseline and rationale for geographic focus

The above assessments provided some basis for estimating pre-project FP use in the area and potential uptake during the project; however, data from other sources e.g., UDHS also needed to be consulted as the basis for determining project indicator levels. An example of how this data source helped guide project expectations follows.⁶⁴ In 2006, before project start, the total fertility rate (TFR) for all Uganda was 6.7—the highest of any country in eastern or southern Africa with a recent UDHS [24]. The rate in rural areas was considerably higher than in urban ones (7.1 versus 4.4).

Oversampling in the Bwindi districts was not carried out as part of the 2006 survey but data for the SW region as a whole revealed a TFR of 6.2, a

⁶² This involved verbal (one-on-one) administration of a standardized questionnaire to a random group of community members in the two target parishes as well as focus groups. A few FP questions were added to the questionnaire in anticipation of CTPH initiating its PHE program.

⁶³ Clearly, long standing cultural barriers could not be addressed within just one project year but knowledge about these barriers was considered useful for customizing targeted messages for community sensitization and home visits.

⁶⁴ Actual baseline levels for contraceptive use were estimated at the parish level as soon as possible after project start (see below).

little lower than the national average. Of potentially more relevance, women from households in the lowest and second lowest wealth quintiles had a TFR of approximately 8 compared to 4.3 for women from the highest quintile.⁶⁵ As poverty levels around Bwindi are among the highest nationally, it was assumed that the lowest quintile figures nationally approximated the TFR among women in local communities at CTPH project start. In fact, findings from the scoping exercise, the two data collection efforts described above, and comments during the stakeholder meetings corroborated this assumption:

Kinungu's DHO in 2006—Dr. Sebudde—reported during the stakeholder meeting that while the official (average) district fertility rate was around 6.5, and average household size was 5 people, both statistics were much higher in the subset of communities around Bwindi: “On average women in the area have 9-10 children” [79, 80].

The MUST needs assessment identified that average parity for women in the area was 10 live births. It also documented the following reasons for high levels of fertility in these communities: low birth-spacing intervals (e.g., average < 2 years), young age at first birth (many women start having children as early as 14 years), and low levels of contraceptive use [77].

Additionally, the 2006 UDHS rates of modern contraceptive use for the whole country and SW region were approximately the same (18%). However, rates by wealth quintile differed substantially. Nationally, the rate for the lowest quintile was 7.2%.⁶⁶ As there was little support for FP in the region after CREHP ended, it is reasonable to assume that at CTPH project start, contraceptive prevalence for the three districts around Bwindi had fallen to somewhere between the levels recorded for CREHP in 1995 and 2001. And, for the subset of hard to reach parishes around Bwindi, the CPR likely equaled the lowest 2006 national quintile value.^{67,68} Finally, for the priority most remote households located directly adjacent to the park, in 2006 modern contraceptive use was likely to be even lower, if not close to zero.

Target Audience

Geographic locale

USAID/PHE funds were programmed for two of the three parishes (Mukono and Bujengwe) in which CTPH had supported community-based TB.⁶⁹ These two were selected principally because as neighboring “first” parishes to Bwindi, human/wildlife interactions are particularly frequent and CTPH already had a working partnership with referral facilities in the two parishes: Kayonza HC III (Bujengwe parish) and BCH (Mukono parish).

Project activities aimed to reach all communities in the two parishes, to the extent possible. Whenever full coverage was not possible, the priority was households bordering the park, the “hardest-

⁶⁵ As the UDHS does not collect direct measures of income, consumption, or expenditures, an index of wealth was created based on the ownership of household assets (goods and durables) [78]. The wealth index serves as a proxy for the standard of living of the household.

⁶⁶ Of note, this is the same as the CPR recorded by CREHP in 1995 for the 3 project districts.

⁶⁷ The national CPR for the second lowest quintile in 2006 compares with the 2001 CREHP end-of-project statistics and the UDHS oversampled survey results for the 3 districts (12%).

⁶⁸ Also of note, if the assumption about Bwindi parish wealth quintile profiles is true, these comparisons suggest that at project start, CTPH's PHE project parishes were up to 10 years behind the country as a whole in terms of modern contraceptive use and the health and empowerment benefits conferred by such use.

⁶⁹ At the time of project initiation, Mukono parish comprised 11 villages, 1,179 households, and a population of 5,242 and Bujengwe had a population of 4,729 living in 1,054 households in 11 villages.

to-reach” homes. The rationale was that these families economically suffer the most from crop raiding, a situation that also places them centrally in terms of risk of human/wildlife/livestock disease transmission. Additionally, given their isolated location, these families often have the least access to health/FP and other social services. This puts them at greatest need for integrated PHE interventions—including FP—that simultaneously target human health, livelihood, and natural resource management—in this case, management of mountain gorilla health for biodiversity conservation and ecotourism.⁷⁰

Population sub-group

It is widely believed that a major reason for non-use of FP in many rural areas is the desire for large families. While this and religious beliefs do contribute to non-use in rural Uganda, the 1998 RH assessment revealed that myths and misconceptions about FP methods, among both men and women, contribute substantially to lack of contraception use.⁷¹ MUST’s needs assessments confirmed this to be the case in Mukono and Bujengwe parishes in addition to lack of familiarity with FP benefits and methods [77].

In communities around Bwindi, the situation is further compounded by a strong tradition of male family decision-making authority. In such a context, CTPH felt that focusing on only one gender, or both gen-

ders separately, would detract from encouraging new acceptors. Consequently, they targeted project activities at married couples. Importantly, while the occurrence of adolescent pregnancies in the area is high, focusing on married couples also included the majority of female adolescents as most 15-year olds in this area are already married [82].

Community Sensitization and Education

CTPH’s needs assessment findings justified a project focus on dispelling myths, gender dynamics and increasing knowledge about FP and contraceptive methods. Consequently, a large part of Year 1 was dedicated to community sensitization and engaging community (opinion) leaders.

Drama shows

As with CTPH’s TB prevention and control efforts, community theater was used to broadly disseminate basic messages about FP and its benefits. To this end, in 2007, two groups, Rutendere Health Promoters and Bwindi Conservation Actors, from Mukono and Bujengwe parishes, respectively, were invited to develop a drama show integrating FP, livelihoods, and the environment. One set of messages emphasized how FP improves both maternal and child health and how FP helps couples limit their family size and balance household needs with available resources. The groups then weaved



Presenting FP options to the community.

⁷⁰ Targeting subgroups most dependent upon the park’s natural resources was attempted in early days as part of ICDPs undertaken when Bwindi was first gazetted. However, for a number of reasons, those projects were not successful in reaching the majority of people with homes bordering the park - the poorest and most likely to engage in harvesting of forest products to meet their basic needs [81].

⁷¹ Supporting this, according to the 2006 UDHS, the most commonly cited reasons for non-use of FP were health related concerns including difficulty in becoming pregnant (23%) and fear of side effects (18%). The desire to have more children was cited less frequently (11%) [24].

these themes with livelihood issues, introducing the linkages between FP, human health, gorilla health, ecotourism, and income generation. The drama shows were open to anyone in the community who wanted to watch. Members of all ages and both genders attended and afterwards, CTPH conducted an interactive question and answer session to elaborate on the show themes. The same set of questions were asked both before and after the drama shows to obtain a sense of knowledge gained from the sensitization. Community mobilization for the drama shows was done through the radio and via church announcements.

Community radio

Most people in Uganda have a radio (US\$2 equivalent to purchase). If not, often a neighbor does and thus radio is one of the most effective communication media in rural areas. In light of this, community radio was incorporated into the project as a means of better reaching all families, especially those living on steep hills in the remotest parts of the two parishes, adjacent to the forests and most likely to encounter problem wild animals leaving the park. (For numerous reasons including distance, the latter community members attend village meetings less frequently and are, thus, less likely reached through the drama shows).

At project start, the nearest FM radio station to Buhoma (Radio Kinkizi) did not dedicate air time to issues of particular relevance to the project (e.g., links between FP, health, ecotourism, and livelihoods) nor to communities around Bwindi. To address this, the project planned to set up a new community radio station for Bwindi from within CTPH's telecenter. The aim was to promote dialogue, communication, and information in local languages, PHE funds being used specifi-

cally for FP messages and issues related to local human/wildlife conflict.

A feasibility study established that, unfortunately, funds were not adequate to establish a community radio.⁷² CTPH's first-year work plan also included support for a number of radio program broadcasts and radio listener groups, to be organized by agents chosen from among the project's community volunteers.⁷³ CTPH thus joined forces with Straight Talk Foundation, a Uganda-based NGO specializing in health and development communications, to train CTPH staff in communication strategies including content and how to recruit radio listener agents.⁷⁴ Straight Talk also worked with one of the drama groups to reduce the length of their show so that it could be taped and aired at a future time on the radio.⁷⁵

IEC materials

After dialoguing with the USAID-funded Health Communications Project, CTPH was invited to join the network of organizations working with the Uganda MOH to standardize all FP educational content and materials. Joining this network enabled CTPH to take advantage of IEC materials already developed by the group for community reach (e.g., flip charts for health workers visiting FP clients) and ensured that messages were consistent with MOH standards. Given the integrated nature of CTPH's project, special IEC materials still needed to be developed that linked human health and FP to the environment, in this case, conservation of the mountain gorilla and its habitat.

To this end, CTPH collaborated with Mango Tree Enterprises, another Ugandan organization that specializes in grassroots education and communication and developing durable and environmen-

⁷² A consultant was hired to assess the feasibility of setting up a community radio considering the Uganda Communications Commission requirements for a broadcast radio frequency license.

⁷³ Radio listening groups are people assembled to tune into radio programs together and afterwards encouraged, through the help of a facilitator, to discuss the meaning and implications of the program content [83].

⁷⁴ <http://www.straight-talk.or.ug/>

⁷⁵ Straight Talk Foundation was further engaged to provide copies of their newsletters for Bwindi community members and local schools. Newsletter themes included responsible living for adolescents and FP for adults.

tally-friendly education materials.⁷⁶ Through consultation with community volunteers (see below), CTPH worked with Mango Tree Enterprises to develop a flip chart /visual aide featuring the linkages between FP, human and gorilla health, ecotourism, and livelihoods for use during volunteer community and house visit health talks. An added advantage of working with Mango Tree Enterprises was that their charts are made of rain-proof material (sisal) so they can be used even whenever it is wet—common in the tropical rainforest area around Bwindi.

Interpersonal communication (IPC) sessions

Community volunteers were and remain a key development actor

around Bwindi, responsible for meeting and increasing demand through sharing information and ensuring method supply. The project incorporated two kinds of volunteers, couple peer educators (CPEs) and community reproductive health workers (CRHWs), the cadre initially established in the BMCA by CARE/CREHP.⁷⁷ Four CRHWS were selected, two for each parish, based on a basic set of criteria (i.e., literacy, willingness, and time availability). In locales where CRHWS under the CARE project still operated, they were invited to participate. One former CARE CRHW did join the team and another former CARE CRHW served as a CB-DOTS volunteer under PRIME/West-funded TB activities.

A key role of the CRHW was to conduct one-on-

one IPC sessions in people's homes, once couples had expressed interest in initiating FP. Another responsibility was to help couples or individuals select the most appropriate contraceptive method for their situation, provide the method on site or refer them (depending on the method selected), counsel about any concerns or questions (e.g., side effects), and/or re-supply the method, as needed.



Sisal IEC flip chart illustrating health, family planning, livelihood and conservation linkages.

For greater sustainability of project efforts, on the explicit recommendation of the Kanungu DHO who was familiar with CARE's CREHP project, CTPH included CPEs as a second community resource. The role of the CPE (initially 22, one from each participating village) was to proactively visit people's

homes as well as churches and other meeting places to share information and provide basic education as a means of increasing general interest in FP. Once interested, the CPE requested one of the CRHWs to follow-up with the individual(s) to help them make a decision regarding FP uptake and, which method. The CPEs also had the responsibility of following acceptors to track their continued usage and any health issues or concerns.

In addition to being literate, a key criterion for this cadre was that they themselves be a FP acceptor; another criterion was that they have good interpersonal skills. To promote ownership and transparency, and further the likelihood of sustainability, CPEs—both males and females—were selected by the local leaders to assume CPE responsibilities.

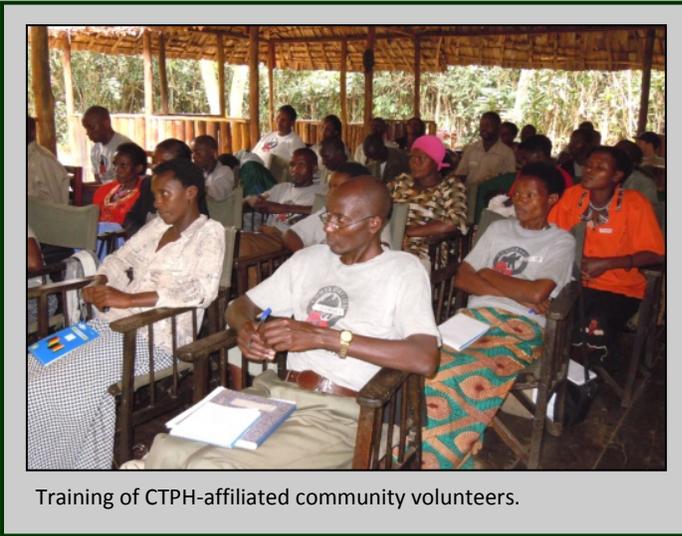
⁷⁶ <http://mangotreeuganda.org>

⁷⁷ CTPH decided to include CRHWs in their project design as a few community workers associated with CREHP had continued to serve in this role (albeit at low levels) throughout the five years since that project ended. During the 2006 scoping exercise, the team spoke with a few CRHWs trained under CARE/CREHP who explained their role and, impressively, how they had continued to function since then. Key issues for them were securing contraceptive supplies and weakened links with referral clinics - two issues CTPH paid particular attention to during project design.

Support for Strengthened Service Delivery

Training

In March 2007, CTPH trained both volunteer cadres with assistance from local resource persons. The latter included a midwife seconded to the project from Kanungu District local government, the District Public Health Nurse, a midwife from the private referral facility (BCH), and consultants from RWODEC, a Ugandan NGO implementing a successful community-based FP program (similar



to the CARE/CREHP model) in the neighboring Rukungiri District. RWODEC was a JSI/UPHOLD sub-award recipient and in discussions with JSI/Uganda during the initial scoping exercise, they suggested CTPH approach RWODEC for assistance as they operate in a neighboring parish. Incorporating RWODEC as a FP content resource reflected the values of both CTPH and UPHOLD in terms of engaging local expertise to help strengthen the overall system. The two-day training emphasized the benefits of FP, the different methods, their respective advantages and disadvantages, the importance of counseling and linking with the referral centers, among other topics.

Two separate trainings focused on filling out data collection forms (as a source for project indicator data) and integrating TB, scabies, and HIV health

topics into community IEC activities. Mastering use of the forms was a challenge, consequently the Project organized additional practice sessions and periodic meetings thereafter with the PHE Coordinator (monthly for the CRHWS and quarterly for both CPE and CRHW groups together) to continue to monitor data quality and any service implementation issues. CTPH staff also visited the volunteers in the field as often as possible to provide further one-on-one training.

As described, when the project first started, volunteers were instructed to refer any potential new client (for any method other than condoms) to one of the two referral centers where trained staff would start them on their method of choice. Volunteers could then re-supply users of pills and/or provide condoms in their villages. Over time, as the volunteers demonstrated competency in their work and to further reduce clinic workload, CTPH, the clinics and district officials agreed that CRHWs themselves could enroll new acceptors of both these methods. During Year 1, potential clients interested in other methods (e.g., injectables) continued to be referred to one of the two clinics. During Year 2, the latter practice also changed after volunteers were trained to register women as new injectable users (the main contraceptive of choice in the area) and to provide this method to interested users at the community level (see below).

CB-DOTS volunteers, encouraged to become early FP adopters themselves, were also trained in how to incorporate key points about TB, general health, and economic benefits of FP during their home visits. As most CB-DOTS patients are couples, this contributed to implementation efficiencies.

Referral center linkages

The two referral health centers (Kayonza HC III and BCH) were invited to become project partners

based on their location in the participating parishes and their capacity to provide FP services. In addition, CTPH already had a working partnership with these facilities related to their TB activities. Further, incorporating both an NGO and government reference facility allowed for an end-of-project comparison of referral and contraceptive supply performance to inform future model expansion.

Before project start, the MOUs with these facilities were modified to affirm that they would receive FP referrals from the community workers. Health center staff agreed to work with referred women/couples to help them decide upon the most appropriate FP method and, either provide that method on site, refer them to another facility, or request that they return when their method of choice is available. This linkage with the two referral centers was very important for ensuring:

- quality and continuum of care for women with side effects or concerns about their chosen method;
- access to a greater range of contraceptives including medium- and long-term methods (e.g., Depo-Provera, implants and IUDs);
- referral for permanent methods (e.g., tubal ligation and vasectomy);
- that a mechanism existed for continued contraceptive supplies and for incorporating project results into the district's information system (via the health center's quarterly MOH/HIS reports).

A key constraint to clinic-based FP services in this area was, and still remains, a lack of personnel update trained in contraceptive services. Exemplifying this, in March 2007, a midwife from the public facility was seconded to the project and

participated in the training. Shortly thereafter, she was transferred to another facility. The acting in-charge (a nurse who had also attended the training) took over responsibility for providing FP services together with another nurse he trained on-site. However, the two were very busy with other clinic duties and, once community volunteer activities got under way, they could not adequately meet the increase in demand for FP services. To help resolve the issue, CTPH's PHE Coordinator, Sylvia Nandago, also a nurse/midwife, agreed to work at the health center as part of the project for one day a week.

BCH, the private referral facility, initially also experienced personnel challenges; at project start there was only one midwife on staff—who became quickly overwhelmed with the additional FP workload.⁷⁸ To address this, CTPH's PHE Coordinator similarly agreed to work one day a week at the facility to offset the additional work stemming from the community volunteer referrals. Over time, given the consistent increase in demand for FP services at the facility, BCH decided to make a position and hire a full-time person dedicated solely to FP. This helped ensure that community activities informing members about FP (supported by CTPH and also by BCH in different parishes) matched the facility's ability to meet the increased demand for those services.

Contraceptive supplies

Unlike CREHP, CTPH's PHE efforts were not specifically funded to strengthen district FP programming capacity. Nevertheless, for sustainability, CTPH considered system issues from the start. During the scoping exercise and again, early on in the project, CTPH staff met with JSI/DELIVER Project staff working with National Medical Stores to understand how the country's national

⁷⁸ BCH serves a catchment population for about 42,000 individuals (8,500 households) covering the following nine parishes in Kayonza and Mpungu sub-counties: Mukono, Karangara, Bujengwe, Kyeshero and Ntungamo in Kayonza sub-county and Buremba, Ngaara, Mpungu and Muramba in Mpungu sub-county. In June, 2009 it opened a satellite clinic (Health Centre II level) in Bujengwe parish close to and aiming to better serve a local Batwa settlement [84].

contraceptive supply system worked. They explained how, at the time, the system functioned via both ‘push and “pull” approaches and provided CTPH with a booklet explaining how NGOs (including BCH as a faith-based organization) could order contraceptives.

Subsequently, CTPH met with district officials to ensure that the commodity supply chain (ordering through and distributed by the National Medical Stores to each health sub-district) could serve FP clients reached through the Project via the two referral facilities. CTPH then worked with the two referral centers to help them learn how to effectively fill out the forms so they themselves could reliably access contraceptive supplies in the future.⁷⁹

Despite this effort, throughout the project, the supply system suffered periodic problems including national stock-outs of some methods. Whenever possible, BCH used other sources (including their own finances) to ensure a continued contraceptive supply but this alternative was not possible for the public facility. To address this, CTPH continued to meet with staff from AFFORD, the USAID-funded social marketing project, to discuss the potential for establishing a distribution unit at

Rukungiri (3 hours drive from Buhoma) from which FP supplies could be purchased.⁸⁰ This idea was piloted when the Project purchased some “moon beads” (a natural FP method) from AFFORD to sell through its volunteer network.



⁷⁹ All contraceptives were free from the MOH under that system.

⁸⁰ AFFORD participated in CTPH's first FP training and has continuously expressed interest in working collaboratively with them in the Bwindi area.



MOVING TOWARD MODEL EXPANSION AND SUSTAINABILITY

The first community volunteer training was in March 2007 and, by April, the volunteers had begun to work in their respective communities including conducting home visits. Throughout Year 1, CRHWs actively worked with interested new users and referred those who wanted a method (other than condoms) but had not yet visited a health center to do so. They also re-supplied continuing users and CTPH project staff worked hard to ensure there was a continuous supply of pills and condoms for both the volunteers and the referral clinics.

During the second project year, consistent with CTPH's model, trained volunteers continued to educate community members about the benefits and availability of FP, as well as the links between FP use, household size, health, and livelihoods—including gorilla ecotourism. Volunteer drama groups continued to raise FP awareness among the community at large and the CPEs and CRHWs followed up with individual education, counseling, and contraceptive method supply—the difference in Year 2 being the addition of com-

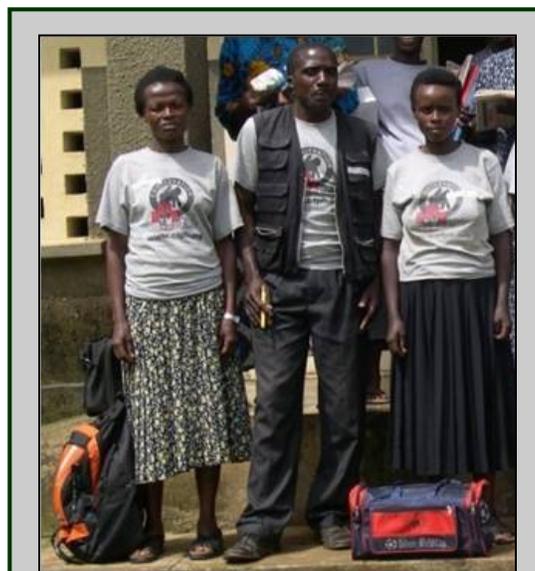
munity-based provision of community-based Depo-Provera (CBDepo).

Increasing FP Access

Community-based distribution of Depo-Provera

Women in the target parishes could access injectables, their preferred contraceptive method, at BCH and, periodically, at the public referral clinic whenever supplies and a trained provider were available. Method uptake was limited, however, due to the long distances that women had to travel

for an injection every three months. The project considered that if trained community volunteers could provide injections in the comfort of their or the women's own homes, the added convenience would likely improve continuation rates and increase the number of new users of this contraceptive (and modern FP use overall). This, in turn, would help women (couples) avoid an unwanted pregnancy and have more time for their families and other responsibilities.



CTPH-affiliated volunteers ready to provide Depo-Provera and other FP methods to interested users in their communities.

By Year 2, evidence supporting the safety of community-based provision of injectables by trained community members had begun to accumulate worldwide, including a seminal study conducted in Uganda by Family Health International (FHI) [85]. However, before supporting an official policy change for nationwide extension of this approach, the Uganda MOH wanted additional pilot data from around the country [86]. To this end, FHI spearheaded a pilot project beginning in central Uganda (Nakasongola and in Luwero districts) with Save the Children.⁸¹

Between April and December 2007, CTPH had a number of meetings with FHI to discuss and ultimately plan for their involvement in this pilot CBDepo initiative. The DHO of Kanungu District willingly approved initiation of such an effort in CTPH's two focal parishes, complementary to the organization's FP efforts that were serving as a model for community-based service delivery in his district.

In early 2008, CTPH and FHI developed a joint plan, budget and MOU—signed in May of that year—incorporating details on volunteer training, a district stakeholders meeting, and field implementation. FHI agreed to provide materials and funds for training and to play a M&E role. In turn, CTPH agreed to cover the costs of implementing CBDepo in the field (including volunteer supervision) as part of its remaining Year 2 PHE project activities.

That same month (May 2008), collaborative CBDepo efforts were initiated with the training of 13 volunteers (9 women and 4 men), selected from the (then) 28 CTPH volunteers. Selection was based on volunteer performance during Year 1 and FHI's CBDepo provider criteria. A clinical practicum was then organized in one of the two referral

health centers with the following training objectives:

- effectively counsel at least 5 clients (informed choice);
- screen at least 5 injectable clients for medical eligibility using a checklist;
- provide injectables to at least 5 clients;
- demonstrate good infection control technique at least 5 times;
- demonstrate ability to fill in at least 5 client cards.

After the didactic sessions and clinical practicum, the volunteers continued to practice at their local referral clinic to ensure all training objectives had been met before initiating services in the communities. A month later (June 2008), a meeting was organized to review what the volunteers had learned and to obtain feedback from the referral center clinical staff. After confirming that the volunteers had, in fact, met all training objectives and were capable of giving injections without supervision, each received 5 vials of Depo-Provera, auto-disable syringes, cotton wool and waste boxes so they could begin providing services.

By July 2008, the trained volunteers had all started to provide CBDepo in their villages. Service introduction went well with few challenges. CTPH provided supportive supervision (3 times/week) and, whenever possible, visited the volunteers together with their clients in the field. In addition, throughout Year 2, the volunteers, referral clinic staff, and CTPH personnel met monthly to review the status of all FP activities including CBDepo.

During these meetings, it became apparent that the public referral center was registering fewer new injectable users because community members were getting these services directly from the volunteers. This was considered a positive “turn of events” by all as it was taking the strain off

⁸¹ A number of organizations including BCH in Buhoma area have been involved as partners with FHI in this pilot initiative and at least seven districts within the country have now signed on.

Kayonza clinic staff, who continued to struggle to meet the increased demand for FP in the area as a result of community sensitization and IEC.

Also revealed during these meetings was that word was spreading, to the point that local leaders from a neighboring parish were interested in having CTPH extend their CBDepo services beyond the initial geographic focus. Unfortunately, that request could not be accommodated as there were no trained FP community volunteers in the parish with whom CTPH could work, nor adequate project funding. In the end, interested women accessed a trained volunteer in one of the two CTPH project parishes, increasing the volunteers' workload but also demonstrating that they were addressing an important need associated with an even larger geographic area.

A quantitative summary of key Year 1 and 2 achievements is provided in Annex 1.⁸² Overall, accomplishments exceeded expectations in all areas. For the first six months of the project, affiliated volunteers did not recruit new acceptors but rather referred and resupplied them. During the second half of that year, the 4 trained CRHWs provided services in the two parishes to new pill users and the 4 CRHWs recorded 90 new FP acceptors. Towards the latter half of the second year, 13 of the 22 trained volunteers began providing CBDepo, at first just to repeat users and then to new recruits. During Year 2, the CHRWS recorded 121 new pill users and the trained CBDepo volunteers recorded 29 new users (during the 3 months that those services were available) for a total of 150 new FP acceptors that year.

In October 2008, the end of Year 2, an informal survey was conducted with all the trained CBDepo



Co-authors Gaffikin and Kalema-Zikusoka outside Kayonza HC III with CTPH-affiliated volunteers.

volunteers to qualitatively document their experiences and to find out about their expectations for continuing services post-project.⁸³ The volunteers confirmed that they had not encountered any complications with their injections and all felt comfortable managing side effects or referring clients for further evaluation at the local clinic. In addition, they unanimously planned to continue with their volunteer activities and were grateful to CTPH for the opportunity to serve in this role in their communities (see Annex 2). They also expressed gratitude for the group livestock that would help them balance their volunteer work with income needs (see below).

Their commitment to continue and high volunteer confidence and competence resulted in them registering 243 new FP users of all methods over the next 12 months post-project, almost three times that of Year 1. The volunteers also recorded providing 795 repeat injections. Since then and to the present day, the trained volunteers continue to recruit new users and resupply repeat FP users while also assessing and providing education in other health issues (e.g., hygiene, sanitation, TB/HIV).

⁸² CTPH's Year 1 report covered the period Oct 1, 2006 – Sept 30, 2007; Year 2 was from Oct 1, 2007 – September 30, 2008.

⁸³ This survey was conducted by Dr. Gaffikin with the assistance of Gershum Mbabazi and Dr. Amy Voedisch, a Stanford ob/gyn who volunteered with CTPH to help them assess progress with their CBDepo efforts and who also helped compile quantitative and qualitative data for this evaluation.

A positive outcome and evidence of a worthwhile two-year investment in this integrated PHE effort.

Strengthened Local Collaboration

Another positive outcome of this effort has been an increased interest in and commitment and capability to provide FP services among local partner organizations, both public and private. As noted, towards the end of Year 2, as demand for FP in BCH's catchment area began to increase, that referral facility hired a full-time person to work in their FP clinic. Additionally, the community model with two cadres of health workers, piloted by CTPH, was replicated by BCH in 5 other parishes in the sub-county (not focal areas for CTPH's project) including a CBDepo component.^{84,85} After USAID/PHE funding to CTPH ended in October 2008, two technical staff members who had joined the project to help ensure a strong PHE initiative start (e.g., PHE Coordinator and Nurse-Aide) transitioned over to working full-time at the BCH referral center in what was to become their RH unit. This transition helped ensure that their insights gained through working with CTPH in the area, in particular in remote sections of the parishes during the previous two years, would continue to help increase FP uptake in local communities.⁸⁶

An example of this relates to long-term method access among community women. Over time, as confidence in the volunteers grew and familiarity with the messages increased, more women began to openly express interest in long-term method options. In response, BCH organized with Marie Stopes International (MSI) to periodically offer

these services (implants and IUDs) in their facility. When CTPH's PHE Coordinator was still with CTPH, she participated in these periodic MSI/BCH long-term method clinics as an additional provider.⁸⁷ CTPH volunteers contributed to long-term method uptake in the area by: i) discussing these contraceptive options with women in their communities during home visits and group talks, ii) referring anyone interested in one of these methods to BCH, and iii) letting the women know on which days they could obtain one of these methods during the specially organized MSI/BCH long-term clinic sessions. When CTPH's PHE Coordinator transferred to BCH to become their clinic organizer and a FP provider, she continued to facilitate referrals for long-term methods from CTPH-affiliated volunteers in Mukono and Bujengwe parishes (as well as BCH- community workers in other parishes), and to resupply all community volunteers with pills, condoms and Depo-Provera for community distribution.⁸⁸ Without a previous relationship between CTPH and BCH regarding FP services and use in the area, this sharing of valuable FP human resources may not have occurred as seamlessly.

Additionally, once USAID PHE funding ended, CTPH-associated volunteers carried on with their usual responsibilities at the community level and CTPH maintained its supervisory support through periodic (monthly when possible) meetings at their Bwindi headquarters in Buhoma. The meetings were (and continue to be) facilitated by local staff, part of CTPH's team, who were mentored by CTPH's technical staff in the various health interventions (human, gorilla and livestock) before project end-in particular, Alex Ngabirano, PHE

⁸⁴ This was similarly facilitated with assistance from FHI.

⁸⁵ Their two cadres are called village health promoters and community-based distributors.

⁸⁶ As described elsewhere, CTPH's PHE Coordinator was a nurse-midwife who spent a day/week at each referral clinic during the two-year funded PHE project, helping to strengthen the facility's FP services and ability to receive volunteer referrals. She was thus very familiar with operations at BCH before transferring over. The Nurse-Aide traveled extensively throughout the focal parishes as CTPH's main CB-DOTS coordinator and thus had good rapport with the communities and good knowledge of the challenges and practical strategies for linking community and clinic health efforts.

⁸⁷ She received training in implant insertion as part of this collaboration.

⁸⁸ As described earlier, with CTPH assistance, contraceptive method supply was then organized through the routine MOH supply system, through National Medical Stores.

field assistant. Representatives from both BCH and Kayonza HCIII routinely participate in the volunteer meetings as important health resource persons.⁸⁹

Sustaining Momentum

Maintaining Volunteer Involvement

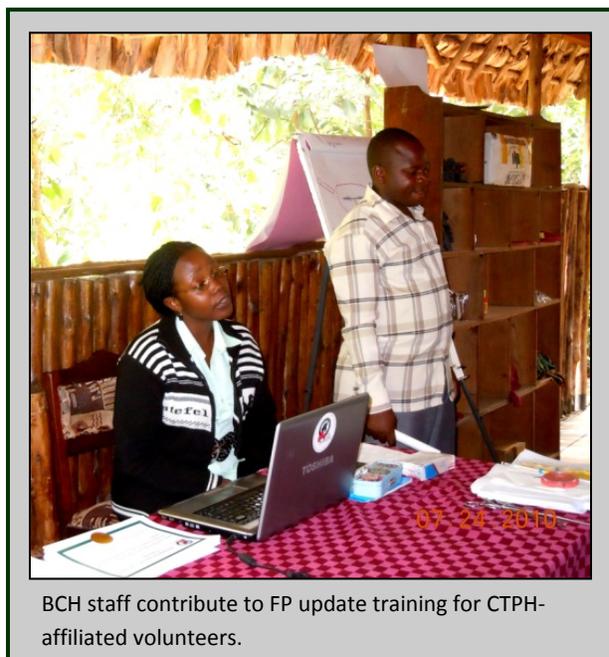
Drop-outs and turn-over rates are frequently a challenge in projects involving community volunteers. CTPH's PHE initiative engaged a large proportion of male volunteers who, from the beginning, expressed particular concern about balancing free service time with time to generate income/provide for their families. In Year 2, in recognition of their hard work and as an incentive to continue contributing their time and services, CTPH offered free computer literacy training to volunteers at their telecenter in Buhoma. Six of the 28 volunteers took advantage of this offer and registered for the free training.

A suggestion made by the volunteers themselves to allow them to continue volunteering, and to sustain momentum, was to become established as a CBO that could officially develop group projects for generating income. Project ideas proposed included group goats or cows that would supply a source of milk and/or skins that the CBO could sell. To that end, in Year 2 of CTPH's PHE initiative, two proposals, one from each parish (developed initially under the USAID PRIME/West project) were approved and implemented.⁹⁰ CTPH's role in facilitating group formation and acquiring initial group livestock was much appre-

ciated by the volunteers and served to reinforce relationships and loyalty between the two (see Annex 2).

Ensuring Livestock Health

As another means of sustaining momentum, after the volunteer livestock groups were formed, CTPH's veterinary technician (and CTPH co-founder, Stephen Rubanga) worked closely with them to maintain their livestock's health. This helped ensure that this "investment" would ultimately yield gains for the volunteer groups (in terms of newborn cattle and goats and milk and manure production). This would also help reduce the risk of zoonotic disease between any sick livestock and gorillas coming into contact with them on community herding land, adjacent to the park.⁹¹ Furthermore, CTPH initiated discussions with



⁸⁹ Representatives from UWA, in particular their community conservation staff, also serve as resource persons on the conservation side. Community conservation personnel routinely work with communities to prepare and implement community development projects, funded through the proportion of ecotourism gate proceeds that UWA allocates to local communities.

⁹⁰ Specifically, the Bujengwe parish volunteers proposed to start an Improved Cattle Management program. The objectives of their project were to rear and breed dairy cattle to provide milk for the family members and to sell remaining milk to the communities. They also proposed using manure to fertilize local fields for growing vegetables and bananas to improve the overall health of the community. Mukono parish volunteers proposed a Mukono Goat Keeping program—the objectives of which were to generate income, conserve the environment by using goat manure and improve food production and family nutrition.

⁹¹ A focus on livestock was a logical extension of CTPH's human/wildlife health focus as livestock are another important means through which inter-species disease transmission can potentially occur. For more information on this approach see <http://www.wcs-ahead.org/>.

Heifer Project International and the Worldwide Veterinary Service (WVS) to provide additional livestock veterinary assistance. In August 2008, WVS sent a livestock veterinarian for 10 days to help CTPH train the volunteer groups in livestock health. The next month, CTPH supplied Bujengwe community with 7 cattle and continues to this day to supervise and assist the volunteers with animal husbandry via periodic meetings and assessments of livestock well-being. Similarly, CTPH supplied the Mukono community with seven goats and necessary materials and technical assistance to start their program.

Addressing Other Important Unmet Health Needs

Water, Sanitation, and Hygiene

CTPH's efforts around Bwindi aim to improve the health and thereby long-term survival of mountain gorilla populations while simultaneously improving community well being. In addition to the potential spread of TB, another key health concern relates to poor water, sanitation and hygiene (WASH) practices of local community members. Specifically, when gorillas forage for food in community fields they can come into contact with human fecal waste, putting them at potential risk of becoming infected with human parasitic diseases [87]. WASH-related practices of local communities also contribute to a range of human health issues including poor nutritional status.⁹² For example, waterborne diarrheal diseases can lead to decreased food intake and nutrient absorption which can, in turn, lead to malnutrition, reduced resistance to infection, and impaired physical growth and cognitive development [88].

The government is trying to improve the situation nationally by encouraging health education in all districts to include a focus on sanitation and hy-

giene. To this end, USAID provided support to the MOH via BASICS, another JSI-led global health initiative, to help revitalize their integrated management for childhood illness program to include oral rehydration solution (ORS) and zinc—to the point that the Child Health Division in the MOH now officially recommends ORS together with zinc as the main course of treatment for diarrhea. However, for people living close to wildlife protected areas with little access to the health facilities and/or who cannot afford any associated costs, they are not able to easily benefit from facility-based programs.

To address this, BCH initiated an outreach program to many of the parishes in its catchment area that includes a focus on WASH-related health issues. Community members in remote households may still not be able to access these community outreach sessions, which makes household visits to “hard to reach subgroups” living adjacent to the forest—the priority focus for CTPH given the risks of zoonosis—an important complementary strategy.

Understanding this, in 2009, Dr. Kalema-Zikusoka applied and was granted the UK Whitley Fund for Nature award to help CTPH focus specifically on WASH-related problems around Bwindi. The proposed strategy was to use their network of trained community volunteers who routinely visit people's homes for FP and TB-related services, and to incorporate additional health education in their household sessions on the importance of WASH factors. During these sessions, the volunteers would also emphasize how human hygiene and sanitation practices link with gorilla health, ecotourism, and sustainable livelihoods—CTPH's consistent, integrated theme.

To document initial need for the educational intervention, in September 2009, CTPH commissioned

⁹² In Uganda, diarrhea is the second leading cause of death (next to malaria) [24].

Kanungu’s District Health Office to conduct a baseline household WASH survey. All 2,246 households in the two focal parishes were personally visited and a one-on-one questionnaire was administered. The survey revealed that the situation in the district is indeed challenging: for example, some of the households still use the bush (open defecation) as their “latrine”; about 99% of those interviewed indicated they didn’t wash their hands after defecating; many people still sleep with animals and, therefore, the potential for zoonotic disease transfer exists through that pathway; most of their water sources are not protected, and; the average nearest distance to a water source is about 700m from people’s homes [89]. Other surveys in Uganda corroborate the pervasiveness of poor WASH conditions in remote areas [24].

To address these challenges, with Whitely Fund support, CTPH provided the 28 volunteers with training in WASH-related issues and the volunteers are now incorporating these topics into their routine household education sessions. In addition, CTPH has supported community-wide education on the importance of hygiene, sanitation and safe water sources through radio spots. Under CTPH’s Community Health Coordinator, Joseph Byonanebye, the volunteers are routinely collecting data to monitor progress of a few WASH-related indicators and CTPH will undertake a follow-up survey sometime in the future to evaluate the effect of their interventions on household practices, in particular in homes located adjacent to the park border.

Adding too many tasks to the list of volunteer responsibilities can lead to problems if they begin to feel overwhelmed, including with reporting requirements; CTPH is aware of the need to pay attention to this potential issue. To date, however, the additional trainings and increased responsibility have been positively received by the volunteers and are motivating them to continue to serve their communities. The fact that CTPH also provides them with veterinary support for their livestock likely feeds into the positive relationship between the two and to the volunteers’ sense of dedication to their work (see Annex 2).



Veterinary assistance for volunteer CBO group cattle.



KEY ACCOMPLISHMENTS, IMPLICATIONS AND LESSONS LEARNED

Accomplishments achieved by CTPH and all its partners, including JSI, BCH and the MOH, among others, have been described throughout this report. A few key results are highlighted below (see Annex 1 for PHE project indicator results). Additionally, this section synthesizes lessons learned from on-the-ground experiences and implications for CTPH and other organizations interested in linking human and wildlife health in a conservation and livelihood context. Limiting the risk of infectious disease transmission through support for primary health care to humans, livestock, and wildlife was the main underlying objective of the integrated efforts described herein. However, CTPH's model also emphasizes the role of other key interventions like FP in ensuring health and livelihood—security over the long term. For integrated initiatives that do not include an infectious disease component, the latter may be the key lesson learned.

Reaching a substantial number of remote parish households, located closest to the park boundary

- ◆ These people are a priority for wildlife conservation organizations as they are potentially at highest risk of disease transmission with park wildlife (including the mountain gorillas).
 - In this context, CTPH has meaningfully contributed to reducing the risk of human disease being transmitted *to* mountain gorillas that live and forage near community member farms.
 - Similarly, through health education about inter-species disease transmission and support for community HUGOs, CTPH has contributed to reducing the risk of zoonotic disease *from* wildlife to beneficiary parish members which include some of the area's poorest citizens.
- ◆ Frequently these families are more dependent on local natural resources for their livelihood and income.
 - Periodic visits to these households to provide health education and some health services contributes to avoiding medical emergencies that could deplete their limited asset base (e.g., paying for transportation to a hospital and/or medications/treatments). The latter, in turn, could lead to unsustainable natural resource use to replenish the family's asset base or for basic survival.

- ◆ Given long distances and rough terrain, these households often have less access to static health including FP services. Reaching them through volunteer community-based services and referral follow-up is also helping to achieve health equity and national Millennium Development Goals - including Goal 5, reducing maternal mortality which is lagging behind others in terms of the 2015 target level [90].

Strengthening linkages among different stakeholder groups operating around Bwindi

- ◆ CTPH is committed to working closely with local government officials (human health, conservation, veterinary care, etc), including them in stakeholder events early on, engaging them periodically as event resource persons and communicating findings to them, as results become available.
 - This has helped ensure “buy in”, cooperation and in-kind contribution so that program results can be and are considered joint accomplishments.
 - This has also promoted “results-oriented” practices as the norm at the local level (community, parish, district). This, in turn, will hopefully help motivate additional local actors to engage.
- ◆ Sponsoring a regular forum (i.e., monthly volunteer supervisory meeting) for public and private/ NGO health partners to meet together with community volunteers has provided practical “experience” in collectively strategizing how to solve real implementation issues concerning important health problems in the area.
 - This “practice” serves as a precedent for stakeholders in the area to work together on other important issues and towards common development goals including those related to environmental conservation.

Identifying important weak points in the health system in general (staff turnover, contraceptive supply security, information systems) and testing strategies to strengthen them

- ◆ From the beginning, CTPH, with JSI assistance, focused on ensuring that all involved health partners understand how the government’s contraceptive supply system works to reduce this as a “supply side” issue.
 - The initial scoping exercise suggested that this was an important impediment to CRHWs continuing with their FP work post-CREHP. For this problem not to be repeated, it needed to be a priority from project start.
 - Different contraceptive supply issues have and will continue to come up (including national stock-outs of some methods). However, the local partners are now more aware of the potential issues and, importantly, that there are ways to work around or address them to minimize disruption to contraceptive (and other medical) supplies.⁹³

⁹³ Case in point, this year a policy was developed that made Joint Medical Stores—a parallel agency to the National Medical Stores- responsible for distributing drugs to non-governmental and faith-based facilities.

- ◆ CTPH has developed a good working relationship with the social marketing group AFFORD and the two organizations continue to dialogue about using AFFORD’s small scale entrepreneur network as an alternative means of securing contraceptive supplies in the area, should access to government supplied contraceptives become problematic.
- ◆ In Kayonza, as elsewhere in Uganda, some women purchase Depo-Provera from a local drug shop and then ask the volunteers to provide the injection. However, this is not an official MOH distribution strategy and through its collaboration with FHI, CTPH is staying informed about the Ministry’s position on this practice.⁹⁴
- ◆ Considerable attention has been paid to standardizing and harmonizing FP data collection so that progress can be monitored, needs better predicted, and credit fairly given for contribution to increased FP uptake in the area.
 - At project start, this required revising clinic logbooks to distinguish between parishes – something that was customarily not done. The fact that this was agreed to for two years during USAID PHE funding demonstrates BCH’s commitment to helping firmly establish FP as an important health service in the area.⁹⁵
 - The volunteers have faithfully submitted routine reports to CTPH, including after the project “officially” ended. In turn, data are compiled by CTPH and shared with the local referral clinic(s) for inclusion in the MOH HIS.
 - Data compilation has periodically been challenged by changes in and understanding of indicator definitions and the addition of new interventions and data elements.
 - To sustain momentum, the volunteers should collect only what the MOH requires as part of their HIS, consistent with how the referral clinic records the data (so they can more easily be tallied and forwarded together to the MOH).
 - Whenever new project funding becomes available, additional data elements/indicators can be added or collected, temporarily, to meet new donor and project management requirements.
 - To this end, FHI through its PROGRESS initiative, is providing CTPH with M&E assistance to help them produce credible evidence of the value-added of their integrated approach.
- ◆ District MOH officials appreciate the burden associated with frequent public facility staff turnover as a challenge to the success of their program as well as NGO efforts like CTPH’s PHE initiative.
 - The Kanungu District health officials made a special effort in Year 2 to address staff turnover issues by securing funding for a FP training workshop. The aim was to expand the pool of

⁹⁴ FHI recently conducted a study of drug shop practices regarding distributing contraceptives to help inform the MOH as it considers the pros and cons of this strategy in terms of access and quality.

⁹⁵ The organizational relationship between CTPH and BCH is an example of a mutually beneficial one and the FP efforts of both groups are stronger because of the partnership.

public providers (midwives) willing and able to support FP service delivery, regardless of where in the district they might be posted.⁹⁶

- As evidence of the high level of collaboration between district health officials and CTPH, representatives from CTPH were invited to participate in the district training as were providers from BCH.
 - As in other parts of the country, the public sector referral clinic periodically still has problems with staff turnover and availability.
 - This has led to increased dependence by community members upon the volunteers to consistently provide them with FP services.
 - This, in turn, has increased appreciation of the role that the volunteers and CTPH play in reducing clinic workload and helping to address unmet need for FP, especially in the remote households.
- ◆ To avoid “reinventing the wheel“, CTPH has learned from its partners, including JSI, to incorporate best practices and successful strategies from more vertical programs and to adapt them, as necessary, to reach more reluctant community members and hard-to-reach households.
 - ◆ CTPH appreciates that by no means have they successfully tested the model alone—one key to CTPH’s success with this initiative has been the range and quality of its partnerships.
 - Specifically, for technical areas in which it had no in-house expertise or prior experience (e.g., human TB, FP, hygiene/sanitation, human health messaging, volunteer training), CTPH actively sought assistance from and partnerships with others with that experience.
 - As described throughout, key among these has been the TA and mentorship provided by JSI, initially through a complementary USAID contract but also including in-country collaboration with JSI-affiliated projects (e.g., UPHOLD, DELIVER) and general JSI support from the US for this evaluation and other information sharing and advocacy efforts.⁹⁷ Collaboration with UPHOLD to incorporate one of their local NGO grantees (RWODEC) into the project helped ensure initial FP training was to standard, while also promoting south to south collaboration as an added benefit of both projects. Additionally, assistance from DELIVER helped ensure that a key requirement of sustainability, contraceptive security, was considered from project start.
 - The initial USAID PHE contract provided a means through which CTPH could begin to support an important health intervention (FP) in which it previously had no technical expertise or experience. Over time, the intervention will also help reduce population pressures to achieve long-term conservation goals.

⁹⁶ Personnel posting and redeployment decisions are sometimes made at higher administrative levels than the district which leads to gaps in staff skills competency in public facilities related to numerous health services, including but not limited to FP.

⁹⁷ CTPH has benefitted from a number of international invitations to tell this story including the 2007 Ethiopia PHE Regional East Africa conference (organized by PRB in collaboration with WWF and the Woodrow Wilson Center, with support from USAID and the Packard Foundation-Ethiopia Program). There have also been numerous local opportunities including newspaper articles and conference presentations [52, 53, 91, 92,93].

- Another key partner has been the public sector, including local MOH and UWA officials. District MOH officials have been involved in all decisions related to CTPH’s human health activities as well as serving as key resource persons for select health activities (including trainings and radio shows). This relationship is helping to ensure a continuous contraceptive supply and posting of trained and engaged personnel in the public referral clinic (Kayonza HC II). District MOH officials openly recognize CTPH’s contribution in terms of helping them achieve their RH/FP objectives; one way of acknowledging this has been the MOH’s invitation to CTPH-affiliated volunteers to become official members of Ministry-supported village health teams, where such teams are functional.
- ◆ UWA similarly recognizes CTPH’s contribution around Bwindi to community health and well being, as well as to mountain gorilla health and survival, also UWA objectives. As a show of collaboration, UWA staff participate as resource persons in relevant PHE trainings and are routinely involved in information sharing and stakeholder decision-making activities.
- ◆ CTPH used standardized training and/or educational materials, published newsletters, local theater groups etc. to capitalize on existing resources.
 - This has been facilitated through strong relationships with CCP, Straight Talk and Mango Tree locally and through interactions with the PHE community at large, via internet based resources and participation in international events.⁹⁸
 - FHI has also been a strong partner and through PROGRESS, it is helping CTPH strengthen its advocacy capabilities, including as a member of Uganda’s PHE Working Group.⁹⁹

Helping to raise the “profile” of FP as an important health and development intervention in a remote, biologically-important geographic area

- ◆ In 2006, when CTPH first initiated its PHE program, some FP services were available in the Buhoma area. However, based on a review of annual programming documents, discussions with local stakeholders and the history of local FP uptake and method distribution, FP was clearly not yet a programming priority. Evidence of how FP has increased in importance since 2006 includes the following:
 - Prior to 2006, BCH, the local referral health facility in Mukono parish, provided FP services but did not have a consistent supply of contraceptives nor dedicated staff.
 - Currently, BCH has a strong RH/FP program with dedicated and trained staff and offers community outreach including FP services to a number of remote villages in its multiple-parish catchment area.

⁹⁸ This includes presentations at the Woodrow Wilson International Center for Scholars [91]. Its members include representatives from population, health, and conservation organizations working throughout the country.

⁹⁹ Like other country working groups established as a result of the East Africa regional PHE event, the Uganda PHE Working Group meets periodically to exchange ideas and plan for joint activities that promote integration as an innovative strategy for achieving national conservation and development goals.

- As noted, BCH now also supports two cadres of community-based health workers who provide FP services/promotion at the community level.^{100,101}
 - Data from the FP clinic (see Annex 1) reveal that not only has there been an increase in the number of new FP users but also in the quality of services, i.e., now women in the area have a greater range of contraceptive choices available to them, including long-term methods.
- BCH is currently engaged in a collaborative effort with CTPH and Stanford University (SPIRES) to add post-partum IUDs (PPIUDs) as a complementary RH/FP service, expanding the options available to women in the area which currently now include interim IUD and implants as important long-term method choices.
 - To date, two trainings have been conducted for BCH providers with support from Stanford University and BCH staff, focusing on PPIUDs but within the context of general updates on FP and the role of long-term methods in ensuring a range of methods to increase quality and FP uptake.¹⁰²
 - Two trainings in referrals for PPIUD have also been provided by Stanford, in collaboration with BCH and CTPH resource persons, for community volunteers working in the respective parishes covered by CTPH and BCH to expand access to and use of FP.
- BCH conducts an annual survey of its catchment area population that now includes questions on use of FP. From that source, the estimated number of women of reproductive age (WRA) in 2009 for CTPH's two focal parishes was 1123 (Bujengwe) and 1335 (Mukono) [94].
 - Results from its 2009 household survey revealed that in Bujengwe parish, 22.2% of WRA reported using a FP method of some sort. In Mukono parish, the proportion was 25.2%.¹⁰³
 - Of those reporting FP use, 40% in Bujengwe versus 16% in Mukono (served by BCH) said they got their method from a community-level worker.
 - These findings highlight the different but equally important roles that CTPH has played in the two parishes over the past 4 years:

-In Mukono, CTPH has played more of a catalyst role, helping to sensitize communities about FP and its benefits and jump-starting community-based distribution of methods – an approach that the strong referral facility (BCH) has taken up and replicated in other communities in Mukono and parishes in the district (not priority areas for UWA or CTPH). This helps extend district

¹⁰⁰ BCH aims ultimately to support a village health promoter in every village in its catchment area (over 250) and 10 community based distributors per parish. However, as CTPH supports FP in two of these parishes, currently BCH's support for FP does not focus on these parishes.

¹⁰¹ When BCH approached FHI to develop a partnership to expand CBDepo services to five other parishes in their catchment area. 40 volunteers were trained under that arrangement.

¹⁰² Dr. Amy Voedisch, through her RH/FP fellowship under Stanford's SPIRES Program, has been the key resource person to organize and conduct the provider and volunteer trainings in close collaboration with Florence Ninsiima, BCH's current FP clinic coordinator. Gershum, Mbazi, CTPH's former Nurse-Aide and current BCH staff member, and CTPH's current PHE field assistant Alex Ngabirano, have also served as training resources. Dr. Gaffikin, JSI co-author and ongoing public health advisor to CTPH, has provided strategic and operational guidance to Dr. Voedisch to help PPIUD become an additional FP method option in this remote, biodiversity priority area through her role as a Stanford University/SPIRES mentor.

¹⁰³ The survey instrument did not indicate which method nor whether the method was traditional versus modern, but, given respondent answers on the next question about method source, it can be assumed that the majority of "yes" responses regarding FP related to pill or Depo-Provera use or a long-term method.

service coverage which CTPH is not in a position to do, given its conservation- focused mission and targeted funding sources.

-In Bujengwe, on the other hand, CTPH been a key FP service delivery actor, responsible for a large proportion of the parish's new recruits and re-supplied users (through services provided in the community, through its referrals and/or through CTPH's PHC Coordinator herself who provided services in the clinic during initial program years).

- Combining CTPH's community-based efforts (including clinic referrals) that target remote households; BCH's static, outreach and community-based efforts, and available public sector services (e.g., in Kayonza HC III), considerable progress has been made towards the Kanungu District health objective of 80% of the district's women having access to quality reproductive health care services.
- USAID/Uganda has acknowledged CTPH's success in helping the MOH expand access to FP and other health services in this remote area, and potential for expansion, by funding CTPH to continue to implement FP activities around Bwindi as a subcontractor to Wildlife Conservation Society (WCS) on its current environmental bilateral project (Wild West).
- In turn, WCS/Uganda, has engaged BALANCED, USAID/PHE's current capacity building and knowledge management project, to help sensitize all of its Wild West subcontractors about the value of integration, including FP as a key intervention, to achieving their respective project objectives, as well as long-term national environment and development goals[95].

Successfully testing an integrated model

- ◆ Prior to 2006, efforts to truly integrate conservation and development (including health/FP) interventions around Bwindi were only marginally successful.
 - Communities around this World Heritage site have periodically been targeted for development support as part of a number of initiatives including ICDPs, CARE's DTC and CREHP projects and UWA's community conservation activities.
 - However, those efforts have not traditionally been organized and undertaken as part of a concerted effort to conceptually and operationally link interventions in a way that can maximize both resources and outcomes – nor reach the most remote, needy households.
- ◆ Since 2004, CTPH has sought funding for and implemented a series of complementary activities aimed at improving the health and well being of local communities - while simultaneously helping to conserve Uganda's Bwindi population of mountain gorillas through improved wildlife and domestic animal health.
 - Through its model approach, CTPH has demonstrated an ability to:
 - mobilize communities around important human health issues;

- develop and maintain a network of health resource persons (including community volunteers and government and referral center personnel) committed to reaching hard to access households;
 - incorporate wildlife and veterinary health care education and services into its human health program – and vice versa;
 - expand the range of health topics covered to address new/important health concerns; and
 - creatively support a network of volunteers so they continue to be committed to serving their communities.
- ◆ CTPH’s reach over the past 4 years has extended way beyond the two parish boundaries through its support for radio shows, its international, national and district advocacy efforts, involving UWA and other local resource organizations/persons in its routine supervisory meetings and its telecenter and other IEC activities.
 - ◆ CTPH’s impact has also extended beyond what can be measured quantitatively:
 - The volunteers report that while women used to come alone for FP, now their male partners accompany them. “Contraception for couples” was the strategy initially agreed upon for CTPH’s PHE project and anecdotal evidence suggests this strategy has been working.
 - CTPH’s telecenter and computer training worked particularly well in attracting the area’s youth. Organizing its program to include three arms (Wildlife health, human health, IEC) is a strategy that enables CTPH to access important subgroups in different ways.
 - On the other hand, integrating the health theme throughout all arms ensures message consistency and constancy and efficiency in achieving organizational objectives.
 - A notable indication of successful integration came recently in a 2010 supervisory meeting of the volunteers during which district health officials talked to them about being incorporated into village health teams, the strategy being promoted nationally by the MOH to enhance health coverage in rural areas.
 - The volunteers were honored to be recognized in this way and excited about the potential to serve in this additional role.
 - When subsequently asked if they saw themselves mainly as community health workers, the group responded in fact, that they saw themselves rather as serving dual roles – helping to improve community health as well as contributing to conservation – something they have come to appreciate is closely linked to livelihoods, ecotourism and health/FP interventions. In short, the volunteers themselves are truly convinced of the value added of integration.
 - To formally acknowledge this, the group requested that previous titles be dropped and that they be considered “community conservation and health volunteers”.
 - The volunteers proudly retain and operate under this title to this day.



Annex 1: A Quantitative Summary of Key Results

Key project achievements are summarized below. The results are organized in terms of the three strategic objectives agreed upon by CTPH and USAID as the basis for CTPH's two year USAID/PHE project funding, i.e., increased capacity to implement integrated FP, health, and environment interventions, increased information and education to potential beneficiaries regarding the value of integrating FP, health, and the environment, and increased uptake of FP as the funded population and health intervention. While success was achieved in all three objectives over the two years of USAID funding, logically, improvements in the area of capacity building and community sensitization were more evident at the beginning of the project. By year two, and continuing post-project (Year 3), success became more evident in terms of FP uptake, volunteer commitment, and meaningful engagement of other local partners.

Collectively, the results suggest that it is possible to successfully link interventions that address multiple facets of community wellbeing, e.g., health and livelihood (in this case, mountain gorilla ecotourism) successfully in remote rural communities in the context of a “planned” family. And, once trust has been established, it is possible to sustain these efforts, with limited funding, through involving local community members as key resource persons and enabling them to generate some income to offset the time they spend helping their communities. These results also illustrate how a conservation organization committed to the development of local communities but with no previous experience in FP or other human health interventions can organize and successfully implement a multiple year health/FP initiative, with meaningful results and good prospects for sustained momentum. This was possible, in part, because of the close mentoring in the beginning by JSI, an international health organization familiar with the special needs and challenges of integrated projects and also because of CTPH's willingness and active efforts to partner with other organizations with complementary expertise. A number of other conservation organizations (e.g., JGI with their TACARE project in Kigoma, Tanzania) have demonstrated similar positive experiences, the uniqueness of this effort being reduced health risks, to humans, wildlife and livestock, as the unifying feature.

Key PHE Project Achievements

Year 1

1: Increased capacity to implement integrated FP, health and environment interventions in target communities

- The project aimed to increase the number of staff in referral clinics: i) oriented about project

objectives including its integrated nature, ii) updated about F in a livelihood and conservation context and iii) educated about how they can contribute to project objectives.

- The target was 4 staff - two from each clinic. By the end of project Year 1, CTPH had increased the integration capacity of 15 staff from BCH and 2 from Kayonza HC III (*over 4 times the number projected*)
- 4 CRHWs were trained and 22 CPEs, one from each participating village in the two parishes.
- The project aimed to increase FP commodity supply options for target communities including through one or more social marketing distributors in the area.
 - The free government contraceptive supply system to the two referral clinics was strengthened through project activities and there were no stock-outs of the commonly used FP commodities during the year.
 - For future contraceptive security, discussions continued with the AFFORD Project to establish a local distribution network.¹

2: Increased access among community members to information and education on FP, health, and the environment, and linkages among them

- The project aimed to sensitize target communities through multiple means.
 - Overall, the project supported 4 drama shows in 4 villages, attended by over 1700 community members.
- The project planned for CPEs to educate couples in their households on FP methods, TB detection, and links with the environment.
 - The target was 160 households (reaching 320 people, two per household) of which 25% (40 households) were to be located in an area bordering the protected area.²
 - Over the 6 months of activity in Year 1 (April to September), the volunteers made 1234 home visits (almost 8 times more than anticipated). The volunteers sensitized 1426 potential FP clients during these home visits (*4.5 times more than anticipated*).
 - In more than a quarter of the homes visited (324 or 26%), the residents routinely saw gorillas near their home (the proxy variable used on volunteer data collection tools for remote households bordering the protected area), matching project expectation that 25% of the homes reached by the volunteers would be at highest risk of human/wildlife interaction and conflict.

3: Increased acceptance of FP among target community members

- CRHWs were responsible for following up with interested clients, identified through CPE household visits and group talks, to increase new and continued FP acceptance rates.

¹ Throughout the period covered by these findings, CTPH decided not to incorporate social marketing through AFFORD as they sell supplies whereas the MOH provides free contraceptives, and the clinics were not experiencing stock outs. AFFORD did however, supply them with free IEC materials.

² As there are only two CRHWs per parish, each individual has to cover a large number of villages. The target was based on an estimated 5 home visits per CRHW/month.

- During their 6 months of activity post-training, the 4 CRHWs visited 446 clients, *over two times the projected number (200)*.
- The project estimated conservatively that in the first year, 30 people visited and counseled by community volunteers would newly accept a modern method of FP. This was based on an estimated 2500 women of reproductive age living in the two parishes, an estimated annual new acceptor rate of 1.5% of the eligible population and the assumption that some parish women would accept directly from the clinic, upon referral from or without being visited by a CTPH volunteer.³
 - Over the 6 month period, the volunteers recorded 90 new FP acceptors, *three times the number anticipated for project Year 1*.
- The number of new FP acceptors recorded by the volunteers likely overlaps, at least in part, with the number of new FP acceptors recorded at the referral clinic.⁴ Thus, the overall total (associated with both sources) is not additive. At a minimum, the former represents the proportional contribution of CTPH volunteer activity to the referral clinics' total FP activity for that period.
 - Between April and end September 2007, 135 new users from Mukono parish (19 OC, 105 injectable and 6 implant users) were registered at BCH's FP clinic.⁵ For the same time period, 30 new users from Bujengwe Parish (2 OC and 28 injectable users) were registered at Kayonza HC III. For the two clinics combined, 165 total new users were registered during the 6-month period after the CTPH volunteers had been trained compared to 90 women recorded in the community by the volunteers themselves- *approximately half (55%) the total clinic number*.
- The above referral clinic values are higher for Year 1 than the values recorded for the same two facilities in 2006, pre-project, i.e., 23 new users from just Bujengwe parish for Kayonza HC III and 92 new users from all parishes for BCH.⁶ *This confirms that there was an increase in FP acceptance in the participating communities during the six months post-training in Year 1.*
 - As no other promotional activities were ongoing in these parishes during the first year, it is reasonable to assume that a good proportion of the increase was due to CTPH project community and referral efforts.
- Couple Years of Protection (CYP): Official Uganda MOH conversion factors were used in

³This was based on an average annual increase nationally of 1.5% - 2% for a number of DHS countries.

⁴For part of project Year1, to be recorded by the volunteer as a new acceptor, the woman had to be considered a potential FP user by the CRHW, have been referred to and successfully visited the health center, have accepted a FP method for the first time at the clinic and then have been revisited by a community volunteer to hear about their FP acceptance. This changed after volunteers were allowed themselves to recruit and record new FP acceptors.

⁵For comparison purposes, BCH clinic statistics are provided for the same time period as CTPH's project year although BCH routinely reports their data from June to July as their operational year.

⁶At CTPH's request, BCH added a line to its daily FP register in 2007 to distinguish Mukono parish clients from those coming from different parishes (not involved with CTPH volunteers) so CTPH could better evaluate its project effects on clinic statistics.

the following calculations (MOH values listed at the end of this annex). A key difference from globally averaged calculations is for condoms (500 versus 120).⁷ All combined CYP values provided in this report would be higher if the latter conversion factor were used; thus, revised calculations using 120 are warranted if these CYP values are to be compared to other results beyond this project.⁸

- Pre-project data to estimate CYP for BHC were not readily available. For this evaluation, baseline values were estimated as follows. During six months pre-project in 2006 (the facility experienced a stockout for the other six months), BHC staff distributed 87 pill cycles (CYP = 6.0); 181 injections were provided (CYP = 45) and an estimated 2000 condoms distributed (CYP = 4).
 - For the three methods combined, the CYP for six months was 55, yielding an estimated CYP of 110 for the whole year (12 months) for the entire BCH catchment area (9 parishes). Assuming that Mukono parish represents 35-50 % of all their 2006 FP activity (a generous assumption) yields a pre-project baseline of approximately 35-55 CYP for this one parish for the three methods.
- Data from Kayonza HC III for just Bujengwe parish show a distribution of 6 pill cycles (CYP = 0.4 < 1) and 36 injections (CYP = 9) over the pre-project whole year (2006).
 - At the community level, one CRHW from Mukono parish told the scoping team in 2006 that during the previous two-week period she had distributed 6 cycles of pills (CYP = .4) and 5 condoms (CYP = .01).
 - It is unknown how many of the CARE volunteers continued to function after CREHP ended up to when CTPH's PHE project started, but the scoping assessment suggested few continued with this function, mainly due to issues obtaining supplies.
 - During the Year 1 period April to end September, 2007, the four CRHWs distributed 166 cycles of OCs to 78 pill users yielding a CYP of 12 for that one method. In addition, 15924 condoms were distributed for a CYP of 32 for that method.⁹

Year 2

1: Increased capacity to implement integrated FP, health and environment interventions in target communities

- Some communities are large and cannot easily be serviced by one volunteer. In response, CTPH added a few new volunteers to their network who underwent on-the-job training in collaboration with the local referral clinics.

⁷ http://www.usaid.gov/our_work/global_health/pop/techareas/cyp.html

⁸ All CYP values are rounded to the nearest whole number.

⁹ Due to community resistance to individual distribution but desire/need for condoms, it was agreed that condoms would be given out from distribution points (boxes located in key positions in the community). As CYP aims to measure distributed to (and used by) individuals, these calculations may in fact overestimate condom and overall CYP values associated with the volunteers.

2: Increased access among community members to information and education on FP, health, and the environment, and linkages among them

- Over the 12 months of volunteer activity (Oct 2007 to Sep 2008), CPEs made 1074 home visits (564 of which were to new homes).
 - In 356 (33%) of the new homes visited, residents routinely saw gorillas nearby.

3: Increased acceptance of FP among target community members

- The 4 CRHWs visited 621 clients in their homes during which they recorded 121 new acceptors of pills and 29 new injectable users - for a total of 150 new acceptors of both methods that year.
- During Year 2, the CRHWs distributed 259 units of OCs to 90 pill users yielding a CYP of 6 for that method. In addition, 6045 condoms were distributed by the CRHWs and 9704 by the CPEs (who also began distributing condoms in Year 2) for a total of 15,574 condoms distributed by all volunteers in the two parishes (CYP =31).
 - The combined CYP for the year for those two methods was 37.
- Starting in July 2008 until September 2008, newly trained CBDepo volunteers provided services to 29 new injectable users (14 from Mukono parish and 15 from Bujengwe) and to 149 revisit clients (59 from Mukono plus 90 from Bujengwe).
 - This yields a total of 178 injections and a CYP of 45 for this method.
 - This compares with 77 new injectable users registered at BCH during the same 3-month time period and 181 revisit users (258 total; CYP = 65) for all parishes within BCH's catchment area combined.¹⁰
- This calculates to an overall CYP of 82 for the volunteers for these three methods.

Years 1 and 2 combined

- In the 18 months during which services were provided (April 2007 through September 30, 2008), a total of 239 new confirmed FP clients were registered by CTPH-affiliated volunteers.
- The two groups of volunteers contributed a total of 126 CYP to the district's FP use associated with their distribution of pills, injectables, and condoms.

Year 3 (Post-PHE project)

USAID/PHE funding for FP ended in October 2008. Evidence of continued volunteer and integrated PHE program functioning post-project (Year 3) includes the following:

¹⁰ Data for these 3 months for just Mukono parish were not available from BCH statistics.

- Between October 2008 and September 2009,¹¹ the CPEs visited 272 new homes, 94 (35%) of which were in close proximity to the forest edge; and, the CRHWS saw 756 clients and registered 42 new pill users.
- During the same time period, CBDepo-trained volunteers registered 201 new injectable users and recorded 795 revisit injections.
 - As described, the volunteers provided CBDepo services for only three months during program Year 2. However, if one calculates the average quarterly performance of the volunteers Year 3 and compares this to their actual quarterly performance during Year 2, the value is considerably higher for the former (average 50 new users per quarter in Year 3 versus 28 in Year 2; average of 199 repeat injections provided per quarter in Year 3 versus 149 in Year 2). That is, volunteer CBDepo activity not only was maintained but increased post-project.
 - Considering both new injectable and pill users, *243 new FP users* were registered by CTPH-affiliated volunteers during Year 3. This is an impressive increase over Year 2 and equals approximately the same number of new FP users registered by CTPH during *both years of its funded PHE project (239)*.
- During Year 3, both volunteer cadres contributed a combined CYP of 280 for the three contraceptive methods they distributed (condoms, pills and injectables). This compares to the Year 2 CYP value of 126 for the same three methods.
 - A total of 215 pill cycles were distributed by the CRHWS to 69 new users and a number of repeat users (CYP = 15); 996 Depo injections were provided to new and repeat users (CYP = 249) by the 13 trained volunteers and together the CRHWS and CPEs distributed 8237 condoms (CYP = 16).
 - *These data confirm that the volunteers continued to provide FP services post-project funding in their communities.*
 - Continued FP uptake also resulted from momentum from CTPH community sensitization over the previous two years as well as increased attention to FP by district officials and at the referral sites.
 - Evidence of increased uptake at BCH comes from their computerized register: In 2006/07, BCH registered 208 new users of all methods from *all* of its catchment parishes;¹² the next year, 2007/8, 382 total new users were registered, 225 (59%) of which were from just Mukono parish. In 2008/9, 472 new users were registered from all of its catchment parishes and between July and December 2009, BCH registered 676 new FP

¹¹ These results are missing one month's worth of data (December 2008) when the Nurse-Aide left CTPH to join BCH and the monthly reports were not collected. Data collection recommenced in January 2008 at which time the volunteers committed to continuing to provide FP and other health services and CTPH agreed to continuing to support their monthly supervisory meetings.

¹² As noted, BCH's fiscal year and official clinic statistics run from July to June each year.

users - 91% of which were Depo users – overall a greater than 3 fold increase in FP acceptance over 2.5 yrs.^{13,14,15} In 2008/9, 7 new users chose Norplant and in the first half of 2009, this increased to 41 women.

TB prevention and control achievements

As noted, CTPH first started its CB-DOTS program with funding from the Government of Ireland. In the first 6 months of that effort, CTPH succeeded in reaching 2500 people in Mukono and Kyeshero parishes through their drama shows.¹⁶ Of these, CTPH staff then referred 48 TB suspects (approximately 2%), 16 of whom tested positive (33.3%) and all (100%) were successfully enrolled in CB-DOTS.

PRIME/WEST Project

By the time PRIME/WEST funding ended in 2007, in addition to the drama shows, CTPH staff had conducted 256 home visits resulting in more than 90 people being screened for TB, 26 (2.8%) of whom were found to be positive and put on treatment.^{17,18}

- Of these, 19 (73%) completed the eight-month treatment, none defaulted and four died. This translates into a treatment completion of 86% for those well enough to follow through to the end. This compares favorably with the WHO target treatment completion rate of 85%.

Project success was accomplished through active TB case finding and referrals to CTPH by community members and community volunteers alike.

PHE Project

In keeping with the integrated nature of CTPH's PHE project, volunteers continued to refer suspect TB cases during home visits for FP services. Over the two years, 283 TB suspects were referred by one of the two cadres of community volunteer for diagnosis and enrollment in treatment to one of the referral centers.

Year 3 (post-funding)

105 TB suspects were referred by the two cadres during this year.

¹³ In 2008, after USAID's PHE funding to CTPH ended, BCH stopped collecting data in its daily FP logbook separately for Mukono parish.

¹⁴ While a range of FP methods are offered through BCH's RH/FP program, the large majority of users continue to select Depo-Provera as their method of choice.

¹⁵ If the trajectory for the rest of the year is equivalent, this yields an estimated 1352 new users - 6.5 fold increase in new FP users over 3 yrs.

¹⁶ 504 males, 657 females, and 1435 children.

¹⁷ This was a reduced (21 month) implementation time period from the initially planned 32 months due to a late (11 month) allocation of funds to CTPH.

¹⁸ This rate is close to the estimated annual rate for detecting new TB cases for the country as a whole (3%).

Uganda Ministry of Health Conversion Factors for CYP

FP Method	Couple Years of Protection
Condoms-male ¹⁹	1/500 or 0.002
Pills (all)	1/15 or 0.07
Foam Tablets	1/750 or 0.0013
Depo provera	¼ or 0.25
Norplant (Jadelle & Implanon)	3.5
IUD	5
Tubal Ligation	12.5
Vasectomy	12.5
Natural Family Planning	<i>2 yrs per trained confirmed adopting couple</i>
LAM	<i>0.25 (Four active users per CYP)</i>

¹⁹ This value differs from international averages for this method for which the value 120 is used.



Annex 2: Testimonial statements from CBDepo trained volunteers regarding continuing their services

The cattle were given as “appreciation of my work” and “I plan on continuing to work with my clients.”

The cattle will “help us in the future by giving milk and selling it” in order to “feed our children.”

The project will “help to develop the community.”

The cattle will enable us to “get more milk so our children do not get Kwashiorkor (malnutrition).”

The Livestock program was “for development and sustainability of the [CBDepo] project.”

The cattle will be “very helpful to keep the [CBDepo] project going.”

The Livestock program was “for the work we are doing, when we are not working with CTPH we will recognize that we got the cows from CTPH and will continue working.”

“CTPH gave us this opportunity to work voluntarily in our communities and villages. We made (this) proposal to get funds from others to continue to support us.”

The goats “are to help them to reduce poverty.”

The livestock program is “to improve morale, reduce need to poach, and (this) adds to conservation.”

The goats help us “to become one group in our area so we know that we are working with CTPH.”

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