**AREVIEW OF THE ENVIRONMENTAL DECISION MAKING PROCESS IN THE HUMAN ELEPHANT CONFLICT IN MURCHISION FALLS NATIONAL PARK , UGANDA**

**BY**

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# ABSTRACT

Communtiy of Koch goma subcounty, bordering the Murchison Falls National Park for the last four years have witness an increased crop raids by elephants. Human-elephant conflict has eroded the relationship between the park management and communities, and the politicians have consistently demanded for total eradication of crop destruction problem or else the government compensate for the losses, bottles of poisonous chemicals substances were recovered in gardens inserted in pawpaw and pineapples to kill stray elephants.

The conflict is an important environmental decision situation because poison threatens elephant’s population, it leads to biodiversity loss, loss of habitat of other animal’s species as well as birds, with direct effect on human health. Therefore to reduce the rate of crop raid and mitigate the effect of elephant conflict, Uganda wildlife authority came up with three main decision as follows; Excavation of elephant trench with fencing in the valleys. The trenches are to act as physical barriers to elephants and other jumping animals. The trenches were to be 2 meters wide and 2 meters deep, running along the protected areas with intensive crop production activities. According to UWA, if an elephant can’t touch the ground with its trunk it won’t cross the trench.

To promote the use of biological and organic deterrents. Areas of the Park that are neighboring intensive crop growing communities, were to be reinforce with fences of bee-hives and burning of chili blocks.

Conservation education and incentives. It’s believed that wildlife benefits is unknown and communities are not certain on who handles it. This decision provides room for creating awareness on elephant’s conservation, developing models where local people are empowered to become partners and owners of wildlife enterprises rather than recipients of assistance, and engaging other stakeholders to advise farmers on safe use of chemical and with creation of other sources of income.

Therefore the main objective of this review was to evaluate how the process of the decisions were conducted, when it was made and who were responsible for making the decisions.

The information obtained through interview was considered reliable because majority of the respondents were people who have lived in the area for long, have enough experience about the elephant interaction with the community and they were farmers. Therefore, the information obtained from them is considered authentic and reflect the true picture of what was happening on the ground. While in focus groups discussions the two groups had members mainly the farming community who have been affected directly or indirectly with the elephants activities.

The overall process was not participatory. The above decision process where not voluntary accepted by the community but the community were compelled to comply by the fact that they expected the digging of trench to be a source of employment since UWA promised to those involved in excavation . Scouts were also promised gumboots and future recruitment into UWA as rangers. According to the wardens the sub county authorities and its technical wing were ready to comply because they expected 20% revenue share from the park management that would be given as a park contribution to them to manage.

One of the recommendation is the creation of a human-elephant conflict committee in each of the villages’ closure to the park boundaries. These committee would create a link between the Uganda wildlife authority, the district authorities and the community. The committees would help in delivering sensitization activities to counter Human-Elephant Conflict, nurture a favorable environment for a framework of community-led initiative, and raise awareness on the prospects of elephant’s protection.

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# CHAPTER ONE

# 1.0 Background information

The community living in the district of Kiryandongo and Nwoya neighboring Murchison Falls National park (MFNP), have been for long involved in what is called human-elephant conflict for the last five years. MFNP contribute over 15-20% of the total income earned by Uganda Wildlife Authority (UWA). In 2013 to 2014 over 42% of problem animal incursions on Uganda wildlife authority protected areas have originated from MFNP (UWA, 2015). According to Uganda Bureau of statistics (2014), the districts of Kiryandongo neighboring the park has shown a population increase from 187,707 people in 2002 to 266,197 people in 2014. The increasing human population in the areas surrounding protected areas, has led to increase in settlement and crops fields which are right at the edge of the national park. The community neighboring the park and park management in the last 5 years have witnessed a number of crop raids with an average of 1 per night in different locations of kiryandongo and involving 1 to over 10 elephants. According to UWA the conflict was most likely to escalate if nothing was not done and the relationship of the neighboring community and the park management would deteriorate. According to the ministry of Agriculture, the government efforts to increase wealth through agricultural production was being undermined by the human-elephant conflict.

The review was conducted around Murchison Falls National park (MFNP) in Nwoya district, Koch goma Sub County, Langele parish, Lii village in northern Uganda. The park covers 3,840 km2, the northern section of the park contains savanna and borassus palms, acacia trees and riverine woodland and the south is dominated by woodland and forest patches (Uganda wildlife authority report , 2015). The area adjacent to the park in the north is dominated by settled agriculture community, primarily farmers growing highland rice, cassava, maize, and millet and there is no buffer zone between the park and the agricultural area.

The conflict is an important environmental decision situation because poisonous chemicals were being sprayed on grasses, placed in the gardens in pineapple and pawpaw. Poison threatens elephant’s population, it leads to biodiversity loss, loss of habitat of other animal’s species as well as birds, with direct effect on human health. Yet villagers around the park acknowledge that the poison, was more effective measures for protecting elephants from raiding their crops.

In 2014, district leadership, the councilor organized meetings with the park management of MFNP. The Uganda wild life authority then came up with a number of decisions to resolve the conflict, these were as follows; the community were to be supported to dig 20km trench of (2mX 2m) along the selected path of the elephants with fencing in the valleys, along the park borders chili production was to substitute the crops liked by the elephants and beehives to be placed along the same borders to stop the elephants from crossing into the farm fields. However, these decision were contested by the community and they argued that 20km trench may not be the only path and that the protected area may have to be surrounded with trenches.

# 1.1 Problem statement

Environmental decision is a process of evaluating the ways human go about making choices that impact the natural environment.

The Uganda wild life authority took three decisions to resolve the human –elephant conflict (HEC), that is Excavation of elephant trench with fencing in the valleys. Promotion of the use of biological and organic deterrents. Areas of the Park that are neighboring intensive crop growing communities, were to be reinforce with fences of bee-hives and burning of chili blocks and lastly to conduct conservation education and incentives. It’s believed that wildlife benefits is unknown and communities are not certain on who handles it. On the other hand UWA has not given opportunity for the community to participate or engage actively in wildlife conservation.

It’s believed that these were decision borrowed from other areas, especially in queen Elizabeth national park where the HEC has been experienced. In this case park management did not make individuals and groups affected have choices to make to maximize positive environmental outcomes to improve their situations. They were made to be recipients of events with no say on the above decisions. Therefore the research will review the decision process, how it was conducted, when it was conducted and who were involved in making.

# 1.2 The overall objectives

Therefore the main objective of this review is to evaluate how the process of the decisions were conducted, when it was made and who were responsible for making the decisions.

# 1.3 Research questions

* When was the decision made?
* Who were involved in the decision making process?
* How was the decision reached in the first place?
* At what level was the involvement of the affected community?

# 1.4 Justification

The central role of community engagement in reducing wildlife crime is often overlooked by national governments, which tend to focus efforts on strengthening law enforcement. The HEC is an ongoing conflict, planning with the affected community would continuously improve on the environmental decisions process. According to UWA, (2006), a large proportion of conservation intervention are based on experience, expert opinion, but not evidence. Environmental decision making is a learning process that allows for continuous improvement rather than a one-off, constrained activity that stops once a decision is made (The Open University, 2018). In addition it involves the process of exploration of the situation, which in this case was very limited to preventing elephants from accessing community farmlands. It also involves formation of system of interest, which again in this scenario the focus was on the elephant’s death and effect of trenches to the environment was not considered. Environmental decision making also involves the identification of the feasible and desirable changes. Feasible changes in this case were identified through consultation with other park authorities who were experiencing the HEC and not the effected community living around Murchison falls national park. While desirable changes was not identified, because of the limited transparent process of the decision making. It’s therefore believed that for the HEC to be reduce, a number of lessons will have to be drawn from various stakeholders around the park and those within the park. The inclusive process of the affected community in the decision making process, something that has not been done, will be seen as a driving forces in reducing this conflict.

Limited interaction seemed to have occurred especially with the affected community before the sets of decisions were arrived at, and yet environmental decision making process is considered an iterative rather than a linear process. Therefore with the limited transparent process of decision making, the research tends to find out who were involved in the exploration of the situation, formulating the problem, opportunities and identifying changes and taking action and how they have been involved. The research will also come up with means in which the decisions process would have been improved.

# 1.5 Scope and limitation

The study was conducted in two selected parishes in two sub-counties in Nwoya District that are neighboring Murchison Fall National Game Park, and it run from the period of April to June 2019. It covers interventions or events that were initiated around 2013 to 2014. The conceptual scope included; the time frame for the decision, the process of decision, stakeholders involved and their views on the decision taken by Uganda wildlife authority.

# CHAPTER TWO LITERATURE REVIEW

# 2.0 Introduction

Many species of wildlife in conservation areas all over the world face increasing competition with human for space and resources. As a result of this competition, they are coming in to increasing conflict with the people (Balmford et al. 2001). This is particularly the case with large mammals such as *Loxodontaafricana* which have considerable impacts on people (Sitati*et al* 2003). Crop raiding, which is just one of the many forms of human elephant conflict (HEC) occur throughout elephant ranges in Africa, both in forest ecosystem in west and central Africa (Barnes, 1996) and savanna ecosystem in east and southern Africa (O‘Connell-Rodwell*et al* 2000).

Community have resorted to the use of chemicals in many parts of Ugandan national parks, especially in Murchison falls to prevent stray elephants destroying crops. Therefore the conflict is an important environmental decision situation because poisonous chemicals were being place in the gardens in pineapple and pawpaw. Poison threatens elephant’s population, it leads to biodiversity loss, loss of habitat of other animal’s species as well as birds, with direct effect on human health. Yet villagers around the park acknowledge that the poison, was more effective measures for protecting elephants from raiding their crops.

Across the world, environmental decisions are constantly being taken. Their settings vary, as do the people and groups involved. Environmental decisions occur within neighborhoods, small businesses, corporate boardrooms, and in the offices of local, state and national governments. They involve different people with different backgrounds. There is a constant need for understanding the various processes, actors and preconditions of decision-making processes for environmental management (Haris S, 2015).

# 2.1 Social level of the environmental decisions

As individuals it is difficult to understand the nature and scale of the impacts of our decisions, and what we should do about these impacts, because they are part of a large and complex web of interconnected decisions and actions. It is also sometimes dif. cult to see how the actions of one individual can make a difference, particularly when decision-making processes seem remote and there seems little opportunity to get involved (The Open University, 2018). Nearly all decisions are made by individuals, even when in groups or organizations. We also have multiple roles in society where we are involved in environmental decision making, as consumers, citizens, parents, workers and voters (though not always with awareness), so our decisions and actions can and do make a difference. There are more opportunities to get directly involved in environmental decision making than many people think, although they are not always apparent.

# 2.2 Community hierarchy of decision making

In Uganda decisions on issues affecting the community is taken right away from the village level and it follows the local government structure; that is from the village which is the lowest political administrative unit, usually consists of between 50 and 70 households and may be home to anywhere between 250 and 1,000 people. Each village will be run by a local council – local council I (LCI) - and is governed by a chairman (LCI chairman) and nine other executive committee members, to a parish which is made up of a number of villages and headed by local council II (LCII) committee, today, LCIIs are largely involved in settling land distributes and mobilizing the community for various activities. After the parish if no conclusions have been made, issues are then taken to the sub-county. The sub-county is run by the sub-county chief on the technical side and by an elected local council III (LCIII) chairman and his/her executive committee. The sub-county also has an LCIII council, a kind of parliament at that level, complete with a speaker and deputy speaker, from here issues are taken to the county headquarter, headed by the Local council three chairman and then to the district (Richard M K, 2009).

# 2.3 Time and decision making

Time is dimension in which all living organism adjust to their environment come generation and even millenniums, while others last only hour’s minutes or fractions of seconds (Dan A, 2001). It’s a factor that can affect the nature of people’s participation in decision making. Skills are needed to be able to judge the urgency of decision-making processes, who needs to be involved in which stages of decision making within a particular time and resource frame and to what extent timing can be negotiated and with whom (The Open University,2018). One aspect of the time dimension that is particularly apparent in the ‘garbage-can’ decision-making approach is that the outcome of a decision may be affected by concurrent, but otherwise only marginally related, events. One example of this might be the unexpected availability of additional resources or a reduction in resources because of another project going on at the same time elsewhere. Another example might be the way that strong opposition to, or support for, a new development may unexpectedly surface because of events elsewhere (The Open University, 2018).

# 2.4 Stakeholders in environmental decision making.

Stakeholder being any group or individual who can affect or is affected by the ecosystems services (Hein et al. 2006). Around the park, the community of Nwoya County have been having constant engagement with the park authorities on issues concerning crop destruction by elephants .According to Rakowski Lauren, 2010, Community stakeholder have substantial control over corporate resources and decisions companies make about the environment. A number of key stakeholders have been involved in the human elephant conflict; the community, the local government officials at the village parish, sub county, county and up to the district levels. Others included the Uganda conservation foundation (UCF), which has taken the earlier Elephants, Crops and People (ECP) research programme into elephant, human interaction and turned it into a practical project in conjunction with Uganda Wildlife Authority (UWA) and on the initiative of the local communities. The communities hand dug a 2m x 2m trench, with fencing in the valleys, along a 20km stretch of ridge which it is hoped will keep elephants and other non-jumping animals from raiding community crops and destroy (Uganda Wildlife Report, 2015). Uganda Wildlife Authority (UWA) has been one of the key stakeholder in the HEC. UWA is a statutory body which was started in 2000 and it has worked hard in the promoting tourism in Uganda, with its main role of managing and conserving of wildlife in Uganda. It has also been responsible for promoting the public participation in the management of wildlife since it can help in eradication poverty (Safari news, 2013).

In addition the Uganda Wildlife Conservation Society (WCS) Uganda has worked in partnership with other stakeholders like the Uganda Wildlife Authority (UWA) to address elephant conservation challenges and threats in the country. Their approach has been to understand the ecological requirements of different elephant populations; mapping challenges/threats faced in the different locations; and then working with partners to devise and implement suitable interventions. They have employed Satellite Telemetry (radio collars) as a key technique to study home ranges of elephants, identifying where they move and which areas appear to be critical for their long-term survival. Using this technique, WCS has studied and mapped home ranges of elephant groups in Queen Elizabeth (QENP), Murchison Falls (MFNP) and Kidepo Valley (KVNP) National Parks since 2006 (WCS, 2007-2018).

# 2.5 Pattern of crop raids by elephants

Crop damage is highly variable in space and time; it is affected by many factors and is little understood (Mosojane, 2004). Elephants damage crops in a way that varies greatly from location to location, and also over time. There are few spatial trends, making it difficult to predict where conflict will take place. However, despite this variation, several patterns exist.

Crop damage is more likely to occur most along the boundaries of protected areas (Sitati*et al*, 2003) and usually decreases with increasing distance from the boundary. Elephants from the protected area raid crops closest to the boundary because the risk of detection is lowest. Elephants have an acute spatial awareness and it is likely they are able to recognize the transition between safe ‘forest and dangerous ‘farm land. Similarly, few elephants will risk going deep into the farming area, so the majority of damage occurs on the farms bordering protected areas (Mosojane, 2004). 10

Crop damage also occurs along established elephant pathways as noted by Lawino (2012), for many years, elephants from MFNP moved back and forth from Uganda into Southern Sudan following a path parallel to the River Nile. That elephant corridor has now been blocked by developments and human settlement thereby intensifying the conflict. In addition, Mosojane (2004) also noted that sources of permanent water are further interface for conflict to occur, as it is a resource that both humans and elephants directly compete for. Elephants are highly water-dependent and where water is limited then the potential for conflict is high as elephants coming to water may discover crops there and raid them opportunistically.

Crop damage exhibits a peak of activity when crops approach maturity. In the savanna habitats of Southern Africa this usually occurs towards the end of the rainy season when the crops are mature. In some areas a dual-season peak of activity has been described, with a second peak of activity in the mid dry season when vegetable gardens are mature.

Mature crops are targeted by crop-raiding elephants because they are most palatable at this stage of growth. Their fruiting bodies and seeds are highly nutritious. Indeed, mature crops will be far more nutritious than natural forage that is available to elephants. It has been suggested that the decline of quality in natural forage acts as a trigger for crop raiding as the grasses dry out at the end of the wet season their nutritive value declines, prompting the elephants to seek out other sources of food (Mosojane, 2004).

# CHAPTER THREE

# METHODOLOGY

# 3.0 INTRODUCTION

This chapter covers the methodology of the study. It specifically includes the study area, study design, study population, and sampling procedures. Methods of data collection, and analysis, ethical consideration and challenges faced during the study are also highlighted.

# 3.1 STUDY AREA

3.2 Geographical Location**.**

Nwoya District is one of the newest Districts located in Northern part of Uganda at 020 38‘North, 320 00‘East with an estimated population of 41,010 people (UBOS, 2002). It was established by an act of parliament and began functioning on 1st July 2010. Prior to its establishment as an independent district, it was part of Amuru District. The Districtis bordered by Amuru District to the north, Gulu District to the northeast, Oyam District to the east, Kiryandongo District to the southeast, Masindi District to the south and Buliisa District to the southwest. Nebbi District lies to the west of Nwoya District. The southern part of the District is also bordered by Murchison Falls National Park. The residents of the district were living in Internally Displaced Persons camps while other residents had moved to the nearby Districts due to the insurgency by the Lord Resistant Army rebels (LRA) from 1996 to 2007 when they started returning to their previous villages.

# 3.3 Climate and Vegetation

# 3.3.1 Rainfall and temperature

Nwoya District experiences a bi-modal rainfall pattern with light rains from April to October. The wettest months are August and September. The average annual rainfall is 1250 mm and monthly evaporation lying between 130 mm and 180 mm. The dry season commences in December ending in March during which period high temperatures are experienced. The mean annual minimum and maximum temperatures are 17.5˚C and 30˚C respectively (Uganda Atlas, 1998).

# 3.3.2 Vegetation

The vegetation of Nwoya District is predominated by wooded savanna with patches of moist woodland and seasonally flooded and swamp grassland fringed by palm swamp forest, grading to permanent swamp. The District is characterized by different vegetation types in addition to cultivated land namely:

Wooded grassland: Wooded grassland forms an open canopy of 10-40% cover with a herbaceous layer characteristically dominated by a grassland association and an intermediate layer usually absent with grass species comprising more than 75% (White, 2001). The vegetation type is a mosaic community, which varies in character with different associated tree and grass species.

Woodland: The wooded grassland grades into woodland with indistinct borders between the low vegetation types. Only two major areas of woodland occur, both adjacent to the permanent swamp. The woodland is 40 – 75% with Forbes being more dominant in herbaceous layer and shrubs in the understory (White, 2001).

Riverine woodland: The vegetation assemblage occurs as thin as 10-20 m wide with sparse trees with wide strips along rivers or swamp fringes often blending into *Phoenix reclinata* swamp forest fragments.

Papyrus swamp: Papyrus swamp occurs mainly in the eastern side of the District along River Tochi, but also as frequent small patches throughout the rest of the permanent swamp. Overall, it is permanent standing water with an herbaceous layer almost exclusively dominated by papyrus with no other vegetation layers present.

# 3.4 Economic Activities

The population practices shifting cultivation. Sedentary cultivation is practiced on the river banks and swamps where crops like sugar canes, okra, cabbages, bananas, rice and tomatoes are planted.

Livestock keeping is also practiced by large proportion of the population where goats, sheep and cattle are reared on tethering and semi-intensive methods and Poultry which are kept on free range system. The local people also hunt for meat, and gather wild fruits like ―odu‖ *Borassus* fruits, shear nuts *Vitellariaparadoxa* and medicinal plants. 21 Nwoya District Purongo sub-county Koch Goma sub-county Pait parish Kal parish Pabit Lagazi Pabit East Pait West Kal B Kal A1 Kal A2

The local communities also engage in small scale trading mainly in locally produced food stuffs like local brew, charcoal, papyrus mats, honey, medicinal herbs and wild meat. They also trade in finished goods at markets across the district.

# 3.5 Study Design

Cross sectional study design will be applied using a mixed method approach. Qualitative design will be used to collect data on the attitude of the local communities towards decision making. On the other hand, quantitative design will be used in areas where the data collected is capable of being subjected to quantitative statistical analysis.

# 3.6 The study target population

The review was conducted among the local residence of Kal parishes in Koch Goma Sub-county. The sub-county has an estimated population of 8550 respectively (UBOS, 2002) which are composed of peasant farmers mainly that are dependent on subsistence agriculture for livelihood support and sustainability.

# 3.7 Sampling procedures

A multistage simple random sampling method was used to select three villages and one parish from Koch Goma sub-county. The sub-counties were selected by listing all the four sub-counties in Nwoya District on different piece of papers that were then folded, placed in an open box and mixed. One folded paper was picked without looking in to the box. Name of the sub-county contained in that paper was noted as the first study sub-county. The paper was folded and placed back into the box and mixed. The procedure was repeated for the second study sub-county and parish from each sub-county.

P= proportion of the population included in the stratum.

n =Total sample size.

L= the total population of the parish.

N= adjust respondents

**N= (nP/L)**

# 3.8 SELECTION AND COMPOSITION OF RESPONDENTS

# 3.8.1 Survey respondents

Household heads were selected using simple random sampling method to participate in the survey. A household was taken as the unit of analysis. Here household heads was taken as any man or woman living together or alone or members of the family living in a single family unit and engaging in farming as one of the livelihood activities. The composition of the respondents selected from the different villages in the study parishes are shown in the table below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sub-county** | **Parish** | **Village** | **Population** | **Number of respondents** |
| Koch Goma | Kal | Kal B | 3420 | 104 |
|  |  | Kal A1 | 2850 | 78 |
|  |  | Kal A2 | 2280 | 78 |
| **Total** |  |  | **8550** | **260** |

Source: UBOS 2002 Uganda Population and Housing Census

# 3.8.2 Key Informant Interviewee

Purposeful selection was used to select the first key informant in each parishes who satisfied the condition of being a farmer who has suffered crop raids by elephants, and has lived in the area for more than five years while the rest of the key informants will be wardens, game rangers, wildlife scouts and chiefs were selected using snowball sampling methods where first key informant identifies the next person to be interviewed and the pattern continued until the right number of the key informants was reached.

# 3.8.3 Focus Group Discussion Participants

Focus Group Discussion participants will be selected purposively (Patton, 1992). An individual who had not participated in the survey, and Key Informant Interview, and was a farmer who has lived in the area for more than five years will be selected. A total of 20 people participate in the focus groups in the two village of KAL parish.

# 3.9 METHOD OF DATA COLLECTION

# 3.9.1 Questionnaire survey

The questionnaire with closed and open-ended questions, will be used for data collection. The questions are in English. In cases where the respondent will unable to read and write the researcher will read out the questionnaires and asked the respondent to answer the various questions and the researcher filled in the answer given and in cases where the respondents never understood English, the questions will be interpreted in local language (Luo), and the answers given recorded. Respondents who were able to read and write in English will be given the questionnaires to fill in by themselves.

# 3.9.2 Key Informant Interviews (KIIs)

In this procedure, face to face interviews was conducted at the respondent‘s homes using a Key Informant Interview guide lasting less than ten minutes. Before the interview, the researcher introduce himself to the key informant, explained the objectives of the study/ review. Major points was noted that was expanded immediately after the interview and before the next interview.

# 3.9.3 Focus Group Discussions (FGDs)

Focus group discussion was used to collect qualitative data which included the problems associated with environmental decision making, Social impacts of elephant raids and decision process. Two focus group discussions was conducted in total with one FGD being conducted in each village.

# 3.9.4 Source of secondary data

A number of reports and publications was used during the study. This supplemented and authenticate the field data.

# 3.9.5 Data Analysis

The qualitative data was coded, sorted, summarized, categorized, and interpreted. Quotations of some key informants and focus group discussants was used to give a deep and well-backed analysis. The information was presented in a descriptive form. On the other hand, quantitative data was analyzed using computer packages; Statistical Package for Social Sciences (SPSS) 16.0. The coded responses will be entered into spread sheets, cleaned and transferred to SPSS for analysis in line with the study objectives.

3.9.6 ETHICAL CONSIDERATION

Humans was used in this study as a source of information only. The researcher introduced himself to the respondents, and explained the objective of the study to the respondents before their participation. And assured the respondents of the confidentiality of the information that would be obtained from them and that the information were for academic purpose only and their participation were voluntary therefore in this way respondents were free to withdraw at any time from the study.

# CHAPTER FOUR

# Analysis and interpretation

# 4.0 Introduction

This chapter presents results gathered from the field (between April and June 2019). The chapter is composed of eight subsections which include; the response rates, socio-demographic characteristics of the respondents, Key informants, focus group discussions, time frame, Decision makers, Decision process and stakeholder’s perspectives.

# 4.1 RESPONSE RATE

# 4.1.1 Survey

A total of 20 individuals were approached for interview, 17 male and 3 female in KalB Village, Kal parish, Koch goma Sub County in Nwoya district in northern Uganda. Whereas all males approached accepted to be interviewed, all the women did not want to be interviewed, 15% of the total respondent. The reason given by those who decline to the interview was that they have responded to several interviews before, relating to elephant issues but nothing tangible has come out of them and the problem is still persisting, therefore they only seem to be wasting their time.

# 4.1.2 Focus groups discussions

Two focus group discussion (FGD) were conducted in two villages of Kal A and kal A2 in Koch goma Sub County. 10 participants from KalA village were invited to participate in the FGD, consisting of male participants only, whereas those from Kal A village consisted of female participants. In Kal A2 village, all the invited participants attended the discussion while in Kal A village, 80% of the participants attended the discussion. An overall response rate of 90% was registered for both villages.

# 4.1.3 Key informants interview

The information obtained through interview was considered reliable because majority of the respondents were people who have lived in the area for long, have enough experience about the elephant interaction with the community and they were farmers. Therefore, the information obtained from them is considered authentic and reflect the true picture of what was happening on the ground. While in focus groups discussions the two groups had members mainly the farming community who have been affected directly or indirectly with the elephants.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Respondent categories** | **Age category** | **segregation by gender** | | **Total by category** | **% of Totals** |
|  |  | **Male** | **Female** |  |  |
| Community conservation Warden | 45-56 | 1 | 0 | 1 | 5 |
| Game Rangers | 36-45 | 3 | 2 | 5 | 25 |
| Parish priest | 45-56 | 1 | 0 | 1 | 5 |
| Sub- county chief | 45-56 |  | 1 | 1 | 5 |
| Parish chief | 45-56 | 2 | 0 | 2 | 10 |
| Youth trench excavators | 26-35 | 7 | 0 | 7 | 35 |
| Community (Scouts) | 26-35 | 3 | 0 | 3 | 15 |
| **Totals** |  | **17** | **3** | **20** | **100** |

*Table 1 Key informants by age and gender.*

# 4.2 Time frame.

Time is a factor that can affect the nature of people’s participation in decision making (Open University, 2018). The respondent were asked when the decision was taken, 90% of the respondent agreed that the mitigation measures were thought of very late. In 1997 the community of Koch Goma living around Murchison Falls National park (MFNP) were forced to the internally displaced (IDP) camp due to the Lord Resistance Army (LRA) activities. As result in 2000 elephants started encroaching on farm land that seems to be abandon in Koch Goma. Community responded by spraying chemicals on grasses and crops along the elephants routes. In 2014 UWA decides the digging of trench, educating the community and provision of biological deterrents to save the elephants and other wildlife species. While in 2019 January maintenance works were under way and we witness the payment of the trench maintainers by UWA on 15th /feb/ 2019.

# 4.3 Decision Makers

In this regard, 80% of the key informants where aware of the community as key decision makers. They also acknowledge the village LC1 chairman and his executive committee members, the LC11 councilors at the parish, the parish chief who heads a parish and he is a government technical person, the Sub County chief, sub county technical planning committee (STPC) and its elected local LCIII councilor executives, the Uganda wild life authorities (UWA), the district leaders and area member of parliament as key decision makers. Other stake holders involved were more directly linked to UWA, for example the conservationist the Uganda wildlife conservation society, the Uganda conservation foundation and non-governmental organization Care and Food and Agriculture organization who were directly mobilizing funds for UWA.

# 4.4 Decision process

In this human-elephant conflict situation, UWA engaged the conservationist, the Uganda wildlife conservation society, the Uganda conservation foundation and local government officials in a kind of consultation to be able to explore the situation. Consultation in a decisions making process can take many forms, for example as a group of stakeholders being asked about which issues or question should be under review (open University ,2018), however, in this case the consultation was more about implementation of what UWA had in mind. The focus of UWA was to have a quick solution to the killing of the elephants. In the exploration exercise, the idea of using evidence -based approaches, and creating awareness as much as possible of the problem was singled out, even if there was limited involvement of the affected community at this level. The environmental issues identified as chemicals sprayed on crops and placed in fruits, were being used to kill stray elephants and biodiversity degradation and hence forming an intervention of interest to the UWA. However, from the community perspective, UWA should have valued crop losses to elephant’s death. The National Environmental Act 1995, part 2 sub-section (1) says that every person has a duty to maintain and enhance the environment, including the duty to inform the authority or local environment committee of all activities and phenomena that may affect the environment significantly (Environmental Act 1995), was also ignored by UWA since most of the community did not report the use of chemicals and most of the affected community according to the 15% of the interviewed scouts, were not even aware of the act.

In the first phase, Uganda wildlife authority as lead agency, quickly employed rangers for scare shootings in Koch Goma Sub County. Hired bulldozers tractors, to excavate trenches instead of involving the community. The use of bulldozers tractors to excavate trenches, according to Walter one of the community warden, was not sustainable and the number of rangers employed for scare shooting, also reduced the number at the park base that created gap for poachers and as such a risk of increased poaching was realized.

To support its initiative of trench digging, UWA use the theory of empowerment and participation, as explained by Jethro Pettit as bridging the gap between understanding and practice (Open University, 2018). Where by certain groups will be used to understand and practice mitigation measures in this situations, the district officials, the area member of parliament, councilors and the STPC would be involved. Their collective efforts and knowledge will then help in shaping the decision process. As illustrated in the case study and discussed in Block 2, public involvement in the fracking decision-making process was limited to consultation in the initial exploratory phase, which was soon followed by protest and lobbying outside of the formal decision-making process (Open University, 2018). In this case, public involvement was limited to the ‘most powerful’ in terms of decision making, the district officials, members of parliament (MP) and STPC. Although this did not result into protest from the community as for the case of fracking, but it widen the gap of community involvement.

According to Gunaryadi D (2017), it’s widely believed that sustainable reduction of human-elephant conflict will require, in many cases community –based methods (growing of chili and beehives) for repelling elephants. The conservationist also added their voices to the problem, highlighting that keeping of beehives or the growing of chili pepper around the Shamba has proven to be effective in keeping elephants away from farms but there appear to be a greater need to educate and support local communities to use such simple means, a challenge UWA’s community warden will undoubtedly include in their advocacy and consultative sessions with community.

Therefore in the second phase, UWA focused on engagement of the affected community especially in excavation works. It organized a consultative meetings, more about the implementation and conservation workshops to the district leaders, STPC, area members of parliament and the councilors. The meetings and the workshops were to help UWA address issues of environmental laws and promote the dissemination of information, public education on wildlife conservation and management as stated in the Uganda wildlife Act, 1996. In addition to the Act, Uganda wildlife policy 2014, emphasizes that where appropriate UWA is to promote the establishment of community wildlife areas (CWA) and promote community conservation initiatives through alternative livelihood improvement projects. Therefore according to UWA, community engagement in trench excavation in the second phase, would be an opportunity for providing temporary employment to the community and as well as the integration of scouts into the ranger forces.

One of the outcome of the meetings was the idea of study tour to Queen Elizabeth national park, in western Uganda where community –based approaches is being practiced. The trip team was also made up of the ‘most powerful’. This according to the 10% of the parish chief interviewed, the idea was not supported by some of the local government officials who wanted the affected community to be part of the team.

Uganda wildlife authority has not been able to effectively sensitize the affected community on the community-based approaches to deter elephant and elephant’s benefits as mentioned by the game rangers and yet it is its mandate. For example objective 6 of the Uganda Wildlife policy, 2014, seeks for the promotion and support of wildlife conservation education awareness. According to the 25% of the game rangers interviewed, the idea of UWA targeting the ‘elite ’community in the second phase was because the farmers around the park especially in the village of Lii did not show the willingness to participate in the earlier voluntary crop trials defenses conducted by rangers in the initial exploration stages. Discussions on the trip tour and lessons learned, help UWA officials to confirm the three sets of decisions. However, according to Mr. Walter Odokowrot a community warden, the overall process was not participatory. I have also learned that the above decision process where not voluntary accepted by the community but they were compelled to comply by the fact that community expected the digging of trench to be a source of employment since UWA promised to those involved in excavation . Scouts were also promised gumboots and future recruitment into UWA as rangers. According to the warden the sub county authorities and its technical wing were ready to comply because they expected 20% revenue share from the park management that would be given as a park contribution to them to manage.

# 4.5 Stakeholder’s perspectives

# 4.5.1 Farming community.

Stakeholders are those who affect (determine) a decision or an action (active stakeholders) and those affected by the decision (passive stakeholders), (The Open university cited in the technique guide pg 86, 2015). The farming community have been one affected by the decision, yet not fully involved in the process. They have been involved in trench excavation, working as scouts and placing beehive long the boundaries as well as burning chili. On the sets of decisions, their point of view has been that UWA will create employment through trench digging, the youth will be recruited as rangers in the long run and the sale of natural honey, bees-wax and Propolis would form a source of income and trench maintenance also to act as a separate source of employment.

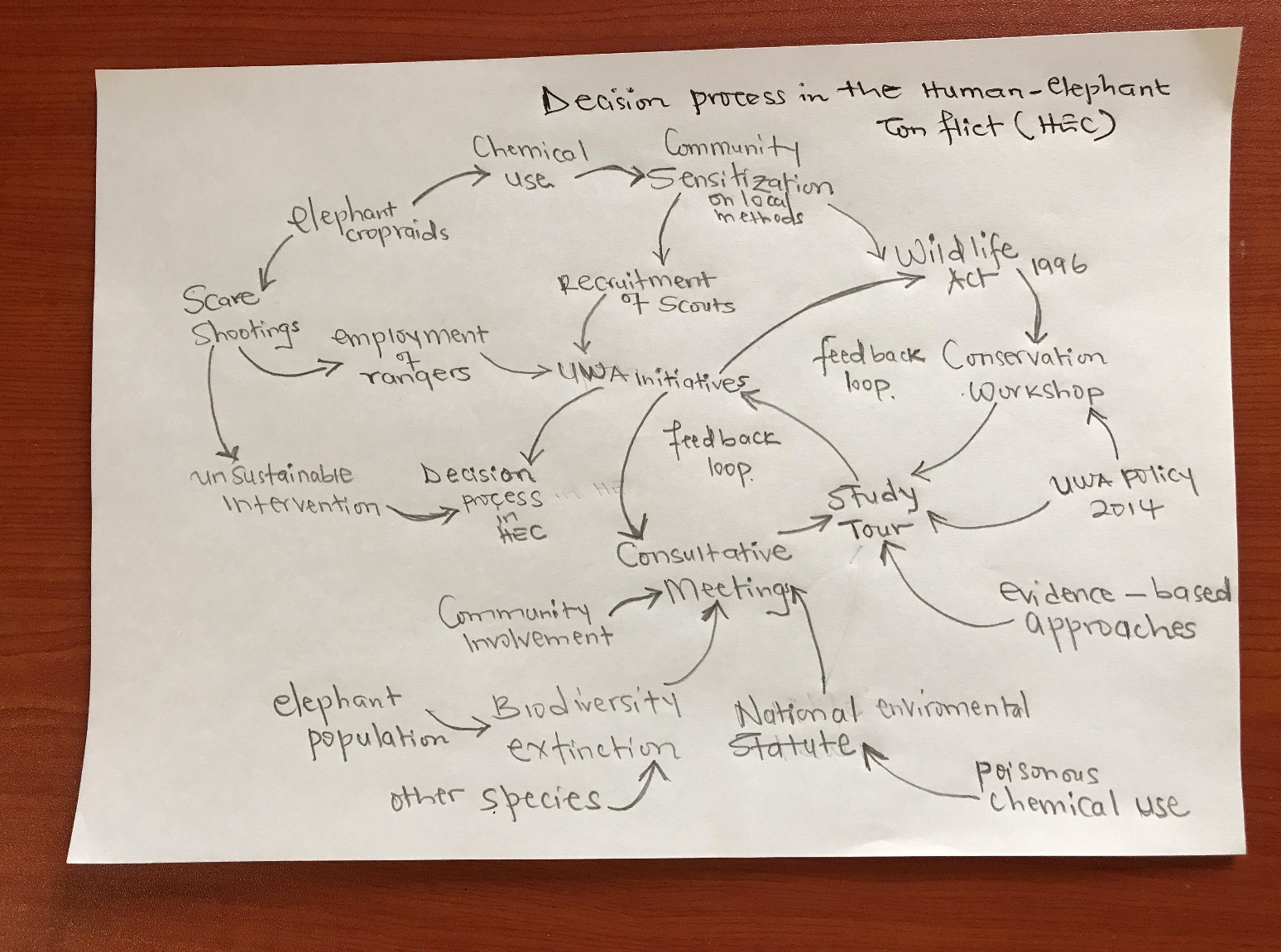
# 4.5.2 Sub county technical committee (STPC)

They have been responsible in ensuring that the land to be excavated belonged to the park authority. Recruitment of the trench excavators, mobilized support from other non-governmental organization (NGO) such as CARE international and Food Agricultural organization. They also engaged the community on dialogue on using methods that were not dangerous to human health and were also involved in paying the trench excavators on behalf of UWA. It has also been their role to utilize the 20% revenue share from UWA, to support scouts activities, especially buying materials such as vuvuzela for scaring elephants away. Their views on the decisions has been that UWA would provide the beehives for the farmers, hire consultant to train the farmers on baiting the beehives and placing and support the capacity building of the scouts in the community, something UWA has not been able to do. They also believe that the Uganda wildlife act should be revised to take care of compensation since the trenches do not go all round the park.

# 4.5.3 Uganda Wildlife Authority

The wildlife authority acknowledge that the conflict is an ongoing process and decision made today may not be relevant in some years to come. They have been involved in making the decision, they have provided funds for the trench excavation, and they funded the study trip. Involved in the recruitment of wildlife scouts, as well as doing sensitization in the community using the rangers. From their perspective, conservation education should target the most informed people in the community. They also believe that the since community-based approaches have been tried elsewhere, of trench digging it can also be applicable for people living around Murchison falls national park. They also argue that the community should embrace wildlife conservation and that the mitigation measures are not perfect and elephants may still cross to farm land and destroy crops. The Uganda wildlife Act does not provide for compensation to people whose crops are damaged or whose family members are killed by animals and killing protected animals is illegal.

*Figure 1 multiple cause Diagram (for second illustration of the decision process in the review)*



Uganda wildlife authority took the initiative when the first cases were reported of elephant crop raids and use of chemicals to deter stray elephants. UWA employed rangers for scare shooting, recruited wildlife scouts and used the scouts to sensitize the farmers to use local means. The exercise became expensive, since few rangers were left at the park, poaching inside the park increased and scare shooting was abandon. The second phase, UWA organize a consultative meeting and conservation workshops to the district leaders, STPC, area members of parliament and the councilors. The consultative meetings and conservation workshops were to help UWA address issues of environmental laws and promote the dissemination of information, public education on wildlife conservation and management as stated in the Uganda wildlife Act, 1996. The Meetings generated the idea of study tour to Queen Elizabeth national park, in western Uganda where community –based approaches were being employed. The other reason was for the officials to have an evidence-based approach experience and appreciate how the community living around the park have been able to employ appropriate methods for controlling stray elephants. Discussions on trip tour, lessons learned were held after the tour facilitated by UWA officials, and this guided the authority to come up with the three sets of decisions.

# CHAPTER FIVE

# 5.0 Recommendation for future practice

The HEC is an ongoing conflict, planning with the affected community would continuously improve on the environmental decisions process. According to UWA, (2006), a large proportion of conservation intervention are based on experience, expert opinion, but not evidence.

Participation of the farming community in decision making process. For example the study trips should have been composed of 70% of the affected community. But according to the respondents, 90% were politicians and the rest were technical staff from local government. According to Aarhus Convention, 2018 the public must be informed over all the relevant projects and it has to have the chance to participate during the decision-making and legislative process.

The human elephant conflict is an ongoing process, a unique and complex in a way that it may require experts’ idea in that line of wildlife conservation and testing ideas from elsewhere, to aid decision making. Therefore using the Delphi techniques would improve the decision making process. Delphi technique is a method for structuring a group communication, as a whole, to deal with a complex problem, and its purpose is elicit information and opinions from participants to assist planning and decision making, by Linstone and Turoff, 1975 (open university cited in the technique guide pg 37).

Creation of a human-elephant conflict committee in each of the villages’ closure to the park boundaries. These committee would create a link between the Uganda wildlife authority, the district authorities and the community. The committees would help in delivering sensitization activities to counter Human-Elephant Conflict, nurture a favorable environment for a framework of community-led initiative, and raise awareness on the prospects of elephant’s protection.

# 5.1 Limitation of the study

The research was affected by the ongoing land wrangles between the community and the authorities of Murchison falls national park. As a result administering the questionnaire, for this review was not possible. Key information was obtained through key informants interviews and focus group discussion that involved the members who in a way or the other participated in the actual exercise. However some of the constraints for example transport were solved by using cheap and available means of transport like ―boda boda.

# 5.2 Recommendation for future research

The human elephant conflict is an ongoing process. The review identified limited participation or involvement of the affected community in the decision making. Future work may have to consider how the conflict would affect the tourism industry in Uganda both local tourist and foreign and the strategy that have been put in place to protect elephant population.

# 5.3 Conclusion

In conclusion the review work recognizes that human activities impacts on the environment , since most of the issues are human made, and that different ideas do exist for people to minimize or safe guard environmental destruction. The review also recognizes that environmental issues needs to be categorized into national or local level. This level of categorization help the decision makers to provide an appropriate means or identify appropriate actors for safe guarding the environment.

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# APPENDIX.

# HOUSEHOLD SURVEY QUESTIONNAIRE

Dear respondent, I am Mwaka Joseph a student of African Centre for project Management. This questionnaire is only intended for study purpose with the objective of reviewing the environmental decision process in the elephant conflict in Nwoya districts neighboring Murchison Fall National Game Park. The study is a partial fulfilment of a diploma in Monitoring and Evaluation .You have been chosen to participate in this study and to respond to the questions below . All Your responses will be treated with utmost professionalism and confidentiality. Please feel free to ask question where it is not clear to you.

**Interviewer\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Day: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**PART ONE: DEMOGRAPHIC DETAILS:**

**1.** Place of residence

District: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_County: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Sub-county:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parish: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Village: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2.** Sex: Male, Female

**3.** Age\_\_\_\_\_\_\_\_\_ years

**4.** What is your Marital status

i) Single (ii) Married (iii) Divorced (iv) Separated (v) Widowed (vi) Widower

**5.** What is the highest level of education you have attained?

i) Primary (ii) Secondary (iii) Tertiary(College/Institute) (iv) University

**6.** What is the main activity which your family/household engages in to earn a living (Livelihood)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**7.** What other activities, other than the one mentioned above, do your family members engage in for a living

(i)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(ii)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(iii)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**8.** Status of responsibility at home

i) Father (ii) Mother (iii) Dependant

ii) Others (please specify)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**PART TWO: THE DECISION TIME**

1. How long has the conflict been taking place?

………………………………………………………………………..

1. When was the decision taken?

……………………………………………………………………………………………

1. How this timing did affect the community participation in solving the conflict?

…………………………………………………………………………………………………………………………………………..

1. According to you what would have been the right time?

……………………………………………………………………………………………………………….

**PART THREE: STAKEHOLDERS INVOLVED**

1. Which organizations where involved in this conflict mitigation?

**………………………………………………………………………………………………………………………………**

1. Which stakeholder was leading in this exercise and why?

………………………………………………………………………………………………………………………….

1. What were some of the stakeholders’ perspectives on the decision taken?

………………………………………………………………………………………………………………………..

1. Would you consider the community of Koch Goma as key stakeholders in this exercise?

……………………………………………………………………………………………………………………………………………………….

1. If yes, give reasons for your answer……………………………………………………………………………………………………………………………………..
2. Who decided the digging of the trench, burning of chili and community education?

………………………………………………………………………………………………………………………………………………….

1. At what level/stage was the community affected involved?

………………………………………………………………………………………………………………………………..

1. How were the affected community involved in this conflict mitigation?

**PART FOUR: DECISION PROCESS**

1. How did the park management get to know about the crop destruction?

**………………………………………………………………………………………………………………………….**

1. What were some the steps taken for the decision to be reached?

**………………………………………………………………………………………………………………………………**

1. Why was these particular steps important?

………………………………………………………………………………………………………………………………………

………………………………………………………………………………………………………………………………………..

1. Was this the right process according to you?

YES…………………………………..NO………………….

1. If no, provide reasons to support your answer

…………………………………………………………………………………………………………………

1. What would have been done to improve the decision process?

……………………………………………………………………………………………………………………………..

THE END

Thank you for your participation.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | |  |  | |  |
|  | |  | | |  | |
|  | | | | | | |
|  | | | | | | |

****

Am right inside pointing at the extreme side of the elephant trench, with some of the wildlife scouts.

