

2018 ANNUAL REPORT



The Nature Conservancy 

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AFRICA BIODIVERSITY COLLABORATIVE GROUP

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Africa Biodiversity Collaborative Group

2018 ANNUAL REPORT

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COVER PHOTO: Ashura Katunka, in Mgambo village on Lake Tanganyika, TZ and part of a model household family.
PHOTO CREDIT: Ami Vitale

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III. ACRONYMS

ABCG	Africa Biodiversity Collaborative Group
ANDM	Alfred Nzo District Municipality
AFR/SD	Bureau for Africa/Office of Sustainable Development
AWF	African Wildlife Foundation
CARPE	Central Africa Regional Programme for the Environment
CAZ	Corridor Ankeniheny Zahamena
CCRO	Certificate of Customary Right of Occupancy
CFCL	Community Forestry Concessions
CI	Conservation International
CSA	Conservation South Africa
CoP	Community of Practice
CVL	Certificate of Village Land
EIA	Environmental Impact Assessments
FY	Fiscal Year
DRC	The Democratic Republic of the Congo
GCI	Global Change Impacts
ICCN	Institut Congolais pour la Conservation de la Nature
INDC	Intended Nationally Determined Contributions
IUCN	International Union for the Conservation of Nature
JGI	The Jane Goodall Institute
LGC	Local Governance Committee
LRTR	Land and Resource Tenure Rights
M&E	Monitoring and Evaluation
MHH	Model Household
LUM	Land Use Management
NAPA	National Adaptation Programmes of Action
NGO	Non-governmental Organization
NLUPC	National Land Use Planning Commission
PHE	Population, Health and the Environment
PNAT	National Land Use Planning process
REDD	Reducing Emissions from Deforestation and Forest Degradation
TNC	The Nature Conservancy
USAID	United States Agency for International Development
UNFCC	United Nations Framework Convention on Climate Change
VLUPs	Village Land Use Plans
WASH	Water, Sanitation and Hygiene
WCS	Wildlife Conservation Society
WRI	World Resources Institute
WWF	World Wildlife Fund

I. EXECUTIVE SUMMARY

This report by the Africa Biodiversity Collaborative Group (ABCG) covers the annual period from October 1, 2017 to September 21, 2018 of the United States Agency for International Development (USAID) Cooperative Agreement No. AID-OAA-A-15-00060. ABCG is a consortium of seven U.S.-based international conservation non-governmental organizations (NGOs): African Wildlife Foundation (AWF), Conservation International (CI), the Jane Goodall Institute (JGI), The Nature Conservancy (TNC), Wildlife Conservation Society (WCS), World Resources Institute (WRI) and World Wildlife Fund (WWF).

ABCG's overarching goals of a) Mainstreaming biodiversity in human well-being and development agendas; b) Promoting good conservation practices; and (c) Strengthening the role of social and development institutions in biodiversity conservation and human well-being, are being pursued within the context of five thematic foci. This report provides an overview of progress made on these thematic tasks and includes:

1. Land and Resource Tenure Rights
2. Land Use Management
3. Managing Global Change Impacts
4. Global Health Linkages to Conservation: Population Health and Environment; Fresh-Water Sanitation and Hygiene
5. Emerging Issues

Technically, ABCG's programmatic approach involves conducting analyses of critical issues affecting efforts to conserve Africa's biodiversity; designing and implementing pilot projects to assess and demonstrate the feasibility of innovative approaches for addressing those issues; and leveraging output to promote data-driven decision-making and viable trade-offs associated with using and managing land and natural resources. Further, ABCG aims to build strong partnerships with local African institutions as the foundation of Communities of Practice (CoP). ABCG members cooperate through those CoP to improve best practices across the relevant conservation, development and rights stakeholders, whose activities affect, and are affected by, biodiversity conservation efforts.

Land and Resource Tenure Rights (LRTR): Following ABCG contributions to the gazettment of the Kabobo Wildlife Reserve in Democratic Republic of Congo (DRC) in 2017, efforts to strengthen the reserve's local governance structure were initiated by WCS through drafting co-management principles. JGI led and supported the research and publication of the report, *Making Community Forest Enterprises Deliver for Livelihoods and Conservation in Tanzania*. The initiative was designed to build a stronger evidence base for community forest management in Tanzania, including in particular their impacts on forest conservation and their delivery of economic benefits at different levels. In Southern Tanzania, AWF and WRI established a Multi-Stakeholder Platform for Kilombero Landscape to bring together relevant actors and encourage dialogue among different stakeholders so as to balance the interests of all land users. In Western Tanzania, TNC and JGI issued a number of Certificates of Customary Right of Occupancy (CCROs) by the Village Councils with support from the District Land Officer. This activity

aimed to create favorable conditions for recognition of community and customary rights over land and natural resources. CCROs help guarantee land ownership where every farmer/family can practice sustainable land use, a key factor in biodiversity conservation.

Land Use Management (LUM): This task group has developed a methodological approach to conservation and land use planning based on scenario analysis, and guidelines for its application, to incorporate equitable and climate-smart alternatives into land use decisions for conservation. The broad methodology was applied in four landscapes to replicate a landscape-level planning process with multi-sectoral stakeholders to better understand the drivers of landscape change: 1) Northern Republic of Congo (two northern provinces Sangha and Likouala); 2) Eastern DRC (Maiko-Tayna-Kahuzi-Biega CARPE landscape); 3) Western Tanzania; and; 4) Madagascar (Corridor Ankeniheny Zahamena). A synthesis of the methodologies, lessons learned and recommendations from the four landscapes was presented at the final workshop in Gabon on September 4-6, 2018, where a land use planning gap analysis, in support of on-going government-led national land use planning, was conducted.

Managing Global Change Impact (GCI): In 2017, the task group completed a comprehensive literature review and performed a survey study of rural communities in 10 African countries to identify and map adaptation responses to observed and projected changes in climate to provide guidance regarding adaptation strategies that are most likely to be successful for people without negatively impacting biodiversity conservation efforts. The results can inform governments, NGO's and the communities themselves on adaptation response alternatives to not only benefit local communities, but also the biodiversity around them. Recommendations were presented at a dissemination workshop in Nairobi, Kenya on August 14-16, 2018. Alternative adaptation responses to help farmers and fishermen adapt to climate change in ways that do not negatively affect biodiversity were discussed at this workshop.

Global Health Linkages to Biodiversity Conservation—Population, Health and the Environment (PHE):

In Western Tanzania, JGI organized PHE sensitization campaigns for top leadership within Western Tanzania districts and supported the national PHE strategic planning process led by the Ministry of Foreign Affairs. In the same region, modern beekeeping using modified Tanzania top bar hives was scaled-up through technical trainings by TNC. Additionally, TNC contributed to improved poultry farming techniques as part of an income and food security initiative for fisher communities and successfully scaled-up PHE work through enrollment of model household volunteers to promote and practice sustainable PHE behaviors. In Southeast Cameroon, WWF created a one-hectare cocoa plantation (associated with plantain), and the practical trainings were conducted by the agriculture expert in Yenga Rural Family School, as part of a micro-project, to teach the concepts of sustainable agriculture and entrepreneurship to a selected group of students. Awareness efforts on malnutrition, family planning, potable water, hand washing and management of latrines reached almost 800 people.

Global Health Linkages to Biodiversity Conservation—Fresh Water Sanitation and Hygiene (FW-WASH): ABCG published the report, [*The Convergence Factor: Lessons from Integrating Freshwater Conservation and WASH*](#), outlining lessons learned by CSA and JGI when testing the integrated

freshwater conservation and WASH approach. The report contains overarching lessons, documents the success of the implementation period and offers insights for future use by health, development and conservation practitioners in Africa. In South Africa, a [*Veld Sanitation*](#) training manual design was developed by CSA and World Vision that saw 86 eco-rangers trained to increase awareness among livestock owners and herders of best practices for sanitation, hygiene and grazing practices to protect human, ecosystem and livestock health. In Uganda, JGI supported the development and enactment of WASH by-laws in Uganda's Budongo sub county. ABCG's education and awareness materials on WASH reached thousands of pupils and community members in Hoima and Masindi Districts, Uganda.

Emerging Issues (EI): ABCG issued a third and final call for concepts in February 2018. Two small grants were awarded to TNC/WRI for \$15,136 and WCS/JGI for \$10,000 in support of their projects *Strengthening Partnerships in African Conservation: Kenya’s Conservancies Movement* and *Conjuring a Multi-Sectoral Approach to Avoid a Food Security and Environmental Crisis in Western Uganda*, respectively. The first project organized a dialogue in Nairobi on July 4, 2018 that explored strategies to build strong partnerships between local and national organizations working to advance conservancies and related conservation efforts in Kenya. The second project organized a technical workshop on May 22-24, 2018 in Hoima, Western Uganda, to facilitate the development of a credible and practical multi-sectoral investment plan to address the indirect and cumulative impacts of planned oil development, on the shores of Lake Albert, by the energy company, Total. The projects concluded in September 2018 and published their findings.

2. INTRODUCTION

2.1 PROGRAM OVERVIEW

ABCG continues to be a thought leader in identifying and developing strategies to address high-priority threats to biodiversity in Africa by generating new knowledge, fostering CoPs, and sharing best practices with stakeholders including local communities, conservation professionals, NGOs, and policy and decision makers in Africa, the US, and beyond. In so doing, ABCG provides support in program planning, implementation, evaluation, knowledge management and outreach to USAID-supported biodiversity conservation programs in Africa.

ABCG's mission is to tackle complex and changing conservation challenges by catalyzing and strengthening collaboration, and bringing the best resources from across a continuum of conservation organizations to effectively and efficiently work towards a vision of an African continent where natural resources and biodiversity are securely conserved in balance with sustained human livelihoods. Achieving ABCG's vision requires: a) Mainstreaming biodiversity in human well-being and development agendas; b) Promoting good conservation practices; and c) Strengthening the role of social and development institutions in biodiversity conservation and human well-being. ABCG's overall objectives are to:

- Promote networking, awareness, information sharing among U.S. conservation NGOs working in Africa, to encourage information exchange and idea sharing with African partners;
- Identify and analyze critical and/or emerging conservation issues in Africa as priorities for both future NGO action and donor support;
- Synthesize collective lessons from field activities and share them with the broader multi-sector community in the United States and Africa; and
- Support USAID in implementing the Bureau for Africa, Office of Sustainable Development (AFR/SD)'s Regional Development Cooperation Strategy and USAID's Biodiversity Policy in Africa, focusing on: a) conserving biodiversity in priority places, and b) integrating biodiversity as an essential component of human development.

The AFR/SD Regional Development Cooperation Strategy Development Objectives align with ABCG's strategies for linking learning to Communities of Practice, generating new knowledge, and influencing partners to demonstrate a results chain for knowledge management to develop its capacity to identify, create, represent, distribute, and enable adoption of information and experiences critical to the strategy's success.

2.2 THEMATIC TASK ACTIVITY AREAS

In partnership with USAID/AFR/SD, ABCG focuses on four key issues that strongly influence the effectiveness of biodiversity conservation efforts: a) Land and resource tenure rights, b) Land use management, c) Understanding the impacts on biodiversity of change processes operating at a global scale, and d) Understanding the linkages between global health and biodiversity. Working groups are composed of the ABCG member staff with relevant expertise. Further, a fifth working group was formed to identify and develop strategies to respond to new and emerging issues affecting biodiversity conservation in Africa, primarily through a small grants program. The below summary of task activity implementation is organized according to country, region, or landscape for each task group. Where only a subset of member organizations participates, they are noted in the subheadings.

3. SUMMARY OF PROGRAM IMPLEMENTATION

3.1 TASK ACTIVITY 1: LAND AND RESOURCE TENURE RIGHTS

3.1.1 Task Activity Description

Land and resource tenure rights influence the achievement of biodiversity conservation objectives, especially the rights accorded to individual landowners to manage private lands and collectively-held rights of indigenous peoples and communities living on state lands. For many rural people in Africa, land and natural resources represent fundamental assets—primary sources of livelihood, nutrition, income, wealth and employment. Land and resources are a basis for security, status, social identity and political relations, and, for many rural people, they have historical, cultural and spiritual significance. Strong rights and secure tenure are central to families and communities maintaining their land and resources, including biodiversity.

The LRTR working group is developing and testing various strategies that place greater land and resource management authority in the hands of local resource users, thus creating incentives for them to exercise their power in ways that are consistent with biodiversity conservation and sustainable use of renewable resources. The task members are piloting new approaches for securing tenure in three critical ecosystems: Greater Mahale Ecosystem, Tanzania (TNC, JGI); Kilombero Valley, Tanzania (AWF, WRI); and Kabobo Wildlife Reserve, DRC (WCS, WWF). These ecosystems are anchors for biodiversity that support livelihoods for growing local populations. Strengthening rights and securing tenure, especially over the community lands managed as common property, are central to the conservation of this biodiversity. The findings and outcomes of these pilot studies will have important implications for other communities and conservationists working across the continent.

3.1.2 Key Achievements

WCS and WWF – Kabobo Wildlife Reserve, DRC

ABCG realized three key achievements in FY 2018. Within the Kabobo Wildlife Reserve itself, with technical support from WCS, the Local Governance Committee (LGC) developed and the LGC General Assembly approved their Charter and Rules of Procedure and the right to use natural resources and internal regulations.

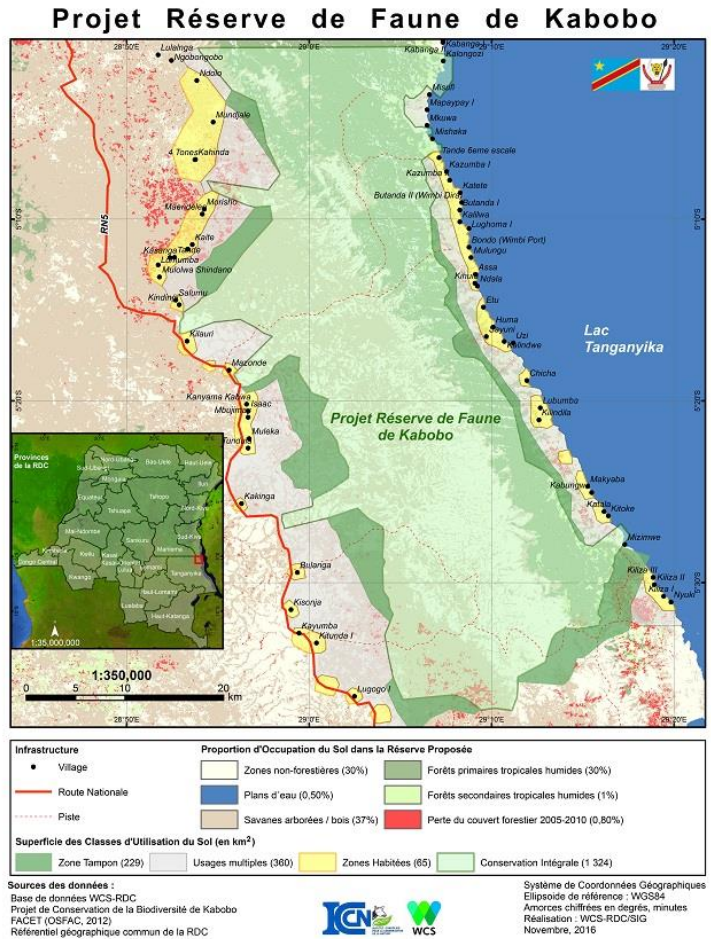
Second, a draft of the co-management principles of the Kabobo Wildlife Reserve, which includes resource management and right of use to discuss between LGC and the government's Institut Congolais pour la Conservation de la Nature (ICCN) was produced by WCS. In doing this, WCS trained customary chiefs and elder advisors of the Tumbwe Chieftdom on the DRC nature conservation law. The draft co-management principles were discussed between ICCN, the LCG, and WCS in November 2018. The report will be published by ABCG in 2019.

Lastly, WWF led the final ABCG Land and Resource Tenure Rights workshop in Bukavu that summarized the lessons learned in DRC from ABCG led initiatives, as well as other community-oriented conservation activities in the Itombwe Natural Reserve, Okapi Faunal Reserve, and community-controlled areas that are working on establishing community forestry concessions. The workshop summary report was developed by WWF to highlight the lessons shared at the workshop from three different reserves and one community conservation zone in DRC that are home to human populations. Several commonalities exist between them, including access to forest resources, addressing conservation of endangered species in community-use zones, and addressing mining in these various protected areas. Four major themes or sets of recommendations for all stakeholders engaged in the creation and management of protected areas in DRC emerged from the workshop:

- Increase stakeholder engagement and capacity building (government agencies, miners, and local leaders);
- Create mechanisms to protect the land rights of communities;
- Address the management of immigration and mechanisms for the consolidation of co-management of Category VI protected areas; and
- Sensitize/enable stakeholders to strengthen their involvement in co-management and ensure their inclusivity for sustainable management of natural resources.

AWF and WRI – Southern Tanzania

A Multi-Stakeholder Platform was established for Kilombero Landscape as a result of multiple land tenure dialogues conducted at the landscape level. The Multi-Stakeholder Platform aims to bring together relevant actors and encourage discussion and dialogues among different stakeholders so as to



Kabobo Wildlife Reserve, DRC Map: Photo credit. Jp Kibambe, WCS

balance the interests of all land users. The Multi-Stakeholder Platform will also inform the national level on the effects of household (CCRO) and village level (Certificate of Village Land (CVL)) land titling on land use and residual natural habitat.

With AWF and WRI support, a national dialogue on land titling, biodiversity conservation and community rights is now being planned by the government's National Land Use Planning Commission (NLUPC). Due to other pressing national events, this workshop did not take place during this reporting period, but is expected to be convened in 2019. AWF and WRI continue discussions with Stephen Nindi, NLUPC Commissioner regarding this national dialogue.

WRI activities in this reporting period focused on disseminating the findings of the research and work on CCROs and CVL both within Tanzania and outside. Efforts included formal presentations in workshops/conferences, direct conversations with policymakers and other stakeholders, and in written documents, including research reports. The communication efforts are focused on sharing ABCG findings with government officials (directly and indirectly) and shaping relevant public policies, national laws and practices, including the ongoing reform of the National Land Policy. Communication activities included:

- Conference - *Reducing Inequality in a Turbulent World: Scaling-up strategies to secure indigenous, community, and women's land rights*, Stockholm, Sweden, October 4-5, 2017 (<https://rightsandresources.org/en/event/scaling-up-strategies-secure-community-womens-land-rights/#.W89wiGhKiUk>).
- Conference - *Land Rights in the Era of Land Grabbing*, Program on Human Rights and the Global Economy (PHRGE), 12th annual Human Rights Institute at Northeastern University School of Law. New Haven, Connecticut, December 7-8, 2017 (<https://www.northeastern.edu/law/academics/institutes/phrge/events/institutes/institute2017.html>).
- Policy brief - *The Local Community Viewpoint Regarding the Review, Procedure, and Process of Writing the Tanzanian National Land Policy*, by Edward Lekaita, Ujamaa Community Resource Team, December 13, 2018 (http://www.abcg.org/document_details?document_id=894). Prepared when Lekaita was a visiting fellow at WRI under an ABCG Emerging Issue grant to TNC.
- Workshop – *Climate and Land Rights*, Climate Justice Resilience Fund of the New Venture Fund (NVF), February 5, 2018.
- Conference – *Land Governance in an Interconnected World*, World Bank, March 19-23, 2018
- Research Report - *The Scramble for Land Rights: Reducing Inequity between Communities and Companies* (<https://www.wri.org/publication/scramble-for-land-rights>), WRI Research Report, July 2018.
- Two workshops – *New York Declaration on Forests (NYDF) Goal 10 Assessment*, Climate Focus, Washington, DC, 16 February 2018 and New York, September 24-25, 2018.

TNC and JGI – Western Tanzania



Measuring and recording GPS points to delineate CCROs, Vikonge Village Tanzania. Photo credit. Fadhili Abdallah, JGI

A number of CCROs were issued by the Village Councils with support from the District Land Officer (with NLUPC approval of Village Land Use Plans (VLUPs)) in Lubalisi, Mgambazi and Rukoma Villages in Uvinza District and in Vikonge and Mnyamasi Villages. This activity aimed to create favorable conditions for recognition of community and customary rights over land and natural resources. CCROs help guarantee land ownership where every farmer/family can practice sustainable land use, a key factor in biodiversity conservation. CCROs can also help resolve community conflicts and encourage better land management through unification of village and community members.

More specifically, TNC achieved the following:

- Eight District Participatory Land Use Management team members (seven men, one woman) were successfully trained on participatory land-use planning and management.
- 358 community members in the three target villages (258 men, 100 women) were trained on the importance and process of land use planning and issuance of CCROs.
- Village boundaries between Lubalisi and Ikubulu, Lubalisi and Rukoma, were successfully surveyed, their boundaries identified and mapped in collaboration with local communities.
- Mgambazi and Rukoma VLUPs were successfully reviewed and approved by the District authority;

- Lubalisi VLUP was prepared, mapped, village bylaws formulated and translated into legal language, checked and authorized by the appointed Regional Survey of Uvinza District.
- Village boundary map for Lubalisi Village was successfully approved by the Director of Survey and Mapping, Ministry of Lands.
- VLUP reports for the three villages were approved by the NLUPC.
- 3,000 CCROs were prepared of which 2,926 have been verified with the help of Uvinza District land experts now pending printing, signing and disbursement under District leadership. Of these, 1,986 CCROs are in Rukoma (1012 men, 509 women, 465 families); 712 in Mgambazi (430 men, 206 women, 76 families); 189 in Lubalisi (130 men, 40 women, 19 families); 39 belong to institutions (churches, schools, dispensaries), and 74 are waiting for verification under the district leadership.

JGI achieved the following:

- 160 villagers in Vikonge were trained in the CCRO issuance process and have had CCROs prepared for their land of which 61 have been issued at the time of reporting. The remaining 100 CCROs will be formally handed over in 2019. As a result of the training and sensitization activities, a further 20 land holders have come forward to participate in the CCRO issuance process. These are beyond the scope of JGI to support under this project but is an indication of the demand and interest that has been created.
- Of the 60 CCROs issued in Vikonge, seven were issued to females and 53 to males. Farm size varied from one hectare to 34 hectares. The land area covered is 726.075 hectares.
- 182 individual and six groups have been trained and CCROs have been prepared in Mnyamasi. These require the final signature of the District Land Officer for approval. These had not been issued at the time of this reporting as the District Land Office did not have adequate supplies. JGI has facilitated the procurement and transport of this stationary from the Government Printers in Dar es Salaam and the CCROs will be issued in November 2018.

JGI also led and supported the research and publication of a report - [Making Community Forest Enterprises Deliver for Livelihoods and Conservation in Tanzania](#). The initiative was designed to build a stronger evidence base for community forest management in Tanzania, including, in particular, their impacts on forest conservation and their delivery of economic benefits at different levels. Developing such an analysis is particularly important at the present time, for two reasons:

1. In the context of global objectives around deforestation and forest conservation (e.g. United Nations Framework Convention on Climate Change ([UNFCCC](#)), the New York [Declaration on Forests](#)), it is imperative to examine effective strategies for forest conservation that integrate local livelihoods with forest conservation outcomes, and deliver results in terms of reduced deforestation.
2. Tanzania is presently considering a wide range of natural resource policy and legal reforms, including measures that could potentially roll back currently recognized community rights to forests and communal lands.

The findings from this report formed the basis of a one-day National workshop on August 31, 2018 and organized by the Community Forest Conservation Network of Tanzania (MJUMITA) under the theme “Creating an Enabling Environment for Community-Based Forest Enterprise in Village Land Forest Reserves in Tanzania”. The event formed part of the 18th annual forum for MJUMITA and was supported by a number of entities including the ABCG, ECOPRC, Tanzania Forest Conservation Group,

and WWF. The workshop was officiated by the Regional Commissioner for Morogoro, Hon Kebwe Steven Kebwe.

3.1.3 Success Story

Securing Intact Forests and Indigenous Livelihoods in DR Congo

(Based on a blog published on September 10, 2018 by the National Geographic Society: <https://blog.nationalgeographic.org/2018/09/10/securing-intact-forests-and-indigenous-livelihoods-in-dr-congo/>)

By Deo Kujirakwinja, WCS



Village view in the Kabobo Wildlife Reserve. Photo credit: Nyembo Paluku, WCS

In eastern Democratic Republic of Congo (DRC), the Batwa people have played a critical role in preserving the integrity of the intact forests of the Kabobo Massif, which is the source of fresh water and associated electrical power for hundreds of thousands of people.

In recent years, however, violent civil conflict has undermined the Batwa’s stewardship, leading to large-scale population movement and poor local governance. In response, local people— supported by the provincial government and the Wildlife Conservation Society (WCS)— have worked for a decade to re-establish local control of the area through the creation of protected area and community forestry concessions. Over the last three years, the Land and Resource Tenure Rights (LRTR) working group of the African Biodiversity Consultative Group (ABCG) contributed to this effort. LRTR develops and tests various strategies that place greater land and resource management authority in the hands of local resource users, thus creating incentives for them to exercise their power in ways that are consistent with biodiversity conservation and sustainable use of renewable resources.

“In the absence of clear rights to land and resources, local people saw creating a protected area as a way to block the appropriation of areas of intact forest ecosystems that are the basis of their quality of life, and provide critical services to neighboring populations.” Michael Painter, Senior Technical Advisor, WCS

Central Africa boasts the second largest expanse of tropical forest on the planet. The largest part of this vast forest, in the DRC, covers 160 million hectares, about 60 percent of which is ecologically intact. The DRC’s forests provide the primary source of food, shelter and income for some 40 million people.

Forest dwellers are a complex patchwork of ethnic groups — including both Bantu farmers and hunter-gatherers of the Efe and Mbuti groups, who share the forests with some of the world’s most iconic wildlife. Because about 80 percent of the DRC’s ecologically intact forests lie outside of formally designated protected areas, the participation of local people in developing and implementing approaches for conservation is essential.

However, the integrity of these forests is increasingly challenged by poor governance and the daily needs of a population still struggling to emerge from decades of civil war amidst continuing insecurity and armed conflict. Nowhere is this more apparent than in the vast lowland forests, montane rainforest, and savannah woodlands of the Kabobo Massif—a 100-kilometer mountain range at the eastern edge of the Congo Basin that is one of Africa’s most biodiverse places.

More than 300,000 people rely on these forest landscapes, which extend across four million hectares, for their future livelihoods and safety. They provide a critical source of freshwater around Lake Tanganyika and play a key role in sustaining the health of the lake’s fisheries. Nevertheless, the Kabobo region faces significant threats including mining, increased local charcoal and timber demands, a growing local population driven by migration from nearby conflict zones, and decreasing government oversight.

Illegal and illegitimate taking of land and natural resources has had an especially severe impact on the Batwa—indigenous forest hunters and foragers that number approximately 6,000 people. The Batwa account for about 20 percent of the population of the Kabobo Massif and are locally renowned for their ecological knowledge.

Their active stewardship of the forest has been an important factor in maintaining the integrity of the area’s natural ecosystems, but they are also especially vulnerable to land and resource grabbing because their way of life depends heavily on the direct use of natural resources. Despite their claims to the territories they historically and currently use, the state rarely, if ever, recognizes their legitimacy when more powerful interests seek out these areas.

To address the issue of poor governance, WCS supported a 10-year process led by the government to create the 150,000-hectare Kabobo Wildlife Reserve. Participating as an equal partner, the Batwa were empowered to protect the intact forest ecosystems on which they depend, help define reserve boundaries, and establish a structure governing use of resources. ABCG has played a critical role turning the results of this long consultative process into action, by supporting the drafting and review by local people and government agencies of the by-laws, regulations and agreements between political authorities that will constitute the formal framework for governance of the protected area going forward.

“By providing a mechanism that allows communities to secure clear rights to manage their forests, the new forestry law enhances the security of forest communities and helps ensure that they will continue to exercise stewardship over this important area. Taken together, the creation of the Kabobo Wildlife Reserve and the possibility of creating a network of community forest concessions, are an important opportunity for forest stewards to assume leadership roles in defining an approach to development that ensures that their livelihoods and identities and regionally significant ecosystem functions are secure.”
Michael Painter, Senior Technical Advisor, WCS

In 2016, the DRC passed a new forestry law that provides a legal framework for community tenure and management of forested lands, based on the creation of community forests.

Looking ahead, WCS and partners hope to replicate the successful participatory approach used to create the Kabobo Wildlife Reserve, and thereby extend community forest management across other important landscapes in DRC. And as other conservation organizations and funders have expressed interest to scale this work to other protected areas in DRC, ABCG can refocus its attention to other innovative conservation approaches.

3.1.4 Best Practices and Lessons Learned

WCS and WWF – Kabobo Wildlife Reserve, DRC

The cross-site exchange between community leaders and provincial governments, in Tanganyika and South Kivu, during the final Land and Resource Tenure Rights workshop was successful. This platform provided a rare opportunity for stakeholders to discuss mutual challenges in resource tenure and governance, and to learn about local opportunities and responses to those challenges. Opportunities for such exchanges should be increased, as this workshop was an effective platform for both community and government agents from across eastern DRC to come together and learn from each other. It is hoped that ABCG partners will incorporate such exchanges in their work across Africa.

Protected areas and land/resource tenure can work hand in hand. Within the DRC case, secured sustainable resource use is possible in reserves, and must be put into the management plans. Going further, co-management systems can allow for shared governance of certain resources. Although challenging to create, future protected areas are likely going to involve such a governance system

model. In the DRC, lands in protected areas are the property of the state and do not remain community land. This concept can be difficult to communicate effectively. To address this challenge WCS held additional meetings with the communities who originally wanted to turn their land into a protected area, and to promote a different form of tenure. Thus, community agricultural areas are removed from within the protected areas. WCS hopes to work with communities around the Kabobo Wildlife Reserve to help them create Community Forestry Concessions (CFCLs), which will provide them perpetual legal rights of above-ground natural resources.

Achieving good governance is a journey. This project has been able to support the LGC to ensure representation from various stakeholders, including the Batwa, an indigenous group, as well as women and Bantu communities. There is still a long process ahead to ensure that the Batwa and women have a strong voice and participate effectively. This has not yet been achieved and is part of future planning within WCS's larger Kabobo Wildlife Reserve Project. Linking to indigenous rights groups, such as Forest Peoples Program, has been particularly useful in helping WCS think through how to go about ensuring their participation. This capacity to integrate indigenous rights into land governance is a gap in African biodiversity conservation and should be considered as ABCG moves forward in future funding cycles.

AWF and WRI – Southern Tanzania

The Multi-Stakeholder Platform for Kilombero Landscape established under this ABCG initiative has proven an effective instrument to discuss and settle a range of land rights and land use issues with local and some national stakeholders. The Multi-Stakeholder Platform could be used by a range of stakeholders to discuss/communicate other issues, such as Group CCROs, during the land use planning of the villages where group CCROs could potentially be used to secure land for affected/vulnerable groups in the Kilombero landscape.

The Multi-Stakeholder Platform can also engage local organizations, such as the Ujamaa Community Resource Team, Tanzania Land Alliance, and Lawyers Environmental Action Team to ensure its work can contribute to the government efforts after the project period. Engaging local organizations, especially non-governmental groups, in ABCG's work can also help build local capacity to ensure the work is sustained and scaled across the country.

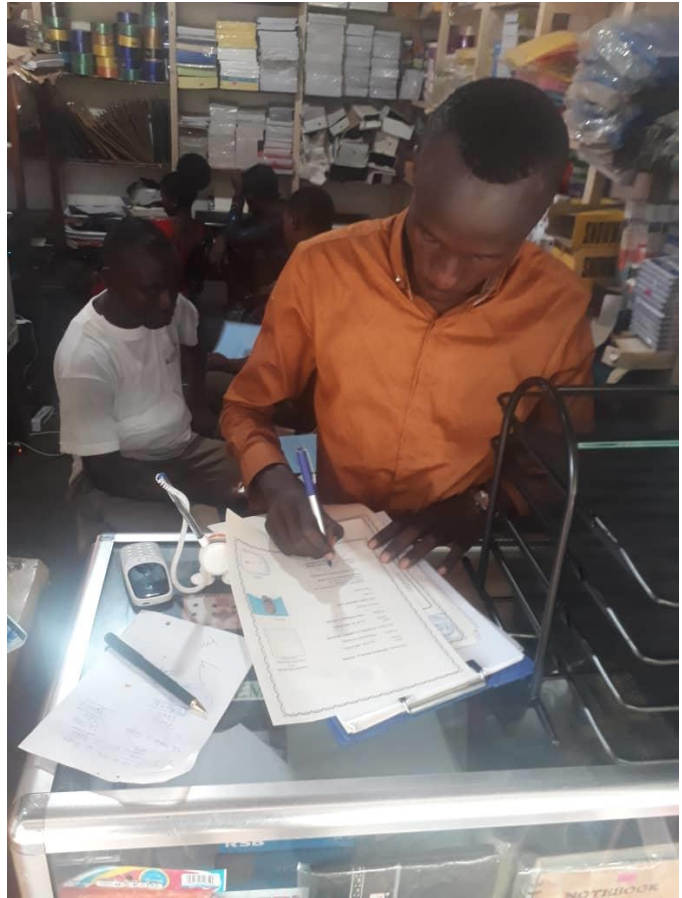
TNC and JGI – Western Tanzania

For TNC, building the district capacity to include eight district experts and collaboration with the Uvinza District authority throughout the assignment created a sustainable synergy between the ministry and the district. This practice may ease subsequent CCRO efforts as it allows the district to carry out much of the field work independently, requiring fewer NLUPC team members for follow up activities, including verification and later linking reports with the ministry for final review and approval. Such practice should reduce implementation time and costs and enable reaching more villages.

Improving opportunities for women in the CCRO process leads to more women involved in and engaging in conservation behaviors. From this task, over 755 out of 2,926 CCROs belong to women whereas 1,572 out of 2,926 CCROs belong to men. Also, respect to traditional/ cultural/indigenous knowledge about

village boundaries and ancestry best practices in land uses was a great tool for promoting the success of this work. Elders through various Village Land Use Management committees were engaged and their contribution to the work was valuable. Future recommendations include verifying community land uses and promoting CCROs for village forest reserves, fish breeding sites, agricultural and/or grazing land.

For JGI, the registration and use of GIS databases to manage CCRO issuance has had mixed results with responsible district staff. In some instances, it is seen as being more time consuming than the direct issuance of documents despite the fact that it has a number of advantages for the CCRO issuance and subsequent management of allocated land. This is partly due to the level of comfort with the use of the GIS systems for which further training is needed.



Issuing CCROs for Vikonge Village, Tanzania: Photo credit. Fadhili Abdallah, JGI

3.1.5 Challenges and Constraints

WCS and WWF – Kabobo Wildlife Reserve, DRC

The Kabobo Wildlife Reserve has seen further escalation of insecurity, to levels not seen for many years. This has included kidnapping of NGO staff, Batwa-Bantu-Banyamulenge killings, and the emptying of villages into temporary refugee camps. The result was that, for many months, access to these areas has not been possible, and that community engagement in resource management has not been a top priority of the average household.

The poor security situation was partially responsible for a gap in WCS' overall project funding for the Kabobo Wildlife Reserve, which led to a reduction in staff and WCS' inability to carry out co-funded projects to support community constituency building projects alongside governance building work through ABCG. Even given adequate funding, the security situation made it impossible to carry out the co-funded activities as planned. Coupled with a leadership gap between the time the project manager left for university (to finish his PhD) and a new project manager starting, this put the ABCG processes on hold. These, along with the insecurity, has delayed the project beyond FY 2018. WCS plans to finish the work in early FY 2019.

A final challenge has been the duplication of community governance structures by a USAID-funded food-aid project in 18 of the villages that surround the Kabobo Wildlife Reserve. Rather than using existing structures of Community Legal Centres or Community Conservation Committee (two levels of local conservation committees), the implementing partner chose to create new structures, despite calls to collaborate. This will likely create unwelcome power dynamics within the community and, rather than improved engagement in natural resource governance, will compete with efforts to improve forest governance and sustainable agriculture. WCS met in September 2018 with USAID-DRC to discuss the concerns and WCS will meet again with the implementing partner in October 2018 to discuss how to resolve this issue.

AWF and WRI – Southern Tanzania

The government of Tanzania together with its development partners – the Tanzania Land Tenure Support Programme launched in February 2016, with funding from the UK’s Department for International Development, DFID (United Kingdom), SIDA (Sweden) and DANIDA (Denmark) – are pressing ahead with the issuing of CCROs. The efforts are particularly concentrated in the Southern Agricultural Growth Corridor of Tanzania (SAGCOT). CCROs cannot be issued to farmers until the village has a CVL and a Land-Use Plan. The emphasis on CCROs has resulted in hastily developed Land-Use Plans which often are not in the long-term interest of the village or biodiversity conservation.

While some villagers in Tanzania have elected to split their village into two or more, often the government has pressed for such divisions. Commonly, there are surges in village divisions just prior to national elections, leading to new parliamentary constituencies in ruling party strongholds. When a village divides into two, both villages must again apply for a CVL and prepare a new Land-Use Plan. Such divisions result in more work and investment by the villagers, government, and development partner supporting the processes.

The organization/convening of the national dialogue on land titling, biodiversity conservation and community rights by the NLUPC and the reform of the National Land Policy are government-led efforts. As such, ABCG has limited control on the timing, completion and outcome of the efforts. Both the national dialogue and National Land Policy processes were expected to be completed in the last two years but have been delayed for various reasons. ABCG can contribute its work to the government decision makers and those who influence them.

TNC and JGI – Western Tanzania

For TNC, poor road infrastructure and access to the three villages (Lubalisi, Mgambazi and Rukoma) posed difficulties for travel and maintaining timelines. In particular, Lubalisi is not easily reachable by vehicle and thus the best way to work there was to hire motorbikes, which delayed work and led to unexpected costs. In the future, logistics and associated costs will be assessed and included.

As noted by AWF and WRI, splitting of villages, which in the TNC sites happened in 2015, required creating additional VLUPs. For example, Lubalisi was split into Lubalisi and Ikubulu, calling for village boundary verification, mapping and all the processes involved in the normal village land use planning. This delayed the CCRO process, affecting both TNC and JGI activities.

Further, the presence of immigrants from DRC, Burundi and Zambia posed some difficulties in verification of parcel ownership requiring the district to request immigration officers to assist the VLUM team, adding extra work and costs that were not anticipated during initial budget planning. To avoid this in the future, a reconnaissance study can be conducted to map logistics, budget costs and estimate work duration based on field and political conditions.

For JGI, there are increasing numbers of migratory livestock keepers who are not interested in CCROs or owning fixed plots of land. This is an important group as they graze their cattle inside protected forest reserves. There is a tension between historically present populations and more recent arrivals with competing land uses.

There were a number of villagers who remain concerned that engagement with more formal title issuance (even if still under customary law) is a prelude to them potentially losing their land. It is clear that further identification of this group and information and training sessions specifically targeted to them is needed to mitigate these concerns.

And as noted above, the resource capacity remains an issued for developed government in Tanzania. In addition to staff unavailability or over stretch, the absence of the relevant formal certificate stationary has led to delays in the issuance of CCROs in Mnyamasi village.

3.2 TASK ACTIVITY 2: LAND USE MANAGEMENT



JGI partners in a round table discussion to ensure best practices in the establishment of Community Forestry Concessions in Walikale Territory, North Kivu, DRC. Photo credit: JGI

3.2.1 Task Activity Description

Land-use planning has historically been utilized as a tool for achieving conservation outcomes in a reactive way. As problems arise, the conservation sector often initiates a new planning process to assess impact and identify solutions. This piecemeal approach to conservation planning is insufficient to address the complex realities and conservation challenges of today. This task group has found that every target landscape is being reshaped, not by a single driver, but by a suite of drivers including population growth, changing resource utilization patterns, economic development and climate change. Conservation planning frameworks need to recognize this reality and incorporate the current and forecasted future cumulative impact of these drivers of change to identify more robust conservation interventions.

This task group has developed a methodological approach to conservation and land use planning based on scenario analysis, and guidelines for its application, to incorporate equitable and climate-smart alternatives into land use decisions for conservation. The broad methodology was applied in four landscapes to replicate a landscape-level planning process with multi-sectoral stakeholders to better understand the drivers of landscape change: 1) Northern Republic of Congo (two northern provinces Sangha and Likouala) – WCS, WRI and JGI; 2) Eastern DRC (Maiko-Tayna-Kahuzi-Biega CARPE landscape) – JGI, WRI and WCS; 3) Western Tanzania – AWF, WRI, JGI, CI and WCS; and; 4) Madagascar (Corridor Ankeniheny Zahamena) – CI and WCS. A synthesis of the methodologies, lessons learned and recommendations from the four landscapes was presented at the [final workshop in Gabon](#), where a land use planning gap analysis, in support of on-going government-led national land use planning, was conducted.

3.2.2 Key Achievements

WCS, WRI, JGI – Republic of Congo

WCS and WRI worked in the northern landscape of Republic of Congo composed of Sangha and Likouala Departments. This region is rich in natural resources, forest, biodiversity, and carbon stocks. However, recent land use changes from different drivers are influencing the future of this landscape in negative ways. Hence, there is an urgent need for understanding future possible land use scenarios to inform decisions makers on how well this can be implemented in order to maximize the conservation of biodiversity in this landscape particularly around forest concession management.

The LUM working group has aimed to achieve this by: a) identifying, through stakeholder consultation, the dominant drivers of land use change in the northern landscape, and the ideal outcomes for spatial planning; b) consolidating the available data on forest cover, quality, ecosystem diversity and wildlife diversity and abundance; c) identifying the spatial overlaps between forest carbon stocks and forest biodiversity in order to optimize conservation strategies using prioritization; and d) discussing possible implementation mechanisms for the preservation of forest carbon and biodiversity under the [Emissions Reduction Programme](#).

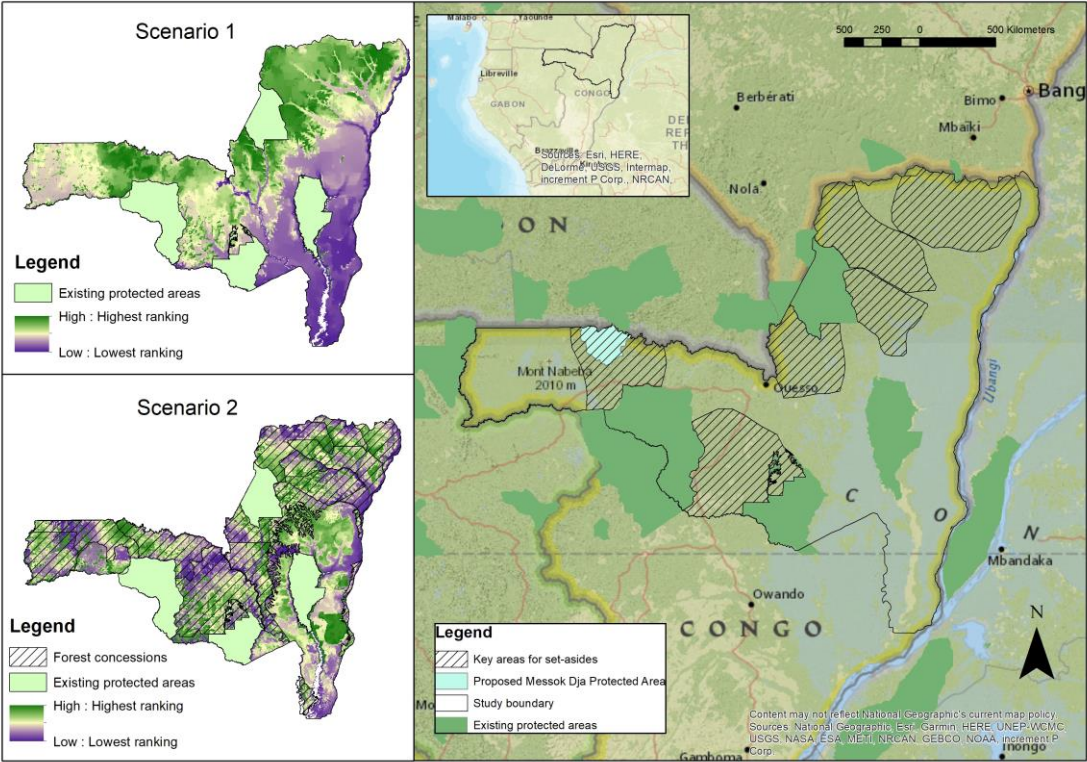
Landscape characterization and data consolidation were previously completed for the landscape in earlier stages of this project. Wildlife surveys throughout northern Congo were previously collected by WCS, WWF, and Africa Parks using a standardized methodology that has been employed across the

whole of central Africa since 2002. The density of key species was modelled by WCS to assess their overall status across the landscape. A new ecosystem type map based on the refinement of an existing map, which used a remote sensing methodology, was developed. A model of human access for hunting and logging activities, called the Human Pressure Index, was developed in collaboration with the Forest Stewardship Council. Also in collaboration with the Forest Stewardship Council, a map of forest habitat condition was produced by analysing the forest ecosystems map against above ground biomass map produced by the National Aeronautics and Space Administration, for the Emissions Reduction Programme and the human access layer. This product was combined with the human pressure index to produce an overall map of forest habitat condition. These raster data will be released by WCS once they are published.

Additionally, spatial prioritization using the decision-support tool, Zonation, was used to identify areas likely to have the highest combined value for biodiversity conservation and carbon (e.g., new protected areas, forestry set asides), so that conservation actions can be targeted to these areas. The prioritization analyses criteria included maximizing high species densities, high biomass, representation of the different forest ecosystems, and connectivity between highly-ranked areas and with existing protected areas where possible. The analysis also examined the impact of future development scenarios on biodiversity and carbon by considering alternative futures based on the expansion of logging activity across the region, and changes to the practice of forest management. The scenarios show that future land use management decisions that deliberately seek to conserve high biodiversity and high carbon forests by implementing set-asides in forestry concessions could retain more of the current biodiversity and forest carbon stocks. Under the business-as-usual scenario that allows logging across the entire landscape without set-asides, elephant densities fall by 6.3 percent, ungulate densities by 10.6 percent and forest biomass by 6.5 percent. When the best areas for carbon and biodiversity are excluded from logging, losses across the landscape are reduced to 4.6 percent, 7.6 percent and 5 percent, respectively.

The results of these analyses were shared with representatives from government, NGOs, local Civil Society Organizations, and other technical partners during a consultation workshop held in Brazzaville, Republic of Congo in November 2017. During the workshop, the methods and results of the scenarios developed were presented for feedback. Working groups then discussed differential impacts of representativeness, continuity, and other criteria for prioritization of additional conservation measures. The discussion included consideration of both regulatory measures and incentives, such as Reducing Emissions from Deforestation and Forest Degradation (REDD+) payments and other potential sources of compensation that could be employed to incentivize conservation measures. As a follow-up to the workshop, discussions have continued with the Ministry of Land Use Planning and Major Works on improving these scenarios for the project and input into the national land use planning process. The current results can be found in Figure 1. Scenario one identifies biodiversity and carbon priorities within the landscape. Scenario two also does this, but equally allocated priorities between the different management units (e.g., each forest concession). The final map on the right interprets the results into recommendations for set-asides and confirms the good placement of the proposed Messok Dja Protected Area.

Figure 1 | The results of the spatial prioritizations in Northern Republic of Congo



JGI, WRI, WCS – DRC

Building on previous years' achievements, JGI activities focused on providing trainings on land use management tools to more than 20 key government and NGO actors working in the corridor that divides Maiko and Kahuzi-Biega National Parks in the Maiko-Tayna, Kahuzi-Biega (CARPE Landscape 10). Actors included government agencies, local community associations and NGOs as well as community beneficiaries. These actors, many of whom participated in all three years of land use management training and activities under support of JGI brought high levels of knowledge on the drivers of resource exploitation and local-level management challenges to the training and activities. The result was increased capacity building of these Congolese institutions as well as increased adaptation of the tools in response to local-level needs.

The political context in eastern DRC is dynamic, and management landscapes are constantly reshaped by social, economic and political drivers of violent conflict at multiple scales. Despite the dominant negative narratives regarding violent conflict and ensuing unsustainable natural resource exploitation, since 2017, significant positive momentum has been generated at central and local level governments, and among community beneficiaries to advance applications for community forest concessions that respond to both conservation and sustainable development objectives. The new forestry law introduced by the DRC government in 2016 provides the legal basis for CFCLs and has resulted in a shift of focus in communities, and consequently for the local partners and ABCG members working in DRC. The collective focus on community forest concessions in eastern DRC does allow for land use management scenario analysis and creating replicable models, whereby the process for applying for a local

community managed forest concession is standardized and the approach by international ABCG partners accompanying local actors is harmonized.

As previously indicated, ABCG collaborators in DRC work across multiple scales. JGI works at the landscape level (across five provinces) strategically targeting high conservation value areas and supporting improved capacity of communities to manage their land and resources, which are currently under different management systems, in a sustainable way (this includes supporting social enterprise, strengthening community structures, networking marginalized stakeholders and taking advantage of the new decree enabling the creation of CFCLs, etc.). Over the past three years, JGI activities have demonstrated application of tools at multiple scales – from high level training to local application and scaling up from local application to territorial level land use management.

In ABCG year three, that began in October 1, 2017, JGI focused on two key activities that responded to the ABCG spatial prioritization objective by engaging government, NGO and community decision makers, and harmonizing knowledge of High Conservation Value zones across multiple systems of land use management that culminated in broad based support for the development of locally managed community forest concessions.

Activity 1 – Local Actors’ Roundtable

JGI partners Réseau pour la Conservation et la Réhabilitation des Ecosystèmes Forestiers and Forêt et Développement Intégral led a round table bringing together 73 participants (70 men, three women) over three days. The female participants represented two communities who have completed and submitted CFCL dossiers and one state service institution.

With the goal to ensure best practices in the establishment of CFCLs in Walikale Territory, North Kivu, this local actor-led round table of traditional, territorial and provincial level stakeholders achieved the following results:

- Increased support by authorities at three levels (local, territorial, provincial) for community forest concessions through raised awareness and increased understanding of the legal framework and their responsibilities;
- Community leaders and representative associations have increased technical and process support and sources of guidance to legalize their customary forests;
- Territorial stakeholders acknowledge the presence of the five CFCL dossiers approved in Walikale Territory and through social contracts, agree to use their roles to ensure single land title allocation for these areas; and
- Short, medium and long-term, territory-wide actions to support CFCL management are available for all actors as validated by authorities.

Activity 2 – Land Use Mapping

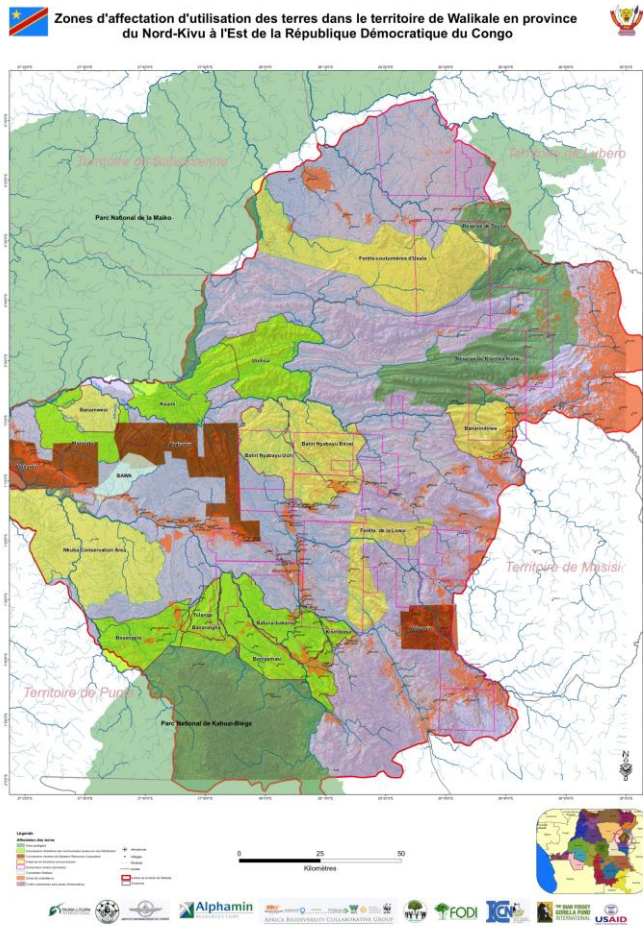
JGI designed a territorial-level land use and management system through the course of a three-day mapping workshop. Twenty participants, representing ABCG partners and other key local actors, engaged in two days of data collection and map-development. Forty-four additional (40 men, four women) stakeholders from the 15 administrative districts in Walikale Territory actively discussed and

validated the map over the final day of the workshop. The women participants represented influential local women's associations.

With the goal to demonstrate the importance of customary forests for sustainable development based on conservation management systems in Walikale Territory, the three-day workshop with 64 stakeholders from local, territorial and provincial levels achieved the desired results including:

- Promoted data-driven decision-making by producing a map that is a tool for understanding and building on the different land use and their associated management systems for sustainable development and conservation. Fifty copies of large format map have been distributed to government agencies, NGOs and local communities;
- Provided a forum to discuss human demographics and social, economic and political drivers of resource exploitation essential to understand pressures on land and trends in management. These drivers were categorized by their purposes, including agriculture, aquaculture, fishing, mining, nature conservation and sports and leisure, as well as under management systems including customary land, state land and public land;
- Demonstrated the importance of forests for sustainable development, demonstrated the results of diverse management systems by implicating all categories of actors; and
- Created a space for multi-sector government officials and local leaders to discuss land use management scenarios for Walikale territory.

Figure 2 | Zoning map of the region



Land Use Mapping workshop participants included representatives of the North Kivu Ministry of the Environment and the Geographical Institute of Congo who contributed to and validated the JGI produced map of current land use across Walikale Territory in North Kivu Province. The ICCN was represented by key Kahuzi-Biega and Maïko National Park staff. International NGOs represented included JGI, the Diane Fossey Gorilla Fund International, Fauna and Flora International and WCS. Additional participants included representatives of key local environmental organizations, women’s associations, local civil society organizations, private sector mining representatives and rural development officers.

Participants discussed the influence of social, economic and ecological elements on the land use categories and systems. The dominant influences in Walikale Territory were confirmed, and included the transformation of sacred spaces into spaces for revenue generation, lack of economic opportunity or market price stability due to isolation, interest in the creation of professional cooperatives and requirement to implicate the customary chiefs in all development initiatives.

Sustainability beyond the project activities was achieved by creating a territorial-level governance consultation framework linking the ICCN-managed National Parks to the community-managed customary forests (under different management systems) in the corridor between Maïko and Kahuzi-Biega National Parks. Known as the ‘Northern Corridor’ of the landscape, this zone has increasing support for testing alternative scenarios of land use management that can contribute to both the conservation of protected areas as well as protected species. Increased approbation of community forest concessions by both local and territorial level stakeholders not only reduces conflicts due to previous practices of double allocation on traditional lands, but also increases measures for sustainability by empowering community natural resource and land management.

AWF, WRI, JGI, CI, WCS – Tanzania

The Tanzania NLUPC, AWF, and WCS co-hosted a final workshop on, [Scenario Based Planning for a Sustainable Future in Southwestern Tanzania](#), on July 17-18, 2018, in Morogoro, Tanzania, which outlined a vision for more sustainable South-western Tanzania through using findings from the scenario-based modelling. The NLUPC subsequently invited ABCG partners to work with them to incorporate recommendations from the scenario analyses to guide land use planning especially at the village scale.

Collaboration could involve: a) Technical support to help NLUPC streamline uptake of case study findings at district to village scales; b) Effort to address NLUPC technical capacity constraints in plan development and implementation; and c) Creation of a data management system to house data and scenario outputs. The system would enable NLUPC and other planning agencies to apply findings more effectively. The workshop featured 27 participants from 23 organizations, including government, development and conservation organizations. AWF presented the scenario analyses to guide land use planning in the region.

Scenarios suggested the possibility of increasing agricultural investment to meet major development corridor objectives in a way that reduces conflict with biodiversity while ensuring increased economic yields. This represents an encouraging precedent for the many major development corridors in Africa in process and, especially if realized, underscores the value of scenario-based land use planning for sustainable growth.

CI, WCS – Madagascar

The project’s key achievements are the following:

- Development of at least five impact scenarios and four alternative scenarios (other scenarios are not considered as the data are not relevant): The exceptional interest of stakeholders resulted in the development of a high number of scenarios. This translates their important level of interest, as well as the diversity and richness of the options that were debated during the various meetings.



Engaged stakeholders in Moramanga during a workshop on future land use. Photo credit: Bruno Rajaspera, CI

Figure 3 | Scenarios explored within the project

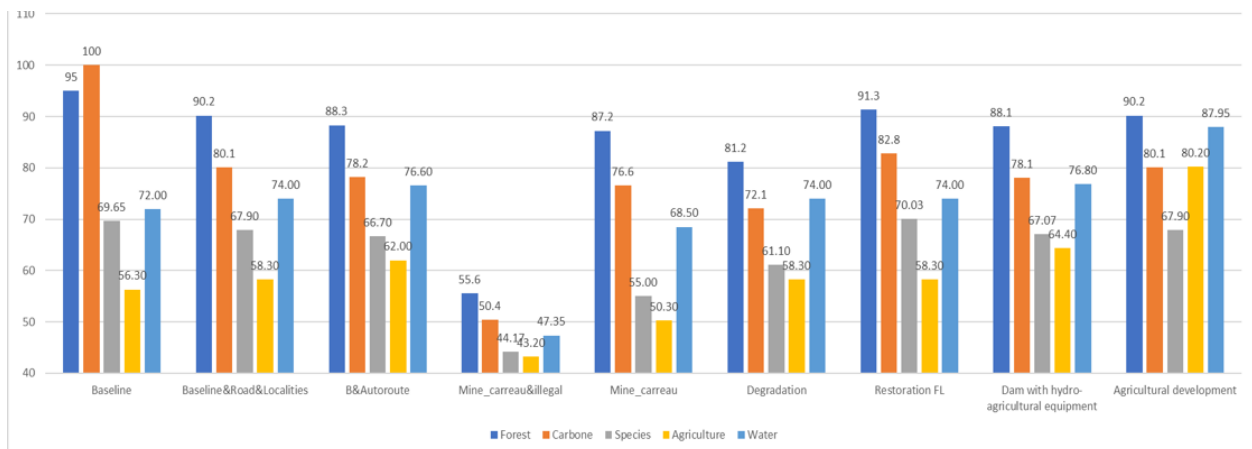
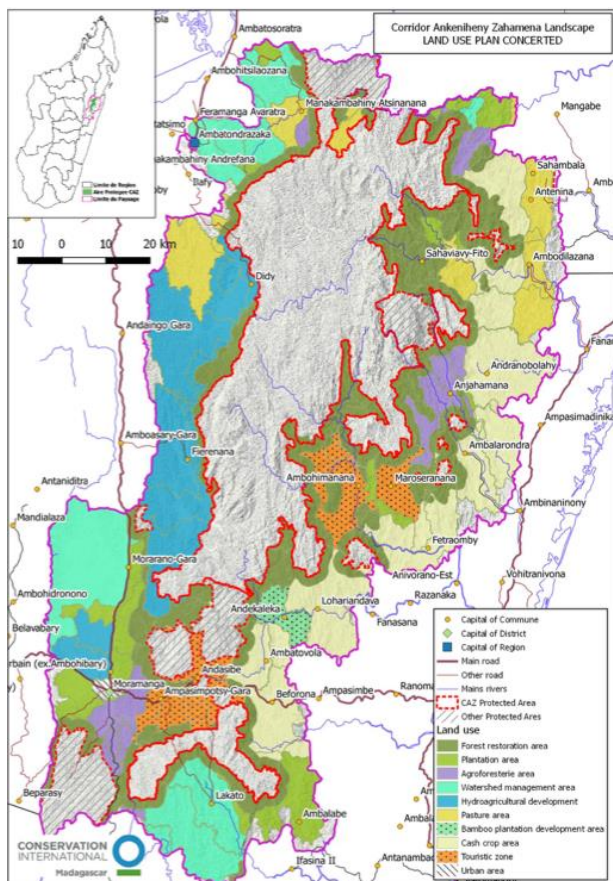


Figure 4 | Spatial plan produced through this project



- Development of a concerted spatial land use: The land use scenarios produced by CI and WCS were the results of long, concerted discussions between conservation and development organizations from several sectors. The spatial plan can be found in Figure 4 below.
- Stakeholders and technicians trained in GIS and Zonation software: To ensure the ownership of the tools and for a better understanding of the concerted spatial planning process, technicians from the stakeholders have benefited from two trainings on GIS and Zonation. Twice, two Regional Directors sent requests for training and follow-up on the use of the Zonation software. These requests demonstrate their interest in using the tools.

Development of a user manual for Zonation: Attempting to master the use of the Zonation software is a big challenge and the challenge is even more for French speaking countries like Madagascar since the software and the developed software materials are in English. Therefore, CI and WCS developed a [Zonation manual](#), in French,

which incorporated feedback received during previous workshops. The latest version of the software, following the request of the WWF/DRC, was shared during the Libreville workshop in September 2017.

TNC, WWF – Gabon

- TNC completed a gap analysis of Gabon’s National Land Use Planning process (PNAT from the French acronym) and has drafted a technical report that details the PNAT approach and provides recommendations based on TNC’s experience with land use planning (called “Development by Design” or “Smart Growth”) on how Gabon can enhance their planning process. TNC has shared the report and recommendations with the Gabonese government and, as a member of the technical committee developing the PNAT (called CNAT), TNC is helping implement some of the recommendations both in terms of providing data and methods.
- In December 2017, TNC signed an MOU with the National Climate Council, the entity responsible for overseeing the development of the PNAT, to collaborate and provide technical assistance to the government for that process. A joint workplan for its implementation has been developed.
- TNC and WWF co-organized a final stakeholder workshop, held September 4-6, 2018 in Libreville, Gabon, to provide an opportunity to: 1) Discuss the achievements of the group collectively; 2) Identify lessons learned on land use planning efforts in Gabon and other ABCG landscapes; 3) Enrich regional dialogue; and 4) Build further support of land use planning in

Gabon by key stakeholders. As part of this workshop, TNC and WWF organized a field-visit to the Awala Olam Palm Oil Plantation to see first-hand land-use planning at the production lot scale.

3.2.3 Success Story

Multi-Sector Engagement on Land Use Planning Contributes to Preserving Madagascar's Rich Biodiversity

The island of Madagascar contains rich biodiversity, most notably lemurs and tropical forests. At the same time, 75 percent of the country's 26 million people survive on less than a dollar per day. Pressures on this critical biodiversity include increasing population growth, unsustainable resource utilization patterns, slash-and-burn agriculture, illegal and unregulated mining and extraction, and climate change.

To address these threats, CI Madagascar and the WCS staff, through ABCG's LUM task group, worked closely with senior leaders in the eastern biodiversity corridor known as Corridor Ankeniheny Zahamena (CAZ) to develop plans to protect critical land, forest and water ecosystems. The highest level of authorities in both the Alaotra Mangoro and Atsinanana Regions in eastern Madagascar, including the Prefect of Region, Chief of Region and the Head of District, committed themselves to the land use planning activity for conservation in an unprecedented collaboration.

The land use planning approach involved more than 15 representatives from the Malagasy government and technical specialists who collected data on the state of biodiversity and ecosystem services such as water and soil, the human well-being benefits of nature such as food and livelihoods, and ongoing development programs. In addition, the team developed scenarios to incorporate equitable and climate-smart alternatives to land use decisions for conservation. Using the results of the scenario analysis, CI Madagascar engaged the Government in plans for proper siting of a new proposed expansion of a highway through CAZ, from the capital city to the eastern port of Toamasina, in order to reduce the negative impacts on biodiversity from the proposed highway. The Government of Madagascar thanked CI Madagascar and ABCG for the thorough assessment and the recommendations of alternative development options.

Bruno Rajaspera, CI Madagascar Director for Field Projects, noted that the ABCG project was able to facilitate a multi-sector engagement, which has not been observed in the past 19 years and led to developing decisions that would influence future land use in this region and other parts of Madagascar. All sectorial ministries that deal with land use were involved in the land use development process, including: Agriculture, Mining, Environment, Forest, Infrastructure, Economy, Land Use Planning, Tourism and Decentralization. The ownership of this process within the Decentralization Ministry is certainly the most critical since it ensures the lead and coordination of land use planning in Madagascar.

In the two years (2016-2018) of on-the-ground consultations and scenario planning, CI and WCS facilitated learning and exchange of knowledge on land use planning between more than 15 Malagasy senior level representatives from the diverse sectors and other peers in the sector. This mutual increase in knowledge resulted in a better understanding of biodiversity, ecosystem services and their role in supporting sustainable development. This has strengthened the ties between the sectoral plans and improved the environmental sustainability of the multisectoral land use plans. In August 2018, these

champions from the CAZ landscape recommended the replication and scaling up of this land use planning approach for the entire country of Madagascar.

3.2.4 Best Practices and Lessons Learned

WCS, WRI, JGI – Republic of Congo

The analyses carried out in the Republic of Congo demonstrated the importance of carrying out policy-relevant studies that can simultaneously generate new information for field level management and inform ongoing national processes. Key datasets generated by this project include the modelling of the distribution and density of certain species of conservation importance across the landscape and the creation of an updated map of forest habitats for planning purposes at the jurisdictional scale. Building on different institutional strengths of the actors involved, the work can be used to inform management within conservation areas of Sangha and Likouala, and also provide inputs into the jurisdictional REDD+ program and national land use planning reform.

JGI, WRI, WCS – DRC

JGI activities reinforced and created best practices in three areas:

1. **Strengthening African Institutions:** As a member of the ABCG consortium, JGI invests in building capacity of Congolese institutions through pilot projects and dissemination of knowledge and tools.
2. **Free Prior Informed Consent (CFL):** The CFCL process, as formalized by the government of Congo, has returned the principle of ‘free, prior, informed consent’ to the front of community conservation supported by ABCG members and other International NGOs in the landscape.
3. **Supporting National Strategies:** ABCG members and local partners working with forest communities in DRC have supported the development of the National Strategy for Community Forestry.

The result is recognition of the need for a new integrated model that harmonizes thematic approaches amongst stakeholders across a geographical space (breaking free from actor-specific zoning). The members acknowledge that producing this tool is an important step to justify integration of conservation land uses into broad land use planning. The community forest concession decree and momentum at both high and local levels that CFCLs are a ‘solution’ to double land use allocations affecting customary forests, provided an opportunity to look at land uses and management systems across scales, integrating all types of stakeholders. The success of FY 2018 activities is based on consistent participation of ABCG members and local partners from the ‘Northern Corridor’ zone of the landscape across three years of activities. The tools in land use management were trained from the ‘top-down’ with the applications and most significant results coming from the ‘bottom-up’.

Possible Next Steps Based on Lessons Learned:

JGI, as coordinator of the consortium implementing the Conservation Action Plan for Grauer’s gorillas and chimpanzees in Eastern DRC, has initiated a discussion with implementing partners, including ABCG members, on the role of conservation actors in addressing broad land issues. The French terms ‘terrain’,

'terre' and 'territoire' have consequences on the conception of activities: actors perceive that addressing 'terrain' or 'terre' is achievable and appropriate for conservation actors, whereby addressing 'territoire' is the realm of the government. The LUM task group should, however, consider how activities can reach or have impacts at this scale through collaboration.

Based on the success of the territory mapping exercise, The Ministry of the Environment and Sustainable Development and the Congolese Geographic Institute have requested additional collaboration with the Jane Goodall Institute and partners to map other territories in order to have the visual tool to guide land use planning.

AWF, WRI, JGI, CI, WCS – Tanzania

- Stakeholders need to understand the process relevant to the planning objectives. It is important to ensure that stakeholders have a strong grasp of scenarios, input data, and assumptions. Without those, they cannot contribute well-informed and reasoned recommendations.
- Strive for inclusive land use planning. Wide and engaged stakeholder involvement in the land use planning process is essential to promote a more open and transparent process and to obtaining the necessary input for representative objectives and sound evaluation of findings.
- Consider scale in the site design stage. This planning process involved 233,285 km², more than a quarter of the country and the largest study area of the four LUM sites. A large planning area can potentially have more impact by having its findings engage more people and places. The cost of having a large region of interest, however, is to lose cohesiveness evident in smaller landscapes and to present challenges in data collection. Smaller landscapes are more likely to have stakeholders with common experiences (e.g., an integrated economy, dependencies on shared resources such as forests or water sources) and challenges (e.g., lack of access to market). Therefore, the issues they would like to see addressed by planning objectives and scenarios are apt to be more aligned than say fisher folk along Lake Tanganyika and farmers near Iringa. The vast scale, along with the long period and subsequent loss of momentum between the workshops, perhaps diminished attendee overlap between workshops. Data limitations increase with scale, as it is hard to produce or secure comprehensive, consistent datasets (e.g., wildlife surveys) at regional scale. All that said, given the plethora of major development corridors in development or planned across Africa, the development of effective land use planning approaches at scale is crucial. In development of these approaches we should be clear-eyed about understanding the trade-offs inherent to scale.
- This process was operating at an effective scale to contribute to climate smart landscapes. This landscape to regional approach is essential to finding common solutions across the core sectors of agriculture, forestry, energy and water, supporting food and nutrition security, ecosystem conservation and poverty reduction. This area is ripe for additional investment of effort/resources.

The use of maps helps to visualize what the different scenarios would look like on the ground and what is driving changes in evaluation metrics.

CI, WCS – Madagascar

Stakeholder Engagement

- Select the relevant stakeholders. It is recommended to select decision-makers and technicians in sectors that directly or indirectly affect or are affected by land use change. For instance, sectors that directly affect land use include, but are not limited to the following: agriculture, mining, forestry, infrastructure, and land use planning among others.
- Involve stakeholders from the very beginning and throughout the entire process of developing land use scenarios. This progressively increases their knowledge of the project and, above all, makes them proud of something they created and decided, hence naturally promoting their ownership of the project. Several projects struggle to get this ownership as officials often think they are sort being forced to get into the project, thus resulting in superficial participation without any ownership at all.

Responsiveness to Country Needs

- For a project to be successful, it is highly recommended that it respond to country needs and priorities. The project meets this criterion in three areas. One is the AFR 100 for which Madagascar committed to restore four million hectares of forest. The potential restoration area needs to be identified and selected on a certain number of criteria which can pose as a challenge. The project's approach with the Zonation tool is able to overcome this challenge (Restauration des Paysages Forestiers Evaluation des potentialités dans le contexte des engagements de Bonn 2.0 et de la Déclaration de New York sur les forêts. Méthodologie et résultats pour Madagascar, 2016)
- The Alaotra-Mangoro and Atsinanana Regions (respectively led by each Chief of Region) currently feel the need to update its land use planning documents (e.g., SRAT, SAC and SIAT) and develop new ones for geographic locations that have not had them yet. Whether updating existing documents or developing new ones, inclusion and collaboration are required for these documents to be as precise and reliable as possible, thus having the ownership of all of the sectorial ministries that are part of the decision-makers in such a process is important. These constitute an entry point for this approach to be replicated in other areas.
- The Zonation tool provides the easiest way to identify the best location of infrastructure and the best conservation/development ratio. Madagascar also envisages building a highway to connect its main port, Toamasina – currently being enlarged – to the capital. There is no official disclosure yet about the highway route. ABCG simulated some route options for this highway and looked at their potential impacts on biodiversity and ecosystem services. This triggered the creativity of the project participants as some found the potential use of Zonation for project social impact assessment. Hopefully, the reflection on the highway will be positively considered by the ministry in charge of road infrastructure. CI volunteered to provide any assistance regarding this issue, whether now or in the future.

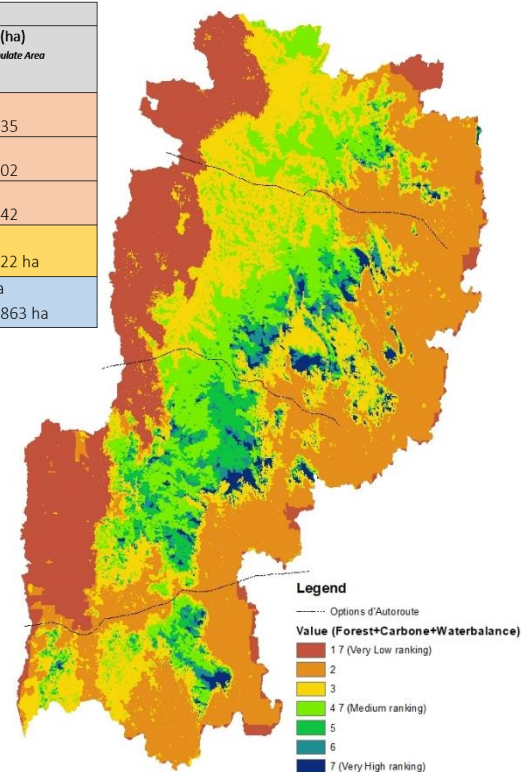
TNC, WWF – Gabon

The ambitious PNAT plan and associated sustainable development policies provide a roadmap for all relevant stakeholders to protect the environment while supporting sustainable development. As an essential first step to promoting sustainable development, TNC reviewed available documents related to PNAT, interacted with PNAT’s technical team members, and reviewed currently available information related to Gabon’s natural resources and economic development. Next, TNC’s Development by Design approach was used to identify ways to ensure PNAT will be successful in reaching its goal towards sustainable development. Throughout this process and experience the following lessons were learned:

- The Gabonese government is acting very proactive in the PNAT land use planning process. Upon reviewing the first phase of PNAT the leaders have become aware of:
 - Extensive resources are required to compile and build a well-organized geodatabase from a wide array of government agencies;
 - Importance in maintaining the geodatabase with detailed and accessible meta data;
 - Communicating uncertainties in spatial dataset is essential to secure trust and engagement from all stakeholders; and
 - Creating a mechanism that enables an analyst to easily update spatial information.
- As PNAT begins developing its roadmap and protocols, officials are open to expanding the process to include guidelines that assess the collective, indirect and cumulative impacts of planned and ongoing projects. In doing so, the PNAT process will enable Gabon to move away from decisions made site-by-site, well-by-well, or mine-by-mine to a holistic landscape scale. This allows for better coordination among regulators and the ability to examine indirect and cumulative impacts.
- This ABCG project has enabled TNC and WWF to build stronger relationship with key PNAT personnel. Specifically, a closer working relation with the CNAT technical team leader was established. Furthermore, TNC has also secured a seat at the table by being a member of the technical committee developing the PNAT.

Figure 5 | Road options choice according to prioritization map

	IMPACT				
	Forest (ha) <i>Spatial analysis tools>Zonal-Tabulate Area</i>	Protected forest (ha) <i>Spatial analysis tools>Zonal-Tabulate Area</i>	Carbon stock (sum) <i>Spatial analysis tools>Zonal-zonal stat as table</i>	Water yield (sum) <i>Spatial analysis tools>Zonal-zonal stat as table</i>	High priority ranked (ha) <i>Spatial analysis tools>Zonal-Tabulate Area</i>
Road option1	3245	319	1,350,193	7,033,798	Top 25% : 599 Bottom 75% : 35,635
Road option 2	1354	5457	1,207,763	10,164,916	Top 25% : 5,831 Bottom 75% : 25,902
Road option 3	<u>9321</u>	<u>7281</u>	<u>2,859,077</u>	<u>30,416,778</u>	Top 25% : <u>13,239</u> Bottom 75% : 20,342
Mines (permis d'exploitation)	12,877	0	1,716,540	20,041,719	Top 25% : 2903 ha Bottom 75 % : 37322 ha
Localités (buffer 1km)	6.9	6,652	1,966,660	32,466,512	Top 25% : 8,386 ha Bottom 75% : 280,863 ha



- The PNAT team was very receptive to the ecological spatial data (e.g., freshwater ecosystems, ecosystem services) that TNC has developed to help inform complex land-use planning decisions. Furthermore, they appreciate the effort TNC has devoted to making the information accessible to key stakeholders in multiple formats (e.g., on-line atlas and paper maps).
- Now that the Gabonese government has developed a strong foundation for the PNAT process, they are very interested in learning more about the detailed technical information to implement sustainable development. The ABCG project has allowed TNC to start a dialogue regarding detailed next steps needed for PNAT to reach its full potential.

3.2.5 Challenges and Constraints

WCS, WRI, JGI – Republic of Congo

An ongoing challenge inherent to spatial planning exercises in countries, such as ROC is low institutional capacity when it comes to generating analyses or drawing policy-relevant insights from information presented. This challenge was evident during the November 2017 stakeholder workshop. While some actors around the table provided useful inputs into data gaps, working groups designed to be a thought-provoking exercise in priority-setting indicated that many decision-makers are not accustomed to defining decision-making criteria or drawing conclusions from spatially explicit analysis. This knowledge

gap will need to be reduced in order to move results of the study from information-sharing to actionable recommendations.

JGI, WRI, WCS – DRC

Gender Responsive Programming. Women participants are not easily found amongst the agencies and structures that constitute the participants invited to both activities. The Jane Goodall Institute is aware of the need to create opportunities for women participants, including addressing the underlying systematic weaknesses that typically result in poor representation. Our local partners have received gender sensitivity training, but were unable to address the need for participation in these events (recognizing that participation is a simple first step to gender-responsive programming). JGI has launched a new Program Design, Implementation and Learning standard that will help to ensure that each activity is planned according to certain standards and this will create a step for reflection on gender sensitivity and gender responsible programming. As coordinators of the Conservation Action Plan for Grauer’s gorillas and chimpanzees in Eastern DRC, JGI will also create opportunities for gender sensitivity and gender responsive programming training for all the implementing partners.

Land Access and Rights in DRC. In addition to the double land allocation dilemma in DRC, whereby customary and modern land allocations are not equally respected resulting in significant conflicts (often escalating from local to regional violent conflict) due to double allocations, the DRC land code also stipulates that the soil, and below, is the exclusive, inalienable and imprescriptible property of the State.

Logistical Constraints and Relationships with Local Partners. Work in Walikale Territory for JGI, other ABCG members and local partners has become increasingly difficult due to logistical constraints isolating actors in Walikale and making travel to Walikale difficult. The road from Goma to Walikale Centre is accessible only by motorcycle; only local actors from Walikale Territory continue to travel by road. The trip costs \$100 one-way, takes ~15 hours and passes through zones of significant insecurity and criminal activities. The United Nations Humanitarian Air Service (UNHAS) formerly operated a cargo helicopter from Goma to various stops in the territories of Rutshuru, Masisi and Walikale with seats available to International and national NGO partners. Due to the low level of demand, they have suspended the service. While the European Civil Protection and Humanitarian Aid Operations (ECHO) have taken up the service temporarily, they have announced its imminent closure. NGO actors are therefore left only with commercial flights from Goma to Kisangani. They then travel by road from Kisangani to Walikale-Centre, a trip of nine hours. This route is a significant increase in the cost per mission from the previous humanitarian services. Given the high cost required to reach the region, international actors may rely on local actors more, which itself could result in local actors engaging increasingly in risky travel movements in order to fulfill sub-award activities. JGI is mindful of the power dynamic between international and national organizations in Eastern DRC.

AWF, WRI, JGI, CI, WCS – Tanzania

- *Workshop timing.* The 15-month timespan between workshops contributed to a loss of momentum. There was little overlap in attendees, so objectives set by in initial workshop may not have represented priorities of second workshop. Consequently, significant repetition related to framework orientation was required at the expense of time examining the scenarios. Having three co-hosts complicated securing dates that worked for all parties.

- Tanzania needs a mechanism for implementing, monitoring and evaluating land use plans as recommended in the guidelines. VLUPs commonly do not reach the implementation stage. There is a need to complete the process (through stages 5 and 6) to implementation of village land administration and village land use management.
- Beyond the planning phase, the absence of budget for land use planning in Local Government Authorities (district councils) is an obstacle towards plan establishment, implementation, and monitoring.
- Securing data access even among some of the member organizations was a challenge. In some cases, the project team could not use the best available data.

CI, WCS – Madagascar

- Access to data posed some problems, because: 1) Data were not available/do not exist at all; 2) Format is not readily usable but had to be transformed; or 3) Data are real and recent, but are not officially validated.
- It was difficult to have a meeting with all stakeholders at once due to their availability.
- The use of the Zonation software requires some preliminary knowledge of GIS, as well as adequate equipment. So, the number of participants in the zonation analysis was limited to GIS technicians and those who have enough GIS knowledge.
- Omission of the ministry in charge of population: Immigration to naturally rich area increased the demographic pressure there and often resulted in degradation, or loss of biodiversity and ecosystem services. Inclusion of this ministry was only raised during the last meetings.

TNC, WWF – Gabon

As with most planning processes, implementing sustainable land use planning is difficult with limited resources and scientific information. To date, guidance on implementing sustainable land use actions in Gabon are through Environmental Impact Assessments (EIAs) that employ the mitigation hierarchy – avoid, minimize, restore, and offset at the project level. While EIAs were initially designed to facilitate the move towards sustainable development, alone they have proven inadequate to meet the government of Gabon’s aspiring development goals. For instance, most EIAs focus only on the extent of the project and fail to consider: a) ecological impacts beyond the site; b) Cumulative impacts from multiple projects; and c) How these impacts interact in the landscape. EIAs also tend to be applied once a project is underway and are, consequently, often reactive. This late response eliminates mitigation options, such as project redesign or relocation that could substantially improve project outcomes. EIA’s limited spatial and temporal scope makes it difficult to strive for no net loss of ecosystems. Therefore, the largest challenge with PNAT will be transforming their policy and implementation of land use planning beyond the EIA process.

3.3 TASK ACTIVITY 3: GLOBAL CHANGE IMPACTS

3.3.1 Task Activity Description

Climate change directly impacts ecosystems. These linkages have been well-studied and documented. However, the effects of climate change may also indirectly impact biodiversity through human activity in response to changes in climate and weather. A major oversight of most climate impact assessments in Sub-Saharan Africa to date has been the inadequate consideration of the indirect impacts on biodiversity due to human adaptation responses to climate change.

For example, farmers in Madagascar are responding to perceived changes in rainfall by increasing hunting activity. In Namibia, farmers are expanding their cropland to cope with decreased yields. This working group documented various types of adaptation responses in 10 African countries, and the impacts of these responses on biodiversity. ABCG identified and mapped responses to observed and projected changes in climate to provide guidance regarding adaptation strategies that are most likely to be successful for people without negatively impacting biodiversity conservation efforts. Understanding the indirect impacts on biodiversity is extremely important for both adaptation and conservation planning. The results presented in this report can inform governments, NGO's and the communities themselves on appropriate responses to not only benefit local communities, but also the biodiversity around them.



Construction of wells and water tanks help communities maintain water supplies in times of drought, Kenya. Photo credit: Nikhil Advani, WWF

3.3.2 Key Achievements

WWF – Literature Review

WWF finalized the literature review to extract data on how coping responses to changes in weather and climate are impacting biodiversity. Such an analysis has not been done before, and very few papers exist on this specific topic. As a result, a wide net was cast to capture literature that may contain this information. The review included countries’ National Adaptation Programs of Action (NAPAs), Intended Nationally Determined Contributions (INDCs), as well as a review of peer-reviewed literature.

WWF held a meeting in October 2016 where input to the literature review methodology was provided. Organizations in attendance included WWF, International Union for the Conservation of Nature (IUCN), the United Nations Environment Program-World Conservation Monitoring Centre, Birdlife International, Institute of Development Studies, Fauna and Flora International, Oxfam, TRAFFIC, CARE, and Leeds University. The data summarized in Figures 6 and 7 come from 50 countries in Africa, including 14 INDC’s, 35 NAPAs, and 129 peer-reviewed papers. The complete literature review, [Human Responses to Climate Change Literature Review](#), is published at [abcg.org](#)

Drought was by far the most frequently mentioned climate change-related hazard, prompting changes in crop practices (e.g., crop switching, increased use of fertilizer/pesticides, farm contouring) as the primary coping response. Only 22 out of 178 sources explicitly made mention of the impacts of human responses to climate impacts on ecosystems, yet 66 sources contained responses that were noted by literature reviewers as having potential effects on ecosystems including conversion of forest to farmland, increased use of natural resources, and encroachment into parks/natural habitat.

Figure 6 | Summary of climate change hazards from literature review

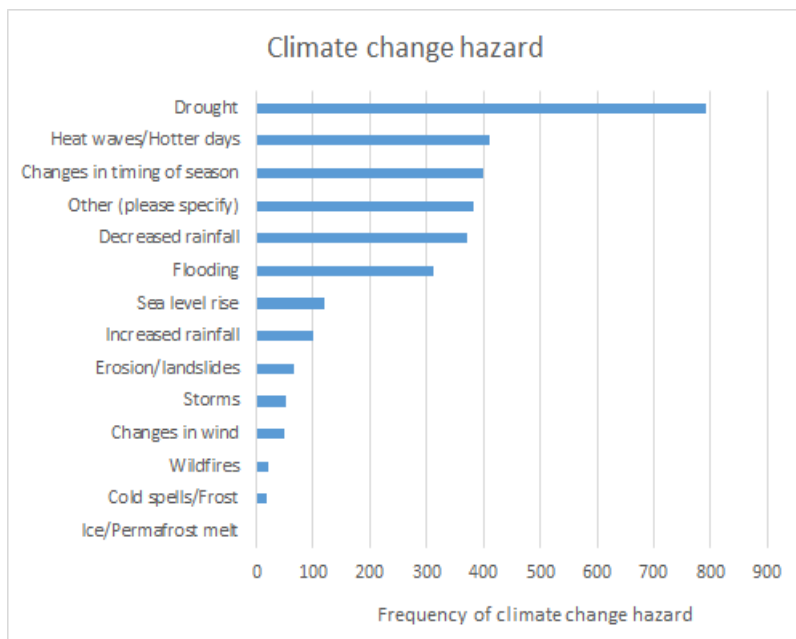
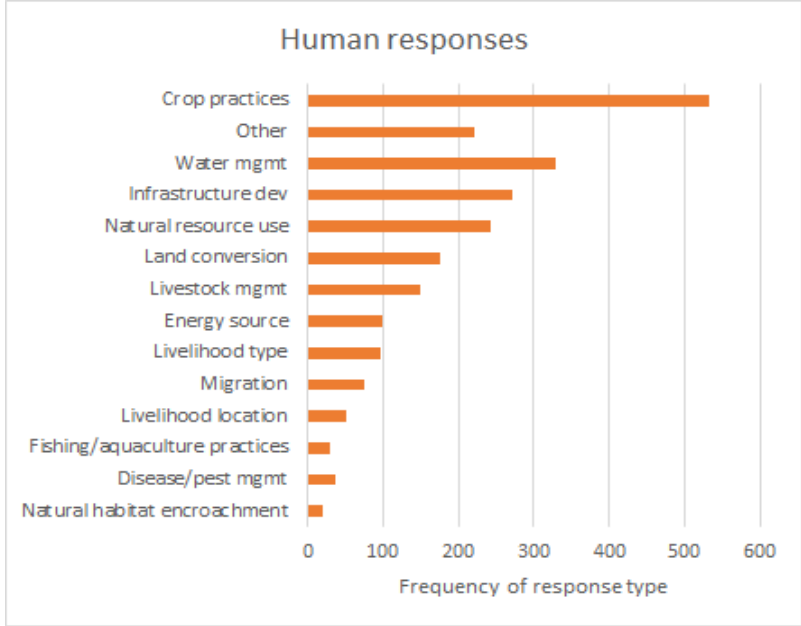


Figure 7 | Summary of human responses to climate change hazards or related impacts from literature review



CI - Typology on Human Responses to Climate Change and Potential Impacts on Biodiversity

The working group conducted 652 surveys, analyzed the adaptation responses taken by communities, conducted analysis on observed trends in climate and modelled future crop suitability. From the 652 surveys analyzed, we identified 2,943 responses to the negative impacts of climate, mainly on water for human consumption, livestock production, crop production and fish availability. Responses were categorized into 46 types, (see Appendix 4.3. Table 8) of those responses, 35 percent have a negative impact on biodiversity, 26 percent are context dependent, 25 percent have neither a clear positive or negative impact on biodiversity, and only 12 percent have a positive impact on biodiversity. This is the first time to the working group’s knowledge that this information has been collected and synthesized across sub-Saharan Africa. Table 8 shows the most common types of responses per country, as well as their potential impacts on biodiversity. Madagascar, Gabon, Cameroon, Uganda and Tanzania have a high percentage of responses with a potential negative impact on biodiversity.

Most farmers and fishermen that were surveyed in sub-Saharan Africa are responding in ways that may not be sustainable in the long-term and may have negative impacts on biodiversity. As those communities often rely on ecosystem services and associated biodiversity for their well-being, there is a need to promote alternative responses that may increase the resilience of communities and minimize the negative impacts on biodiversity. Through a workshop conducted in Nairobi, Kenya on August 14-16, 2018, participants identified some of those alternative responses and some of the benefits provided for communities and biodiversity (see Appendix 4.4. Table 9).

TNC– Historical Changes in Climate and Weather in Sub-Saharan Africa

To identify the observed changes in temperature, rainfall and droughts in the countries where surveys were conducted, TNC performed a 10-year historical climate analysis for the 19 generalized clusters

comprising the survey locations. Daily temperature and rainfall observations between the years 1997 and 2017, and drought measurements between the years 2004 and 2014 from the National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Prediction Center (CPC) interpolated gridded climate surface for sub-Saharan Africa provided the inputs. The climate surface was produced from the World Meteorological Organization's Global Telecommunication System (GTS) that collects and archives data from meteorological centers operated by countries and collecting real-time station-based observation of all meteorological events from 1979 to the present.

To understand how adaptation responses taken by households or communities match observed climate trends, the survey locations were mapped into GIS and overlaid with temperature, rainfall, and drought derived variables. Based on their location and results of climate analysis, information from the human response surveys was categorized (i.e., "grouped") by parameterized climate variables (i.e., areas on increasing/decreasing rainfall related events, temperature and moisture directional change).



Key informant survey interviews to develop the typology of human responses to climate change and potential impacts on biodiversity, Maasai Mara, Kenya. Photo credit: Nikhil Advani, WWF

WCS– Projected Changes in Climate in Sub-Saharan Africa

Most human responses to climate change recorded by the working group occurred due to changes in production systems (e.g., declining crop yields, higher mortality of livestock, etc.). In response, people might change the crops grown (e.g., replace maize with sorghum), the mix of livestock (e.g., more goats, fewer cows), practices (e.g., extend production into new areas, as mentioned above), technologies (e.g., dig a borehole to replace/supplement rain fed agriculture with irrigation). Given that rural communities rely on these sectors for their livelihoods, these responses are likely to continue into the future.

Investigating predictions of climate stability, agricultural suitability, and water stress allowed for the identification of broad areas where future human responses to climate change will be likely. Ecoregions in Southern Africa (South Africa, Botswana and Mozambique), the Congo Basin, and parts of the Gulf of

Guinea (Nigeria and Cameroon) are set to have very different future climates, but all are expected to experience increased water stress and shifting agricultural suitability. While predicting how humans will respond to a shifting climate is extremely difficult, focusing on agricultural suitability patterns may be a relatively robust option, because most of the variation in current human footprint can be explained solely by the agricultural suitability of land (Venter et al., 2016b).

In areas of decreasing agricultural suitability, such as Southern Africa and the Sahara, people will likely expand agricultural land to maintain the same yield, shift to different crop species, or diversify their livelihoods away from agriculture. Expanding farmlands will impact biodiversity as humans appropriate natural habitats and water for crop cultivation (Turner et al. 2010), or encroach on important biodiversity areas to farm or harvest resources (Bradley et al. 2012). Ecosystem-based adaptation strategies should be facilitated in such areas to reduce this risk. For example, implementing agroforestry programs can help farmers adapt to irregular rainfall patterns, likely reducing the need for exploitation of protected areas or intact ecosystems (UNFCCC, 2011).

As most of the main adaptation responses to the impacts of climate change on livelihoods (i.e., decline in crop productivity, decline in livelihood productivity, decline in fish productivity and decline in water), have a negative impact on biodiversity, there is a need to identify and promote alternative responses that may increase the resilience of farming communities and minimize the impacts on biodiversity.

WCS – Outreach to Development Organizations

WCS assigned a short-term consultancy to undertake a survey of a small number of prioritized international development organizations and research institutions with active programs and experience working in Sub-Saharan Africa regarding their perceptions of human coping responses to climate change. The white paper, [A Survey of International Development Organizations and Research Institutions Working in Sub-Saharan Africa Regarding their Perceptions of Human Coping Responses to Climate Change](#), presents the results of the international development organizations and research institutions consulted. In addition to the main findings identified, this paper is also expected to inform the ABCG working group members regarding potential next steps to be undertaken for conservation and biodiversity planning in Sub-Saharan Africa.

Dissemination Activities

The task group conducted a dissemination workshop on, *Community Responses to Climate Change in Sub-Saharan Africa and Their Effect on Natural Systems and Biodiversity*, on August 14-16, 2018 in Nairobi, Kenya. The aim of the workshop was to present the results and recommendations gathered from the two-year study documentation study on how human communities are being impacted by climate change and how their responses impact biodiversity. A workshop [summary report](#) provides key points from the discussions and results of this three-day workshop. The workshop had 36 participants from 20 institutions and 10 countries. Results from this work was also presented at the [5th International climate change adaptation conference in South Africa](#) in June 2018.



Community leaders and governmental officials learn about recent climate change trends in Northern Tanzania at the Global Change Impacts Workshop on August 14-16, Nairobi, Kenya. Photo credit: Evelyn Namvua, ABCG

3.3.3 Success Story

Preserving Livelihoods and Protecting Biodiversity in Sub-Saharan Africa

Working with communities in Sub-Saharan Africa to discover strategies to adapt to climate change while protecting biodiversity

Rural communities in developing countries are on the front lines - the first to face the real impacts of climate change. Benefiting from the bounty that nature provides and coping with the times when nature takes back, defines the life of millions living in Sub-Saharan Africa. For generations this delicate balance was predictable, manageable, but in recent years, climate changes have become more abrupt and more extreme. With these changes, key questions need to be asked. How is climate change affecting farmers, pastoralists and fishing communities? How is it impacting their way of life, their ability to feed their families or generate income? What must they do differently to maintain their way of life? And what is the fate of biodiversity in the face of these changes?

From 2015-2017, ABCG's seven member organizations and partners went to communities to find out how climate change is affecting their lives. Over 600 interviews in communities engaged in farming, fishing and pastoralism across 19 different sites in 10 countries in sub-Saharan Africa (Cameroon, Gabon, Democratic Republic of the Congo, Kenya, Tanzania, Zambia, Namibia, Madagascar, Mozambique and Uganda) were conducted.

One farmer in Southern Kenya reported that, "Water used to be everywhere... we didn't have to look hard for it. Now there is much less. Now our cattle drink from still water which can make them sick". The story was same in 20 different communities in nine countries in Africa. Community members shared on how they are coping with these impacts and how local biodiversity is impacted.

In August 2018, ABCG brought together 36 stakeholders consisting of members of the surveyed communities, government officials, academics, and members of global environmental organizations in Nairobi, Kenya, to present the survey findings of the adaptation responses and how those responses impact biodiversity. Results of the community surveys on how people respond to climate change and how those responses may impact biodiversity, along with an overview of the observed trends in climate throughout the surveyed countries were presented. Overall, the survey results show that about 35 percent of the adaptation responses identified through 652 surveys have potentially negative impacts on biodiversity, whereas only 12 percent have potential positive impacts.

Participants of this meeting discussed alternative adaptation responses to help farmers and fishermen adapt to climate change in ways that do not negatively affect biodiversity. Building on this knowledge and their own experiences, participants developed project ideas that could be implemented to help farmers and fisherman adapt to perceived climate threats that do not negatively impact biodiversity.

Through this activity, ABCG has been fostering a greater understanding and dialogue on emerging coping strategies already being adopted while exploring how those strategies can be improved upon. ABCG is building a knowledge base that will advance communities' capacity to learn about climate threats and impacts, and approaches to address these challenges. Further, ABCG is developing strategies to address climate-driven issues on livestock, agriculture productivity, and fishing resources. The data collected from these interviews is available on World Wildlife Fund's [Climate Crowd](#) website.

3.3.4 Best Practices and Lessons Learned

WWF – Literature Review

Since a single response could potentially fall into multiple response categories depending on interpretation, some inconsistency arose in how these categories were applied by different reviewers. As such, formal written guidance material on how to categorize hazards and responses is advised for future studies of this kind to ensure consistency throughout the review process and reduce the need for extensive post-review data cleaning.

Identification and Prioritization of Adaptation Strategies

The surveyed communities are perceiving changes to their livelihoods driven by changes in climate and are responding in ways that are not sustainable in the long term. Many of those stress, emergency or

crisis responses (e.g., migrate, sell assets or female animals) also have potential negative impacts on biodiversity, which may exacerbate the vulnerability of farmers and fisherman to climate change. Those responses need to be replaced by strategies that help farmers and fishermen adapt to climate change in the long term, improving their overall wellbeing and the biodiversity around them.

WCS – Outreach to Development Organizations

The main findings of the organizational survey report are organized into three main clusters: a) general institutional perspectives on climate change; b) human coping responses to climate change and institutional responses to it; and c) some lessons learned from existing partnerships. All international development organizations and research institutions surveyed and consulted recognize climate change is an important issue and a major challenge, which will need to be addressed urgently as it significantly impacts people’s natural-resource based livelihoods. Interviews uncovered strong interest and recognition among key players across international development, conservation organizations and international research institutions to collectively work together on climate change issues relating to people and conservation. See full report, [*A Survey of International Development Organizations and Research Institutions Working in Sub-Saharan Africa Regarding their Perceptions of Human Coping Responses to Climate Change*](#)

TNC – Historical Trends in Climate Change Events

The working group analyzed trends in temperature, rainfall and droughts over time as those are important to understand the way that farming and fishing communities are responding to climate change. For example, the group looked at whether a recent climate event (e.g., drought, high temperature, high precipitation) was an anomaly, in other words, it deviated from the norm or the expected, and whether it was a continuation of a directional trend change in climate. We analyzed monthly climate trends derived from daily records of maximum/minimum temperature and total rainfall for the 10-year time period from 2007 to 2017. Trends over the past ten years were selected to correspond to the recent memories of our survey respondents.

As survey respondents may have relied on recent recollections of past climate (one to three years) while answering climate related survey questions, data collectors compared the recent five-year average of temperature and rainfall (2012-2017) with 20 years of historical climate data (1997-2017) for every survey location. The working group identified locations where the climate trend matched the perceived change in climate, then identified the adaptation responses used in that particular location to respond to this change in climate.

3.3.5 Challenges and Constraints

WWF – Literature Review

The literature review proved to be a very lengthy process, given how wide a net was cast. The first step was a high-level review of peer-reviewed papers from the last 10 years, to determine which would be reviewed in detail. This ended up being 22,000 papers in total. A number of country INDC’s and NAPA’s

were reviewed as well. However, given the evolving nature of these documents, most of the documents reviewed are likely not the most recent version. Accessing certain sources also proved to be a constraint.

Identification and Prioritization of Adaptation Strategies

The period during which the surveys were conducted coincided with a delay and severe decrease of rainfall and high temperatures, followed by a short period of high rainfall. Therefore, it was difficult for key informants to think about changes that happened in the previous years and the majority of responses are based on what was perceived at the time (season and year) of the survey.

Some key informants hesitated to talk about their responses to climate change, as some of them are illegal. Key informants interviewed asked about what the working group could bring to them to improve their resiliency to climate change, based on this study Communities expressed frustration with providing responses to vulnerability assessments without a commitment from the implementing NGO to contribute to resilience strategies.

WCS – Outreach to Development Organizations

A number of international development organizations and research institutions working in sub-Saharan Africa could have been consulted under this assignment. However, given time constraints, its broad scope, and considering that this assignment was an initial brief attempt to obtain an overview regarding the subject concerned, key criteria were discussed and agreed upon with the ABCG working group members to guide the selection of a small number of international development organizations and research institutions to be consulted. Despite having applied these criteria, it should be noted that this report could have easily been compiled based on consultations with a completely different set of international development organizations and research institutions, resulting in potentially different findings.

3.4 TASK ACTIVITY 4: GLOBAL HEALTH LINKAGES TO BIODIVERSITY CONSERVATION: POPULATION HEALTH AND ENVIRONMENT

3.4.1 Task Activity Description

The PHE task activity is based on an integrated vision of health that links the health of wildlife populations, humans, domestic animals, and ecosystems. The main goal of PHE is to improve ecosystem health and conservation outcomes in tandem with improved human health for communities living in and around areas of key biodiversity.

The objective of this task is to pilot a PHE integrated approach in two different geographical areas, Western Tanzania and Southeastern Cameroon by implementing and promoting effective approaches that integrate biodiversity with actions that contribute to improved global health. The expected outcomes are to: 1) Build multi-sectoral partnerships to ensure biodiversity conservation and human well-being outcomes are achieved in tandem, 2) Strengthen the evidence base for USAID and others of successful examples that integrate biodiversity conservation and development, and 3) Incorporate PHE into conservation and development planning.

The main activities to achieve the task objective are to: 1) Analyze existing PHE integrated approaches and identify best practices and promising approaches in this field through a literature review and interviews with PHE practitioners and experts in the field, and; 2) Pilot activities in two sites to explore the interrelationships and interdependencies between PHE, combining actions to reduce deforestation,



Fishing boats in Kutumbi Village along the shores of Lake Tanganyika in western Tanzania where fish provides 60% of protein needs for local communities. Photo credit: Kimberly Holbrook, TNC

while improving food and nutrition security and conserving watersheds. Throughout these activities, the inclusion of women and marginalized populations, such as the poor and youth in decision-making processes, is particularly important in relation to health and ecosystem services, and will be a key component of piloting and promoting best practices in PHE activities. The resulting information will contribute to assessing the efficiency of a PHE approach, including how actions taken in one sector influence the other two, to ultimately conserve the health of the ecosystem and that of humans who depend on it.

3.4.2 Key Achievements

JGI – Western Tanzania

As a follow-up to the recommendation provided by the Nsimbo District Commissioner on ways to ensure support for PHE within the district, JGI, with support from ABCG, organized four meetings to sensitize top leadership within the four districts in western Tanzania about JGI's broader conservation effort targets. The Council Management Team consists of technicians, as well as councilors who play a critical role in decision making, on priorities and areas of focus for the districts. One hundred and eight people (16 women and 92 men) were sensitized on PHE. The individuals included district executive directors, environment, community development, agriculture, medical, procurement and planning officers, district engineers and representatives from the Western Zone PHE network¹. The district executive directors were very excited to hear about PHE, some of whom had not heard about this before, and committed to leading the integration process within their districts. Additionally, each district identified a PHE coordinator who would work with the district executive officers in developing plans for integration between departments, as this will help with coordination of efforts. They also recommended that their counterparts working at the ward level should be exposed to PHE, if funds allow.

JGI continued supporting the national PHE strategic planning process led by the Ministry of Foreign Affairs and East Africa Cooperation, and facilitated by Pathfinder International. Phoebe Samwel, Community Development Officer from JGI was part of a delegation that presented the National PHE Strategy² to government leaders in Dodoma. This was an excellent opportunity to obtain the highest level of support for PHE. JGI was able to share experiences on implementing PHE activities. As a result of this feedback, the government leaders recommended that additional information on the environment/conservation efforts be included in the document so that it is equal to that on health/family planning.

Prior to presentation of the strategic planning document, in October 2017, JGI facilitated a meeting for the Western Zone PHE Network to discuss and provide input into the development of terms of reference for consultants hired by Pathfinder who are developing a National PHE strategic plan for Tanzania. In February 2018, members of the Western Zone PHE Network met with the hired consultants to discuss PHE implementation in the zone and provided recommendations to the national strategic plan. Some of the recommendations include: 1) Having a clearly articulated vision and mission; 2) Including mechanisms for coordination and integration of PHE from village to national levels; 3) Creating monitoring tools for PHE across the country from district to national levels; and 4) Developing capacity

¹ The Western Zone PHE network in Western Tanzania was established as a strategy for scaling up the PHE approach and building capacity in line with the National PHE Strategic Plan

² The National PHE Strategy seeks to ensure that environmental considerations, health and population are mainstreamed in the country's development processes.

and outreach to leadership, including politicians, on PHE for successful planning and implementation. These recommendations were incorporated into the document shared with the government in July 2018.

TNC – Tuungane, Tanzania



Traditional Beekeepers in one of TNC's improved beekeeping technology sessions in Mwese village, Tanganyika district. Photo credit: Silvanus Ntiyakenye

Modern beekeeping. Modern beekeeping, using modified Tanzania top bar hives, was scaled-up through technical trainings in five villages: Mwese, Lugonesi, Katuma, Kagunga, and Lwega, in Mpanda district all located in areas designated as priority chimpanzee habitat. Traditional beekeeping methods involve collecting honey from wild hives (often by using fire or felling trees and/or cutting tree limbs) or using hives made of bark and log pieces (typically by cutting tree limbs or small trees). These traditional methods can have negative environmental consequences through habitat fragmentation, deforestation or degradation of native forests. The aim is to enhance the role and contribution of modern beekeeping initiatives, which produce two to three times more honey than traditional methods, towards reducing poverty, reducing pressure on forest resources, and increasing entrepreneurship opportunities.

Improved poultry farming. Improved local chicken farming techniques, as part of an income and food security initiative for fisher communities, was successfully executed in four villages, Uvinza District. A total of 125 (53 men, 72 women) out of 489 community members were trained; these 125 trainees then conducted an orientation training to 364 people (114 men, 250 women) in their respective PHE Community Conservation Bank groups. Also, four poultry houses with a carrying capacity of 1,000 chickens were constructed with 952 local chickens as initial brood stock. This intervention, which

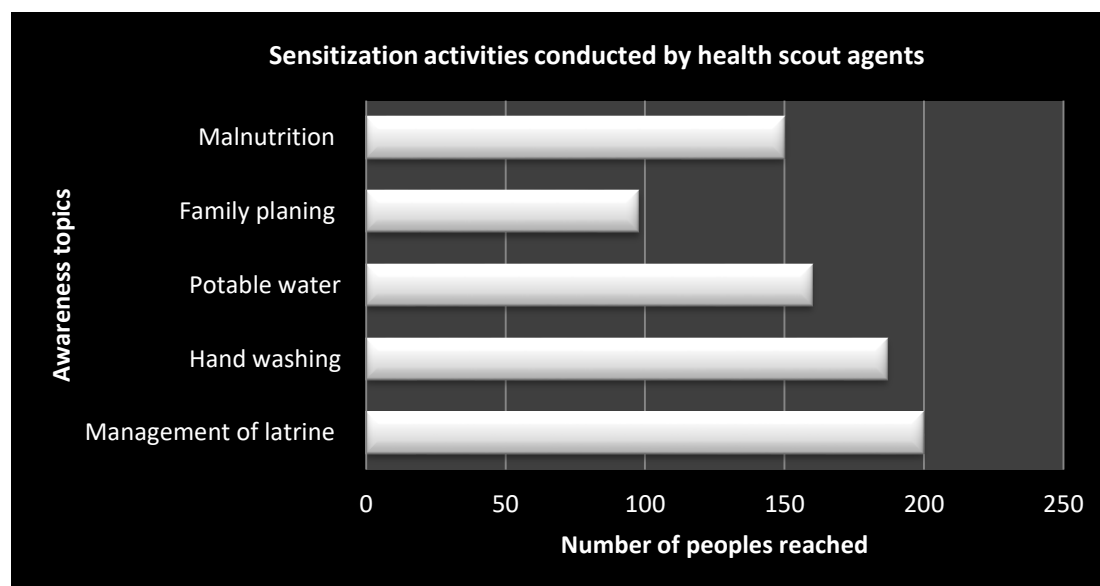
provides both an alternative income stream and improves food security, is also anticipated to reduce illegal fishing practices by 20-30 percent within two years, which will contribute to conservation of Lake Tanganyika’s biodiversity.

Model Household (MHH). PHE work was successfully scaled-up in Nkonkwa village, Uvinza district, through the enrollment of MHH volunteers to promote and practice sustainable PHE behaviors. Twenty village leaders and 15 community members were successfully trained on PHE interventions; 413 households were enrolled and trained on PHE and MHH guidelines where 103 households were classified as Class 1, 208 households as Class 2, and nine households as Class 3³; and a sustainability plan, to improve and maintain MHHs and Nkonkwa as a model village, was signed. Nkonkwa is now waiting for the Uvinza District Commissioner to visit, assess the MHHs, and officially declare Nkonkwa a “Model village”. As a Model village, Nkonkwa is emphasizing that every household should have a latrine, which is expected to reduce water borne diseases, such as cholera.

WWF – Lobeke National Park, Southeast Cameroon

During this reporting period, the creation of a one-hectare cocoa plantation (associated with plantain) was achieved, and the practical training was conducted by the agriculture expert in Yenga Rural Family School, as part of a micro-project, to teach the concepts of sustainable agriculture and entrepreneurship to a selected group of students. The micro-project has gone through several phases, including the demonstration of tools and basic equipment used to develop the plantation; preparation of the soil (i.e., clearing, felling, picketing, etc.), setting up of the cocoa nursery, planting, as well as monitoring and evaluation. The step-by-step process of setting up the plantation took a long time, however, this is a micro-project that has a strong capacity building component, therefore these efforts were essential to ensure efficient transfer of information to the students for them to become independent farmers.

Figure 8 | Thematic outreach activities conducted by health scout agents



³ MHHs are categorized as Class 1 or Class 2 if they meet more than 76 percent and between 51-75 percent of essential PHE criteria, respectively. MHHs placed in Class 3 meet 50 percent of PHE criteria, which is the point when they are typically considered “on track”.

The following section presents the activities carried out in the field by the project's PHE champions-health scouts. The summary of their intervention enables WWF to capitalize on awareness-raising efforts according to the themes, as well as the number of latrines built in the Park's communities, thanks to their perseverance and ingenuity.

Over this reporting period, health scouts focused on mobilizing women to improve food security and safe drinking water practices. The above graph shows all awareness raising efforts conducted by the health scouts and the number of people reached for each topic, concentrated within the months of January to June 2018.

Efforts to build ventilated pit latrines in households. There were a total of 300 additional latrines built in the communities over this reporting period. Educational sessions for households on best practices in proper latrine building, hygiene and sanitation was provided.

Survey on family planning perception and practices in the Baka and Bantu of Southeast Cameroon.

This survey was conducted in two health districts located in the direct periphery of Lobéké National Park. A total of 220 households participated in this survey through individual household interviews targeting one adult member in each household. Five villages were chosen to participate in the survey: Lokomo, Moloundou, Koumela, Yenga and Salapoumbé.

The results of the family planning survey are presented below:

Knowledge of family planning. In total, 65.5 percent of the local population around Lobéké National Park knows at least one modern method of family planning. We noted that this figure is significantly higher than in 2016 when the baseline survey results showed that 57.9 percent of residents of Lobéké National Park were unaware of any modern contraceptive methods.

Family planning practices. Overall, periodic abstinence and the male condom are the two most popular methods used by both Baka and Bantu communities. The frequency of condom usage among the Baka is roughly 10 percent that of the Bantu. Long-acting methods such as implants, Intra Uterine Device and cycle beads natural family planning necklaces are still little known and used less in the periphery of the Lobéké National Park.

Family planning services offered. Of the six health facilities surveyed, only one is able to offer long-acting contraceptive methods including implants, Intra Uterine Device and necklaces. It's still the only health center that offers injectables and pills. Most health facilities (83.3 percent) offer only counseling services, natural contraceptive methods and condoms. About one third of facilities mentioned they did not receive clients for family planning services.

Participatory evaluation of the nutrition and food security components' impact in Lobéké National Park households. A survey was conducted by a consultant, supported by the WWF project Coordinator and field staff, to collect data on the impact of the activities implemented, in relation to sustainable agriculture, nutrition and food security in order to assess the effectiveness of different project approaches. Overall, the evaluation results indicate that a number of interventions that have been implemented have produced a positive impact. These include the training of actors on the methods to combat malnutrition and the development and validation of a local protocol against malnutrition based on foods produced locally and prepared in the household. Results also showed that interventions related to safe drinking water improved access by 12.3 percent from the start of the project in the

survey area; and project interventions have made it possible to improve household food security in the intervention areas in relation to the baseline situation.

3.4.3 Success Story

Gaby's Miraculous Porridge: Alleviating malnutrition

"Gaby" is the abbreviation of the name Gabriel. This affectionate nickname was very kindly given to the head of the Catholic health center of Moloundou in southeast Cameroon by his patients. Gaby is a hardworking man with a big heart, who has been taking care of the people of Moloundou for years through his actions in the health center.

ABCG's Population, Health and Environment task activity in the periphery of Lobeke National Park, southeast Cameroon consists of implementing activities to link sustainable agriculture, nutrition, and food security. In this population, health and environment integrated approach to gather lessons and best practices, WWF collaborated with the government health partner, including the district health services staff to implement interventions relating to the fight against malnutrition. In addressing the high rates of malnutrition in the project area, WWF has been promoting sustainable agriculture as part of the PHE project, this component is integrated into food security and linked to nutrition.



Gaby (man on the left) supports a soy-enriched porridge cooking demonstration with women focal points as part of their training. Photo credit: Olivier Njounan Tegomo, WWF, Cameroon

In engaging the government health partner to take part in the nutrition and food security interventions, Gaby used local foods to create a nutritious complementary food/rehabilitation food mixture to alleviate malnutrition in children, mildly to moderately malnourished. Since the start of ABCG's PHE activities, the health center staff have benefitted from the support of the project to conduct anthropometric measurements (measures that assess body parameters to indicate nutritional status), as part of routine screening campaigns for children in villages in the project area. Based on results obtained from the baseline survey conducted at the start of the ABCG pilot activities, the project suggested using an approach to rehabilitating malnourished children that would be more sustainable in the long run than the mechanisms that have been used in the area in the past, which rely on ready-to-use costly therapeutic food.

Gaby's miracle porridge

This is how Gaby, one of the PHE champions in the community, got to work and developed this nutritious porridge recipe from locally available foods, that is now known as "Gaby's miracle porridge"! This ABCG PHE pilot activity contributed to the success of the nutrition and food security component, mainly due to Gaby's key involvement in training women focal points to become peer educators. They then organized educational sessions for over 500 mothers in the project area, who took part in cooking demonstrations and received practical information on feeding practices to prevent malnutrition and rehabilitate malnourished children with local foods. This initiative also included capacity building and practical sessions on developing family and community gardens and orchards to improve dietary diversity and to provide the right types of nutritious food required to make "Gaby's miracle porridge". Through this activity, there has been an increase in the frequency of meals fed to children under the age of 5 years, from 2.28 meals/day at the onset of the project to 3.5 meals/day at the end of the project.

Gaby's dedication to his work combined with the support provided by these pilot activities, has contributed to improve the wellbeing of the people in the project area. He is now seen as a PHE champion and is a great advocate of sustainable use of resources for the benefit and health of the people.

3.4.4 Best Practices and Lessons Learned

JGI – Western Tanzania

A critical lesson learned was that the establishment of the Western Zone PHE Network took place at a time when the national level efforts did not have funding and the project was able to leverage these resources to energize the national efforts. The project was able to bring national PHE facilitators from the ministry to facilitate meetings and other efforts to raise awareness on PHE in the region. By acting as a catalyst, momentum was ensured for PHE at the national level. Additionally, this also ensured that the establishment of the Western Zone PHE Network was in line and contributing to the national level strategic plans. As a direct result of these efforts, the Western Zone PHE network supported the adoption and implementation of a national PHE strategy and was able to contribute to its review, finalization and presentation to the government.

The government acknowledged that they work in silos. Through exposure to PHE programming they realized that they can be more supportive if they integrate their work plans and can support departments/officers who may not have as much funding to also get to the field. This was an exciting

moment for them to understand that they could be more efficient and impactful in how they deliver programming/services. Hence the quote from one of the district councilors, *“I am happy to learn about PHE. This information will enable us to plan together and achieve cost savings that we can use for other development work.”*

Local government authorities and the communities are essential partners in the success of these efforts. They are key in championing PHE efforts within their offices and communities. For example, during the field visit to JGI sites, community volunteers continued to be actively sensitizing and educating their peers on family planning, even though JGI had not supported them for over four years due to lack of funding. Additionally, if the government continues to support PHE and ultimately incorporates PHE in its planning and strategies, these efforts will be sustained into the future.

TNC – Tuungane, Tanzania

The use of Traditional Indigenous Knowledge in promoting beekeeping has increased community enthusiasm and acceptance and provided a way to merge traditional and modern beekeeping practices. Also, use of TIK was beneficial in training PHE Community Conservation Bank members on improved local chicken farming by merging or improving existing local knowledge with improved skills.

Using the Tuungane MHH approach of “house-to-house” government-led sensitization, 100 percent of 413 households in Nkonkwa were sensitized, enrolled, trained and assessed in one month. Village leaders ensured timely dissemination of PHE messages through their respective sub-villages, as well as comprehensive follow up and supervision of agreed improvements by MHHs.

WWF – Lobeke National Park, Southeast Cameroon

The fight against malnutrition is a discreet and effective weapon against poaching. Poaching is the fastest means of raising money to take care of sick children. The fight against malnutrition has proven to be efficient in engaging community conservation discourses, where community members show appreciation for and commit themselves to facilitating actions that address malnutrition issues and the result is leading towards conservation of biodiversity.

Alternative sources of protein other than bushmeat (for example, soybeans, other legumes and fish), are more effective than game for nourishing children and promotion of these alternatives is a positive intervention towards stabilizing wildlife resources.

One of the best practices from this pilot is that at least 75 percent of the interventions are under the direction of community members in all sectors (conservation, health, agriculture, communications/campaigns, etc.). Empowered and motivated communities drive activities towards more positive goals and are ready to defend results.

Hygiene and sanitation (i.e., handwashing, body hygiene, latrine use) and cleanliness of the direct household environment have emerged as one of the best practices to capitalize on. Through sensitization and mobilization, people now embrace these concepts in relation to the links these have on their wellbeing and health.

The management of malnutrition at the level of health facilities is dependent on the active involvement of household heads. It is important they get involve in the mechanisms put in place, right from the start, this has been shown as a critical determinant in the fight against malnutrition at the household level to

get lasting solutions to rehabilitate malnourished children.

3.4.5 Challenges and Constraints

JGI – Western Tanzania

District departments reflected and highlighted that they operate as silos with little day-to-day integrated work planning. The demand for sensitization and awareness of PHE among leadership within the district was evident, with requests being made for Ward Councilors to also be exposed. However, the funding during this period could not cover this work.

In order for the Western Zone PHE Network, which consists of 14 individuals (11 from government and three from NGOs), to be successful, a concerted effort needs to be made to check in with them and hold meetings to share lessons, challenges, etc., to ensure that the team members are energized to continue being champions in their respective government offices.

TNC – Tuungane, Tanzania

Beekeeping. Sector integration within the Tanganyika District around the beekeeping value chain (producers, business and policy makers) is poor. Each sector and formally registered beekeeping group plan and execute activities independently regardless of synergies that exist between sectors, such as beekeeping, agribusiness and forestry. Tuungane is bringing stakeholders together to improve communication and sector integration. This was made possible through launching the Beekeepers Cooperative Association for Tanganyika District as a forum to unify beekeeping actors along the value chain.

Government extensions services. The lack of a reliable government budget and few extension service providers, such as livestock, forest, agricultural and fisheries extension officers, threatens the sustainability of established projects. To manage this situation, TNC is keen to build community capacity at village or ward level to ensure long-term supervision is established.

PHE awareness. There remains inadequate community awareness on the PHE approach and its benefits. Through previous sensitization and enrollment of voluntary MHH volunteers at the village assembly meetings, Tuungane project leaders expected recruitment of the remaining village households into MHHs. However, this approach is slow and requires continuous project follow up, because large parts of the community remain uninformed and unaware of MHH benefits. Using the current (and new) Tuungane approach of “house-to-house” government-led sensitization, ensures timely dissemination of PHE messages through sub-village leadership and comprehensive follow up and supervision of agreed upon improvements.

Transportation and infrastructure. There is a lack of adequate and accessible roads and infrastructure surrounding Mahale Mountains National Park where Tuungane’s work is located. Transport options are limited due to the remote location and because villages are surrounded by mountains, rivers and forests (e.g., roads are often not passable during the rainy season). These conditions increase transportation costs of goods and delay project implementation times. In the future, these considerations need to be accounted for when providing budgets and timelines for work in remote villages.

WWF – Lobeke National Park, Southeast Cameroon

There are constant demands from neighboring communities, outside of the project area in the periphery of the LNP, to provide them with the capacity building opportunities and benefits that the communities in the project area are receiving. However, due to lack of resources to expand the project area, about 50 percent of the communities at the periphery of LNP are not reached. Further support to expand these interventions is needed to respond to this demand. This would in turn improve coverage and efforts to protect the Park more efficiently.

The roads during certain times of the year are impassable, due to heavy rains, slowing down the implementation and monitoring of the project’s activities in the most remote areas. This problem raises the issue of further building the capacity of agents in villages to take on the full implementation and monitoring of the project activities, especially at times when it becomes difficult to supervise project interventions due to access issues, etc.



Children demonstrating hand-washing to promote hygiene and sanitation in a government primary school near Lobeke National Park, Cameroon. Photo credit: Olivier Njounan Tegomo, WWF

3.5 TASK ACTIVITY 4: GLOBAL HEALTH LINKAGES TO BIODIVERSITY CONSERVATION: FRESH WATER SANITATION AND HYGIENE

3.5.1 Task Activity Description

By linking freshwater conservation (FW) and water, sanitation, and hygiene (WASH), ABCG aims to reduce watershed degradation and pollution, thereby improving the health of freshwater ecosystems. In support of the USAID Biodiversity Policy, this task proactively engages diverse, local community actors in development activities to mitigate impacts and provide compensation for biodiversity loss to deliver positive conservation outcomes. This task builds on [FW-WASH integration guidelines](#) and [monitoring and evaluation framework](#) created during ABCG's previous phase.

Conservation South Africa (CSA), a local affiliate of CI, with technical assistance from CI, is piloting the ABCG FW-WASH integration tools in the Alfred Nzo District Municipality (ANDM) of South Africa's Eastern Cape Province. JGI is piloting these tools in local villages in the Albertine rift region of Hoima and Masindi Districts, also known as the Budongo-Bugoma Corridor. The task members share learning from these pilots through the creation of a Nairobi-based Community of Practice (CoP) to build capacity in sub-Saharan Africa, led by CI and supported by AWF, for advancing integrated FW-WASH projects. This task will improve WASH and water resource management for communities in ANDM and the Masindi Districts. It also will expand knowledge within the network of Africa-based implementers of the.

3.5.2 Key Achievements

The most significant shared achievement of this task group's two pilot sites is the culminating report [The Convergence Factor: Lessons from Integrating Freshwater Conservation and WASH](#). It outlines lessons learned by CSA and JGI when testing the integrated freshwater conservation and WASH approach outlined in the guidelines and associated M&E framework. The report contains six overarching lessons, recommendations for 11 revision for the Guidelines, four recommendations for the M&E Framework, documents the success of the implementation period and offers insights for future use by health, development and conservation practitioners in Africa.



Water monitors connecting pipes from the tap to the tank for community members to collect. Photo credit: Mzingisi Nyhodo, CSA

CSA – South Africa

Highlights include the October 2017 learning exchange between CSA and World Vision-South Africa, which led to the CSA-World Vision collaboration of the [Veld Sanitation](#) training manual design. The training was rolled out in April 2018 to 40 eco-rangers (28 men and 12 women) in Thaba-chicha (Ward 14) and 46 eco-rangers (32 men, 14 women) in Mvenyane (Ward 21) to increase awareness among livestock owners and herders of best practices for sanitation, hygiene and grazing practices to protect human, ecosystem and livestock health.

ANDM, CSA and the volunteer water monitors reached 313 households (103 men, 210 women) in November 2017 through a hygiene awareness raising event. The 17 water monitors (12 men, five women) also participated in a workshop to reflect on their experiences participating in the project, to inform the above lessons learned report.

In January 2018, a team from CI made up of Colleen Sorto, task lead, Lydia Cardona, headquarters support for FW-WASH task, and Robin Abell, Freshwater Strategy Lead visited CSA's Matatiele office to view project progress prior to the Lessons Learned Report. The pilot successes resulted in this work being featured in CI's updated Freshwater Strategy under the WASH in Watersheds theme, ensuring additional financial support from CI's Freshwater Strategy for next fiscal year.

The 2018 Climate Change and WASH Summit was held March 5-6, 2018, at the ANDM offices. The 92 participants (40 males, 44 females and eight individuals who did not include this information on the attendance register) were made up of traditional leaders, municipal counselors, ANDM employees and CSA staff. The summit presented the successes of implementing this integrated approach and prompted discussion among policy makers and traditional leaders about this approach as a strategy for ANDM for ensuring climate change resilience in the catchment. The summit recommended actions and budget allocations for expanding integrated activities that will promote this integrated approach as part of ANDM's work in communities and help traditional leaders and council members to see linkages between good environmental practices and climate change resilience in order to bring this learning into their communities.

JGI – Uganda

The pilot facilitated the establishment of a committee of key stakeholders to oversee the development – and implementation of a WASH by-law. The committee includes: the Budongo Sub County Chairperson, Community Development Officer, Health Inspector; and six Parish Chiefs. These include: Kasenene, Kabango, Kinyara, Nyabyeya, Nyantonzi and Kasongoire parishes, three of which were reached with WASH activities (Nyabyeya, Nyantonzi and Kasongoire).

The pilot also conducted WASH engagement meetings with 17 officials (five females and 12 males) from the Masindi District Local Council Committee on Natural Resources and Environment, and 12 participants (two females and 10 males) from the Budongo Sub County Local Governments. Specifically, JGI shared progress on implementation of activities from October 2015 – September 2017 to technical and political staff.

ABCG provided support to the sub-county to enact WASH by-laws. The Budongo Sub--County WASH by-law has been passed and is now in place, JGI is expecting to receive the signed by-law in the first quarter of FY 2019.

The Sub County Community Development Officer and the Sub County Health Inspector took the lead in sensitizing and educating communities on the by-law development process, which commenced with a baseline survey to assess hygiene and sanitation status within communities across 56 villages and 12 area schools. Key highlights of the baseline survey included: poor waste management; absence of hand washing facilities; sharing water sources with animals; limited latrine coverage; and washing of vehicles at water sources. This information informed the development of the by-laws and sensitization activities.

Over 2,208 community members (39 percent female) and 72 local leaders were reached in the six parishes through consultative meetings to provide input into the by-laws. Political and technical teams also conducted two radio talk shows to supplement the meetings and to get feedback from the communities regarding the proposed by-laws.

Based on the findings of the project baseline survey on knowledge, attitude and practice of pupils and community members on WASH related issues, an informal education and outreach program was rolled out. It emphasized: increasing latrine coverage, hand

washing, and maintenance of existing water sources, both outside and in the forest. Twenty-four

“This was the first time that the JGI Institute in Uganda attempted to work on freshwater conservation alongside our conservation work. Interestingly, we observed that we were able to better engage with the community by addressing WASH issues that are a critical component of the community’s daily needs. Integration is also not a widespread strategy being implemented by many institutions, but we hope that after disseminating the pilot results of this current project it will be a more widely taken up approach. Water is a great convergence point for conservation and social economic needs. JGI has now adopted freshwater conservation and WASH as part of its broader Africa program strategy plan.” Peter Apell, JGI, Uganda



Community members being addressed by the secretary for finance for Budongo Sub-county at a community meeting in Nyabyeya, Uganda on the enacted by law in September 2018. Photo credit: JGI

community leaders (18 males and six females) were sensitized on WASH activities. Subsequently, two WASH committees were formed, one each for schools and communities.

Education and awareness materials on sanitation and hygiene were developed and translated into the local dialects of *Kiswahili* and *Runyoro*. Twelve area schools and communities were reached with 4,700 copies of awareness materials focusing on strengthening and supporting behavioral change for improved sanitation and hygiene practices. Two thousand, five hundred community members and 6,000 pupils were reached through education and awareness, and 40 teachers (27 males and 13 females) were trained to spearhead WASH implementation in schools.

CI and AWF – Integrated Freshwater Conservation and WASH Community of Practice

On October 31, 2017, 21 participants attended an in-person gathering of the CoP in Nairobi that featured an exchange of knowledge and accomplishments across six⁴ organizations working to integrate freshwater conservation and WASH in the region. This gathering culminated in discussions with the Kenya Water and Sanitation Network (KEWASNET), a local organization of practitioner experts working in the water and sanitation sector, on tangible devolution, ownership, and local leadership of the CoP platform. KEWASNET's role as a local convener is still being discussed, but task members see this as an opportunity to ensure continuity and stakeholder ownership of the CoP. On May 15, 2018, 32 participants attended a second in-person gathering in Nairobi, organized by KEWASNET and ABCG, focused on sharing knowledge and experiences in building partnerships for water security. Practitioners involved in formulating multi-stakeholder partnerships shared their knowledge and practical experiences on: relevant tools for formulating multi-stakeholder partnerships; ensuring proper monitoring and communication within the partnership; examples of innovative financing models for multi-stakeholder partnerships; and private sector engagement in partnerships, highlighted in the [meeting report](#).

Since October 2017, the CoP has seen a 51 percent increase in participating member organizations for a total of 65 organizations, exceeding the annual target of 55-member organizations. During this period, the annual goal of 12 resource communications was surpassed, with a total of 46 messages and six webinars led by member organizations:

- October 2017; Nolubabalo Kwayimani, CSA, [One Health Framework - Integrating Freshwater Conservation and WASH in South Africa's Mzimvubu Catchment](#)
- January 2018; Doris Kaberia, Millennium Water Alliance, [The Kenya Resilient Arid Lands Partnership for Integrated Development \(Kenya RAPID\)](#)
- February 2018; Julie Mulonga, Wetlands International, [Integrating WASH and Water Resource Management in Kenya](#)
- August 2018; Samwel Jakinda, Neighbours Initiative Alliance, Jacob Baraza, Centre for Social Planning and Administrative Development and Elynn Walters, IRC, [Watershed: Empowering Citizens - Linking Advocacy and Implementation](#).
- September 2018; Josaphat Mshighati, Pathfinder International, and Lukido Hiza, TNC, Integrating Conservation, Health, WASH, to Support Families, Fisheries, and Forests.
- September 2018; Colleen Sorto, CI, and Peter Apell, JGI, ABCG Freshwater Conservation and Water, Sanitation and Hygiene Lessons Learned.

⁴ AWF, Kenya WASH Alliance, Kenya Water and Health Organization, Kenya Water and Sanitation Civil Society Network, Millennium Water Alliance and Wetlands International

3.5.3 Success Story

Spring Rehabilitation in South Africa’s Eastern Cape: Improving Human Health and Conservation

Compiled by Mzingisi, Nathi Xulu and Caroline Rose, Conservation South Africa

Being a headman in South Africa’s Eastern Cape Province is not easy, just ask Nosolani Mantshule. He must balance the growing need for clean water for his community with the revegetation of rangelands, essential for securing water resources and conserving more than 2,000 plant and animal species. Livelihoods and traditional ways of life are under threat due to overgrazing, erosion and landscape degradation.

Most people in Nosolani’s village of Msukeni, along with other near-by villages, don’t have reliable access to clean water. The once lush rangelands and mountains are increasingly infested with alien invasive vegetation, mainly black and silver wattle. This wattle consumes significant amounts of water, negatively impacting communities, livestock and the surrounding indigenous rangeland vegetation. Initially, CSA worked with the government-funded Working for Water program, to support volunteers to clear wattle from the landscape, and returning much needed water into the ecosystem.

More recently, CSA added the One Health Program, part of a larger USAID-supported initiative of the Africa Biodiversity Collaborative Group. One Health links freshwater ecosystem conservation with Water, Sanitation and Hygiene (WASH) programming to ensure the supply of clean water for communities and the environment. After the intensive work of removing wattle, water is no longer sucked up by these thirsty trees, and the mountain springs have begun to flow again.

In May 2018, the CSA One Health team and 14 community volunteers turned their attention to rehabilitating one of these restored springs to deliver a safe, reliable water supply. Accessing the spring was a challenge, as it was located 1,600m uphill from the community. When the wattle directly above and below this spring was cleared, there was a significant increase in water flow, sufficient to fill a two-liter container in 30 seconds.

Since this spring was so far from the community, it was vulnerable to contamination by trash, silt, human and animal waste. To protect the water on its journey from the spring to Msukeni village, a solution needed to be found. Together with the community, the One Health team put in place a piping structure to bring water down the hill to an existing 2,500-liter plastic reservoir tank.

Nosolani sees how these efforts help his community. “CSA’s activities have helped to reduce poverty, by improving our livelihoods, as a community, because we will now be able to grow our greens, such as spinach, all year round. This, in turn will have the impact of improving individual health because the occurrence of diseases will decrease”.

Box 189
Cedarville
4720
27 June 2018

Bahlali ngqphambili baka-khuseli indalo.

Singabahlali basemsukeni sibamba ngqzibini ngakusi thumalela abasebenzi bazosifakela amanzi abanezimpawu zilindelalayo. Banantsbenzi swano, bakhubhele, bano mande kanti namsebenzi wabo mhle kakhulu.

Ukhusel' indalo usigxothela indlela, wangu gqirha nase mpilweni yethu kubq siza wukwazi ukulima imipino ngawo onke amqaxeshq anyqkq. iTshokkelonto yehlise izingq lezifo emzimbeni.

Singabahlali siyathalela ukuba ukhusel' indalo naye angene kuluhlu linqabvotelwq, ukuze thinq emsukeni sizovotelwq yena. Siyacela ukuba aqhubaleke ngokusifakela amanzi ingqumbi kwelqcelq elingase Mvenyane Primary School, apho khona ingununu yasikolo iqeshq imoto zokuthutha amanzi wokupheka nokusela. Asilungisele nezinye indawo ezonakeleye siyathembisq ukuba apho bedingq khona ukuncediswq abasebenzi, siza wuncedisq singa jongangq nzuza singabahlali.

Sinethembq lokuba nawusamkela isicelo sethu.

PHAMBILI, PHAMBILI NGOKHUSEL'INDALO

Sibandq Nosolani Mantshule
Mabhala N.E Nqai

P.O. Box 189
Cedarville
4720
27 June 2018

To: The Highest Representatives of Khuseli Indalo

We, the community of Msukeni village are very thankful for your staff who have been instrumental in opening up a local water spring, thus bringing water to the whole community. Your staff have the following, noticeable qualities: they are consultative in their approach, having worked with us all the way; they are diligent and full of energy; they are patient and the quality of their work output is of a very high standard.

Khuseli Indalo's activities have helped to reduce poverty, by improving our livelihoods, as a community, because we will now be able to grow our greens, such as spinach, all year round. This, in turn will have the impact of improving individual health because the occurrence of diseases will decrease.

We, the community, wish to suggest that Khuseli Indalo registers as an organisation on the voting list, so that we could have the opportunity of voting for the organisation. We would like to urge you to continue the good work of opening up water sources, even for other areas, such as the village where Mvenyane Primary School is located. Currently, the school purchases water, for cooking and drinking from other areas and has to spend additional money on transport hire. We promise to give you all the support you require from the community in terms of manpower and we will not expect payment.

We are hopeful that you will implement our suggestion.

FORWARD WITH KHUSELI INDALO!!!!

Local Headman: Nosolani Mantshule

Secretary: N E Nqai

Letter of compliment from Msukeni village traditional leaders in the local dialect, left and its English translation on the right

3.5.4 Best Practices and Lessons Learned

CSA – South Africa

Of the six lessons learned outlined in the report, *Convergence Factor: Lessons from Integrating Freshwater Conservation and WASH*, those related to gender, sustainability through community education campaigns, and community-led decision making and local policies resonated most in the South African context. Gender issues were particularly evident at the community level, where cultural attitudes hampered women's contributions and work against project objectives, inhibiting women from contributing to activities where their insights could have impact. The gender analysis process created opportunity for growth and increased awareness amongst CSA staff. At the start of the project, two female CSA staff members had key roles in rangeland restoration and spring rehabilitation. Initially, the

community resisted recognizing their roles in sharing knowledge and skills. Over time, the local traditional authorities showed them more respect and this increased exposure for women in authority positions and management. This was seen when women took on roles as water monitors. Water monitors with local knowledge and skills are selected from the community by the community leaders. Their perceived “status’ within the community has increased through their participation in this program and they have had opportunity to speak up at meetings within the community and local government. They have also had opportunity to mentor colleagues and share knowledge within the community, enabling the link between rangeland preservation activities and the ecosystem benefits they receive; this is particularly impactful when considering these new opportunities for women through their role as water monitors. CSA plans to include gender analysis in future projects, based on the positive experiences from this project.

To ensure sustainability through community engagement, CSA conducted a visioning process with traditional leaders and community consultations at the inception. This ensured specific, local needs were incorporated into trainings investment. As a result, participation in formal training and rehabilitation activities gave the community a sense of ownership and incentive to invest; for example, one community used the knowledge and skills gained in the project to rehabilitate and restore an additional spring without assistance or resources from CSA. Connecting community engagements and trainings as key project components are practices that will be adopted into future CSA projects.



One Health Programme staff meeting with the community in Msukeni, Eastern Province, South Africa, July 2018. Photo credit: Mzingisi Nyhodo, CSA

JGI – Uganda

Involvement of local governments and key stakeholders in project design and implementation produces more sustainable outcomes. The project began with an inception workshop for stakeholder inputs that promoted project acceptance and ownership. In addition, the local by-law formulation and adoption went through various participatory stages and provided opportunities for a variety of stakeholder inputs.

JGI engaged local government to integrate their plans into ABCG WASH implementation. An example of this is the inclusion of nutrition and immunization into the by-law whereby every household is required by law to have backyard gardens and children immunized. This latter aspect is intended to be implemented in schools as a key requirement for admission of children to primary schools thereby promoting increase in immunization rate and primary health care.

Participation of other partners provided an opportunity to identify and fill gaps that were not foreseen under the ABCG FW-WASH task area. In addition, it is easy to realize the support of local government and other stakeholders once there is an agreed area of complementarity, for example, the inclusion of nutrition and immunization, which was a local government requirement, into the by-law. This also promotes cost-efficiency for both the project proponent and local Government through achieving many goals with one intervention.

This pilot provided a new approach to integrating both development and conservation concerns of various stakeholders and partners, demonstrating the clear linkage between fresh water conservation, and WASH to safeguard wildlife habitats and community health. It is proof that implementing conservation that includes development objectives provides incentive for community participation.

While water collection is the domain of women and female children in the project area, this pilot provided an opportunity for both genders to collaboratively work together. This meant shared responsibilities and availability of ample time for other productive activities at the household. It was possible to have both women and men sit together in planning meetings and have their voices heard.

Based on stakeholder participation and involvement at every stage, the project delivered on key outputs thus supporting the proposed theory of change. This was possible because of the supporting government policies and local stakeholders remained supportive of WASH implementation.

Below are observations and a quote from community members within the pilot sites:

- *“Thank you for uplifting the face of Karongo Primary School and improving our standards. Before you introduced the WASH project in our school, there was a high rate of school dropout and children missing lessons because of travelling long distances looking for water both for home use and school activities”, reports **Charles, the Deputy Head teacher of Karongo Primary School.***
- *School children have learned how to construct tippy taps and they have extended the knowledge and skills acquired to their communities and this has improved their hygiene.*
- *A teacher in Kimanya Primary School was quick to note that with the project, sanitation and hygiene issues have greatly improved.*
- *Similarly, with awareness, parents of Rwempisi Primary School started to contribute as little as UGX 200/USD 0.05 per child towards maintenance of the water tank that was provided in the previous phase of the project.*

CI and AWF – Integrated Freshwater Conservation and WASH Community of Practice

The CoP succeeded in increasing learning opportunities for implementers on FW-WASH projects through the webinars and sharing information via LinkedIn Groups, but it required a heavy investment of time and organization among the task members. This is a key factor to be considered, should the activity continue. Another key learning was the utility of two in-person gatherings during the year to help keep consistency among Nairobi-based participants.

3.5.5 Challenges and Constraints

CSA – South Africa

Implementation hurdles encountered during this project include the distances and terrain the staff and community needed to travel across to each other and the spring sites. This impacted both time available in the field and in the office, as well as vehicle maintenance. In addition, having a very small field team (two people) resulted in the focus being more on field work and less on the reporting, monitoring and evaluation. This was addressed by appointing a local manager in South Africa to provide closer support to the field team towards the end of the project; this issue should be addressed earlier in future projects. Due to the bad terrain and travelling distance, future project plans will take into account accessibility to the catchment area in order to minimize the hurdles encountered in this project and increase efficiency. This has also encouraged CSA to draw on partnerships and to share skills and knowledge with partners working in the upper catchment. Skills, experience and lessons learned can be shared, which can increase the scale of the project. Upskilling and training of community members creates a resource of experienced people, who can support and mentor new water monitors and allow CSA staff to better manage their time. Project and time management skills need to be more overt in future projects.

Selecting a spring source that can give maximum benefit, in proximity to the community recipients, and managing community expectations are likely to be ongoing challenges. The further the spring from the village, the greater the need and costs of infrastructure to realize the impact and results for the community. The proposed solution to this has been through further conversations with ANDM to support them in meeting their mandate to provide clean water. The role of CSA in testing water for consumption has also been considered and more recently the ANDM has agreed to support CSA in this respect, and to test and monitor the water quality in springs that have been restored.

JGI – Uganda

Low latrine coverage in both schools and communities affects the sanitation and hygiene. Rocky soils is a key challenge in some areas, which is partly the reason for low latrine coverage as digging deep pits is often problematic. Furthermore, a high water table in some places also hinders latrine construction as this would lead to source contamination. Proposed solutions include the construction of two types of latrines that can be constructed above-ground:

- Bio-latrines which use a dry toilet technology, which reduces water use. The system is made up of a digester, which processes the waste using anaerobic digestion to make organic manure (suitable for use as fertilizer). One of the byproducts of the digester - methane gas - can also be used for lighting and cooking.

- Ecological sanitation (Ecosan) toilets, which are comprised of a urine diversion system and compost toilet. It also saves water, protects ground water quality and the waste can be collected and used as manure. The project has brought up opportunities of using Ecosan toilets to the attention of the district and sub county leadership, who unfortunately cite resource constraints as a limitation at both community and district level.

According to the District Water Officer, a major challenge exists with the by-laws of the various Water User Committees being dissimilar. However, there is now a deliberate effort to synchronize them across all water sources, and some of these challenges have been addressed through the enacted by-laws. The District Water Officer also reported that many water sources are in terrible condition and this requires FW-WASH to always include water sources development and/or repair. The District Local Government plans to work with water development companies and organizations within the area to prioritize the areas which are in dire need.

CI and AWF – Integrated Freshwater Conservation and WASH Community of Practice

Overall, the CoP is larger than expected, but activity among members who are not part of the group is still quite low. It takes a considerable investment of time from task members and the ABCG Communications and Engagement Officer to maintain the CoP and members of the task are re-evaluating if this platform is meeting the needs of implementers, even without an active online dialogue between its members.

3.6 TASK ACTIVITY AREA 5: EMERGING ISSUES

3.6.1 Task Activity Description

The Emerging Issues Small Grants program builds on ABCG’s position as a partnership of seven international conservation NGOs with a strong field presence in priority biodiversity areas across the continent by creating teams to analyze emerging threats or opportunities, and convening stakeholders in the U.S. and Africa to present data and catalyze discussion. Through its small grants program, ABCG identifies and develops strategies to respond to emerging issues that are likely to shape conservation priorities in the coming years, and influences the effectiveness of biodiversity conservation efforts in Africa.

African institutions working with ABCG members play key roles in identifying these issues, and planning and implementing the pilot projects supported by Emerging Issues Small Grants. Through participatory processes, Emerging Issues Small Grants promote gender equality, capacity building for local African institutions, and women’s and youth empowerment as powerful drivers for inclusive and sustainable development.

Eligible applicants are the member organizations of ABCG. A minimum of two ABCG members must partner to develop and submit an application with one member serving as the lead applicant and primary contact for the proposal. Furthermore, partnering with a local African civil society organization or government agency is required for consideration.

In addition, a project concept under the Emerging Issues Small Grants program should:

- Propose a novel or innovative approach, which incorporates a new technology or model for addressing an emerging issue;
- Engender ABCG’s core competencies: generating knowledge, communicating best practices, and fostering communities of practice;
- Address issues that have application at the landscape level- beyond one country or at a transboundary or multinational scale, such as East and Southern Africa or West Africa;
- Include two or more member organizations with clearly defined roles and relationships;
- Include local partnerships with African institutions and/or civil society and reflect a multi-stakeholder planning process with broad participation;
- Propose a tangible, short-term output (e.g., direct conservation impact, science product, due-diligence scoping study, pilot study conclusions, and/or policy recommendations); and
- Be consistent with and supportive of the [USAID Biodiversity Policy](#) and USAID Africa Bureau Regional Development Cooperation Strategy.

3.6.2 Key Achievements

ABCG issued a third and final call for concepts in February 2018. This call for concepts considered cross-sector events that would: 1) introduce innovative conservation approaches to broader multi-stakeholder audiences and further promote ABCG knowledge products coming from the current ABCG task areas or Emerging Issues projects; and/or 2) spur dialogue around novel solutions to priority conservation challenges. These could take the form of stakeholder workshops, community of practice meetings, dissemination conferences, roundtable dialogues, etc.

Priority was given to events which would:

- Be held in Africa;
- Include an Africa-based planning process and stakeholder engagement;
- Integrate biodiversity conservation with other development areas;
- are regional in scope and invite multi-level stakeholders (local civil society, NGO, government, etc);
- Generate practical solutions that can be applied at a broad level, either through landscape-scale efforts, or place-based efforts that directly support broader multi-jurisdictional conservation goals, and;
- Include an action plan for incorporating outcomes into programming for broader adoption, scaling, and/or replication.

Two small grants were awarded to TNC/WRI for \$15,136 and WCS/JGI for \$10,000 in support of their projects *Strengthening Partnerships in African Conservation: Kenya's Conservancies Movement* and *Conjuring a Multi-Sectoral Approach to Avoid a Food Security and Environmental Crisis in Western Uganda*, respectively. These projects concluded in September 2018.

Strengthening Partnerships in African Conservation: Kenya's Conservancies Movement, TNC and WRI



Group photo of participants at the strengthening partnerships within Kenya's wildlife conservancies' movement dialogue, Nairobi, Kenya, July 4, 2018. Photo credit: KWCA

With the majority of Kenya's wildlife found outside parks and reserves on community and private lands, actions by local landholders are critical to the future of wildlife and tourism in the country. During the past decade, a range of different conservancies have been established, which are now formally recognized by the 2013 Kenya Wildlife Conservation Act and cover around six million hectares. Conservancies are providing critical conservation outcomes and creating mechanisms for private and community landowners to improve management of conservation efforts and wildlife-related enterprises. A key strategic issue for conservation in Kenya today is how to build strong partnerships between local and national conservation organizations, and global conservation groups and networks, to provide the most effective support to scaling up conservancies and other proven conservation approaches.

Building on TNC's and WRI's FY 2016 Emerging Issues project, [Pilotng Mechanisms for Strengthening African Conservation Leadership and Organizational Capacity](#), TNC duplicated the dialogue on [Strengthening Partnerships for African Conservation Leadership](#), hosted by WRI in Washington, DC on February 16, 2017. The partnership dialogue targeting Nairobi-based stakeholders focused on the Kenyan conservancy movement as an example of the kind of enabling partnerships required to scale up change and impact in African conservation. On July 4, 2018, this one-day dialogue, co-hosted by the Kenya Wildlife Conservancies Association (KWCA) and Maliasili, and supported by ABCG, WRI and TNC, explored strategies for strengthening partnerships between local, national, and international conservation groups and other stakeholders. It explored strategies to build strong partnerships between local and national organizations working to advance conservancies and related conservation efforts in Kenya. Participants included Kenyan government representatives, the donor community, and international conservation groups, as well as other cross-sector interests such as private tourism investors and development organizations with an interest in natural resource management (see attached agenda and report). A total of 41 people participated, representing 30 organizations (including local, national, and international). The event was published on [KWCA's website](#) and [Facebook page](#) and on [Maliasili's website](#). A [blog post](#) that included 1) key insights on designing effective partnerships between local organizations, international conservation groups, and government institutions and 2) strategic options for developing local-to-global partnerships in the development and scaling up of Kenya's conservancies was written and published on the ABCG website. The blog was shared with dialogue participants as well as other relevant partners in Kenya that were unable to attend and was included in KWCA's membership newsletter. Finally, a report on the dialogue was written and a [video](#) created that highlighted key themes and discussions of the dialogue.

Conjuring a Multi-Sectoral Approach to Avoid a Food Security and Environmental Crisis in Western Uganda, WCS and JGI

Like many areas in Africa, growing urban populations, and successful poverty alleviation efforts, are driving up demand for animal source protein in western Uganda. The problem in western Uganda is especially urgent, because of plans to extract, refine and export 2.2 billion barrels of recoverable fossil oil located on the shores of Lake Albert. While exploitation is not yet taking place, the expectation of an oil boom, with associated employment and entrepreneurial opportunities, is already attracting large numbers of migrants to the region.

A novel partnership of international NGOs (WCS, PATH, Heifer International) with on the ground experience in partnership with UGF, JGI and USAID initiated a multi-sectoral solution to this socio-ecological crisis. Total, the multi-national company holding the hydrocarbon concession, is in the process of developing financing plans for effective mitigation actions and recognizes the need to establish a multi-sectoral approach. WCS staff, through their participation in Total's Biodiversity and Livelihoods

Advisory Committee worked closely with the company to ensure compliance with the mitigation hierarchy and with the principle of a net gain in benefits for the region.

Because of its expertise in integrated, climate-aware approaches to managing land use, identifying and developing strategies to address land and resource tenure issues, and illuminating linkages between biodiversity conservation and issues of health and well-being, ABCG's experience provided a framework for implementing the envisioned multi-sectoral planning approach to address the issues described.

On May 22-24, 2018, The Uganda Biodiversity Fund (UBF), JGI and WCS convened a 3-4 day technical workshop in Hoima, Western Uganda, to facilitate the development of a credible and practical multi-sectoral investment plan to address the indirect and cumulative impacts of planned oil development, on the shores of Lake Albert, by the energy company, Total. Successfully addressing these impacts will have implications for the quality of life of people who depend on Lake Albert for their livelihoods, in Uganda and the DRC. It will also establish important precedents for how investments in extractive industry are organized elsewhere in the Albertine Rift, and Africa more generally.



Participants at the multi-sectoral workshop, Hoima Town, Uganda, May 22-24, 2018. Photo credit: Helen Mwiza, WCS, Uganda

The workshop had two primary goals: 1) develop a multi-sectoral “road-map” for helping the Government of Uganda and the private sector to generate win-win outcomes, and mitigate potential negative socio-economic and ecological impacts of economic development in Western Uganda; and 2) launch a collaborative process that both encourages and enables cross-sectoral communication to seek synergies and mutually beneficial outcomes, and ensure that desired outcomes in one sector do not result in unexpected and undesired outcomes in others.

Results from the workshop were compiled and are now available [online](#). As planned the workshop spurred the establishment of the Albertine Stakeholders Forum as a multi-sectoral platform to help avoid or mitigate adverse social and ecological impacts of economic develop in western Uganda. The Prime Minister (Ruhakana Rugunda) and his staff are leading the process.

3.7 SECRETARIAT

3.7.1 Key Achievements

The original FY 2015-2018 ABCG Phase II cooperative agreement with USAID was extended through September 2020. The extension will allow ABCG to continue to serve as a thought leader in identifying important issues for biodiversity conservation in Africa, and constructing tools and strategies to address conservation challenges. Owing to the wide-ranging networks of its members, ABCG is in a unique position to inform and influence conservation practice by developing, testing, and promoting new practices and approaches with broad stakeholders ranging from local African communities to global conservation professionals, and particularly with policy and decision makers in Africa, the US, and beyond. In so doing, ABCG will provide support in program planning, implementation, evaluation, and knowledge management and outreach to USAID-supported biodiversity conservation programs in sub-Saharan Africa.

3.7.1.1 Programmatic Meeting Coordination

The Secretariat coordinated regular, formal assemblies of representatives from each of the seven member organizations. Four assemblies were coordinated by the Secretariat during this reporting period. The first quarterly Steering Committee meeting was held on December 1, 2017 to review FY 2018 workplan, subawards and dissemination events. A growth goal exercise looking at future priority areas for ABCG was conducted with the committee identifying three growth areas: 1) Increased generation of new approaches, 2) Increased production of knowledge products, and 3) Expansion of activities/pilot studies- building the evidence base. Benita Hussain, WCS Steering Committee Representative introduced Michael Painter, Senior Technical Advisor, Conservation Measures and Communities, Wildlife Conservation Society as her replacement on the Steering Committee beginning in January 2018.

A second Steering Committee meeting was held on March 1, 2018. An update on the website redesign and launch that produced positive feedback in terms of audience reach was provided. The meeting discussed the semi-annual report process that has been simplified to include a short progress narrative providing activity implementation status highlighting key achievements and success stories. The Steering Committee discussed the awarding decision on two Emerging Issues concept submitted and the next phase of the Emerging Issues Small Grants program.

A third Steering Committee meeting was held on May 23, 2018. In this meeting, the technical reporting process was reviewed with the aim of making it more efficient in terms of meeting reporting deadlines and ensuring that reviewers' comments were adequately addressed. It was agreed that task leads ensure that report drafts are complete, meet stated guidelines and submitted on time. The Committee reviewed the expressions of interest by CI and AWF to host the Secretariat in the next phase of ABCG scheduled to start in October 2018. A scoring criterion based on factors including: meeting/event space availability in DC and Nairobi, communications support, program development/fundraising support and office space availability was to be established that would help in coming up with a decision on which organization becomes the Secretariat host.

The final Steering Committee meeting for the year was held on August 28, 2018. As the result of a competitive process, the Steering Committee chose AWF to host the Secretariat during the upcoming FY 2019-2020 extension period. AWF is well positioned to facilitate the valuable role this platform plays to promote cross-organization learning, particularly with regards to building future support. The Steering Committee gave an update of the end of project thematic workshops and events, as well as the development of final products which were all going according to schedule.

In view of the FY2019-2020 cost extension period beginning in October 2018, the Steering Committee discussed the threats assessment and prioritization workshop that would determine ABCG's strategic approaches for the cost extension period. The Committee reflected on the proposed workshop agenda that was aimed at discussing major outcomes of the extension period and how ABCG would structure itself to realize these outcomes. Jimmiel Mandima, the AWF Steering Committee Representative, announced that he will be leaving AWF on September 1, 2018 and transferred his role to Eric Coppenger, Vice President of Program Design at AWF.

2.7.1.2 Global Communications

Publications

1. [The Convergence Factor: Lessons from Integrating Freshwater Conservation and WASH](#) – Report outlines lessons learned by Conservation South Africa and Jane Goodall Institute when testing the integrated freshwater conservation and WASH approach outlined in the guidelines and associated Monitoring and Evaluation framework.
2. [Common Property Resources in Tanzania](#) – Report examines progressive land and natural resource management policies and practices (e.g., CCROs) which provide a framework for enabling rural communities to administer, manage and sustainably utilize their land and natural resources.
3. [The Local Community Viewpoint Regarding the Review, Procedure, and Process of Writing the Tanzanian National Land Policy](#) - Policy note reviews the December 2016 draft National Land Policy and the ongoing policy formulation process which is led by the Ministry of Lands. Tanzania's current land policy of 1995 is being reviewed and revised in light of current land-related challenges.
4. [Making Community Forest Enterprises Deliver for Livelihoods and Conservation in Tanzania](#) – Report documenting some of the emergent community forest enterprises in Tanzania and their impacts on forest conservation and the livelihoods of local communities.
5. [Status of Land Use Planning, Land Tenure and Biodiversity Conservation: A Focus of Udzungwa-Magombera-Selous Landscape and Mngeta Corridor in Kilombero District](#) – Report documenting the land tenure status, socio-economic and biodiversity profiles in the Mngeta Corridor and Udzungwa-Magombera landscapes.
6. [Four African Case Studies Exploring How to Incorporate Biodiversity into Land Use Planning Using Spatial Prioritization and Scenario Analysis](#) - A synthesis of methodologies, lessons learned and recommendations from the four case countries

Thematic Lessons Sharing Events

ABCG organized 14 thematic lessons sharing events that are directly related to ABCG activities. The events were delivered through in-person and webinar presentations.

FW-WASH

1. [Lessons from ABCG's Global Health Linkages Working Group on Integrating Freshwater Conservation and Water, Sanitation and Hygiene](#) (September 6, 2018)
2. [FW-WASH CoP Webinar: Integrating Conservation, Health, Water, Sanitation and Hygiene to Support Families, Fisheries and Forests](#) (September 5, 2018)
3. [FW-WASH CoP Webinar: Watershed: Empowering Citizens - Linking Advocacy and Implementation](#) (August 16, 2018)
4. [Freshwater Conservation and WASH Integration Community of Practice Meeting: Partnerships for Water Security by ABCG and KEWASNET](#) (May 15, 2018)
5. [FW-WASH CoP webinar: Integrating WASH and Water Resource Management in Kenya by Wetlands International](#) (February 2018)
6. [FW-WASH CoP webinar: The Kenya Resilient Arid Lands Partnership for Integrated Development \(Kenya RAPID\)](#) (January 2018)
7. [FW-WASH CoP webinar: One Health Framework: Integrating Freshwater Conservation and WASH in South Africa's Mzimvubu Catchment](#) (October 2017)
8. [Integrated Freshwater Conservation and WASH Community of Practice in person Nairobi meeting](#) (October 2017)

GCI

9. [GCI Dissemination Workshop: Assessing Community Responses to Climate Change and Possible Impacts to Biodiversity](#) (August 2018)
10. [GCI Thematic Working Group Presentation: Managing Global Change Impacts on Biodiversity](#) (October 2017)

LRTR

11. [LRTR Thematic Working Group Presentation: Land and Resource Tenure Rights](#) (October 2017)

LUM

12. [LUM Thematic Working Group Dissemination Workshop \(September 2018\)](#)
13. [Tanzania Land Use Management Workshop \(July 2018\)](#)

PHE

14. [PHE Thematic Working Group Presentation: Lessons Learned in Exploring Linkages between Food Security, Nutrition and Conservation \(September 2018\)](#)

Speaker Series, Washington, DC

ABCG has co-hosted seven brown bag events during this reporting period. Event resources and webinar recordings are posted to the ABCG [website](#). This activity contributes to ABCG's objective to encourage

the exchange of ideas among all stakeholders. ABCG has organized the following speaker events, all of which are non-direct ABCG member or project events:

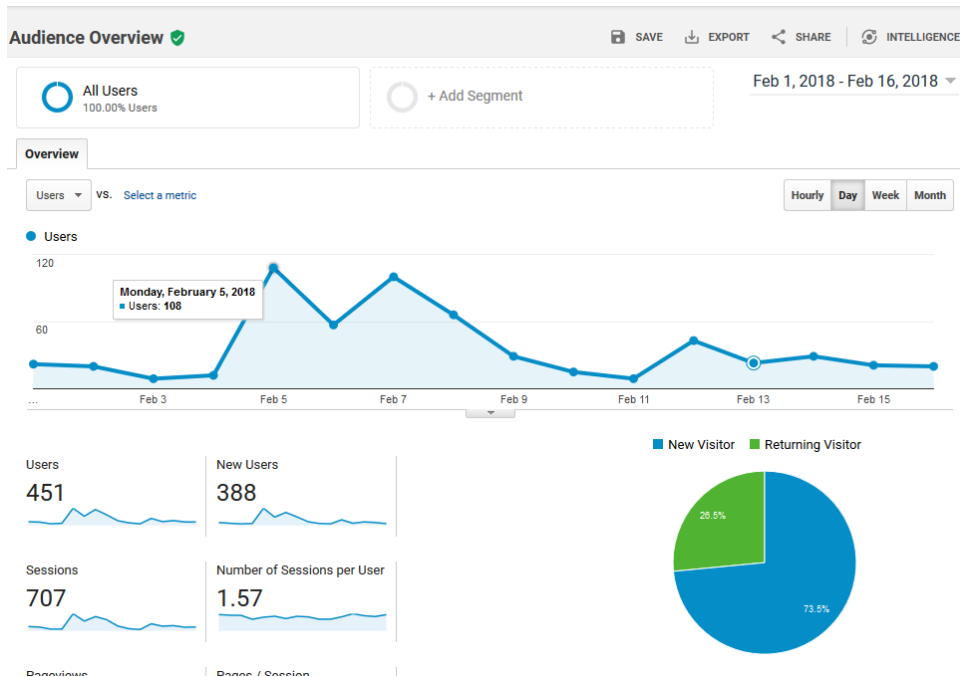
1. [The state of wildlife trafficking in Africa canine detection on the frontline by Will Powell, African Wildlife Foundation](#) (June 19, 2018)
2. [Increasing Conservation Finance For Uganda's Protected Areas through Wildlife Tourism by Kathleen H. Fitzgerald, African Wildlife Foundation](#) (May 3, 2018)
3. [Advancing Indigenous Land Rights and Conservation through New Markets and Partnerships by Marc Baker, Carbon Tanzania, and Edward Loure, Ujamaa Community Resource Team](#) (April 17, 2018)
4. [Countering Wildlife Trafficking in Mozambique - What's Working and What Hasn't by Alastair Nelson, Wildlife Conservation Society](#) (February 2018)
5. [Conserving Lake Tanganyika's fisheries and biodiversity:From local collaboration to lake-wide impact by Peter Limbu, The Nature Conservancy](#) (January 2018)
6. [It is All In Our Heads: Protecting Biodiversity with Behavior-Centered Design by Kevin Green, Rare](#) (November 2017)
7. [More Than a Decade On: Helping Ol Pejeta Conservancy to Deliver Conservation and Development Impacts in Kenya by Joanna Elliott, Fauna & Flora International](#) (October 2017)

Online Communications and Engagement

In 2017, ABCG began redesigning its website, abcg.org, for a more interactive user interface, including enhanced content searching, streamlined user experience, and agile layout. The new website was [launched](#) in February 2018 giving readers a fresh, well-organized and more interactive site. Among the improvements to the website is a refined search function where resources can be accessed with greater ease and an expanded 'About us' section with a governance page presenting the Secretariat and steering committee members. The website received the highest number of visitors during the launch week period of February 5-9, 2018 (328 users) compared to an average of 99 weekly users in the follow up weeks of the same month.

Through this enhanced platform, ABCG continues to share news, event updates, publications and other highlights. The website received a total number of 4,658 visitors in FY 2018, 6 percent increase from the 4,402 visitors recorded in FY 2017.

Figure 9 | A graph showing the number of ABCG website visitors on February 1-16, 2018



Social media also continues to be an important channel for sharing and connecting with ABCG’s audience. On ABCG’s Facebook page, [ABCGconserve](#), total likes on September 30, 2018 were 1,214, an increase of 125 from 1,089 in September 2017. The Twitter account, [ABCGconserve](#), has gained new followers with a 24 percent increase bringing the number of followers to 771. ABCG’s email marketing through which ABCG disseminates event announcements, career opportunities, report releases and news highlights serves as an important means for reaching audiences. The total subscribers have increased by 142 to reach 2,365 from 2,227 subscribers in September 2017. The [ABCG LinkedIn® page](#) continues to draw attention with impressions reaching almost 500.

3.7.1.3 Africa Engagement

Nairobi Member and Partner Meetings

In October-November 2017 ABCG Secretariat staff, Rebecca Goodman and Evelyn Namvua held meetings with Nairobi colleagues from ABCG member, Conservation International, and partner institutions, IUCN and USAID. These meetings were aimed at sharing updates, nurturing the existing partnership, and creating new alliances.

ABCG engaged with members and partners in the region through attending regional forums and events organized in Nairobi for the purposes of enhancing ABCG’s reach and awareness, nurturing collaboration with African institutions, promoting ABCG’s work, and staying informed of current issues in the region.

Among the events that ABCG participated in were:

1. [The first Africa Environment Partnership Platform organized by NEPAD](#) (September 2018)
2. [Regional Workshop on the Forum on China-Africa Cooperation \(FOCAC\) in Nairobi, Kenya](#) (June 2018)
3. [3rd Private Sector Conference On Sustainable Inclusive Business](#) (May 2018)
4. Wildlife Information Landscape Database (WILD) Sustainability workshop by PREPARED (December 2017)
5. [Launch of Kenya Wildlife Conservancies Status Report 2016](#) (December 2017)

On March 23, 2018, ABCG attended a planning meeting to discuss the proposed African Parks Congress at IUCN Nairobi. Attended by representatives from conservation organizations in Nairobi, including AWF, WWF, African Conservation Center and others, the meeting was aimed at introducing the congress plans, providing a background on the congress, progress so far and the proposed objectives. The congress, scheduled for November 2019, presents an opportunity for ABCG to participate and showcase its work on landscape planning and other related areas as well as connect with other actors in Africa with a bid to develop collaboration and increase awareness of the program's work.

There is opportunity for ABCG to continue nurturing the relations with partners and to participate in regional discussions that would enable ABCG to demonstrate how it's responding to global biodiversity priorities while at the same time influence the biodiversity agenda on the continent. In order to have greater impact in these events, ABCG would need to identify strategic opportunities for engagement and adequately plan for them in FY 2019 and beyond.

Nairobi Speaker Series

ABCG hosted two speaker events during this reporting period:

1. [Laying the Foundation for Smart Planning for Sustainable Agriculture in SAGCOT](#) (February 2018)
2. [Tackling Complex Conservation Challenges by Strengthening Collaboration and Leveraging Resources across Africa](#) (October 2017)

The original anticipated number for these events were much higher (12) than the actual events held due to a number of challenges, such as identification and time availability of speakers and proposed topics for presentation. It also takes a considerable amount of effort to promote attendance as the response rate via the electronic mailing list has not been very positive. For Nairobi audiences, personalized emails seem to generate better responses rather than electronic mailing lists. It would also be useful to examine which other communication channels might result to a higher reach of audience and generate engagement. ABCG needs to re-examine and strategize on how to organize future events to make them successful.

4. APPENDICES

4.1 ABCG PHASE II MONITORING AND EVALUATION PLAN

Table I | ABCG Phase II Monitoring and Evaluation Plan

Intermediate Result	Indicators	Targets	Means of Verification
ABCG Central Administration			
Present the work of ABCG.	Number of external-facing events (meetings, workshops, brown bag talks, etc.) that occurred and were broadcast	At least 1 event per working group per year	Annual report; announced on social media; webinar recording posted to website
	Number of thought-leadership materials (analyses, white papers, peer-reviewed articles, etc.) distributed	At least 1 item per working group per year	Annual report; posted to website; announced on social media
	Technical reports on activities distributed	At least 1 per working group per year	Annual report; submitted to www.DEC.USAID.gov ; posted to website
Provide forum for information-sharing by others in African biodiversity conservation	Number of non-ABCG brown bag talks (i.e., by member-NGO staff on non-ABCG work, by non-ABCG people) that occurred and were broadcast	At least 10 per year	Annual report; announced on social media; webinar recording posted to website
Maintain online presence through listserv, website, Facebook, and Twitter.	Number of listserv subscribers	2,500 “active” subscribers by Sept. 2018	Constant Contact Email statistics
	Average open rate for listserv emails	35 percent email open rate	Constant Contact Email statistics
	Number of visits to website	1,500 visits per month	Google Analytics administrative report
	Number of downloads from website	450,000 total downloads	ABCG website administrative report
	Number of “likes” of Facebook page	1,000 Facebook “likes” by 2018	Facebook page administrative report

	Number of Twitter followers	900 Twitter followers by 2018	Twitter account administrative report
LRTR			
Provision of a Certificate of CCROs for six villages, Greater Mahale Ecosystem, Tanzania (TNC, JGI)	Number of joint workshops, symposia, research, and analysis held with stakeholders and partners	2 workshops	Workshop reports
	Number of people receiving USG-supported training in natural resources management and/or biodiversity conservation (disaggregated by sex)	492 (329 men & 163 women)	Workshop reports
	Number of changes in policies, programs projects and practices cited as a result of analysis and influence activities in this program	1-2 policy, practice or program changes	Annual Progress reports
	Increase in number of policies, laws, agreements, and/or regulations that promote conservation of biodiversity	1 policy or agreement/regulation	Annual Progress reports
Develop mechanism for easements and formal recognition of community and customary rights over land and natural resources, Northern rangelands, Tanzania (AWF, WRI)	Number of countries in which ABCG has contributed to drafting guidelines for private voluntary initiatives.	At least one country	Workshop reports
	Number of guidelines incorporated into national policies or regulations in at least one country.	At least 1 country adopts policy guidelines	Workshop reports
Establish new IUCN Category VI Protected Area, DRC (WCS, WWF)	Number of changes in policies, programs projects and practices cited as a result of analysis and influence activities in this program	1 policy change	Annual Progress reports
	Number of joint/co-hosted workshops, symposiums, research and analysis conducted with stakeholders and partners	2 workshops	Workshop reports
	Number of people receiving USG-supported training in natural resources management and/or biodiversity conservation (disaggregated by sex)	25 people	Workshop reports
	Increase in number of policies, laws, agreements, and/or regulations that promote conservation of biodiversity	1 PA registration	Protected area registry in DRC government

Managing Global Change Impacts on Biodiversity (GCI)			
Design and implement human response field surveys (WWF)	Number of sites surveyed Number of people interviewed	21 10 per site	Reports posted to wwfclimatecrowd.org
Produce literature review of human coping responses to climate change (WWF)	Number of publications reviewed	TBD depending on availability of publications	Database of findings
Develop observed and projected climate variables for all survey sites (TNC)	Maps and spatial data of observed and projected variables in target sites needed for typology analysis.		Maps published
Develop a typology of human responses to climate change based on the results of field survey and literature review (CI)	Number of new analytic tools in biodiversity tested by key stakeholders in targeted African countries.	1 typology	Document describing the typology
Outreach to development organizations (WCS)	Number of organizations beyond ABCG partners that contribute	5 organizations	Development organization outreach report
Map human responses in relation to observed climate impacts and map likely response based on projected change (WCS)	Number of new analytic tools in biodiversity tested by key stakeholders in targeted African countries. (maps)	4 maps	Semi-Annual Report
Use knowledge base on human responses and likely conservation impact to identify and prioritize adaptation strategies (WCS, TNC, CI)	Number of sites in Africa for which strategies are identified	TBD, based on number of coping responses identified in the typology	Semi-Annual Report
Develop and pilot a methodology to identify areas and prioritize adaptation efforts (WCS, TNC, CI)	EG.10.2-4 Number of people trained in sustainable natural resources management and/or biodiversity conservation as a result of USG assistance (disaggregated by sex)	1 workshop	Workshop Report
LUM			
Define objectives for each LUM site	Number of landscapes that set objectives	4 landscapes	Progress report

	Number of joint workshops, analysis and research held with stakeholders and partners.	4 workshops	Workshop report
Characterize the landscape, establish evaluation metrics, and understand drivers of change	Number of new analytic tools in biodiversity provided by USAID tested by key stakeholders in targeted African countries.	4 key drivers of landscape change models tested 3 climate change landscape-scale assessments tested	Progress report
Develop alternative scenarios and recommend response options	Number of new analytic tools in biodiversity provided by USAID tested by key stakeholders in targeted African countries.	4 trade off models comparing performance of future land-use plans tested	Progress reports
Provide decision support tools and build capacity for adoption	Number of new analytic tools in biodiversity provided by USAID tested by key stakeholders in targeted African countries.	4 decision support frameworks tested	Progress report
	Number of people receiving USG-supported training in natural resources management and/or biodiversity conservation (disaggregated by sex)	60 people	Workshop reports by site
Synthesize best practices based on experience in multiple landscapes and present them to fifth landscape	Number of NGOs (US-based and African) participating in the conservation and development COP	5 NGOs	Lessons learned document
	Number of lessons that can be applied beyond initial pilot sites.	2-3 per site	Lessons learned document
	Number of additional sites in which best practices from LUM are presented	2 sites	Meeting report
	Number of countries in which best practices from LUM are presented	2 countries	Meeting report
Global Health Linkages to Biodiversity Conservation			
Water, Sanitation and Hygiene (WASH)			
Integrate gender considerations into project design and monitoring and evaluation (M&E) plan for two pilot sites.	Number of published recommendations for integrating gender considerations into project design and M&E.	2 gender analysis reports	Gender analysis reports
Joint pilot test the guidelines and M&E framework produced	EG.10.2-4 Number of people trained in sustainable natural resources management and/or biodiversity	2 analytic tools tested	Project report

by ABCG members and development organizations engaged in WASH.	conservation (trained and implementing community-based WASH and freshwater conservation) as a result of USG assistance. (disaggregated by sex)		
	Number of joint workshops, analysis and research held with stakeholders and partners.	1-2 workshops per pilot site and 2-3 analysis or research efforts conducted per site	Project report
Formalize an Africa-based COP and host online capacity-building events.	Number of resources, communications (blogs, speeches, tweets, etc.), and webinars relating to biodiversity conservation and human health shared via the online CoP platform.	Target: 12 resources/1 per month 4-6 capacity-building webinars	Webinar recordings
	Number of NGOs (US-based and African) participating in the conservation and development COP	10-20 NGOs	Names on participant lists and email addresses included in mailing list
Document lessons learned and proposed refinements to the ABCG Guidelines and M&E Framework through the Africa-based COP.	Number of proposed refinements to ABCG-designed tools as a result of pilot projects.	At least 3 per tool	Lessons learned document
	Number of lessons that can be applied beyond initial pilot sites.	3-4 per site	Lessons learned document
Population, Health and Environment (PHE)			
Analyze existing projects that integrate population with other health & environment sectors	Number of projects integrating PHE analyzed	At least 2 projects identified that are integrating PHE approaches with sustainable agriculture, food and nutrition security focus	Literature Review
Identify best practices based on the analysis for integrated PHE projects at the regional and national scales	Number of successful approaches identified	At least 3 best PHE practices identified and recommended for implementation	Literature Review Annual Report – success stories of PHE champions
	Number of PHE champions promoting PHE as a biodiversity conservation tool	At least 3 champions per pilot projects sites promoting PHE	
Conduct a communication event	Joint presentation/webinar held with PHE stakeholders and partners	1 presentation/webinar combining	Presentation/webinar organized to reach

to promote best practices and lessons from the pilot sites to ABCG community, PHE practitioners and development organizations engaged in cross-sectoral health and environment work	to disseminate lessons and best practices from pilot sites	experiences from ABCG pilot sites on PHE best practices 1 consultative meeting with the Tanzania PHE network	stakeholders and audiences: such as the PHE Policy & Practice Group; various PHE Networks in Africa – Tanzania, Ethiopia, Madagascar, etc.
Provide capacity building for adoption of PHE-related sustainable development behaviors for biodiversity conservation	EG.10.2-4 Number of people receiving USG-supported training in natural resources management and/or biodiversity conservation (disaggregated by sex)	# of people trained on PHE/conservation related concepts	Pilot Project Report Pilot Project Report
	# of best practices identified in the lit. review, implemented at the pilot project sites	At least 3 out of 5 best practices are implemented in each pilot sites	
Emerging Issues			
Steering committee reviews and awards small grants	Number proposals funded by Steering Committee each year	At least 2	ABCG annual report
	Number of non-ABCG partners participating	2 per year	ABCG annual report

4.2 INDICATOR PROGRESS TABLES

4.2.1 Indicator Progress Table: Secretariat

Table 2 | Progress Indicators: Achieved progress versus planned for FY 2018

INTERMEDIATE RESULTS	INDICATOR	Data Source	FY 2018		Comments on Target Achievement
			Annual Planned Target	Annual Cumulative Actual	
Present the work of ABCG.	Number of external-facing events (meetings, workshops, brown bag talks, etc.) that occurred and were broadcast	Annual report; announced on social media; webinar recording posted to website	At least 1 event per working group per year	14 lesson sharing events	All working groups organized a final dissemination event in addition to numerous webinars produced by the FW-WASH working group.
	Number of thought-leadership materials (analyses, white papers, peer-reviewed articles, etc.) distributed	Annual report; posted to website; announced on social media	At least 1 item per working group per year	1 WASH 3 LRTR 2 LUM 2 GCI 1 PHE	Each working group prepared a final analysis and recommendations from life of agreement activities for publication in the final quarter of FY 2018.
	Technical reports on activities distributed	Annual report; submitted to www.DEC.USAI D.gov; posted to website	At least 1 per working group per year	4	Each working group has contributed an implementation status update which is captured in this report and will be published to ABCG.org. Highlights are written up as news articles posted to the website and shared via the ABCG newsletter.
Provide forum for information-sharing by others in African biodiversity conservation	Number of non-ABCG brown bag talks (i.e., by member-NGO staff on non-ABCG work, by non-ABCG people) that occurred and were broadcast	Annual report; announced on social media; webinar recording	At least 10 per year	9	ABCG has hosted 9 events during this period- in Washington DC and Nairobi. The focus in the latter half of the year was on thematic lessons sharing, thus resources were diverted towards organizing events for the working groups.

		posted to website			
	Number of listserv subscribers	Constant Contact Email statistics	2,500 "active" subscribers by Sept. 2018	2,365 Total subscribers	Total subscribers have increased by 142 to reach 2,365 from 2,227 subscribers in September 2017. The 135 discrepancy is expected to be attained over the next 6 months when a concerted effort will be made to disseminate and promote the knowledge products that have been produced in the final quarter of FY 2018.
Maintain online presence through listserv, website, Facebook, and Twitter.	Average open rate for listserv emails	Constant Contact Email statistics	35 percent email open rate	36 percent average open rate	Target attained.
	Number of visits to website	Google Analytics administrative report	1,500 visits per month	4,658 visitors from October 1, 2017 to September 21, 2018	The website visitors have been steadily increasing every year, this represents a 6% increase from the total 4,402 visitors recorded in FY 2017.
	Number of downloads from website	ABCG website administrative report	450,000 total downloads	1,221,279 total downloads	This life of project target has been exceeded by 170 percent.
	Number of "likes" of Facebook page	Facebook page administrative report	1,000 Facebook "likes" by 2018	1,214 likes	This life of agreement target has been attained.
	Number of Twitter followers	Twitter account administrative report	900 Twitter followers by 2018	771 followers	The account has been growing exponentially, with new followers having more than doubled in FY 2018.

4.2.2 Land and Resource Tenure Rights

Table 3 | Progress Indicators: Achieved progress versus planned for FY 2018

	INDICATOR	Data Source	FY 2018	Comments on Target Achievement
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INTERMEDIATE RESULTS			Annual Planned Target	Annual Cumulative Actual	
Provision of Certificate of Customary Rights of Occupancy (CCROs) in six villages, Greater Mahale Ecosystem, Tanzania (TNC, JGI)	Number of joint workshops, symposia, research, and analysis held with stakeholders and partners	Workshop reports	6 (JGI); 2 (TNC)	2 (JGI 2018) 5 (TNC 2018)	Target for life of project: 2 workshops; 3 workshops were held in FY 2016 (TNC) JGI target included village training on CCRO issuance. The final session (formal issuance in Mynyamasi village has been delayed)
	EG.10.2-4 Number of people trained in sustainable natural resources management and/or biodiversity conservation as a result of USG assistance	Workshop reports	140 (JGI); Target for life of project: 492 (329 men and 163 women) (TNC)	391 (272 men, 119 women) (TNC) 375 (25 men 8 women) (JGI)	55 and 70 people were trained in FY 2016 and FY 2017, respectively (TNC). The target has now been met with a total of 516 people trained (TNC).
Provision of individual and group CCROs in Southern Tanzania and pro-CCRO contribution to national policy dialogues (AWF, WRI)	EG.10.2-5 Number of laws, policies, or regulations that address biodiversity conservation and/or other environmental themes officially proposed, adopted, or implemented as a result of USG assistance	Annual progress reports; media articles	1 (WRI)	0	WRI continued with outreach and communications of LRTR findings and recommendations in Tanzania and abroad (see narrative above for FY18 outreach efforts). The reform of the National Land Policy was expected to be completed this year, but government has extended the process.
	Number of villages surveyed and assessed for individual and group CCROs	Survey reports	16	20	Target attained in FY 2017.
Establish new IUCN Category VI Protected Area, Democratic Republic of Congo (WCS, WWF)	Number of changes in programs, projects, and practices cited as a result of analysis and influence activities in this program	Workshop report	1 change	1 change	Target attained in FY 2017.
	Number of joint/co-hosted workshops, symposiums, research and analysis conducted with stakeholders and partners	Annual Progress reports	3 workshops	5 LGC meetings, awareness meetings with communities and DRC army staff; 1 Final lessons learned workshop	Target attained in FY 2017.
	EG.10.2-4 Number of people trained in sustainable natural resources management and/or biodiversity	Workshop reports	25 people	494 people (142 women, 353 men of	Target attained in FY 2017.

	conservation as a result of USG assistance			which 28 were Batwa)	
	EG.10.2-5 Number of laws, policies, or regulations that address biodiversity conservation and/or other environmental themes officially proposed, adopted, or implemented as a result of USG assistance	Protected area registry in DRC government	1 PA registration	1	Target attained in FY 2017.

4.2.3 Indicator Progress Table: Land Use Management

Table 4 | Progress Indicators: Achieved progress versus planned for FY 2018

INTERMEDIATE RESULTS	INDICATOR	Data Source	FY 2018		Comments on Target Achievement
			Annual Planned Target	Annual Cumulative Actual	
Define objectives for each LUM site	Number of landscapes that set objectives	Progress report	4 landscapes	NA	Target attained in FY 2016.
	Number of joint workshops, analysis and research held with stakeholders and partners.	Workshop report	4 workshops	(FY2017) 2 workshops (FY2018) 3 workshops	Target was attained.
Develop alternative scenarios and recommend response options	Number of new analytic tools in biodiversity provided by USAID tested by key stakeholders in targeted African countries.	Progress reports	4 trade-off models comparing performance of future land-use plans tested	4 models FY2018 1 model JGI DRC	Target attained in FY 2017.
Provide decision support tools and build capacity for adoption	Number of new analytic tools in biodiversity provided by USAID tested by key stakeholders in targeted African countries.	Progress report	4 decision support frameworks tested	4 decision support frameworks tested FY2018 1 framework JGI DRC	Target attained in FY 2017.
	EG.10.2-4 Number of people trained in sustainable natural resources management and/or biodiversity conservation as a result of USG assistance (disaggregated by sex)	Workshop reports by site	60 people	FY2017 (22 males, 22 females) FY2018 (38 males, 16 females)	Life of project indicator attained.

Synthesize best practices based on experience in multiple landscapes and present them to fifth landscape	Prepare preliminary gap analysis of data needs in presentation landscape through working closely with the government to identify priorities and learn where support is needed (TNC).	Existing government stakeholder feedback on land use planning needs and draft Freshwater Atlas (TNC)	1 report with recommendations	1 draft report 11 recommendations	Final report of the gap assessment is ready and has been shared with the CNAT.
	Number of NGOs (US-based and African) participating in the conservation and development COP	Lessons learned document	5 NGOs	0	This was not achieved, the project focus was on completing the technical work which was done by the end of FY 2018, the activity will now be carried out in FY 2019.
	Number of lessons that can be applied beyond initial pilot sites.	Lessons learned document	2-3 per site	3 per site achieved	This was achieved as evidenced by the lessons learned document.
	Number of additional sites in which best practices from LUM are presented	Meeting report	2 Sites	0	This is yet to be achieved as the project completed the technical work at the end of Year 3. The FY 2019-2020 extension period will be focused on training and influencing best practices in additional sites.
	Number of countries in which best practices from LUM are presented	Meeting report	2 Countries	0	This is yet to be achieved as the project completed the technical work at the end of Year 3. The FY 2019-2020 extension period will be focused on training and influencing best practices in additional sites.

4.2.4 Indicator Progress Table: Global Change Impacts

Table 5 | Progress Indicators: Achieved progress versus planned for FY 2018

INTERMEDIATE RESULTS	INDICATOR	Data Source	FY 2018		Comment on Target Achievement
			Annual Planned Target	Annual Cumulative Actual	
Design and implement human response field surveys (WWF)	Number of sites surveyed Number of people interviewed	Reports posted to wwfclimatecrowd.org	21 sites 10 per site	19 sites, 700 total interviews	Several organizations had difficulty defining three discrete survey sites, therefore increased the number of key informant interviews at a survey site to obtain the needed data.
Produce literature review of human coping responses to climate change (WWF)	Number of publications reviewed	Database of findings	TBD depending on availability of publications	1,950	To date, 1,950 publications have been reviewed
Develop observed and projected climate variables for all survey sites (TNC)	Maps and spatial data of observed and projected variables in target sites needed for typology analysis.	Maps published	Climate data for 21 sites	21 climate analysis areas	Analyses have been completed for 21 generalized clusters comprising the locations of over 600 key informant interviews in eleven African countries. Clusters encompass large areas in order to create statistically viable climate analysis based on the spatial resolution of both the historic climate data.
Develop a typology of human responses to climate change (CI)	Typology of human responses to climate change based on the results of the field survey and literature review	Document describing the typology	1 typology	1 typology developed	The typology of responses based on the surveys conducted was completed. We have identified 46 response types to climate change.
Outreach to development organizations (WCS)	Number of organizations beyond ABCG partners that contribute	Development organization outreach report	5 organizations	8 organizations	WCS assigned a short-term consultancy to undertake a survey of a small number of prioritized international development organizations and research institutions with active programs and experience working in sub-Saharan Africa regarding their perceptions of human coping responses to climate change. (Appendix A)
Map human responses in relation to observed climate impacts and map likely response	Number of new analytic tools in biodiversity provided by USAID tested by key	Semi-Annual Report	4 maps	4 maps	Target achieved.

based on projected change (WCS)	stakeholders in targeted African countries. (maps)				
Use knowledge base on human responses and likely conservation impact to identify and prioritize adaptation strategies (WCS, TNC, CI)	Number of sites in Africa for which strategies are identified	Semi-Annual Report	10, based on number of coping responses identified in the typology	5 countries multiple sites per country	Workshop participants discussed alternative adaptation responses to help farmers and fishermen adapt to climate change in ways that do not negatively affect biodiversity. Building on this knowledge and their own experiences, participants developed 11 project ideas that could be implemented to help farmers and fisherman adapt to perceived climate threats that do not negatively impact biodiversity.
Develop and pilot a methodology to identify areas and prioritize adaptation efforts (WCS, TNC, CI)	EG.10.2-4 Number of people trained in sustainable natural resources management and/or biodiversity conservation as a result of USG assistance (disaggregated by sex)	Workshop Report	1 workshop	34 people trained (10 women, 14 men)	The final dissemination workshop occurred in August 2018 in Nairobi, Kenya. Invitees included local stakeholders from communities where human response surveys were undertaken, as well as local and international NGO representatives.

4.2.5 Indicator Progress Table: Global Health—Population Health and Environment

Table 6 | Progress Indicators: Achieved progress versus planned for FY 2018

INTERMEDIATE RESULTS	INDICATOR	Data Source	FY 2018		Comments on Target Achievement
			Annual Planned Target	Annual Cumulative Actual	
Analyze existing projects that integrate population with other health & environment sectors	Number of projects integrating PHE analyzed	Literature Review	At least 2 projects identified that are integrating PHE approaches with sustainable agriculture, food and nutrition security focus	5 projects were reviewed that integrated PHE approaches with sustainable, food, and nutrition security focus	Target achieved in FY 2017.
Identify best practices based on the analysis for integrated PHE projects at the regional and national scales	Number of successful approaches identified	Literature Review	At least 3 best PHE practices identified and recommended for implementation	5 best practices identified and recommended for pilot project implementation	Target achieved in FY 2017.
	Number of PHE champions promoting PHE as a biodiversity conservation tool	Annual Report – success stories of PHE champions.	At least 3 champions per pilot projects sites promoting PHE	TNC - There are more than 6 active PHE champions operating in both Uvinza and Tanganyika districts, western Tanzania. WWF – 37 Health Scouts and 30 women focal points are PHE champions in the project area.	TNC - Currently, there are 78 (12 women and 66 men) PHE champions promoting PHE as a biodiversity conservation tool in Uvinza and Tanganyika districts in western Tanzania. See submitted success story of Thomas Mapango as an example of a PHE champion. WWF – All Health Scouts and women focal points are regularly promoting the PHE approach in their communities/villages by conducting individual educational household sessions and through mass campaigns.
Conduct a communication event to promote best practices and lessons from the pilot sites to ABCG	Joint presentation/webinar held with PHE stakeholders and partners to disseminate lessons and best practices from pilot sites	Presentation/webinar organized	1 presentation/webinar combining experiences from ABCG pilot sites on PHE best practices	1	FY 2018 webinar recording link: Lessons Learned in Exploring Linkages between Food Security, Nutrition and Conservation

community, PHE practitioners and development organizations engaged in cross-sectoral health and environment work			1 consultative meeting with the Tanzania PHE network		
Provide capacity building for adoption of PHE-related sustainable development behaviors for biodiversity conservation	EG.10.2-4 Number of people receiving USG-supported training in natural resources management and/or biodiversity conservation (disaggregated by sex)	Pilot Project Report	1,000 (TNC); this life of project figure is an estimated post hoc target (based on the number of model households we wanted to set up).	1,817 (TNC). FFS 904 (827 men, 990 women); farmers adopted CSA 888 (409 men, 479 women). 2,983 (WWF) (760 Bantu men; 600 Baka men; 1073 Bantu women; 550 Baka women).	TNC is continuing to: 1) support communities on the food security component, which includes animal husbandry trainings; and 2) train additional communities on the model household approach. WWF – Men and women, including women focal points for nutrition were trained through educational sessions and mass campaigns on the following subjects – sustainable agriculture (including family orchards); prevention of malnutrition and food security; latrine digging, hygiene and sanitation, safe drinking water and environmental cleanliness.
	# of best practices identified in the lit. review, implemented at the pilot project sites	Pilot Project Report	At least 3 out of 5 best practices are implemented in each pilot sites	TNC – Currently implementing 3 out of 5 best practices as identified in the literature review. WWF – Currently implementing 4 out of 5 best practices as identified in the literature review.	Target achieved in FY 2017.

4.2.6 Indicator Progress Table: Global Health—Water, Sanitation, and Hygiene

Table 7 | Progress Indicators: Achieved progress versus planned for FY 2018

INTERMEDIATE RESULTS	INDICATOR	Data Source	FY 2018		Comments on Target Achievement
			Annual Planned Target	Annual Cumulative Actual	
Integrate gender considerations into project design and monitoring and evaluation (M&E) plan for two pilot sites.	Completed gender analysis.	Gender analysis reports	2	2	Target achieved in FY 2017.
Joint pilot test the guidelines and M&E framework produced by ABCG members and development organizations engaged in WASH.	Number of pilot workshops, analysis, and research meetings held with stakeholders and partners.	Progress report	12 meetings	24 meetings	Target achieved in FY 2017.
	EG.10.2-4 Number of people trained in sustainable natural resources management and/or biodiversity conservation (trained and implementing community-based WASH and freshwater conservation) as a result of USG assistance. (disaggregated by sex)	Semi-annual reports	CSA target- 60 (40 men, 20 women) JGI target – 20 (12 men, 8 women)	CSA – 178 (100 men, 70 women and 8 who did not specify on the attendance register) JGI – 24 (18 men, 6 women)	CSA total reflects updated info on individuals trained at the Climate and WASH Summit and the Veld Sanitation trainings.
Formalize an Africa-based COP and host online capacity-building events.	Number of organizations participating in the COP	Online COP (LinkedIn)	55	65	Target exceeded.
	Number of resources, communications (i.e., blogs, speeches, tweets, etc.), and webinars relating to biodiversity conservation and human health shared via the online CoP platform.	LinkedIn analytics Webinar recordings	Target: 12 resources/1 per month 4-6 capacity-building webinars	46 resources 6 webinars	Target achieved.
Document lessons learned and proposed refinements to the ABCG Guidelines and M&E Framework through the Africa-based COP.	Number of proposed refinements to ABCG-designed tools as a result of pilot project results.	Lessons learned document	At least 3 per tool	11 for the Guidelines and 4 for the M&E Framework	Target achieved.
	Number of lessons that can be applied beyond initial pilot sites.	Lessons learned document	3-4 per site	6 total (both sites contributed to content for both)	Target achieved.

4.3 TYPES OF RESPONSES TO CLIMATE CHANGE BY LOCAL COMMUNITIES

Key | Red: potential negative impact on biodiversity; orange: impact on biodiversity that is context dependent; Blue: potential impact on biodiversity is neutral; Green: positive impact on biodiversity

Table 8 | Types of responses to climate change by local communities

Types of adaptation responses	Uganda	Cameroon	DRC	Gabon	Kenya	Madagascar	Mozambique	Namibia	Tanzania	Zambia	Total
Log (timber/charcoal), hunt, fish or collect for food or income	12.6percent	3.2percent	14.8percent	16.2percent	3.8percent	25.1percent	10.5percent	7.3percent	10.4percent	7.8percent	11.8percent
Diversify from current livelihood	9.3percent	7.2percent	3.7percent	12.6percent	10.5percent	17.5percent	13.9percent	5.7percent	8.9percent	10.9percent	11.0percent
Walk farther distances for resources- water, forest, fish, or firewood	6.0percent	7.9percent	3.7percent	4.3percent	10.5percent	1.6percent	11.1percent	17.1percent	11.0percent	9.3percent	8.1percent
Migrate/emigrate	1.6percent	4.2percent		9.7percent	2.4percent	7.7percent	2.6percent	10.6percent	6.0percent	8.5percent	5.7percent
Expand farmland	1.6percent	6.9percent		11.6percent	1.0percent	12.2percent	0.9percent		4.6percent		5.5percent
Build water infrastructure: wells, water tanks, boreholes, pipes, channels, dams	3.3percent	3.2percent		0.7percent	10.5percent	2.0percent	6.0percent	4.9percent	4.2percent	7.0percent	4.1percent
Rely on government or NGO support (water, health, farming, livestock, tree planting)	7.1percent	4.2percent	7.4percent	0.7percent	1.0percent	0.6percent	4.5percent	13.0percent	4.7percent	2.3percent	3.7percent
Use pesticides or fertilizers	7.7percent	9.3percent		0.7percent		2.0percent	0.6percent		5.0percent	2.3percent	3.7percent
Change livelihood location	1.1percent	4.9percent		1.8percent	1.4percent		11.6percent	3.3percent	1.8percent	4.7percent	3.2percent

Sell assets (cattle or land)	2.2percent	0.9percent	14.8percent		13.9percent	2.0percent	2.8percent	8.9percent	2.1percent	4.7percent	3.1percent
Plant trees/forest conservation/join conservation committees/campaigns	7.7percent		3.7percent	1.4percent	1.4percent	0.4percent	0.6percent		8.3percent		3.0percent
Use short term crops, crop rotation, or resistant/GMO seeds/crops, fallow	4.4percent	4.4percent	3.7percent	0.4percent		1.4percent	0.3percent		6.0percent	5.4percent	3.0percent
Use alternative fishing methods- small nets/poison/gears		0.7percent	7.4percent	5.1percent		3.7percent			6.6percent		2.9percent
Develop water management plans /use less water/harvest rainwater		1.4percent		0.4percent	4.8percent	0.2percent	8.8percent	3.3percent	4.3percent		2.9percent
Diversify crop type	5.5percent	3.2percent	3.7percent	2.2percent		6.1percent	1.1percent		1.7percent	2.3percent	2.7percent
Types of adaptation responses	Uganda	Cameroon	DRC	Gabon	Kenya	Madagascar	Mozambique	Namibia	Tanzania	Zambia	Total
Change farming schedule or replant within season	3.3percent	10.6percent		4.0percent	0.5percent	1.0percent	0.3percent	0.8percent	0.5percent		2.5percent
Exploit natural resources: water, fishery, forest	1.6percent	0.5percent	3.7percent	8.3percent	0.5percent	1.4percent	5.4percent	1.6percent	0.7percent	2.3percent	2.2percent
Encroach on conservation areas: forest or marine	2.2percent	0.7percent		4.7percent	4.8percent	0.4percent	1.1percent	0.8percent	2.8percent		1.9percent
Plant cover crops, shade grown varieties, natural wind barriers or gardens	6.0percent	0.7percent	7.4percent	1.8percent			0.6percent	0.8percent	1.2percent	12.4percent	1.7percent
Purchase food, water or livestock feed	1.1percent	0.5percent		6.5percent	2.9percent	0.4percent	1.7percent	8.9percent		0.8percent	1.6percent
Cultivate in wetlands/ swamps or water catchment sites/forest	4.9percent	4.4percent				1.2percent	0.3percent		1.0percent	2.3percent	1.5percent

Limit deforestation and use of natural resources	0.5percent	0.2percent		2.9percent	0.5percent	0.6percent	1.1percent	0.8percent	0.9percent	9.3percent	1.3percent
Move cattle/plantations close to rivers or forest	1.6percent	1.9percent		1.1percent	2.4percent	0.8percent	0.9percent	1.6percent	0.9percent	1.6percent	1.2percent
Fence land		1.2percent			10.5percent		1.4percent			1.6percent	1.1percent
Get water from forest or dig holes in riverbed		4.9percent		0.4percent	1.4percent	0.4percent	0.3percent	0.8percent	0.3percent		1.0percent
Practice mining (gold/precious stones)						5.9percent			0.1percent		1.0percent
Irrigate manually or with water pumps	0.5percent					0.4percent	4.8percent	0.8percent	0.1percent	0.8percent	0.8percent
Trap/chase intruding wildlife	1.1percent	1.6percent		1.1percent	1.0percent			2.4percent	0.1percent	3.9percent	0.8percent
Focus on small livestock or more resistant breeds		0.5percent	14.8percent		5.3percent		0.3percent	3.3percent			0.7percent
Burn farmland to increase fertility/remove invasive species/protect land	1.6percent	3.9percent									0.7percent
Land use planning, laws and better grazing practices					1.4percent				2.2percent		0.7percent
Feed cattle with forest resources or plant brachiaria		2.3percent				0.2percent	1.4percent	1.6percent			0.6percent
Construction/use of health facilities	1.1percent	0.5percent			3.3percent	0.4percent			0.5percent		0.6percent
Types of adaptation responses	Uganda	Cameroon	DRC	Gabon	Kenya	Madagascar	Mozambique	Namibia	Tanzania	Zambia	Total
Abandon fields		0.9percent		0.7percent			2.6percent				0.5percent

Use charcoal/gas instead of firewood or energy saving stones	4.4percent				1.9percent				0.3percent		0.5percent
Vaccinate livestock or consult with professionals		2.5percent			1.0percent				0.3percent		0.5percent
Cultivate/live farther from river		0.5percent							1.3percent		0.4percent
Borrow money/loans or rent land	0.5percent				1.0percent	1.4percent			0.1percent		0.4percent
Store food or water, or borrow seeds	1.1percent					0.8percent	0.3percent		0.5percent		0.4percent
Work in exchange for food						0.4percent	1.7percent	1.6percent			0.3percent
Create cooperatives/associations	0.5percent			0.4percent			0.6percent		0.5percent		0.3percent
Change diet	0.5percent	0.2percent		0.4percent	0.5percent						0.1percent
Eat less	2.2percent										0.1percent
Intensification of livestock production						0.8percent					0.1percent
Build wind and flood durable homes/infrastructure			11.1percent								0.1percent
Eat livestock						0.6percent					0.1percent

4.4 GCI ALTERNATIVE ADAPTATION RESPONSES AND RELATED BENEFITS PROVIDED FOR COMMUNITIES AND BIODIVERSITY

Table 9 | Alternative adaptation responses and related benefits provided for communities and biodiversity

Impact	Alternative Adaptation Response	Benefits for communities and biodiversity	Recommendations
Decline in crop production	Conservation agriculture-cover crops	Improves soil humidity Protects soil against wind and rain erosion	Train farmers on the importance and benefits of this practice
Decline in crop production	Conservation agriculture-agroforestry	Provides shade and protection from heavy rains and increased temperatures Reduces flooding, erosion and runoff during extreme rainfall events Provides windbreak for crops against high winds Improve income and food for farmers Increase plant and animal diversity and abundance	Establish a mechanism to provide seedlings to farmers from species most appropriate to be planted in association with certain crops to farmers on a zero or low cost needs to be in place

Decline in crop production	Inter cropping and multi cropping systems	<p>Maintains or improves production in extreme weather conditions if drought-resistant seeds are used</p> <p>Reduces erosion by limiting fallow periods for production areas</p> <p>Provides income and food for farmers across seasons</p> <p>Increases biodiversity of insects</p>	<p>Teach farmers how to select drought resistant seeds or to have a system to provide seeds to farmers</p> <p>Ensure strong collaboration with Ministry of Agriculture</p> <p>Ensure that the agricultural calendar is adjusted to new climatic conditions, so farmers know the best time to plant a variety of crops</p>
Decline in crop/decline in fish/decline in livestock	Livelihood diversification	Provides new source of income as the farmer does not rely on a single activity	<p>Design and provide training on additional livelihoods need to be designed and provided to communities</p> <p>Communities may need resources to start a new livelihood activity</p>
Decline in fish production	Establishment of temporary reserve	<p>Provides opportunities for fisheries to reestablish</p> <p>Increases fish abundance</p>	Need to be implemented in combination with a livelihood diversification, so fishermen can have another source of income Fishermen must be aware and agree with rules in the temporary reserves

Change in water	Collect rainwater for irrigation	Provides water all year-round if rainfall is not too scarce Decreases the time communities may spend to find a water source Reduces human-wildlife conflicts	Train farmers on the best configuration to implementing the water collection system Put rules in place in terms of water usage
Change in water	Build small water infrastructure- such as boreholes	Provides water all year-round if rainfall is not too scarce Decreases the time communities may spend to find a water source	Provide support to farmers on where and how to build such structures Put rules in place in terms of water usage
Change in water	Reforestation around water sources	Increases water quality and availability if native species are used Increases plant diversity and abundance	Establish a mechanism to provide seedlings to farmers on a zero or low cost needs to be in place Use labor from communities to increase their income and build a sense of ownership
Decline in livestock	Re-seeding perennial grasses	Recovers natural grasslands if native species are used	Provide pastoralists with seeds on a zero or low cost
Decline in livestock	Improved livestock breeds	Improve or maintain productivity in extreme temperature and prolonged droughts	Provide farmers with the opportunity to by improved breeds with low cost

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