Final Report on Community Based Elephant Conservation Programme-Bhutan

Project Title: "Community Based Elephant Conservation Program- Bhutan."

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Summary of goals and objectives:

Human elephant conflict is one of the major challenges faced by Asian elephant conservation program in Bhutan. In Bhutan, elephants reside along the southern international boundary with India and elephants are known to move between Bhutan and India, thus sharing elephant population. Due to this fact of shared population between two countries, conflict tends to increase when one country fails to put in place a proper management. Habitat fragmentation and degradation in Bhutan is one of the main reasons why elephants move into Bhutan's undisturbed habitat. In doing this movement, elephants cross villages at the border and opportunistically raids crops and damages property in these villages bringing in Human Elephant Conflict.

A systematic survey to estimate elephant population in Bhutan has just been completed in 2016 and results are yet to be known due to the time taken to analyze elephant dung samples for extraction of elephant DNA. Going by the suitable habitat in Bhutan, we can confidently say that Bhutan has at least a thousand elephant at any given point of time.

Challenges in managing human elephant conflict are bound to increase with time as more and more forested lands are changed to other land use types both within Bhutan and India.

Samtse district of Bhutan is one of the four southern districts that host transboundary elephants. This district also happens to be one of the densely populated districts, where the entire stretch along the border happens to be cultivated with rice and other cereal plantation. Due to degradation across the border and also due to easy availability of agriculture crops within Bhutanese villages, elephant tends to spend more time in Bhutan than in India bringing in human elephant conflict in these villages.

Samtse district once to have maximum number of absconded villages where ethnic Nepalese migrants left Bhutan. This and other neighboring villages were once again populated with settlers brought in from highlands of Bhutan. These new settlers never had the experience of living with elephants before and now that elephants have become a daily part of their live, it was felt as the most important program to make these new settlers aware of how to co-exist with elephants and also at the same time institutionalize community support and response system in times of human elephant conflict.

With the support of this grant, we have been able to institutionalize a community based quick response teams consisting of young and able youth of these villages. We have also been able to sensitize community about living with elephants through school and community awareness programs.

For the purpose of keeping elephants within their natural habitat, we have initiated wildlife water holes and natural salt lick enrichment activities. We have also taken up habitat improvement activities through plantation of elephant palatable plant species in an area which is known for providing elephant refuge during the day. As a means of keeping away elephants through a natural barrier we have piloted the use of agave plants that can serve as a bio-fence for elephants.

Objectives and actions taken:

Activity 1 : Formation of community based quick response teams (QRT) and public awareness program.

For the purpose of immediate response to any conflict incidences in the village and for the purpose of providing early warning of any approaching elephant, we have for the first time in Bhutan initiated community based quick response teams. These are five members team consisting mostly of young and able men who can drive away elephants from the crop fields mostly during the nights. There are a total of 11 teams for two communities that have been supported with basic field gears, search lights and other necessary field equipment. The basic duties and other necessary conditions have been listed in the by-laws agreed by the communities.

The members of these teams have also been given basic elephant behavior training that they need to observe during elephant drive away operations. Through other program support we hope to take these teams for exposure visits in the region that has successful QRT/RRT (Rapid Response Team) in place.

The teams are formed completely on voluntary basis as to who are willing to provide their service for free to the public. We select the team members during a whole community gathering. Public awareness on importance of elephant conservation and how to co-exist with elephants are provided during this gathering. During this gathering we conduct community group works and make them aware through their own act of drama. A special show is staged after this group works during which some act as elephants and some as farmers. The objective of such group works is mainly to make them understand what attracts and what repels elephants away from their crop fields and their houses. Since farmers prepare locally brewed alcohol that is prepared after fermentation of rice and maize, this brew came out to be one of the most attractive factor for elephants. The second factor attracting elephants to their houses was the grain storage practice. Farmers store their grains in a wooden container and since their houses are too small, they keep this container outside of their house. This in one way prevents damage to their house but on the other hand they also risk their livelihood as sometimes elephants can eat away the

whole stored harvest. We suggested change in grain storage method by informing them about modern method of storage.

Picture: Formation and equipping of QRT

Activity 2: Students awareness campaign

For the purpose of engaging and providing nature awareness for our youth in the school, we have conducted an open art and essay competition. The theme for the art and essay competition revolved around how much students knew about elephants, its habitat and its behavior. This program was conducted in two schools in Samtse. After the art and essay competition, we started with our awareness presentations on elephants and human elephant co-existence to the students. This way we could learn what our youth knew about nature and in particular about elephants and in the end with our presentation we could pass on the conservation message on the importance of elephant conservations and methods of human elephant co-existence.

Picture: A girl student receives her prize for her essay on elephants

These conservation messages, we hope will be carried home by these students to their parents and neighbors and act conservation ambassadors. At the same time, through such activities we hope to generate conservation interest among youth and students who are our future generations. We also believe that through such events and awareness programs, we will get better support from schools and communities for conservation.

Activity 3: Agave Plantation for piloting of bio-fencing:

Agave plant (*Agave americana*) is a xerophytic plant native to Mexico. This plant due to its tough thorny margin of its leaves can act as a bio-fence and prevent elephants and other animals from crossing a line of this plant. This plant has an average lifespan of about 20-25 years and during these years farmers can also make use of the leave fiber of this plant to weave mats and hats as an alternative income generating activities.

In Samtse, Agave plantation was done in Manidara and Hangay stream stretching out to about 1000m. The ground preparation and plantation works took about 5 weeks and ended by the month of September. Individual plants have been fenced with barbed wire to prevent damage to the seedlings. This plantation is expected for about 90% success due to the hardy and weather tolerant nature of this plant. Once the plants are fully grown to about 1m height, the alternate flower-like leaf arrangement of this plant tends to cover the spacing left between two seedlings and form a fence.

Picture: Agave plants planted and fenced in Hangay area.

Picture: Agave plantation at Hangay

Activity 4: Habitat Improvement program:

a. Habitat restoration through plantations of wild tree species, bamboo and banana

The creation of green belt along the Indo-Bhutan border has a far reaching impact on elephant conservation as these 2 km wide plantation along the borders have served as elephant refuge. But the plantation for these green belts that was undertaken by the government of Bhutan with the funding support of World Bank has mostly been degraded due to timber extraction and only few patches of such areas remain.

Through this project, we have been able to undertake habitat enrichment program in one of these degraded area with some of the palatable species like different species of bamboo, Bananas, Jack fruits and other forest tree saplings. A total of 200 plantation pits were dug and the area was cleared and prepared for plantation of bamboo and other mixed tree saplings (Banana, Jack fruit, and other wild tree species preferred by elephants

(*Lagerstroemia parviflora*, *Schima wallichiana*). The area is fenced using barbed wires and fencing posts to protect from damage to these saplings by cattle and human activities.

Picture: Bamboo saplings and some banana and other edible tree species are also planted

Picture: Fencing done around the habitat improvement area in Sipsoo

b. Creation and enrichment of salt licks sites in 7 different locations:

It has been learnt that one of the main reasons why elephants cross over to Bhutan is for getting their mineral requirements through the mineral rich black soil salt licks located at the base of hills in Bhutan. These mineral licks sometimes tend to be overused by many species of wild animals and become poor in mineral contents. The National Parks and wildlife sanctuary authorities of the Department of Forests and Park Services of Bhutan have the practice of enriching these salt licks with the use of commercially available mineral salts.

Through this project, we have enriched 7 such salt lick sites nearby streams and other water availability in Kalopani, Sipsoo and Phuntshopelri forests by spilling bags of mineral salts. We have observed elephant evidences right after the enrichment of these sites. Through these interventions we hope to provide the mineral requirement of

elephants from these salt licks instead of elephants coming into villages for their mineral requirement which they sometimes do by damaging property to reach for domestic salts kept at homes.

Picture: Marks left by elephant tusk at salt licks created

Picture: Workers spreading mineral salt at one of the salt lick sites

Picture: Salt lick site at Kalopani and evidence (elephant dung) of elephant visit

4. Creation of artificial waterholes:

The other reason for elephants visiting Bhutan is due to the availability of water on the hill bases which seep underground as they flows into the Indian plains. This makes a scarcity of water on the Indian sides during the months of October to March forcing elephants to search for water on the Bhutanese side.

Through this project, we have tried artificial water hole creation near the border areas in the same green belt plantation areas. By doing this we hope to keep elephants in these green belt

areas before crossing into the villages and causing human elephant conflict. Water to these waterholes will be replenished by diverting a small amount of water from the nearby stream. We hope that these waterholes will be used even by other wildlife.

Two large waterholes were dug with a radius 5meters at Sajbotey green belt plantation areas in Sipsoo. These two waterholes are about 1000mts apart. The places were chosen based on past experience shared by our forest staff (Elephants were seen using the small pond in those areas earlier, which was covered by mud in recent years during heavy rainfall)

Picture: Works on water hole creation

Picture: One of the waterholes in Sajbotey

Overall success of the project:

At the moment, after the completion of all the activities planned in the project, we would call it a success as it has brought in some change in elephant behavior like using the salt licks that were artificially enriched with commercial salts. It has also brought in many benefits to the community residing in the elephant affected areas. Through the formation of QRTs we have been able to provide early warning to farmers on elephant approach into the villages and we have also been able to bring in some level of behavior changes among the community through awareness programs . We have also been able to educate our future generations about the importance of elephant conservation and also educate them on elephant behavior and human elephant co-existence methods.

We will be able to evaluate our long term goal of reducing human elephant conflict by 50% of the current rate of incidences in the following year by recording the reduced number of incidences which is brought in by the interventions of this project.

Next steps:

If all our interventions are successfully sustained in the following years, we shall be able to replicate this project activities in the neighboring villages as they would see the success of this project bringing in a reduced rate of human elephant conflict incidences.

Human Interest Story:

During one of the field surveys to assess the damage done to paddy crops by elephants, one woman who has been resettled in Sipsoo village of Samtse was asked by our team how she felt about losing her crops to wild elephants. We were expecting anger and hatred towards this one particular male tusker who frequented her crop fields quite often.

Even after losing more than 50% of her crop harvest to wild elephants, she had such reverence for elephants. She said, "*Memey Sanjay* (translated directly to *Grandpa Buddha*) came and ate her crops and this I think is a punishment for some of my wrong doings and I feel blessed for *Memey* setting foot in my crop land" and she feels that since she did not do anything to the tusker when it was eating away her crop, *Memey* wouldn't do further damage to her crops again.

To our surprise and an interesting coincidence of life, the next time we visited this woman's house she was happy and content that she told us that elephants did not do much damage to her paddy fields after that damage.

Such is the reverence people have for elephants in Bhutan and we feel this is one reason for the success of conservation efforts in Bhutan.

Summary of the progress and results achieved:

Through the funding support of International Elephant Foundation, the Samtse Forest Division of the Royal Government of Bhutan has been able to bring in a change in the attitude of humans towards problem causing elephants.

For the purpose of general awareness creation on the importance of elephant conservation and methods of human elephant co-existence, students' awareness programs through essay and poster competition were held in two schools in Samtse. The essays and posters showed that elephants are generally revered as a godly figure. Students and even the farmers had very little knowledge on human elephant co-existence methods. Towards the end of our awareness program, we found people and students excited to know some basic methods how they can escape injury by elephants. They were also excited to know some of the mistakes they have been doing time and

again that attracted elephants towards their house. This included brewing of local alcoholic drinks and grain storage methods.

For the purpose of rapid response to conflict incidences this project supported the formation and equipping of community based Quick Response Teams. 11 such teams have been formed and equipped with basic field gears, torches and search lights. These teams have been assisting forestry staff in informing and acting on elephant conflict situations. Through the formation of these teams we have also been able to develop a partnership with local communities for their support in elephant conservation. This also builds the capacity of local communities to proactively take responsibilities for human elephant conflict management.

For preventing human elephant conflicts from happening at the first place, we have undertaken habitat improvement and enrichment programs through plantation of forage plants, creation of artificial waterholes and also through enrichment of natural salt licks. Through these interventions we believe that we will be able to keep elephants within their natural habitats bringing in a reduced level of conflict incidences.

We have also piloted bio-fencing for the first time in Bhutan through the use of Agave (Agave americana) plants. These plants due to their thorny nature prevents elephants from trampling and crossing over this line of plantation. Other than acting as an elephant fence, the fibers of these plants can also be dried and used for weaving into mats and hats, that is planned to provide an alternate income generation for affected farmers.

50 word summary of progress and results

Through the community based human elephant conflict management and elephant conservation project in Bhutan, the International Elephant Foundation supported the implementation of students and public awareness program on human elephant conflict management and elephant conservation.

For bringing in community on board for elephant conflict management, the project supported the formation and equipping of community based quick response teams, which assists and proactively takes steps towards management of human elephant conflict.

The project also supported elephant habitat improvement through plantation of forage plants, artificial water hole creation and enrichment of natural salt licks through spilling of commercially available mineral salts.

List of organizations and their roles:

1. Samtse Territorial Forest Division, Dept of Forest and Park Services: Main implementer
2. Wildlife Conservation Division, Dept of Forest and Park Services: Current office of the Principal Investigator
3. Community Elephant Conservation Committee, Tashicholing (Sipsoo): Implementer and formation of QRTs
4. Community Elephant Conservation Committee, Phuntshopelri: Affected villages and attendees of public awareness creation program
5. Penjorling Higher Secondary School, Tashicholing: Implementer of students awareness program
6. Samtse Lower Secondary School, Samtse: Implementer of students awareness program
7. Tashicholing Dungkhag Administration: Approval and support in awareness program

Financial Report:

SN	Item	Details	Fund spent (US$)
1	Consultative meeting and public awareness program	Public and schools consultation meetings Purchase of material and prizes Food costs	2089.00
2	Formation of QRT and equipping with field	Meeting and purchase of field gears	2205.00
3	Agave Plantation	Purchase of seedling, ground preparation and planting	1215.00
4	Habitat improvement	Plantation of bamboo and other wild forage species	1496.00
5	Enrichment of natural salt licks	Labour and purchase of commercial mineral salts	1047.00
6	Creation of artificial waterholes	Ground excavation works	1100.00
7	Monitoring visit x 2 times	Travel expense (DSA and car mileage) for one person as PI was transferred during the implementation of project *(Partly funded by Government of Bhutan)*	450.00
		Total	**9600**