

A Progress (Final) report on
Strengthening Human Elephant Co-existence in Buffer Zone of Bardia National Park
(January -December 2015)



**INTERNATIONAL
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National Trust for Nature Conservation
Thakurdwara, Bardia

INTRODUCTION

Until 1994, the western Terai population of wild elephant was dwindling and only 2 elephants were reported in Bardia. Later, 15–20 elephants entered into Nepal from India through Khata forest corridor and re-colonized in Bardia National Park (DNPWC, 2009). A study estimated some 50 elephants in the Karnali floodplain and over 30 in two herds in the Babai Valley, totaling over 80 animals for Bardia National Park (Pradhan, 2007). The population is currently increasing and field monitoring data suggest that there are about 100 individuals in Bardia National Park (BNP, 2014). However, the increasing number of elephant has become a menace to local community and park management authorities as the number of human elephant conflict (HEC) incidents are in increasing trend. The recent statistics of conflicts show that there is dramatic increase in the human wildlife conflict in the buffer zone of BNP. 53 people are killed in the conflict with human and wildlife in the last one decade among them 35 individuals were dead in conflict with elephant. Remaining 18 individuals were killed in the conflict with rhino, tiger and leopard. The property damage by isolated male elephant is increasing as it enters village in search of food grains in the dry period whereas the case of crop damage is tolerable as compare to other type of damages. Electric fences constructed along the park border are working well but the solitary males are hard-hitting as they ignore the electric fence and damage it to enter the crop land resulting conflict. Looking at the conflict scenario, human-wildlife conflicts are increasing due to the increase of elephant and tigers in BNP and its buffer zone. On the other hand, farmers are seen negligible towards the protection of their crops, property and livestock. Although, electric fences are constructed along the park boundary, proper caring and maintenance was major issue for its sustainability. Hence, Electric Fence Maintenance Groups are established for regular monitoring and maintenance. Mechanism is developed to employ electric fence guard since last year but still it is important to sensitized community groups regularly for the sustainability of electric fence in long run. Majority of crop damage cases in Bardia is by elephants. Crop raiding is highest when there are main crops species (rice, wheat and maize) in the field. This indicates the wild animals are also attracted more towards the main crops rather than the subsidiary crops even the main crops are well protected with electric fence. It is also seen that the property damage is highest when the main crop is harvested and stored inside the houses. The main objectives of this project are to activate community groups for the sustainability of electric fence, promotion of alternative crops and livelihood options in conflict prone areas and formation of rapid response team for chasing wild bull elephants before destroying the houses and food grains. It is believed that the effort will strengthen existing HEC mitigation efforts and secure the survival of elephants by minimizing crop raiding, property damage and human casualties.

GOALS AND OBJECTIVES

The overall goal of the project is to ensure human elephant co-existence in Bardia National Park of Nepal

The objectives of the project are:

- To strengthen the sustainability of electric fence and to initiate alternative livelihood options.
- To operate well equipped rapid response team for the minimization of conflict.
- To develop street drama group for massive conservation awareness.

ACCOMPLISHED ACTIVITIES DURING THE PERIOD

1. Strengthen Electric Fence Repair and Maintenance

1.1. Stakeholder Workshop and Meetings

National Trust for Nature Conservation is regularly involved to minimize human-wildlife conflict in BNP. After the construction of electric fence, additional support is regularly provided to local communities for the extension, upgrading and maintenance of existing power fence. Village meetings

were organized after the consultation with Buffer Zone User Committees (BZUC) for sustainability of electric fence. An interaction program was organized with chairpersons of BZUCs on 13 March 2015 to share project activities and to develop common understanding for implication of human elephant conflict mitigation measures. The existing fence of middle part of buffer zone and corridor is divided in to the section depending up on the coverage of back up machine and the guarding responsibility goes to the guards who are recruited by each villages. Local communities divide the electric fence into 15 different electric fences sections in buffer zone and corridor area for the proper monitoring and timely maintenance and formed fence management subcommittees in each section. Focal persons and fence guards were nominated for regular monitoring of fence. We organized 10 village meetings for activation of electric fence repair and maintenance where 519 key community members were participated. It is found that communities are motivated for the fence repair and site clearance by organizing regular meeting and discussion, although, there is lack of sufficient fund for the timely purchase of repair materials. Some power unit (back up) need to be replaced with new one. Details of village meeting are presented in table 1.

Table 1: Details of meeting with electric fence repair and maintenance group

SN	Date	VDC	Location	Decision	Participant	Location	
						Longitude	Latitude
1	3/06/2015	Suryapatuwa	Dalla	Electric fence repair and maintenance, electric fence management and control grazing in electric fence area, repair and monitoring, watch guard and resource management, demanded new energizer machine	21	81.13835	28.24623
2	3/06/2015	Thakurdwara	Hattisar	Electric fence repair and maintenance, electric fence management and control grazing in electric fence area , repair and monitoring , watch guard and resource management, demanded new solar panel	86	81.13683	28.25934
3	8/06/2015	Thakurdwara	Gobrela	Electric fence repair and maintenance, watch guard and resource management, electric fence management and elected focal person, demanded stretching machine	59	81.15885	28.28490
4	8/06/2015	Thakurdwara	Betani	Electric fence repair and maintenance, watch guard and resource management	25	81.15022	28.27682
5	9/06/2015	Shivapur	Bankhet	Electric fence repair and maintenance, control grazing in electric fence area, elected electric fence management committee, watch guard and resource management	62	81.17516	28.30005
6	10/06/2015	Shivapur	Motipur	Electric fence repair and maintenance, control grazing in electric fence area, elected electric fence management committee, watch guard and resource management, extended electric fence and replaced energizer machine	94	81.18588	28.30653
7	11/06/2015	Neulapur	Amreni	Discussion meeting arranged with Amreni and Balanti , electric fence repair and maintenance, watch guard	35	81.19448	28.30630

				and resource management, electric fence management and elected focal person ,demanded extended electric fence area and new energizer machine			
8	11/06/2015	Neulapur	Karmala	Electric fence repair and maintenance, elected focal person watch guard and resource management, strong pole in river area	27	81.19361	28.28331
9	12/06/2015	Baghnaha	Sainawar	Electric fence repair and maintenance, elected focal person , resource management for guard	35	81.19254	28.27524
10	15/06/2015	Neulapur	Singhbahini	Electric fence repair and maintenance, elected focal person , resource management for guard	75	81.20640	28.25825
10	Total				519		



Photo 1: Meetings with members of electric fence repair and maintenance group

1.2. Strengthening Electric Fence Management Fund

HEC in the buffer zone of BNP is in increasing trend since last few years. To minimize conflict and reduce wildlife damage, about 119 km of electric fence is already installed around the buffer zone and Karnali corridor with the support of Government of Nepal and different conservation partners. Six electric fence management funds established last year are supported with an amount of NPR 97000 (Table 2) in this reporting period. These funds are used for the partial salary of fence guard, purchase of repair materials and timely maintenance of machine and other accessories. It helps for regular maintenance of 54.4 km of electric fence where 4531 households get direct benefit reducing damage from wild elephants.

Table 2: supported to electric fence management fund

SN	Name of UC/UG	Electric fence Location	Number of watch guard	Supported fund (NPR)
1	Suryapatuwa User Committee	Suryapatuwa 3,4,5	2	16000
2	Thakurbaba User Committee	Thakurdwra 5,6,9	3	24000
3	Shivapur Ekikrit User Committee	Shivapur 3,7,8,4,1,2	2	16000
4	Shreeramnagar User committee	Neulapur 1,3,4,5	3	24000
5	Babai User Committee	Baghnaha 5	1	8000
6	Bhimbapur electric fence management group	Vimapur	4	9000
	Total		15	97000

1.3. Training for Electric Fence Watch-guard

Two days electric fence maintenance training has been conducted in NTNC-BCP on 3-4 July 2015. Altogether 24 fence watch guard and machine operator from Thakurdwara, Suryapatuwa, Shivapur, Shreeramnagar, Baghana and Bhimbapur VDC who are regularly involved in proper operation of electric fence with the support of Buffer Zone Management Committee were participated. Mr. Ananda Thapa from BCC oriented on techniques of fence and machine repair. The name list of participants are presented in Table 3.

Table 3: Name list of electric fence management training

SN	Participant Name	Address	Position / Title
1	Krishna Tharu	Suryapatuwa 5	Fence watch guard
2	Parna Tharu	Neulapur 5	Fence watch guard
3	Bajaru Tharu	Neulapur 5	Machine operator
4	Khadak Bdr. Sanwar	Rajapur 19	Badhghar, Machine operator
5	Gangram Tharu	Rajapur 19	Fence watch guard
6	Man Bdr. Thapa	Rajapur 19	Fence watch guard
7	Ram Bahadur Tharu	Rajapur 19	Fence watch guard
8	Bhawan Ram Tharu	Rajapur 19	Fence watch guard
9	Sohan Tharu	Rajapur 18	Fence watch guard
10	Dhani Ram Subedi	Shivapur 3	Fence watch guard
11	Prakash Thapa	Shivapur 2	Fence watch guard
12	Lal Bdr. BK	Neulapur 3	Fence watch guard
13	Krishna Pd. Kandel	Neulapur 3	Machine Operator
14	Dattnath Yogi	Shivapur 2	Chairperson
15	Nandala Adhikari	Neulapur 1	Fence watch guard
16	Hari Bdr. Tharu	Thakurdwara 5	Machine Operator
17	Kunwar Singh Tharu	Thakurdwara 9	Machine Operator
18	Dhani Ram Tharu	Suryapatuwa 3	Fence Watch Guard
19	Kali Ram Tharu	Thakurdwara 2	Fence watch guard
20	Thenchu Tharu	Suryapatuwa 4	Machine Operator
21	Jaggu Tharu	Thakurdwara 9	Fence watch guard
22	Ballu Ram Tharu	Neulapur 1	Fence watch guard
23	Moti BK	Neulapur 5	Fence watch guard
24	Kala Devi Neupane	Neulapur 5	Fence watch guard

2. Initiation of Alternative Livelihood Option for Wildlife Victims

2.1. Sewing and Tailoring Training

A six month sewing and tailoring training was organized from March 24 to September 24, 2015 for 42 village women and girls (Table 4), living adjoin the park boundary, who are frequently victimized from elephant damage such as crop raiding, property damage and human casualties. After completion of the training, participants are believed to establish small scale tailoring centers at the local area. Two local resource persons Mrs Sita Rani Chaudhary and Ms Sishu Saha are facilitating the training. Similarly, one active member of community based anti poaching units is supported for the establishment of sewing and tailoring center. This center is regularly providing sewing and tailoring training to local youths in nominal cost.



Photo 2: Participants of sewing and tailoring training

Table 4: Name list of sewing and tailoring training participants

SN	Name of participants	Address
1	Sita Tharu	Thakurdwara 3
2	Hira Tharu	Thakurdwara 7
3	Asha Tharu	Thakurdwara
4	Sabita	Thakurdwara 7
5	Radha	Thakurdwara 7
6	Himala	Thakurdwara 1
7	Bima	Thakurdwara 1
8	Kalpana	Thakurdwara 1
9	Sitarani	Thakurdwara 1
10	Mina	Thakurdwara 6
11	Nilam	Thakurdwara 4
12	Bishna Pun	Thakurdwara 4

SN	Name of participants	Address
13	Basmati Tharu	Thakurdwara 2
14	Ranjana Tharu	Thakurdwara 2
15	Rita Tharu	Thakurdwara 3
16	Pradeshni Tharu	Thakurdwara 3
17	Chyan Kumari Tharu	Thakurdwara 9
18	Rampati Tharu	Thakurdwara 9
19	Nirma	Thakurdwara 9
20	Nisha Acharya	Thakurdwara 6
21	Anuska Tharu	Thakurdwara 6
22	Sunita Sahi	Thakurdwara 8
23	Sarmila Tharu	Thakurdwara 6
24	Janaki Tharu	Thakurdwara 9
25	Mina Tharu	Thakurdwara 5
26	Mina BK	Thakurdwara 5
27	Chuni Tharu	Thakurdwara 2
28	Sarita Tharu	Thakurdwara 2
29	Kalpana Tharu	Thakurdwara 2
30	Ramita Tharu	Thakurdwara 8
31	Mansuwa Bista	Thakurdwara 2
32	Sundari Tharu	Thakurdwara 8
33	Shanta	Thakurdwara 3
34	Nirmala	Thakurdwara 6
35	Sita	Thakurdwara 6
36	Deepa	Thakurdwara 4
37	Ramita	Thakurdwara 4
38	Kokila Budha	Thakurdwara 2
39	Nirmala Baduwal	Thakurdwara 2
40	Prtikshya Bista	Thakurdwara 2
41	Surja Kathayat	Thakurdwara 7
42	Tulsi Acharya	Thakurdwara 2

2.2. Handicraft Promotion Program

Conservation of traditional local cultural value is a major issue around the world. *Tharus* are the endemic inhabitants of BNP and its surroundings since last centuries. They have their own unique lifestyle, culture, and traditions. As per community demand, this year with the support of IEF, refreshment training on handicraft was organized for 14 local *Tharu* women (Table 5) and financial support is provided to local traditional women group to establish community handicraft center. The center is used for handicraft preparation and as a selling center of the products to visitors. The group members are able to earn in average additional income of NPR 4000 (40 USD) per month. These women always thought park as a problem as they were not getting any benefit. Now they are collecting grasses from the community forest and park before fire starts in the forest to make handicraft every year. This is an innovative idea to disseminate positive message for elephant conservation by providing ample of economic incentives at the local level.

Table 5: Village women involvement in handicraft preparation

S.N.	Name of beneficiaries	VDC	Ward No	Village/Tole	Name of /BZUCs
1	Chinkalli Tharu	Thakurdwara	8	Banugaun	Thakurbaba
2	Soniya Tharu	Thakurdwara	8	Banugaun	Thakurbaba
3	Udesya Tharu	Thakurdwara	8	Banugaun	Thakurbaba
4	Jankaki Tharu	Thakurdwara	8	Banugaun	Thakurbaba
5	Asturiya Tharu	Thakurdwara	8	Banugaun	Thakurbaba
6	Salina Chaudhary	Thakurdwara	8	Banugaun	Thakurbaba
7	Laxmi Chaudhary	Thakurdwara	8	Banugaun	Thakurbaba
8	Ram Payari Chaudhary	Thakurdwara	8	Banugaun	Thakurbaba
9	Mina Chaudhary	Thakurdwara	8	Banugaun	Thakurbaba
10	Ramautai Chaudhary	Thakurdwara	8	Banugaun	Thakurbaba
11	Laungi Chaudhary	Thakurdwara	8	Banugaun	Thakurbaba
12	Antarani Chaudhary	Thakurdwara	8	Banugaun	Thakurbaba
13	Kalika Chaudhary	Thakurdwara	8	Banugaun	Thakurbaba
14	Ishwari Chaudhary	Thakurdwara	8	Banugaun	Thakurbaba



Photo 3: Village women preparing handicraft from the grass

2.3. Alternative Crops Cultivation

Communities residing close to the wildlife habitat, particularly along the border of the national park, are facing human wildlife conflict. Every year, huge area of agricultural land is raided by wildlife resulting enormous damage to local farmers' economy and accelerating threats to survival of wildlife. Wildlife enters to raid the agricultural crops especially when the crops are more attractive and luring to wildlife. The entrance of wildlife to farmlands can be minimized adapting the alternative crops which are not attractive and not palatable to wildlife. To minimize the conflict between human and wildlife and to contribute on livelihood of communities residing close to the wildlife habitat, this project has supported 132 farmers of 9 conflict prone areas from Thakurdwara and Suryapatuwa VDCs for Mentha (mint) cultivation which is unpalatable to elephant and other herbivores and more profitable than other regular cereal crops. Farmers are able to earn an additional amount of NPR 2100000 (21000 USD) in

three months rotational period of Mentha. It helped to cover crops destroy in summer season and farmer can cultivate crops in winter season too.



Photo 4: Cultivation of Mentha (mint) in buffer zone (close to forest) area

3. Formation of Rapid Response Team

Initial discussion was made with park authorities, security forces, community based anti-poaching units and buffer zone community users to establish rapid response team to take prompt action to safely chase the wild bulls when they comes in village area. A team of security personal, elephant staffs and member of community based anti poaching units is formed under the leadership of Bardia National park for the proper response of elephant enters in the village and farmland. Community based Anti-poaching units (CBAPU) is a new approach to control poaching in and around protected areas. Bardia National Park is playing key role to mobilize these youths in various anti-poaching, conflict wildlife rescue, response and conservation activities. The youths are supported for the celebrations of wildlife conservation events. They organized Elephant football competition, man and women river swimming competition and other cultural program for the deliver of conservation message among the CBAPU members and other villagers. More than 1000 village youths and women were participated in the program.



Photo 5: Mobilizing captive elephant to chase wild elephants (left) and setting fire (right)



Photo 6: CBAPU members organize interaction with captive elephants with foreign tourist (left) and rapid response team safely chase the one horned rhinoceros form the crop land (right)



Photo 7: Wild bull elephants entered the shade house of captive elephant

4. Development of Street Drama Group for Conservation Awareness

Drama group is one of the major actors and effective implementers to disseminate conservation messages and to conduct different environmental activities. In order to activate and mobilize local communities in the mainstream of conservation efforts, the project has provided support for Bardia Conservation Street Drama Group in buffer zone with the aim of delivering massive conservation awareness by performing street drama. The support is used for the purchase of custom, sound system, tea snacks for participants and transportation cost while organizing drama show. 35 village youths (members of community based anti-poaching unit and school students) are affiliated with the group. Trainings were also organized for the members to prepare nice tailored drama on human wildlife conflict mitigation and habitat degradation. After the formation of drama group, more than 10 performances were organized in different location of conflict prone areas. More than 4000 local people got a chance to observe the drama.



Photo 8: Street drama performed by the members of Bardia Conservation Street Drama Group

OUTCOMES TO DATE

The major finding and accomplishments during the period are:

- Local communities are regularly mobilized for the timely repair and maintenance of 54.4 km electric fence in buffer zone and corridors. Approximately 4531 households living close to the park and corridor forests are directly benefited. 24 local persons are well train for the regular operation of electric fence.
- 56 village women and girls received skill development training for the initiation of alternative income generation activities, which is helpful to bring positive perception among local community for elephant conservation in BNP.
- 132 farmers are cultivating unpalatable crops to elephant and other herbivores to minimize conflict in the agricultural land which is also economically more profitable to farmers.
- 1 street dram group is established and more than 5000 farmers got a chance to watch drama on human wildlife conflict mitigation measures.

SUCCESS OF PROJECT

Buffer Zone User Committees, Buffer Zone Community Forest User Groups, Eco clubs, local school eco teachers, community youth members, women groups and park authorities are actively participating for the successful implementation of human elephant conflict minimization measures. Within a short period of time 5 Buffer Zone User Committees and 2 VDCs established fund to purchase repair materials and to provide partial salary to fence guard. Similarly, in the same five BZUCs and VDCS, 15 electric fence guards are mobilized for proper caring of fence by dividing the working areas based on the coverage of power back up machine. In the same way communities selected machine take care persons and focal persons. They mobilized local communities for the clearance of site if fence guard could not cover the areas. The electric fence management groups are formed and mobilized for the timely repair of fence. Some power back up machine and solar power need to be replaced by new one. Mobilization of electric fence guards seems very effective after June 2014 and the number of damage is less as compare to past. The village women and girls are excited by getting a chance of skill development training. It brings positive perception among the village women. Cultivation of high value alternate crops which are unpalatable to wildlife gives an ample of opportunities for the economic incentives and minimization of crop damage by elephants and other wildlife's in the corridor. Buffer Zone User Committees and local school leverages fund for the continuation of drama show by mobilizing drama group. It increases awareness level of local communities for the minimization of human wildlife conflict and conservation of endangered wild elephants in its primary habitat.

NEXT STEP

Up to now, 53 local communities lost their life from wildlife of which 35 were from elephant in BNP. On the other hand, only 2 elephants were recorded in 1990s but now more than 100 elephants dwell in BNP after the migration of 40-45 herds of elephant from India in 1998. Mostly the bull, isolated from the group has created problems for crop damage, property damage and human casualties so the following conservation actives should be organized in the buffer zone of BNP and corridor between Katarniyaghat Wildlife Sanctuary, India and Bardia National Park, Nepal for the long term survival of large herd of elephants in Nepal.

- Continuation of support for the electric fence repair and maintenance in the project area and other part of Bardia National Park.
- Strengthening rapid response team for the chasing of isolated bull elephants from the village.
- Massive conservation awareness for human elephant co-existence.
- Support for the cultivation of unpalatable crops in the maximum crop damage areas.
- Establishment of watch tower and sound device in the villages where repeated entrance of elephants occur.
- Strengthening of medication fund for the timely treatment of human casualties.

PROVIDE AT LEAST ONE HUMAN INTEREST STORY.

“I saw my neighbors earning good money from *Mentha* (mint) and decided to start this farming. *Mentha* farming is the best. I’ve just sold some amount of essential oil in return of a very good price. Another benefit of *Mentha* cultivation that I am getting is - wild animals don’t come in my field. It has changed economic status of my family. Now, I can buy some modern technology (telephone, TV etc.), health and education. If you do something and work hard, the effort will be paid back.”

Ram Krisna Chaudhari, Mentha and other essential oil farmer, and herbalist, Thakurdwara-6, Bardiya

“[with *Mentha*] when you need money, you just get money. Normally in the early monsoon season we don’t have money. Before we had to go to the money lenders to borrow money and pay back at a high price. Now with *Mentha* and the other essential oil crops we can get money all year.”

Kulram Chaudhari, Mentha and vegetable farmer, Thakurdwara-7, Bardiya

SUMMARY OF PROGRESS (This will be used for media and donor recruitment)

It is realized that the successful management of protected area ultimately depends on the cooperation and support of local people. We concluded from our past experiences - innovative, well designed projects in carefully selected areas can address park- people relationships enhancing biodiversity conservation and ensuring sustainable development. However, a very important benefit that local people might derive from buffer zones would be some measures of protection from wildlife crop raiding and livestock depredation. In parks where mammals and birds population increased and if there are no enough grasses in dry period, the animals often pose severe threats to farmers crops. Crop raiding by elephants may further increase the problems of securing a sustainable livelihood for people living next to the park. Wild elephants enter into agricultural lands may lead to various forms of damage e.g. from crop loss by raiding and destruction, prevention of land use due to fear of crop damage, livestock depredation, harassment and injuries to local people. In addition, only one mitigation measures cannot work properly so the integration of community mobilization for electric fence maintenance, alternative skill base income generation activities, alternate crops cultivation and massive conservation awareness in buffer zone helps to properly minimize the human wildlife conflict. From 1 *bigha* (0.68 hectares), a farmer can earn 790 USD if they plant *Mentha* (mint), compared to about 260 USD from wheat and the estimated loss of wheat is 50 USD from wildlife. Individual farmers earned between 100 USD to 1000 USD (an average 160 USD); in addition, they benefited from the lack of crop depredation by elephant and other wildlife.

SUMMARY OF PROGRESS (This will be used for social media)

Community mobilization for the timely repair of electric fence which was constructed along the park border and corridor forest, skill enhancement of village wildlife victim women members, adoption of alternative crops and conservation awareness through street drama helped to minimize human elephant conflict in the buffer zone of Bardia National Park. It holds largest remaining wild Asian Elephant Population in Nepal and maintain corridor with other protected areas of Nepal and India. *Mentha* (mint) is unpalatable to elephant and have high economic value than other cereal crops.

STAKEHOLDER INVOLVEMENT

Local government organization

- Bardia National Park
- Village Development Committees

NGO:

- National Trust for Nature Conservation

Local community organization:

- Buffer Zone Management Committee
- Buffer Zone Community Forest User Groups
- Community Based Anti-poaching Units
- Local school (Eco teacher and eco club)
- Women Groups
- Street Drama Groups
- Traditional Village Leaders
- Women Environment Sub-committee
- Electric Fence Repair and Maintenance Group

Conservation partners:

- International Elephant Foundation
- Hariyo Ban Program
- USFWS/Asian Elephant Conservation Fund

FINANCIAL REPORT - Attached separately
PHOTOS -Attached separately
VIDEO CLIPS- Attached Separately



Photo 9: Isolated wild bull close to the village (photo taken by the members of rapid response team using mobile phone)