



## Promoting Sustainable Conservation Through Engaging Communities in Data Collection

Engaging local communities in data collection is an effective approach for promoting community involvement and building commitment to biodiversity conservation. In Tanzania, the US Agency for International Development Promoting Tanzania's Environment, Conservation, and Tourism (USAID PROTECT) activity supported communities to collect and manage conservation data, so as to inform future strategies and plans, make decisions, engage stakeholders, and resolve conflict.

### Our Approach

In order to strengthen the sustainability of conservation efforts, USAID PROTECT supported five local civil society organizations—Sea Sense, Chem Chem Association, Ruaha Carnivore Project, Southern Tanzania Elephant Program (STEP), and Tanzania Forest Conservation Group—to design and improve their existing community data-collection tools. Each organization faced its own unique challenges, but all three shared three common themes regarding data collection:

- Lack of resources and technology.
- Lack of knowledge in communities about how to collect and verify information gathered.
- Low data quality, inconsistency, and non-adherence to established data-collection recording and use guidelines.

Each of these five partners implemented its activities with local communities in different ecosystems. USAID PROTECT's support helped them to improve their community-engagement approach to collecting data and applying it to biodiversity conservation.

### Marine

**Sea Sense** works with communities along the coastal areas of Mafia, Kilwa, Rufiji, Temeke, Mkuranga, and Pangani to promote the sustainable management of natural resources. The organization supports marine biodiversity conservation and management strategies, based on science, to achieve a balance between the needs of people and the protection of wildlife populations. To do so, Sea Sense engages community-level beach-management units (BMUs) to conserve marine wildlife through various approaches, including using data to understand the status of marine resources and evaluate the success of management tools. The data collected provides the evidence needed to advocate for the protection of marine species, such as turtles, whale sharks and dugongs, and is used to make informed decisions about management of the communities' marine resources.

Prior to the start of USAID PROTECT, Sea Sense had already developed its own data-collection tool. However, the organization could not operationalize this tool in its target areas, due to a lack of resources to fund necessary materials, equipment, and staff.

With USAID PROTECT's support, Sea Sense trained local BMUs and statistics committees in Mafia and Kigamboni Districts on data collection and recruited committee members to participate in foot patrols and data collection during turtle-hatching season. In addition, Sea Sense helped BMUs leverage local sources of funding from districts, tour operators, and other stakeholders, so as to support necessary data collection and use. BMU members also made voluntary contributions to help ensure the data collection sustainability. The data collected showed that the survival of surrounding reefs

was threatened by overfishing; this concrete evidence enabled Sea Sense to advocate for reef closures with district leaders, thus allowing the ecosystem to recover. Three months after closure, octopus harvests increased from 1.5 tons to 3 tons, with sizes ranging from 1 to 2kg and 18 to 40cm in Minondo and Kigamboni districts.

*“Sea Sense involved me in developing reef closure data tools at Kimbiji. After learning the basic concepts of data collection, my sense of ownership of the resource has increased. I feel more responsible for taking care of marine wildlife.”*

-Tabu Abdallah, from Kigamboni,  
Chairperson of Minondo BMU

## Wildlife

USAID PROTECT promoted community collection and use of data to improve terrestrial wildlife conservation in the southern and northern landscapes of Tanzania, through collaboration with three local partners.

The **Ruaha Carnivore Project** is managed by the Wildlife Conservation Research Unit of Oxford University. One of its goals is to improve the benefits associated with wildlife, with a particular focus on carnivores on village land, and directly engage and empower local populations in conservation to improve human-wildlife coexistence near Ruaha National Park in southern Tanzania. The Ruaha Carnivore Project collects ecological data from communities to monitor carnivore depredation of livestock over time, implement early-warning alerts on lions to pastoralists, and measure the effectiveness of improved livestock enclosures (*bomas*).

Prior to USAID PROTECT, the communities in Ruaha already had their own tool to collect data on human and carnivore conflict. With the activity's support, the Ruaha Carnivore Project adopted the local tool and complemented it with smartphones and Open Data Kit technology. To reduce the number of human-carnivore conflicts, the Project trained community human-wildlife conflict monitors, conflict officers, and lion defenders to use smartphones for data collection. These community data collectors visited households and conducted village transects to collect and record data on livestock depredation by carnivores, carnivore and prey presence, and the effectiveness of *bomas* – predator-proofed wire livestock enclosures. The data on of 47 *bomas* showed a reduction of human-wildlife conflict by 98 percent. During the three months before the *bomas*' installation, 129 livestock were killed by predators, compared to 3 three months after installation.

*“The Ruaha Carnivore Project trained us on the importance of data collection and introduced the use of smartphones [for that purpose]. It is good to be organized with the data and to be able to verify. I have my duties each day to monitor the presence of carnivores and prey. Each week, I walk a transect and collect data on the spoor that I see and then alert community members. The data help us to understand the patterns of lions or hyenas and predict when there will be a problem. Through data, we can also tell community [members] how many lions are around because people tend to overstate this.”*

- Darem Philipo, Lion Defender, Kitisi, Iringa Region,  
Tanzania

Also, in southern Tanzania, USAID PROTECT partnered with the **Southern Tanzania Elephant Program (STEP)**, which monitors elephant movements along corridors in the Ruaha-Rungwa and Udzungwa-Selous ecosystems. STEP uses this data to design and enhance human-elephant coexistence strategies, and to map elephant movements from one park or protected area to another.

Prior to USAID PROTECT support, STEP faced two challenges that prevented it from effectively involving community members in data collection. The first challenge was that farmers did not understand the reasons behind data collection; the second was that STEP struggled with how to ensure quality and consistency among different data collectors. To address these challenges, STEP developed data-collection tools with the active support and participation of communities. In addition, the councils in each village suggested candidates to serve as local elephant monitors.

With USAID PROTECT's support, STEP organized a training to orient local elephant monitors on the proper use of data-collection tools. STEP then incorporated feedback from the monitors in order to make improvements. The monitors collected data on elephant activity for at least 10 days per month, using this improved database template and GPS units. STEP processed and analyzed the data to assess spatial and temporal trends in crop losses to elephants, including crop-loss hotspots, as well as to identify elephant movements across the wildlife corridor. The assessment reports indicated that in Kanyenja village, the number of days with incidents of crop loss to elephants were reduced from 20 in 2019 to only 1 in 2020. The data collected by monitors both empowered the community and enabled STEP to target its interventions.

*“The data collection helped to decide the location of the beehive fence in our village, as the beehive fence was put in the area with a lot of incidents of elephant crop damage. Also, it helps the community to become more aware about this problem and that the purpose of the data collection is to help understand better where and why elephants cause damage. The data collection is a source of income to run my daily activities, and the role gives me knowledge and experience in data collection.”*

-Mohamed Shamte, farmer, Miwangani, (sub-village) /  
Kanyenja (village), Mang'ula B, Kilombero, Morogoro

In northern Tanzania, USAID PROTECT's support to the **Chem Chem Association** included training and equipment for spatial monitoring and reporting tool technology, for patrols of village game scouts in the Burunge Wildlife Management Area. The spatial monitoring and reporting- tool system enabled patrol members to systematically collect data on poaching incidents and animal presence, while automatically recording the location of the patrols. This was an improvement over the previous system, in which data was recorded manually and data loss was common. The new system shows a 66% reduction in poaching incidents from 2018 to 2019 in Kwakuchinja Wildlife corridor.



*“The use of SMART technology has improved transparency and accountability in patrols. Initially, the data would not tell whether the village game scouts were on the site because it was done manually. Through this technology, all evidence is recorded and tracked.”*

-Richard Levilali, Village Game Scout, Burunge WMA

## Forests

USAID PROTECT partnered with the **Tanzania Forest Conservation Group**, which works to conserve and restore the biodiversity of the Eastern Arc mountains and coastal forests in Tanzania. The Group’s activities focus on capacity building, advocacy, research, community development, management of protected areas, and support for the development of livelihoods in communities that neighbor forests.

The Tanzania Forest Conservation Group developed its data-collection tools in 2017, following guidelines from the Ministry of Natural Resources and Tourism, which include checklists for collecting data during forest patrols, resource assessments, and management plans.

The Tanzania Forest Conservation Group found engaging communities in data collection to be time-consuming and costly, as community members required frequent refresher trainings on use of tools and GPS units. In addition, the communities did not have the capacity to analyze the data they collected. USAID PROTECT

supported the Group to train communities on the proper use of the forest patrol checklist and how to accurately record data. The activity also provided the Village Natural Resources Committee with gum boots, overalls, and raincoats for their safety and protection during data-collection exercises. Data from the forest survey shows a significant level of disturbance that threatens the existence of village forests; this has helped the community to develop solutions and activities to address these threats and improve forest quality and resource availability.

The data collected by the communities will be used in the future planning of forest and land-use management and will ensure that degraded parts of forest reserves are regenerated. In addition, the data will be used to help review and revise forest management plans and bylaws of community forest reserves.

*“Our forest is located far away from village center and situated in a mountainous area. This caused challenges during data collection because we spent more time walking on muddy pathways. My fellow and I used to wake up early in the morning and had to take food with us to eat during data collection. The gum boots and raincoat received from TFCG through the grant from PROTECT motivated us and helped us feel comfortable during data collection, even during rainy season.”*

-Saidi Amuri Lichocho, farmer, Kiwawa Village, Kiwawa Ward, Lindi District in Lindi Region.



Photo Credit: USAID PROTECT

Communities participate in data collection training in Pangani district. The training was organized by Sea Sense through USAID PROTECT support.



Photo Credit: Sea Sense

*Communities at Kigamboni participate in sea turtle monitoring exercise.*

## Conclusion

These examples show that engaging local communities in data collection empowers them to become true partners in conservation and promotes more sustainable conservation in Tanzania. Despite initial challenges with involving communities in data collection, USAID PROTECT's local partners have seen the benefits in doing so:

- Establishing and strengthening relationships among community members, and between communities and government entities.
- Raising awareness about conservation concerns and creating a sense of ownership among communities.
- Exposing community youth to improved natural resource management practices, thereby enabling future generations to continue participating in natural resource governance.
- Simplifying data sharing among stakeholders and ensuring that data collection is accurate and consistent.
- Ensuring that communities have a “seat at the table” with the government in decision making, particularly with respect to forest-management plans.
- Building the local knowledge base of the community and increasing data-collection coverage.
- Allowing easy access to information and data for effective decision making.

These lessons demonstrate how collaborating with local communities on data collection and interpretation is important for promoting the sustainable management of natural resources. This engagement helps to deepen the understanding and capacity of community members to manage the natural resources that surround them.