



Youth Trained to be Environmentally Sensitive through Confirmation Classes: Experience from Northern Diocese of the Evangelical Lutheran Church in Kilimanjaro Region, Tanzania

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Abstract: Religion institutions forward the conservation of natural biodiversity by providing ethical and social models for living respectfully with nature. Given this acknowledgment, Northern Diocese(ND) of the Evangelical Lutheran Church (ELCT) in Kilimanjaro region started an intervention on tree planting through engaging confirmation students who are enrolled to the classes every year. Therefore, a cross-sectional study was conducted to examine success and challenges of the approach. Specifically, the study established the survival rate of trees and presents opinion on factors facilitated the success of the approach. The descriptive analysis was adopted in establishing the rate of survived trees and opinion associated with its survival. The findings reveal that, 78% of all trees planted by students survived. Generally, despite various factors reported to contribute to high rate of tree survival, spiritual influence was cited as strong factor. It was found that even if a tree seedling given to a child died, most of them found any means to replace the seedling by either taking the ones that grew around their environment, from friend's fields, or even asking for some money from their parents. Factors like livestock grazing, theft, drought, and negligence were cited as challenges for the success of the project. The study concludes that the mode of engaging youth in tree planting program to be successful since the youth attribute tree planting to faith, leading to changing people's behaviour on environmental conservation. It is recommended that the mode should be up scaled to other areas in Tanzania and also to other faith groups.

Keywords: *Church, tree planting, spiritual, religion, confirmation*

1.0 Introduction

Environmental conservation has been part of international and local development agenda for so many years. This is due the fact that improving human life cannot be achieved without improving the planet. Despite concerted efforts on environmental conservation the success has been limited. For example, regardless of 15 years of Millennium Development Goals (MDGs) implementation both carbon emissions and deforestation have continued to rise over the past 15 years. The low success of the current international and local environmental conservation initiatives have been attributed to various factors like setting of unattainable indicators (Easterly, 2009), focusing on nature protection (intrinsic values) with limited favor on protecting the environment for its benefits to humans (instrumental values) (Bhagwat *et al.*, 2011; Doak *et al.*, 2015). Given the slow pace of conservation success, Chan *et al.*(2016) propose that focusing only on instrumental or intrinsic values may fail to resonate with views on personal and collective well-being with regard to nature and the environment hence calls for complementary attention to



other ways that value is expressed and realized by the people. Therefore, Doak *et al.*(2015) argued to be necessary to refocus the field and practice of conservation by adopting new conservation science approach that de-emphasizing the goal of protecting nature for its intrinsic values in favor of protecting the environment for its benefits to humans. In the same line, Bhagwat *et al.* (2011) call for addressing conservation and development together.

Enormous efforts have been done in integrating conservation and development by implementing conservation projects that create livelihood opportunities while at the same time conserving ecosystem or nature. Despite the efforts to link the two agenda the success has continued to be limited. For example limited achievement of MGDs on biodiversity conservation was associated with lack of proper integration between the two (Sachs *et al.*, 2009). In the course of integrating the two agenda, many voices have called for changes in human behaviour, that would harm the environment less (Gifford and Nilsson, 2014). Therefore, it is logical to accept that solving the current ecological problems is not only a matter of technology but also implies deep changes in our way of living, which is in turn affected by our ethical or moral values (Chuvieco, 2012).

Despite elimination of poverty (development) and the preservation of biodiversity (conservation) to be two distinct objectives it has a lot of overlaps in practice (Adams, 2004). In line with Chuvieco, (2012) other scholars have suggested that conservation and development to be driven by ethical and moral values that are frequently faith based (Bhagwat *et al.*, 2011; Cordier, 2009; Mcleod and Palmer, 2015). Mcleod and Palmer, (2015) argued that faiths are not primarily about codes of ethics rather are about the ethos of compassion, belief, mythology, ritual, celebration, and values that arise from their core teachings and actions. These ethical beliefs and religious values are the influence of human being behaviour towards others, including the relationship between human being and nature.

The studies on the link between religion and conservation has received considerable attention because religion forwards the conservation of natural biodiversity by providing ethical and social models for living respectfully with nature (Negi, 2010). At the same time effective partnerships between religious and conservation groups represent significant untapped potential which can directly support conservation outcomes (Mcleod and Palmer, 2015). Since religions provide sound principles for attaining certain ethical/moral behaviour, it is clear that recourse to religious principles could be very important in supporting new attitudes towards the environment. Despite this acknowledgement resource managers and scientists have yet to fully engage religious communities in their outreach efforts to protect the environment (Mcleod and Palmer, 2015). Therefore, this set a need to conduct study to explore the role of religious organization in environmental Conservation, in Tanzania.

In the course of joining other stakeholders in environment conservation efforts, the Tanzania Government has set some strategies to combat the problems associated to climate change, one of them being launching a national tree planting day since 1999. The day was celebrated for the first time on January 1 2010, but later on it was shifted to 1 April, aiming at fighting against deforestation and threats of desertification. It is therefore launched in order to educate Tanzanians on the benefits of tree planting and the proper ways of doing it, as well as raising awareness of the dangers of deforestation. Along this day the Tanzania Forest Services Agency holds various special events in different places including schools as well as planting new forests.



As explained before, religious institutions have the ability to persuade and mobilize the people in various aspects, but they are yet to show their position as actors in environmental conservation. Often, areas owned and developed by religious institutions have well planned and conserved environment, while in most of the surrounding communities the environment is not as well maintained as in the areas owned and developed by religious institutions. To address this difference, the Northern Diocese (ND) of the Evangelical Lutheran Church (ELCT) started an intervention on tree planting through confirmation students who are enrolled to the classes every year. Every student enrolled to the confirmation class has to plant at least ten trees basically in his or her home area. The intention was to engage the surrounding communities on environmental conservation and restoration of the ecosystem around Kilimanjaro region. Given this initiatives, the study was designed to examine the unique approach that was adopted by the Church. Specifically, this paper presents the survival rate of tree planted by the students and factors for success and challenges of the planted trees. The findings contribute to the body of knowledge on the role of religious institutions on environmental conservations.

2.0 Research Methodology

2.1 Description of the Study Area

The study was conducted in the Northern Diocese (ND) of the Evangelical Lutheran Church in Tanzania (ELCT), in Kilimanjaro region. The region is located in the north eastern part of Tanzania between latitude $2^{\circ}25^1$ and $4^{\circ}15^1$ South of the Equator, and longitudinally it lies between $36^{\circ}25^130^{11}$ and $38^{\circ}10^145^{11}$ East of the Greenwich. The region has common boarders with Kenya in the north; to the Southeast it shares boarders with Tanga region; and to the South it shares boarders with Arusha region (URT, 1998). The ND covers most of the area of the region, as it covers four out of six administrative districts. It was purposively selected from among 24 Lutheran dioceses in Tanzania, due to its early plans and active engagement in the tree planting programme thirteen years back, giving it a greater chance of being selected over the entire dioceses.

2.2 Research Design, Sampling Procedure and Sample Size

A cross-sectional study was conducted where by the survey was done once at a time. A multi-stage cluster sampling procedure was used, starting from the Church diocese level to the parish level. The target population was the households with youths who participated in the tree planting programme from the year 2003 to 2015. Hai Church district was randomly selected followed by two parishes, Nkweseko and Makuna, based on highland and lowland agro-ecological zones respectively. The highland zone is characterized by home gardens where coffee, banana, yams, cocoyam and some vegetables are grown. Animal keeping is practised under zero grazing. The lowland zone is a bit dry land and is dominated by open fields where cereals like maize, millet, finger millet, and legumes like beans are grown. As well, free range livestock keeping is practised in this zone. Finally, 100 households with youths who had participated in tree planting were selected from each parish through systematic random sampling procedure, depending on their respective population size. The sampling frame was constructed based on the years of enrolment to the confirmation class.

According to the parishes data bases, the average number of youths confirmed per year, per parish is between, 30 and 50. Taking two parishes as sub-samples, the first and the second



parishes had a total number of 620 and 380 students respectively who had already been confirmed within the marked period of time. In order to come up with a desirable sample size, the total number of sub samples was calculated at 10%, making a total of 62 households sample size for the first parish, and 38 households for the second parish. The sum of the two makes 100 households. This complies with literature by Bailey (1994) which states that, regardless of the population size, a sample or sub-sample of 30 respondents is the bare minimum for studies in which statistical data analysis is to be done.

2.3 Data Collection

The study was descriptive in nature given the fact that the general aim was to examine the success and challenges of the approach adopted by the church. Primary data collection was done through Focus Group Discussion (FGD) in both of the sampled parishes. FGD participants were obtained from each of the parish congregations, whereby in the first parish the first group involved seven members and the second parish ten members were involved. Key informant interviews involving pastors, evangelists, church elders, church community leaders and youth leaders from the diocese to parish level were also conducted through a checklist of questions. Qualitative data were collected through FGD and key informant interviews. Questionnaire survey was conducted to collect quantitative data from 100 households. Secondary data on number of youths who were enrolled to confirmation classes from 2003 to 2015 was obtained from the parish databases and number of tree seedlings provided to each households.

2.4 Data analysis

Data analysis was done through qualitative and quantitative techniques. Descriptive statistical analysis was applied for the analysis of success and challenges for survival of tree. The analysis of survival rate of the planted trees was calculated by dividing the number of trees which survived over the total tree seedlings provided to the respective family, then multiplied by 100. Qualitative data analysis was done through content analysis basing on the organized themes.

3.0 Results and Discussion

3.1 Number of Trees Surviving and Rate of Survival

Through household survey, findings revealed that a total number of 1990 tree seedlings were provided to all 100 surveyed households in different years, depending on the years of enrolment of confirmation students from 2003 to 2015. Out of all tree seedlings provided to all households, 1547 trees survived, which is 78% of all planted trees (Fig. 1). The average number of trees provided to each household was 20 tree seedlings per household, whereby the average survival rate of trees was 15 trees per household. The number of trees that survived and the survival rate can be viewed as a result of collective efforts by the Church body and the respective households with youths who were involved in the tree planting programme, which led to successful results. There were as well other contributing factors, for instance geographical factors for instance enough rainfall as findings showed that the trees were mostly planted during rainy season. This enhanced growth and survival of the trees as there was enough water to support the tree seedlings growth especially during the early stage.

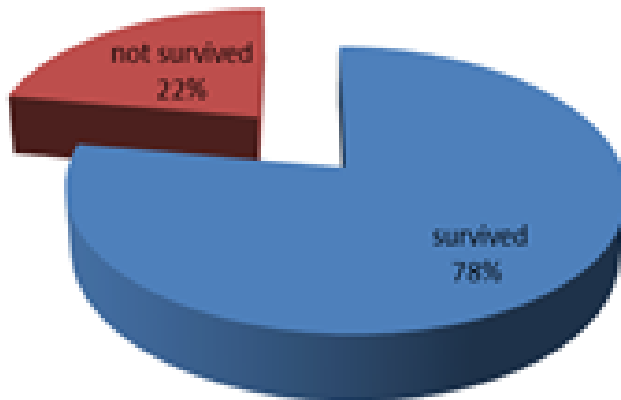


Figure 1: Survival rate of the planted trees

3.2 Factors for Survival of the Trees Planted at the Household Level

The findings showed that there were several factors which contributed to the survival of the trees in the program. These factors can be categorized into demographic and socio-economic, institutional, geographical as well as behaviour change.

3.2.1 Availability of land

Land was an important entity without which the tree programme would not have been possible to take off. Tree seedlings which were given to the confirmation youths were planted in different locations. The findings of this study showed that 89% of all trees were planted on family land (Table 2). Having the high percentage of trees being planted on family land was more advantageous for their survival as they were in a great possibility of being frequently attended during normal family farm activities.

3.2.2 Household land size

The average land size owned by the households where trees were planted lies at 6 acres per household (Table 1). The given lands size in relation to the average household size implies the possibilities on easy management by family labour hence the possibility of the trees to survive in reasonable numbers.



Table 1: Factors for success (survival) of the planted trees

Factors	Frequency	Percent
Planting location		
Family land	89	89.0
Parish land	3	3.0
Village land	2	2.0
Clan land	6	6.0
Land size in acres		
1 – 5 acres	53	53.0
6-10 acres	27	27.0
Above 10 acres	20	20.0
Season		
Dry	7	7.0
Wet	93	93.0
Distance from household		
10-100m	40	40.0
101-200m	7	7.0
201-300m	7	7.0
301-400	1	1.0
>400m	45	45.0

3.2.3 Tree planting season

After being enrolled to the confirmation class in January every year the new students are introduced to the project and it is also known by their parents that they are going to participate in tree planting program as a way of conserving the environment. It was evident through one of the key informants that children who are enrolled to confirmation class do not immediately receive the tree seedlings to plant on January, because in the study area this is a dry season.

Tree planting normally takes place during the main annual rain season which starts in March. This season favors the growth and survival of the newly planted tree seedlings as there is enough rain water which is naturally available throughout the rain season from March to June. It was found that 93% of the trees were planted during wet/rain season due to the preceding reason.

3.2.4 Distance from the household to the site of planted trees

The findings disclosed that 40% of the trees were planted at the distance between 10-100m, while those which were planted at the distance above 400m were 45% (Table 2). This is an indication that the trees were not planted very far from the households as far as the given distance is concerned, and this could mostly enhance close caring of the trees hence a greater chance of their survival.

3.2.5 Caring for the trees

The task of caring for the trees was counted as one of the household responsibilities, making it possible for the trees to survive. The findings through FGD showed that wherever in a household the child who was given the trees to plant was not in a position to take care of them, then the



parents/guardians or other family members voluntarily took over the responsibility. This complies with the self-determination theory of conservation behaviour which points out that, people may perform behaviour because they choose to do so, enjoying behaviours for their own sake, and that naturally motivated people develop satisfaction from performing the behavior itself (Deci and Ryan, 1985). The fact that many of the trees were planted in the family land where daily farm activities take place was an added advantage for the trees to survive because, at least quite often there was someone to keep an eye on them.

3.2.6 Reliable source of tree seedlings

It was disclosed by a key informant that tree seedlings were available from the parish tree nurseries either for free or by paying a little amount of money to cater for nursery services. According to contributions from the participants in FGD this depended on the plans of a respective parish. The findings showed that tree seedlings were available as one of the ways to motivate the youths to participate actively in the programme rather than introducing the programme and leave every one of them to look for tree seedlings which could somehow not be of good quality, or sometimes insufficient in number. This could as well demoralize the members since it could be somehow costly on their side.

3.2.7 Tree planting zones: Agro – ecological zones

According to the observation made during data collection, the study area is vividly divided into two agro ecological zones that are highland and lowland areas. The highland area is dominated by home gardens where coffee, banana, yams, cocoyam, fruits and vegetables are grown. Agro-forestry is also practiced whereby trees are grown within the gardens and along the live fences. This area closely borders Mount Kilimanjaro forest reserve, giving it an advantage of experiencing wet condition which favors growth and survival of many plants including trees.

Findings showed that overall minimum percentage survival rate of trees per household was 33.3% of all tree seedlings offered, while the maximum survival rate was 100 % of all tree seedlings per household (Fig. 2). Results further indicated that overall average survival rate of trees per household was 79.2% (Fig. 2). This implies that the geographical location of this zone gives it an advantage of having some favorable conditions for survival of trees such as permanent water streams that pass across the land, making it possible for many areas to have enough water throughout the year. Tap water is also available and accessible. All these factors seem to have favored the survival of the trees per household in this area.

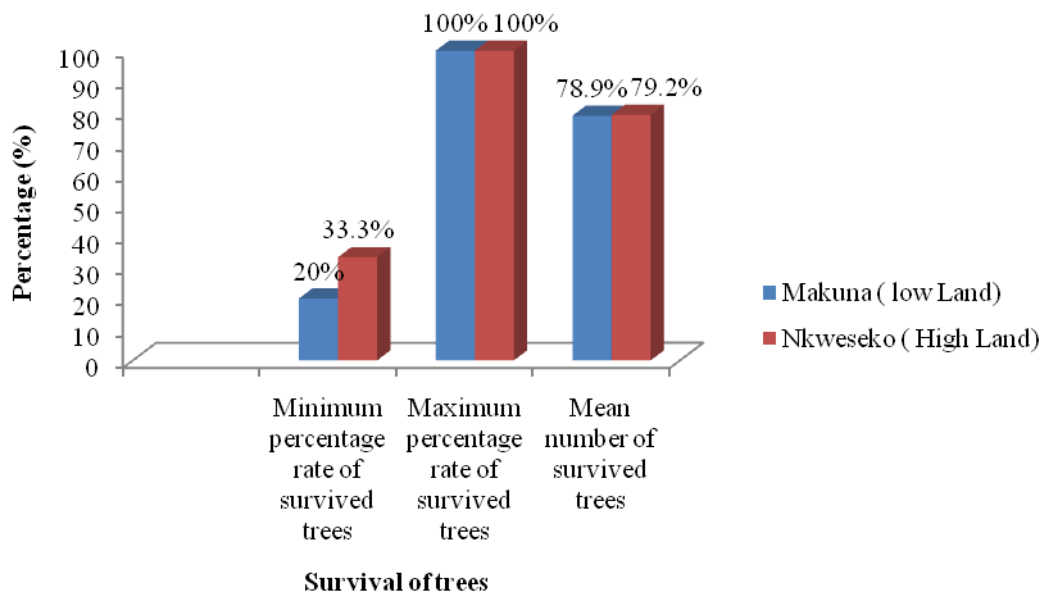


Figure 2: Survival rate of trees per agro-ecological zones

On the other hand, the lowland is the plain area which is less humid and experiences longer drought periods as compared to the upper zone or the highland area. It is the area which is mostly used for the cultivation of the seasonal cereals such as maize, millet, finger millet also leguminous plants like beans and other crops. Due to its geographical location the area favors livestock keeping where people keep the free range herds of cattle, also sheep, goats and donkeys. Results showed that overall minimum survival of trees per household in this zone was 20% while the maximum survival rate of trees per household was 100% (Fig. 2).

Results further showed that the overall mean survival of trees per household was 78.8% (Fig. 2). During FGD in this zone it was reported to be affected by some challenges for the survival of the trees for instance drought and livestock grazing making it difficult for the planted tree seedlings to grow and survive successfully. This might have been the reason for the low rate of survival of trees per household as stated in the findings above, compared to the highland ecological zone where these challenges were not noted.

Despite the difference in the minimum number of survival of trees per household for both highland and lowland agro-ecological zones, the maximum number of trees survival was the same, which was 100% rate of survival (Fig.2). The difference in the mean survival of trees was not big as it was 78.9% and 79.2% for the lowland and the highland zones respectively (Fig.2). The implication here is that there were some efforts made in both agro-ecological zones by individual households leading to the preceding results.

3.2.8 Spiritual influence

The church laid a strong foundation behind the tree planting programme through preaching, teaching and persuading the members of different age groups about their position to care for the God – given creation as faithful stewards to whom it is entrusted. During FGD it was pointed out that even if a tree seedling given to a child died, most of them found any means to replace the



seedling by either taking the ones that grew around their environment, from friends fields, or even asking for some money from their parents to buy a seedling or some seedlings to replace the one or some which died. This complies with the theory of conservation behaviour, the self-determination theory by Deci and Ryan's (1985), which states that some people may perform a behaviour for their own sake as they enjoy performing it, but as well, they may perform a behaviour because they aspire for positive results and avoid the negative ones. While referring to the book of Genesis 1:31 which says that God saw everything that he had made behold it was very good, during the FGD the participants pointed out that for the sake of their Christian faith and good testimony to other people, they seriously engaged in tree planting because being a communion of believers in God, they feel blessed to maintain God's creation to remain in a good condition as God saw it during creation. It was further added that they deliberately accepted and participated in tree planting programme in order to have their environment well sheltered so as to avoid adverse consequences of world climate change as it is announced several times through different media.

Linking tree planting with matters of faith made it more concrete among the members to the extent that some who participated in the discussions pointed out that backed up with biblical teachings, this programme awakened them to feel that depleting the trees from the environment without replacement is sinful before God. It is obvious that behind people's awakening and willingness to participate in the programme there was more than the Church environmental policy; faith matters pushed them into behaviour change and action.

3.3 Challenges Faced by Households in Managing the Planted Trees

The findings showed that there were some challenges which affected the tree planting programme at household level in some ways, based on natural and social aspects. Regarding the study area, some challenges were general while some others were peculiar to some areas with regard to agro-ecological zones that is highland and lowland areas.

3.3.1 Interference with daily household schedule

Findings showed that 27% of the households faced a challenge of shortage of water. The participants in the FGD especially in the lowland reported this was due to the billed water where some people found it difficult to get enough water for their domestic use as well as watering the trees. Nevertheless, since all households do not have the same characteristics it was found that 46% of them did not find the programme interfering with their daily schedule (Table 3).

Table 3: Programme interference with household schedule

Challenge	Frequency	Percent
Shortage of time	10	10.0
Shortage of water	27	27.0
Man power shortage	17	17.0
No interference	46	46.0

Some might be having an advantage of living in the areas where they do not need to bother about water because it is constantly available throughout the year. For instance, if one has had planted



trees in his/her live fence where the natural water stream passes or if one has water tap with an assurance of constant water supply at the household, water cannot be a problem in such situations. On top of that, time and human resource management differs from one household to another, making it seem as one of family duties for one or some households while to others it seemed as interference.

3.3.2 Livestock grazing

In the areas where there was animal grazing especially in the lowlands, the planted trees were either eaten by the livestock like cattle, goats, sheep and donkeys as they passed across the fields with trees planted in. Thirty-seven percent of the respondents reported to have a challenge of livestock grazing on their trees (Table 4). During the FGD in the lowland area one participant, a farmer lamented bitterly saying that she once planted trees all around her field and some inside it, but she was very much shocked to find that all her tree seedlings were destroyed. She added that when the livestock passed in her absence they ate, trampled on, and uprooted them all. The lowland area is predominantly open fields with some pastoralists living in and around, making it difficult for the people to plant trees successfully. The point that the livestock keepers don't care much about the survival of the trees rather than the survival of their livestock as pointed out during the FGD is closely linked to retarded efforts of the people on conservation through tree planting, as in this sense it means that the existence of livestock means a continuous threat to any planted trees in that area unless this problem is solved.

3.3.3 Drought conditions and shortage of water

Eleven percent of the households were affected by drought being associated with distant location of trees from the household (Table 4). If they were planted somewhere close to the household, at least they could be watered during the dry season by using even the little amount of water which could be obtained even after daily domestic uses like mopping and washing. In line with this, some confirmed that somehow they saw it too laborious taking water a long distance to the location where the trees were planted, hence threatening the life of the trees especially the newly planted trees.

The findings further revealed that, after the rainy or wet season is over, shortage of water is likely to cost the household time, energy and resources to care for the trees especially in the lower lands which are a bit exposed to drought conditions than the highlands which has the advantage of water streams, shade from the entire trees and moist condition on the slopes of Mount Kilimanjaro. During FGD some pointed out shortage of water being the root cause of death of tree seedlings soon after the rainy season was over because they have to pay for water bills so some find it costly to fetch water that is billed for watering the trees.

3.3.4 Theft and destruction of tree seedlings

It was also reported during FGD that after being planted, the trees seedlings and the maturing trees have been prone to the vices of deliberate cutting, breaking or uprooting for some reasons, for instance for local brooms and toothbrushes especially those of *Grevelia* type which had been used by the indigenous people in the study area for such purposes. This was vivid whereby 21% of the surveyed households were affected (Table 4). The passersby or unfaithful neighbors were the suspected central players in this. This might have led to less number of the survived trees in a



particular period of time because after being demoralized some people gave up replanting as they suspected the repetition of the same habit.

The 19% under this category had not faced any challenges (Table 4). This does not mean they were totally challenge free but sometimes they might have sought some solutions to some incidents that they had come across before it went far to be more challenging. Again, though far from their respective households, their trees might have been planted in sites where they are secured from the previously mentioned threats making it easy for them to survive the challenges as compared to trees planted in other places.

3.3.5 Negligence, pests and diseases

Findings indicated that there was negligence in some households which probably after receiving and planting the tree seedlings, in one way or another either the child or the entire household members did not put efforts to see that the trees are properly attended (Table 4). If the child himself/herself was not serious with the program and also the parents or guardians it is obvious that there will not be the desired results in the survival of the trees.

Some trees were affected by pests and diseases in some of the surveyed households (Table 4). Pest and diseases are also reported to be the limitations to several agroforestry home gardens efficiency in different geographical locations (Galhena *et al.*, 2013; Howard, 2006). Pest and diseases attacks are common when there is interaction of trees and crops in the fields. In agroforestry homegardens that include coffee production, pests such as stem borers and berry borers that attack coffee can as well become harmful to other plants including trees planted therein (Kitalyi *et al.*, 2013). Since many trees were planted in family land which are obviously home gardens, this has a possibility of having caused retarded growth or death of some tree seedlings in some areas, leading to either less number of the expected trees per household or replanting, which sometimes might be out of season which will lead to less performance in the programme.

Table 4: Challenges on trees planted far from the household

Challenge	Frequency	Percent
Drought	11	11.0
Destroyed by livestock	37	37.0
Breaking, cutting, uprooting by strangers	21	21.0
Pests and diseases	5	5.0
Stealing of seedlings	6	6.0
Negligence	1	1.0
No threats	19	19.0

4.0 Conclusions and Recommendations

The study concludes that the programme had good success as the survival rate of the trees was good and encouraging. Behind all factors for the survival of trees there was a strong influence made by the Church by attributing tree planting to faith, leading to changing people's behaviour on environmental conservation. The high level of commitment in caring and management of the trees for instance the passion that the people had on the trees to the extent of replacing the



seedlings upon any problem at their own expense, is most clearly linked to issues of faith. Some challenges seemed to have affected the survival rate of the planted trees. Some were natural disasters such as drought, while others were human oriented for instance theft, livestock grazing and deliberate breaking of the trees. Their nature and occurrence is still something to think about and act upon in order to overcome them so as to increase the possibility of having more tree survival.

It is recommended that, the ND of the ELCT should do an up scaling and promotion of the model they used in environmental conservation to be adopted by other faith based institutions. The program can be extended to other environmental issues apart from tree planting for instance cleaning up the environment and caring about the endangered plants and animals. The challenges which have so far been exposed out should be dealt upon for the sake of having the increased survival of trees hence environmental conservation. Environmental education should be continued to remind the people about the importance of tree planting for the present and future generations. Human oriented factors could be attended by setting some rules/by-laws governing the environment to combat the challenges such as grazing on the planted tree, deliberate destruction of the planted tree seedlings and the stealing of the planted tree seedlings through uprooting them.

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