PROJECT COMPLETION REPORT FOR;
Evaluating & mitigating human-elephant conflicts through community-based awareness & educational program at Laikipia County in Kenya

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Acknowledgement

I would like to thank the board and the review committee of **Jana Robeyst Trust Fund** for their financial support towards my project titled; '**Evaluating & mitigating human-elephant conflicts through community-based awareness & educational program at Laikipia County in Kenya**' I would like to stress that your financial support has been of great milestone towards the implementation of the mentioned project and its results as well as impacts are felt. Thank you so much once again for your financial support but much is still needed in terms of in-depth conservation education and capacity building among the local communities but as we continue to work with **Jana Robeyst Trust Fund** much will be achieved in later dates.

Peace and Blessings.

PREFACE

The African elephant plays a crucial role in its forest ecosystem. Commonly referred to as a 'keystone' species, it helps to open up forest clearings and distributes the seeds of trees and shrubs. The magnificent animal becomes threatened due to poaching, destruction of forest and conflict with human. In recent years, the magnitude of human-elephant conflict (HEC) has increased due to anthropogenic causes by increased population in many areas of Kenya. Due to fragmentation of habitats, elephant ranges in Kenya have become confined to small patches occupied by a single or few small herds. Some corridors have been abandoned due to degradation of forest cover, extension of human settlements, development of infrastructure, intensification of agricultural practice, unsustainable slash and burn practice, and unplanned road construction, for example. The project carried out research on the nature of human-elephant conflict to come up with appropriate solutions.

PROJECT SUMMARY

Human-elephant conflict (HEC) is an increasing problem that poses serious challenges to wildlife managers, local communities and elephants alike. Mitigating HEC requires well tested and cost effective strategies, which in turn rely on accurate information regarding patterns of HEC and an understanding of causal factors and relationships. Equally, transforming elephants from a liability to an asset for local communities may help to increase tolerance of elephants and thereby improve their conservation status. Across Africa, countries have attempted to solve this problem through ill-conceived, easily corrupted and unsustainable financial compensation schemes. None of these have emerged as the "silver bullet" to solving individual HEC problems.

The key to finding a long-term solution to the HEC problem is two fold. Firstly, to encourage national and local land-use strategies to minimize the occurrence of conflict situations and,

secondly, to ensure that in areas where humans and elephants do overlap, that people derive tangible benefits from their presence. Land-use plans developed by relevant stakeholders (farmers and local governments) can reduce conflict and help to ensure the local community activities are restricted to those that are compatible with elephants. With a view towards the longer term, the project will investigate ways to generate benefits for elephants and local communities, by securing elephant range and pastoral land, through the compatibility of land use afforded by tourism.

A more detailed understanding of spatial patterns and environmental predictors of conflict was and is still required in order to devise effective mitigation strategies here. Community Based Conflict Management (CBCM) can be one and the only one possible solution to reduce actual and perceived HEC in Kenya. Community Based Conflict Management (CBCM) sought to encourage the local communities/farmers to actively guard their crops using a combination of strategies, while encouraging improvement through innovation, diversification and development of recently designed tools and multiple technique strategies. Some of the activities like: awareness of elephant conservation for ecology, forest conservation, implementation of land use policy, management of elephant friendly product, provision of compensation and reward, village information centre management, institutional networking etc were much needed for effective Human – elephants conflicts mitigation.

PROJECT INTRODUCTION
Laikipia probably experiences the greatest levels of human-elephant conflict (HEC) in Kenya. Laikipia is an unusual landscape, comprised of large-scale private ranches, communally owned group ranches, forest reserves and smallholder cultivated land, though no government designated wildlife protected areas. Kenya's second largest elephant population, comprised of over 5000 animals, ranges across this land-use mosaic, inevitably coming into conflict with local people, particularly on smallholder farms, in the wetter, southern portion of this county.

Habitat loss and fragmentation is the biggest threat to the continuing survival of elephants as well as other wildlife in Kenya. The main cause of the loss of the natural forest is pressure from human population growth. As the human population has inexorably risen, the former forest wild lands in which elephants live have been disappearing. Elephants and humans are increasingly fighting for space; human elephant conflict is on the rise and it is a battle that the elephant is losing. As elephant habitat diminishes, the elephants are pushed into increasingly smaller areas. This increases the population density to beyond sustainable levels and food grows short. Evidence suggests that a shortage of fodder has a negative impact on rates of reproduction so normal birth rates has begun to decrease.

Another serious consequence of the shortage of wild foods is a corresponding increase of crop raiding and incidents of human-elephant conflict. The clearance of land has not only resulted in large net losses of territory, but also the fragmentation of habitat. This fragmentation has broken up wild populations into herds and groups that are often too small to be viable. The breaking up of elephant populations has led to inbreeding and the loss of the necessary genetic diversity to sustain population viability over the long term.

Human-elephant conflict (HEC) is dramatically on the rise and has become one of the major issues in the fight to save Kenya's endangered elephants. The rise in human-elephant conflict has been the result of the relentless increase of the human population and the resulting loss and fragmentation of elephant habitat. Under pressure from higher population densities and lack of fodder, elephant populations are increasingly turning to crop raiding for sustenance.

Each year, elephants directly cause hundreds of human deaths through human-elephant conflict. However, crop and village-raiding deaths are on the increase and barely a week goes by without reports of elephants killing people something we have witnessed in the region. We have established that areas where there is extreme population pressure and habitat shrinkage that elephant herds are becoming noticeably more aggressive towards man. Too, Even though the elephant is protected by legislation across Kenya, they are

increasingly being killed in anger or self-defense.

On the other hand, poaching of elephants for ivory, meat, hide and other parts (mainly for use in traditional medicine) is still prevalent in Kenya. Despite worldwide protection through the Convention on International Trade in Endangered Species (CITES) Treaty, the value placed on elephant products, particularly ivory, the lack of effective enforcement and the remoteness of areas of elephant habitat means that there are those that still kill elephants for profit.

Lastly, private ranches in Laikipia have adopted the fencing strategy and there are a few numbers of electrified fences separating ranches from smallholder farms. However constructing and maintaining such fences is very expensive and as a consequence much of the human-elephant interface in Laikipia remains unfenced and/or porous to elephant movement, leaving smallholder farmers highly vulnerable to crop-raiding.

Therefore, human-elephant conflict is a complex subject and a multi-faceted approach is needed to address the issue. On the one hand elephants can provide immense benefit to local populations through the tourism industry and yet, on the negative side elephants require a large natural resource base and plenty of space and where their need for these resources overlaps with humans, competition and conflict results.

THREATS IDENTIFIED
We were able to highlight the following Main threats to elephants conservation not only in Laikipia county but country wide in general;
   o Escalating poaching, or illegal killing, for the commercial trade in ivory and meat
   o Growing demands of exploding human populations and poverty

   o Increasing loss and fragmentation of natural habitats and lack of land-use planning
   o Rising conflict with humans over diminishing resources

WHY RESEARCH WAS NECESSARY
Elephants have both ecological and cultural importance. They are known as ecosystem's engineer and gardener. They play a vital role in forest enhancement by disbursing seeds and creating environment for germination. Dung of elephant plays a crucial role in nutrient cycling by providing nutrients to the soil that is ultimately used by the flora. It is also a good source of food for many insect species. It is well understood that elephant is playing a key role, particularly in maintaining diversity of flora and fauna, and regenerating the forest environments. This research was necessary because of the following factors;
   o Kenya's elephant populations are currently threatened by deforestation, land degradation, and unregulated exploitation of natural resources.

- Human-elephant conflict results in a lack of local support to conserve this species and its habitat.
- Human-elephant conflict incidents threaten elephants as it has led to large-scale retribution killing throughout the country
- Research is needed to identify corridors of movement between elephant ranges
- There is need to development of a human-elephant conflict strategy that enables communities to manage elephant problems
- We want to conduct research on a) conflict dynamics and b) conflict mitigation
- The current sensitivity of human- elephant conflict issues in Kenya is a potential threat for the survival of elephants as also of the biodiversity.
- Human- elephant conflict is an issue of critical conservation importance, and is one of the main threats facing elephants today.
- In the planning process those affected by the human- elephant conflicts – the rural poor - are not consulted.
- Local communities lack Education / awareness building of the value of elephant conservation.

PROPOSED GOALS
We had proposed the following goals;

- To enrich the local communities, students, teachers, foresters, rangers, forest guards in the human-elephant conflict (HEC) sensitive areas with elephant conservation educational resource materials, capacity building trainings and human-elephant conflict (HEC) mitigation methods and skills,
- To develop, test and introduce various deterrents, and empower community groups to cope better with crop-raiding elephants by introducing inexpensive deterrents and deterrent user regimes.
- Understand better the modalities and causes of conflicts between communities and elephants and seek ways to mitigate such conflict
- To enhance the understanding, knowledge and skills of the local communities to confidently face challenges of conflict with wild animals and work towards a sustainable use and management of the natural resources in the elephant habitat areas in different parts of Kenya
- To bring the local communities to the mainstream of decision making through which they can take actions not only to protect the elephants and their habitats, but also to coordinate with the forest department, conservation agencies in reducing human-elephant conflicts,

- To empower the human-elephant conflict-affected poor communities through trainings on livelihood improvement skills and crop protection techniques from elephants
- Promote the importance of elephant presence to stakeholders with particular respect to ecological function and tourism generating potential
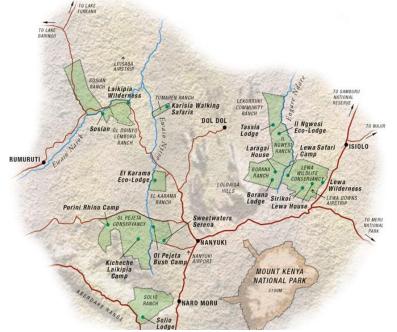
PROJECT OBJECTIVES:
Below were the projects objectives that the proposed project sought to achieve by the end of the project duration;

- To investigate elephant movement in the area and establish to what extent human-elephant conflict incidences are related to seasonal and/or more frequent movement patterns into the conflict areas and what factors affect this movement (i.e. food availability etc.);
- To identify the main migration routes in the area and establish how these routes impact the rate of human-elephant conflict incidents in the area, i.e. do most incidents occur on these routes;
- To investigate elephant habitat utilisation and determine the proportion of habitat use near human settlements to other habitats, and in addition investigate which environmental factors determine habitat selection in the study area i.e. water availability.

- To educate people living in or near elephants habitat in Kenya to change their attitudes and behaviour towards wild elephants in order to avoid confrontation and conflict whenever possible.
- To conduct human-elephant conflict mitigation appraisal training camps and workshops for the human-elephant conflict affected communities, rangers, foresters, and forest guards;
- To organize capacity building field training programs for the rangers, foresters and forest guards within a selected reserves surrounding the human-elephant conflict sensitive villages;
- To strengthen a selected number of foresters, forest guards and rangers working under arduous field condition in the sensitive human-elephant conflict pockets through human-elephant conflict information networking trainings and field kit supports;
- To deliver innovative educational tools proven to be effective in bringing about attitudinal and behavioral change among people living in or near elephant habitat.

- Identify means to provide benefits for local communities from elephants in conflict areas by exploring alternative land-use practices to those currently being promoted.
- Support the development of a human-elephant conflict policy for Kenya, which will contribute to the development of a national elephant conservation strategy.
- To develop elephant awareness resource materials in English and local languages for distribution among a wider section of the communities in the elephant range areas in different parts of Kenya
- To organize elephant anti-poaching awareness outreach programs for fringe communities, teachers and students in elephant range areas in Kenya.
- To disseminate findings and information to all stakeholders through the media, website and reports.

STUDY AREA

Laikipia County is one of the 47 counties of Kenya, located on the Equator in the former Rift Valley Province of the country. Laikipia is a cosmopolitan county and is county number 31. The county has two major urban centres: Nanyuki to the southeast and Nyahururu to the southwest. Its capital is Rumuruti. The wildlife is plentiful here for the same reason – dozens of species of plains grazers and browsers gathering in the thick acacia and doum palm forest along the river banks to drink and seek shade.

THE PLANNED ACTIVITIES

The activities conducted in order to fulfill these objectives were,

-Conducted field survey to validate/ determine Elephant population and ecology

-Development of Elephants Educational Resource and publicity Materials: Posters and leaflets, brochures illustrating the elephants and their significance will be developed for distribution during the implementation phase of campaign.

-Trained 10 community members in monitoring and mitigating human-elephant conflict.

-Organized a 5 days social attitudinal survey to know the local community perception about the Elephants and gathering information pertaining to the human- Elephants conflict through fact-finding questionnaires and came up with a long lasting conservation solution

-Developed plans for mitigating human-elephant conflict, in the Laikipia area, based upon the results of past and proposed monitoring and research.

-Carried out 5 days human- Elephant Conflict Mitigation Training Workshops to 100 villagers affected by human Elephant's conflict in order to make a preliminary assessment of the present status of the human- Elephant's conflict, to identify the human- Elephant's conflict areas and to establish long term conflict mitigation measures.

-Conducted 5 days elephant's conservation education, awareness & outreach activities to 2,950 school children and 150 school teachers to promote awareness of the complexity of human-elephant conflict and the threat it poses to the future of important elephant populations.

-Promoted awareness among the local community of the complexity of human-elephant conflict and the threat it poses to the future of important elephant populations.

-Evaluated dparticipants by interview and questionnaire to ascertain the extent of human-elephant conflict and devise deterrent measures and also to answer questions they might have after conducting training in the real world, and to find out problems, if any.

-Introduced farm-based deterrent measures for reducing crop raids by the elephants for the benefit of local communities

-Analyzed and interpreted all the data and information collected

-Submitted end project report to **JANA ROBEYST TRUST FUND**.

Project implementation methodologies

To meet the above goals and objectives, the following methodologies were applied;

a) Conducted field survey to validate/ determine Elephant population status and ecology
Population genetic on individual and family unit movements, mating strategies data and paternity and relatedness data was be extremely important for proper management of the Kenyan elephant population. Field data on agricultural land-use attributes of areas surrounding the conflict Zones and elephant ranges and verification of existing traditional efforts in protecting crop raids from elephant's damage was evaluated and measured through transect walks and personal observations. Two transect walks spaced 100m apart each measuring 300m in width and running 4km alongside the fence line was done on each survey site. These were necessary for determining the land-use activities around the protected areas and the most affected farming areas around the conflict zones. All sites covered by the fence were visited throughout the study period to make personal observation field notes on condition of the fence.

When sighted, the elephants were counted noting, how many were in the herd, how many were males, how many were juveniles, how many were young females, activities during the time of sighting, the sitauation of the habitat around where the elephants had been sported as well as how far they were from the local communities.This information helped us to know how many elephants were in the region and how they can be conserved with direct involvement of the local communities.

NUMBER OF MATURE INDIVIDUALS COUNTED
The Laikipia-Samburu ecosystem has the second largest population of elephants, (*Loxodonta africana*) in Kenya after the Tsavo ecosystem. The ecosystem is an important elephant range as it currently harbors the largest population of free ranging elephants in the country. In total we were able to count 4,968 elephants. We noted that despite un countable threats, "The elephant

population was increasing but the habitat was decreasing because of human settlements and so on."

b) Development of Elephants Educational Resource Materials
In order to conduct different community-oriented field activities relating to the education on the human- Elephants conflict issues, a number of educational resource materials were developed focusing on Elephants species. The Elephants educational resource materials were developed in the form of program banners, posters, stickers, placards, booklet folders, and education kits and human- Elephants conflict mitigation signage banners. Education materials, print, electronic media and local forums were used as tools to share the information about Elephants ecology, behavior and importance for the ecosystem.

c)Questionnaire survey
Specific questionnaires and data sheets were designed to collect data on Elephant's population, occurrence, crop raid and damages to life and property. During this 10 days period, crop raiding survey was conducted over 115.27km2 throughout the project where needful information was collected. Efforts were also made to validate crop raiding incidences by examining the farms. Geographical coordinates of different attack sites were too recorded and plotted on the map through Geographical Information System (GIS).

During this period,more than 500 affected families were selected on the basis of the severity of the problem and requested to fill the simple question on the questionnaires and data sheets that was provided to them by the principal investigator and his team. The answers given on the questionnaires and data sheets helped us to determine their level of understanding regarding Elephant's. Data on farmers' sources of income, perceptions of elephant conservation in the area, ecotourism benefits and current problems with crop raiding by elephants was also collected.GPS was used to record crucial sites and GIS used as a tool to present information on map. In addition, we conducted driving transects around target study site, to assess the effects of habitat alterations and examine the relationship between reported human- Elephant conflict and habitat alterations. Efforts were undertaken to seek for the solution of the problem through indigenous knowledge.

d) Assessing vulnerability to crop-raiding among a sample of small-scale farms
Using an adapted version of the "training manual for enumerators of human-elephant conflict damage, the research team will systematically monitor a sample of small-scale farms located in a human-elephant conflict hot spots in Laikipia. Materials required for the application of six farm-

based deterrents will be provided to each of the small-scale farms included within the sample. These deterrents include chilli-grease fences, chilli smoke briquettes, beehives, early warning alarms, torches and loud noise makers.

Over the course of a crop-raiding season, each of these small-scale farms were visited on a weekly basis to establish if elephants had attempted to raid crops, what deterrents were used to scare the elephants away, if any, the extent and nature of damage caused if the elephant did successfully raid the crops and the length of time the elephants stayed in the field. Data was recorded on a standard schedule on a weekly basis. This included whether or not an elephant attempted to raid the farm, details of what the farmer did to defend his/her farm if anything, if an elephant did successfully raid the farm the nature and extent of damage and the length of time over which the raid occurred.

In addition questionnaires were carried out with each small-scale farm owner to establish the socio-economic characteristics of the associated household and relevant physical attributes of the smallholding (e.g. presence of a guarding hut in field, distance from cultivated field to the home, size of cultivated area etc). The data generated will enable us to: 1) identified the number of times each of the sample smallholder farms was raided by elephants and the extent of damage and; 2) the value of a several socio-economic variables that may determine vulnerability to crop-raiding by elephants. Multivariate analyses was then undertaken using standard statistical software to identify the significant variables.

e) Conducted Human- Elephant Conflict Mitigation awareness
We carried out 5 days human- Elephant Conflict Mitigation awareness in order to make a preliminary assessment of the present status of the human- Elephant's conflict, to identify the human- Elephant's conflict areas and to reach out to the communities with conflict mitigation education. During the 5 days human- Elephant's conflict mitigation awareness all the human Elephant's conflict zones were visited and the local communities were sensitized on human- Elephant's conflict mitigation measures targeting to reach about 5,000 local communities .The awareness meeting were centered on Elephant's occurrence routes in the village, reasons for crop raid by the Elephants, reasons for the damages inflicted to the local communities life and property, methods of elephants deterrent from farms, importance of the Elephants in the eco system as well as methods of mitigating human- Elephant's conflicts in the region.

After the 5 days human- Elephant's conflict mitigation awareness, the local communities in this area realized that Elephant are not evil but are significant contributors for betterment of ecosystems and important ecologically and economically and therefore, they started appreciating presence of Elephants in their surroundings; and provided them adequate protection rather than intentional killing..

CONFLICT MITIGATION

We noted that any Mitigation efforts should aim to reduce problems caused by HWC. However, strategies and techniques that can solve one kind of conflict are not always applicable to others due to geographic differences, the species of animals involved and the prevailing attitudes of the local people towards wildlife. For instance, elephant mitigation techniques used in Africa cannot be applied in Asia and vice versa due to environmental differences and weather conditions. This requires ongoing monitoring and research to develop new suitable approaches. The best way to mitigate and manage human-wildlife conflict is by protecting the natural habitat. However, mitigation can be either preventive or curative. Preventive mitigation actions are always preferred in order to avoid disturbances caused by animals' behavior, while curative action attempts to solve the problem after the incident has occurred. In addition preventive monitoring actions are more effective in the long term than curative actions which give a temporary solution to the problem. However, the implementation of mitigation techniques will be more effective if there is strong collaboration between experts and other stakeholders as well as involvement of locals in the land use planning and executing processes in a long term basis

f)Implement Elephant's conservation education, awareness & outreach activities: Through this project we conducted 5 days conservation education and human- elephants conflict mitigation awareness programs to 2,950 school children. The elephant's conservation education basics included; threats to elephants in Kenya, conservation priority on the natural habitat restoration and community based approach to reduce local human elephant's conflicts.

A logical approach of educating the people, about nature and significance of elephants through launching an organized conservation campaign was promising tool to eradicate the killing of elephants as well as create sense of appreciation among locals about elephant's conservation. With increased awareness, more people from local communities participated in elephant's conservation activities, which would help to identify the most important areas from a conservation perspective, in order to set priorities for conservation management actions.

Lectures to 2,950 school children and 150 teachers about the elephant's identity, information about habitat, habits, and importance was delivered, for the awareness and conservation of this flagship species. Lectures to school children were delivered within 5 local schools. The 45 minute lecture to school children within the project area highlighted on importance of elephants and their conservation to make them aware of their importances in the biodiversity as well as create young and future conservationist.

conservation education motivated communities to raise voice and collectively coordinate with the local administration for a sustainable developmental plan to restore the natural resources for the future generation.

PROJECT TIME PLAN

-Project preparation strategies (Dec 2018)

-Development of Elephants Educational resource and publicity Materials: Posters and leaflets, brochures illustrating the elephants and their significance will be developed for distribution during the implementation phase of the project.(Dec 2018)

-Conducted field survey to validate/ determine Elephant population and ecology (Dec 2018-Feb 2019)

-Conducted habitat analysis to determine the direves of human elephants conflict in the region (Dec 2018-Feb 2019)

-Organized a 10 days social attitudinal survey to know the local community perception about the Elephants and gathering information pertaining to the human- Elephants conflict through fact-finding questionnaires and come up with a long lasting conservation solution (March 2019)

-Evaluated participants by interview and questionnaire to ascertain the extent of human-elephant conflict and devise deterrent measures and also to answer questions they might have after conducting training in the real world, and to find out problems, if any. (March 2019)

-Developed plans for mitigating human-elephant conflict, in the Laikipia area, based upon the results of past and proposed monitoring and research.(April 2019)

-Trained 10 community members in monitoring and mitigating human-elephant conflict.(April 2019)

-Carried out 5 days human- Elephant Conflict Mitigation Training Workshops to 3,500 villagers affected by human Elephant's conflict in order to make a preliminary assessment of the present status of the human- Elephant's conflict, to identify the human- Elephant's conflict areas and to establish long term conflict mitigation measures.(April - June 2019)

-Promoted awareness among the local community of the complexity of human-elephant conflict and the threat it poses to the future of important elephant populations (April -June 2019)

-Conducted 5 days elephant's conservation education, awareness & outreach activities to 2,950 school children and 150 school teachers to promote awareness of the complexity of human-elephant conflict and the threat it poses to the future of important elephant populations. (June 2019)

-Introduced farm-based deterrent measures for reducing crop raids by the elephants for the benefit of local communities.(June-July 2019)

-Analyzed and interpreted all the data and information collected (Dec 2018-August 2019)

-Wrote a comprehensive report and disseminated it to **JANA ROBEYST TRUST FUND** as well as other stake holders (Sept 2019)

Project outcomes
The project has helped in validating the exact Elephant population density as well as the ecology in Laikipia county

-The project has increased awareness and understanding of the urgent need for elephant conservation among local people affected by Human Elephants Conflict,

-There has been reduction in intensity and severity of crop-raiding: through early warning systems and community based elephant management tools;

-The project has helped improve community attitudes and interest in reducing dependency on subsistence crops.

-There has been improved understanding and management of elephants: through management orientated research, booklets, posters, field days, plays and management orientated meetings/workshops;

-There has been enough information about regional elephant movement patterns and conflict hotspots, past and present, in relation to socio-economic activities, land cover and mitigation measures.

-The project has helped in building tolerance of elephants and improving political support for wildlife conservation: By improving community participation in wildlife management, conservation and increasing benefit streams to vulnerable people through a collaborative partnership with both local conservation and commercial organizations.

PROJECT EXPENDITURES

	TOTAL IN €
Conducted Training & capacity building for 10 youth scouts for 5 days	*400*
Conducted 5 days conflict Mitigation Training to 5,000 villagers	*800*
Conducted 5 days conservation education to 2,950 children & 150 teachers	*100*
Publication and dissemination of conservation materials	*200*
TOTAL PROJECT EXPENDITURES	*1,500*

LESSON LEARNT
Given the dynamic nature of human-wildlife conflict, continued research and investigations can build our understanding of the changing nature of these conflicts and can help us to identify measures to minimise the negative impacts of conflict on both human and wildlife and we should;
-Scale up of nature-based solutions
-Enhance Public awareness and capacity building. In order to improve people's participation in wildlife conservation so as to human-wildlife conflicts mitigation more awareness programs should be formed around the country. Conservation agencies should focus more on moral values in order people to change the way of thinking,

-Governmental agencies and local conservation agencies working in close contact with people who are the most vulnerable due to human-wildlife conflicts can play a fundamental role towards wildlife conservation and improvement of rural livelihood.

CONSERVATION RECOMMENDATIONS
The conservation approach used should concentrate on developing an effective management plan for the safeguard of the Elephant and sustainable use of resources, and on promoting awareness of the values of the habitat in general, including their provision of natural resources, their protection of water sources and soil, and their unique biodiversity. Various suggestions to improve conservation practice in the studied area are given below:

-Efforts should be made to have community programmes planned and initiated to create awareness on Elephant and threats to the species, promote the importance of the species to the local people and help to counteract the already identified threats to the survival of the species in the non-protected areas

-Advice on training and capacity-building needs to manage and control trade in this species products.

-Environmental awareness promotion to the local communities, who remain ignorant about conservation due to lack of know how,

-Investment in rural development and development of alternative sources of livelihoods.