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AN EVALUATORY STUDY OF A ROCHA KENYA'S CHRISTIAN APPROACH IN CONSERVATION OF NATURE IN KILIFI COUNTY

Mercy Chizi Nyale, Professor Stephen Muoki and Dr. TsaweMunga wa Chidongo



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^{1*} Mercy Chizi Nyale

Post Graduate Student: School of Humanities and Social Sciences Pwani University

*Corresponding Author's E-mail: mercynyale64@gmail.com

² Professor Stephen Muoki Joshua

Lecturer: School of Humanities and Social Sciences- Pwani University

³ Dr. TsaweMunga wa Chidongo

Lecturer: School of Humanities and Social Sciences Pwani University

Abstract

Purpose: Despite the efforts ARK has put in place with regard to environmental conservation, Kilifi County still faces a lot of environmental degradation resulting from stone cutting and sand harvesting which renders several hectares of land scarred with pits and devoid of vegetation cover. The study focused on the input of Christianity on nature conservation in this county.

Methodology: The study employed qualitative methodology to acquire primary data. Purposive, convenience, homogenous and snowballing sampling techniques were used to identify respondents for interviews and focus group discussions. The study also utilized documentary analysis which was done by analyzing ARK's publications like brochures, newsletters, magazines and even minutes from seminars to establish the organization's environmental conservation in depth. Guided by the objectives, the raw data was collated and arranged thematically.

Findings: It was realized in the study that deforestation, quarrying and sand harvesting were the major forms of environmental degradation in Watamu and Marafa which has led to vulnerability of wild animals and birds and a scarcity of medicinal herbs. The major contributing factors towards this environmental degradation were poverty and population increase, development and ignorance. Further, it was established that care for creation and environmental stewardship are the Christian obligations towards nature. As a response towards environmental degradation, Christian communities in Watamu have established employment opportunities to curb the environmental degradation menace.

Unique Contribution to Theory, Practice and Policy: There is need to create more awareness on the importance of forest and its resources so as to create a positive attitude towards its conservation. Again there is need to train people to embrace proper farming methods like FGW done by ARK.

Keywords: *Christianity, Motifs, Degradation, Conservation*

1.0 INTRODUCTION

Human beings' survival on the earth's surface is entirely dependent on the environment. The environment supplement humans with physical needs such as food, shelter, water and air, this necessitates human beings to carefully use the resources on the earth's surface to guarantee their survival. The World Council of Churches (WCC) argued that human beings were created out of the dust of the earth and were given the mandate of taking care of God's creation, but are not the masters of the earth(Christiansen: 2009), this calls for people to protect the resources of the environment with sincerity since they are co-creators with God.

This study was carried out in a theological perspective to determine how A Rocha Kenya (ARK) conserves the environment in the Christian perspective. ARK is an international organization that is involved in environmental conservation in the Christian way; it uses the Bible to promote environmental conservation. The verses that the organization uses include; psalms: 24; 1-2, this says, 'The earth is the Lord's, and all that is in it, the world and those who dwell in it. For He founded it upon the seas and established it upon the rivers.' This is the verse that prompted Peter Harris, the founder of 'A Rocha international' to start the organization. The other verses that ARK uses include; Leviticus 25;23, Exodus 12:10, 23:110-11, Psalm 24, 104, Isaiah11:9, Jeremiah 2:7, Revelation 11;18 and many others.

ARK happens to be working in Kenya apart from the many other countries of the world such as Portugal, New Zealand, Lebanon, UK, Uruguay, Singapore, Canada, Malaysia, Nigeria, Ghana, Zambia, Uganda and many other countries. ARK though an international organization, has an office in Kilifi County, specifically in Watamu and Marafa. ARK settled in Watamu in 2002 mainly to rehabilitate Mida creek which is an important bird area. The main goal of this organization is to create positive change in people's attitude and behavior so as to bring about effective and sustainable conservation of God's creation, the natural environment(A Rocha;2014). A Part from Mida creek, at Watamu the organization also targeted the Arabuko - Sokoke forest ecosystem which is also an IBA, the marine, Gedi ruins and the R. Sabaki estuary; the core objective of the organization is restoring integrity to threatened habitats and species this is because some species of trees and birds had been endangered by human activities of environmental degradation around that area. This explains why the organization trained and still it trains pastors and the community. ARK engages in participatory rural appraisal through schools and community involvement in environmental education so that community is able to discover their potentials and resources and eventually conserve their environment (Rocha; 2014). Although the staff said that conservation is difficult since it involves changing people's attitude and thinking but they believe that they will achieve their objective with time.

Kilifi County is experiencing significant environmental degradation due to human activities which include forest destruction, quarrying and sand harvesting. The hazards of this degradation are evident which include lack of adequate rainfall due to deforestation which eventually might lead to severe desertification and loss of biodiversity, several hectares of land are bear with pits

in which people might drown and others turning to habitats for mosquito breeding. People are acting ignorantly to the claim that there is no relation between forest and rain, not realizing that by destroying the forest they are destroying their own lives (Mukaria: 2017). This has made human to mandate himself towards environmental degradation at the cost of his own life.

The World Commission on Environment and Development (WCED) 1987 warned that unless people change many of their life styles, the world might face unacceptable levels of environmental damage. The commission argued that humanity has the ability to make development sustainable to ensure the environment meets the needs of the present generations without compromising the ability of future generations to meet their own needs. When the WCC met in Nairobi in 1975, it affirmed that the church has to struggle for the 'just, participatory and sustainable environment,' as it argued that without a health environment there would be no use for justice and peace (Christiansen:2009). This mandated the church in Kenya to seriously undertake environmental issues.

Statement of the Problem

Despite the efforts A Rocha Kenya has put in place with regard to environmental conservation, cases of environmental degradation in Kilifi County are plenty especially in Watamu and Marafa in the form of deforestation, sandpits and quarries, which renders several hectares of land with pits and devoid of vegetation cover. Worse still, when these pits are filled with water they turn to be a health hazard to man as some may turn to be mosquito breeding zones and at times people may drown as the alarm which was raised in Kwale county on 2nd of May 2015 where four children were buried alive as they were swimming after quarry walls collapsed. This proves that these forms of environmental decay are quite detrimental. The study was carried out to determine whether ARK, which is a Christian environmental conservation organization, has created any impact in the areas where it operates with regard to the environmental degradation experienced in those areas.

Research Objectives

General Objective

The general objective of the study was to determine whether ARK, which is a Christian environmental conservation organization, has created any impact in the areas where it operates with regard to the environmental degradation experienced in those areas.

Specific Objectives

- 1) Establish whether Christians in the regions where ARK operates are aware of environmental degradation and its impact to their lives.
- 2) To establish whether Christians affiliated with ARK are informed that environmental conservation is their obligation.
- 3) Determine the impact A Rocha Kenya has created in the community with regard to Environmental conservation.

Research Questions

- 1) Are Christians in the regions where ARK operates aware of environmental decay and its impact to their lives?
- 2) Are the Christians affiliated with ARK informed of their obligation towards environmental conservation?
- 3) What impact has A Rocha Kenya created in the community with regard to environmental conservation?

2.0 RESEARCH METHODOLOGY

Research Design and Location of the Study

Vast lands in Kilifi County especially in Watamu and Marafa have been made desolate and devoid of vegetation cover due to environmental degradation brought about by man's activities of quarry, deforestation and sand harvesting; there will be judgment for ecological sin, (Rev.11:18b) which states; 'The time has come to destroy those who destroy the earth!

However, A Rocha Kenya as an environmental conservation organization has initiated environmental conservation activities that may help in reclamation of these desolate lands so as to be resourceful to the society. Activities such as planting of indigenous trees and farming God's way can be viable on these desolate lands.

Activities like indigenous tree planting can be done in the quarries after which birds can nest, establishment of indigenous herbs, promotion of fresh air in the environment and promotion of rain patterns. More so, after the indigenous forests have been established, these desolate lands may turn to be tourist attraction sites like Bamburi and Gosana nature trails in Mombasa and Kilifi counties respectively. Farming God's way can be applied on these desolate lands and this can promote food security to the locals; hence improving their living standard. Again if these activities are applied and prove to be viable, it will be a way of educating the community on sustainable development and people from within and beyond might develop a positive theology with nature.

Finally, the study provides first hand information on the contribution of ARK in environmental conservation in Watamu and Marafa. It also brings into light the practices that ARK involves itself in nature conservation. This study, therefore, may aid in giving solutions to significant environmental problems in the entire Kilifi County and beyond, policy making on conservation and environmental protection as a whole.

Sampling Procedure and Technique

Sampling was fundamental to this study as the researcher dealt with a large population in a bigger area. In selecting the required sample, purposive, convenience, homogenous, and snowballing sampling techniques were employed.

Data Collection Method and Procedure

The researcher made a maximum of eight visits to the sites where A Rocha Kenya's activities were carried out; this was due to financial constraints as the sites were far away from her area of

residence and the sites themselves were far apart. Primary data was collected through interviews, focus group discussions of 8-15 members, though other focus group discussions had more than 15. The researcher made prior consultations of the members before the actual discussion day. Participant observation was automatic to the researcher for that is the fundamental base of all research methods in social science (Adler & Adler 1994 p. 389).

Data Analysis and Presentation

Data collected was first edited to ensure accuracy and completeness of data. Because it was qualitative data, editing was done at the field through the researcher recalling contexts and correcting the contents (Kumar 2005). Tape recorded texts were retrieved through replay and written down in the native language, thereafter, they were translated into English with the nearest equivalence of meaning and sense (Nida, 1954).

Field notes, discussions, observations and comments were evaluated at the field. Thereafter, the collected data was arranged systematically into reduced sets of themes. It was then synthesized thematically to establish the community's view on environmental conservation in relation to A Rocha Kenya's activities of indigenous tree planting and farming God's way. Thematically, the collected data was geared to determine the importance of A Rocha Kenya's activities of indigenous tree planting and farming God's way in environmental conservation.

Thematically, the analyzed data was also geared towards establishing the importance of ARK at Watamu and Marafa with regard to environmental conservation in relation to its historical background. Finally, the analyzed data was aimed at determining the church's position in relation to environmental conservation with regard to ARK's presence.

3.0 CHRISTIAN AWARENESS ON ENVIRONMENTAL DEGRADATION

This chapter presents findings from Christians who are engaged by ARK on environmental degradation and its impact to their lives in Watamu and Marafa of Kilifi County. The chapter informs of the awareness of Christians about environmental degradation in their regions, the causes and effects as presented by the informants.

3.1 Poverty and Population Increase

Adongo (2014) notes that poverty is often indicated as the driver for environmental resource degradation as the poor cannot afford any other source of energy alternatives as most of them depend on fuel wood as the sole source of energy. She further asserts that overpopulation renders the natural resources being overharvested, over utilized leading to forest reduction and loss of biodiversity, thus resulting to endangering of species, others becoming rare, threatened, while others becoming extinct. Research findings from this study show that most of the churches were not informed of the church's responsibility in as far as environmental conservation was concerned until the arrival of ARK. Almost 80% out of the ninety people who were interviewed were able to tell that there was a lot of environmental decay going on in Marafa especially of deforestation brought about by financial needs as people extract charcoal for sale, timber for carpentry and carving works. This was revealed by the respondents. Respondents from Boyani expressed that deforestation is very high mainly for purposes of charcoal. One of them compared

the destruction of the forest with what his forefathers used to do and commented that this present generation is very destructive because his forefathers used to utilize trees sparingly. Herbalists were not allowed to uproot trees wholly; this ensured the security and continuity of the forest and the environment at large. Similarly another another respondent from Dongokundu Baptist church, confirmed that their culture (mijikenda) never allowed deforestation. This is what Santmire proposed as the ecological motif (Santmire; 1985). The culture of these people valued nature. This is because the respondents further confirmed that herbalists were restricted from uprooting trees; whether for leaves, barks or roots, instead, they were supposed to use the herbs sparingly. Nyamweru. C, Adongo.C. (2003, 2014) Conceded that environmental conservation along the Coastal Kenya is emphasized on the Kaya forests by the Kaya council of elders for purposes of religiosity. Adongo (2014) further said that the council of elders protected the forest because the indigenous trees from those forests fragments are not found in the adjacent environs and were the major sources of indigenous herbs, she further affirmed that some species of medicinal herbs used to offer protection against evil spirits and ghosts are no longer found even in the Kayas due to degradation. Nyamweru (2003) on the other hand observed that care for the Kaya forest was high such that any individual found interfering with the forest was fined and was supposed to buy clothes for the elders for cleansing. However, today, Nyamweru notes that though the Kaya forests are the only remnants of the indigenous forest along the Kenya Coast, almost 50% of the original Kaya forest has been cleared and people continue to exploit these forest fragments and extract products from them at unsustainable levels due to population increase and poverty Nyamweru (2007). The researcher established that the pastors interviewed claimed to have embraced Christianity and had abandoned their culture of the Mijikenda and were now at crossroads in as far as environmental conservation is concerned, because if they preach more on environment, feared they might lose their believers who come to church on weekly basis thirst for spiritual nourishment.

This is now what Santmire proposed as the spiritual motif (Santmire; 1985), where the clergy tend to lean more on spiritual issues in their sermons and abandon the ecological issues, this is the ambiguity that Santmire brought into light. This gives a challenge for a constructive eco-theology to be embraced on in Africa, Mukaria (2013). This explains why environmental degradation is an issue in Watamu and Marafa in Kilifi County.

Gumo.S. (2012) observed that African spiritualism created respect for animals, reverence for forests, rocks, mountains and rivers. It gave explanations as to why certain places were revered and certain activities tabooed. The Coastal region of Kenya is characterized by high poverty levels of 70-80% of the population living below the poverty line, and people are heavily dependent on natural resources for survival Swiderska (2015). The research findings revealed that most of the people in the study area depend on either on the forest or the quarrying for their survival, which are the natural resources.

Figure 1: Six endangered species of birds found in Arabuko Sokoke Forest and its adjacent environs



Adopted from A ROCHA KENYA Newsletter of 2009

Figure 2: Golden Rumped elephant shrew (*Rhynchocyon chrysopygus*).



Adopted from A Rocha Kenya Newsletter of 2012

3.2 Development

Construction in Kilifi County is expanding rapidly, especially with the current devolved county government where by educational centers and many other facilities have to be established. This has led to increased pressure on demand for natural resources like land, timber, sand and blocks for construction of roads, schools hospitals, ECDE centers, polytechnics, universities and other social buildings needed during social gatherings to meet the ever increasing population which

demands these facilities in plenty. This has led to great demand for raw materials for construction which in turn has resulted to massive alteration of the natural environment leading to massive environmental degradation; deformation of land and deforestation in the process of their extraction.

Research findings revealed that apart from poverty, development is another factor that leads to environmental decay in Kilifi County. It emerged that quarries are plenty in the study area which resulted from either private investors or land owners leasing their land for mining for economic reasons; this has resulted to loss of biodiversity.

The researcher observed that ARK is advocating for both the ecological and the spiritual motifs but it is leaning more on the metaphor of ‘migration to good land’ in delivering their environmental conservation strategies because they preach to their members in the process of delivering their services and at the same time give them skills on environmental conservation. ARK further educates the community on environmental conservation through instilling in them the sense of belongingness or identity with regard to the environment as what Santmire (1985) proposed, that for example the forest and all that it contains is theirs and it is here for a reason and as such its upon the community to conserve it. WCED (1987) argued that environment and development are intact linked together but development cannot exist on a deteriorating environment. This calls for the need to reclaim the environment.

Humans were given the responsibility to be good stewards, while in turn they were to benefit by feeding on some of the creation (Fulata Moyo and Ott; 2002). The fact that humans are destroying the creation is actually against the will of God. Gecaga (1990) noted that quarries and pits disturb the earth’s surface in the process of creating them as they require the removal of all vegetation cover, top soil and subsoil in order to reach the required underneath raw materials. Hilson, G.(2002) noted that mining activity causes significant damage to land scape as it removes vast quantities of surface vegetation and mass deforestation. He further argued that miners abandon pits and trenches without reclaiming spoils, it is thus common to find, following long periods of intensive prospecting, landscapes scarred with potholes and virtually devoid of vegetative cover. As observed in this study, quarrying and sand harvesting leaves deep pits behind which then turn to be hazardous to man and even livestock. That explains why Boff (1995) proposed liberation of the earth because it is sick. Accordingly, Boff theologians must speak of ecological sin (Boff; 1995). He argued that the commandment ‘Thou shall not kill’ for example refers to biocide and ecocide as well as to direct killing (245), according to Boff, Saints had created a synthesis that Christianity had lost the encounter with God, with Christ and with the spirit in nature which might otherwise bring freshness, purity and enchantment.

Figure 3: Quarrying at Kanani in Watamu



Photo taken on 5th August 2017

Figure 4: Sand harvesting at Ngomeni in Marafa



Photo taken on 26th of August 2016

3.4 Christian Obligation towards Environmental Conservation

Introduction

This chapter discusses the role of Christianity towards environmental conservation with specific reference to the communities who are located within the premises of ARK. The chapter explains the level of awareness the communities have as far as environmental conservation is concerned.

Care for Creation

As the Eco-feminist theologian Rosemary Radford Ruether (1992) argued in her book 'Gaia and God' that the only to rescue nature is to bring about an earth healing, 'a healed relation to each other and to the earth' which she stresses calls for anew consciousness, a new symbolic culture and spirituality, which she called Liberation; a restoration of the human to his/her true self and a reintegration of creation with its true destiny as God's kingdom. According to Ruether, the earth is a living entity behaving as a unified organism in its totality. Ruether was advocating for inclusion of creation with the human as part of it not outside the ecological web. Each aspect of the creation was made by God for its unique purpose which cannot be fulfilled by another aspect of creation. This means that Christians must preserve the particular goodness of plants, soil, animals and other resources in the environment. The Pope John Paul the 2nd in his 1990 peace message on ecology referred to the book of Genesis' account of creation events and noted that the events were always followed by the refrain, 'And God saw that it was good'. This meant that everything that had been created was of aesthetic before the eyes of God. Therefore when human beings reject the creator's plan, or recklessly ignore it, they ignite a disorder has inevitable repercussions on the rest of the created order. Thus Christians have the obligation to protect and show concern for all creation. The organization had observed that due to deforestation, some species of animals and birds were disappearing and yet care for creation was religiously. Boff (1995) proposed for a 'holistic ecology' since ecology is theological by nature (1995: 7, 11), he agitated for a sacramental view of creation and doctrine of the Holy Spirit that provides a model of reality as energy. Thus, churches need to embrace ecology into religion seriously.

In the ambiguity theory proposed by Santmire (1985) in the metaphor of 'migration to good land', Santmire sees one's spiritual life as always rooted in the primary experience of the human world. He asserts that an individual's spiritual life will be located within nature and surrounded by the creatures of the earth and one's identity will be given within the land experience. ARK as an environmental conservation organization is involved in care for creation. This was the main theme for training the pastors at both Watamu and Marafa. Kilifi County is a home to some of the richest and most diverse habitats in the whole of Kenya, considered internationally for birds and marine conservation (A Rocha; 2014), despite the richness and diversity of local habitats in the area, an exploding population and desperately high levels of poverty are putting huge strains on the delicate relationship between the local people and the surrounding environment. ARK has opted to work with the local communities in Watamu and Marafa aiming at achieving the long-term conservation of threatened habitats and species.

Adongo (2014) noted that as acres of forested land continue to disappear along the Kenya Coast so does biodiversity. She further argued that environmental degradation along the Kenya Coast is due to logging, charcoal burning, unplanned settlements, destructive mining practices and

selective species exploitation and noted the *Dalbergia melanoxylon*, which is mostly preferred for carving is almost depleted due to its over exploitation.

Clive (2013), urged Christians to embrace the attitude of conservation of the environment in this third millennium when the planet is facing a critical environmental crisis. He further argued that since mission is core to the church's self understanding, the church should embark on mission to the earth which should be practical not the rhetoric.

Environmental Stewardship

Christianity has much to offer in this crisis of environmental degradation. Christianity was entrusted by God the care of the universe; as the Archbishop Njongonkulu Ndungane of Cape town's speech on the celebration of the world's millennium who purported that as followers of Christ, Christians have an onerous responsibility to act as faithful stewards of God's kingdom and His dominion over all, not to spoil the earth's resources and not to be unjust in dealing with His creation (Susan Hawley; 1998). Ndungane based his arguments from the Bible in psalm.24:1, 146:6, who further said that Christians have to internalize in their lives the Christian dogma that whatever one does to one of the little ones has done to the Lord (Matthew 25:40).

Therefore as a strategy towards liberation of the earth, because Boff argued that the facilities oppressing the poor and the oppressed results in the exploitation of nature (Boff; 1995), it is equally right to say that these facilities are man's activities on the environment. One of ARK's major strategies is to work long term with the communities living around the Arabuko-Sokoke forest reserve in Watamu and the Dakatcha woodland in Marafa. The communities need to realize the importance of the survival of these two forests to them and the future generations as well as making them understand their global importance. Thus, ARK educates these communities that 'caring for the land and other species' is an important part of Biblical stewardship (Rocha, 2015). The study revealed that some Christian communities, as a strategy to save the deteriorating environment have opted to creation of employment opportunities for self reliance to the youths, adults and mothers as observed in the mainland churches of Watamu during the focus group discussions in three of the Christian communities near ARK's premises which were St. Stephen's ACK church (Canon Mweri ACK), St. John the Baptist catholic church and Dongokundu Baptist church.

At St. Stephen's ACK church during the focus group discussion on (2-7-2017) it was revealed that the church opted to start different income generating activities as response towards environmental protection like building a secondary school in the church compound which is called Canon Mweri secondary school in memory of the late Canon Mweri; the pioneer of that church. In the secondary school, many church believers had been absorbed in as subordinate staff members and others as teachers. Apart from the school, the church also had initiated other income generating activities within the church premises which included cashew nut roasting by the youth, kitchen gardening which is an initiative of the mother's union where they grow vegetables for domestic consumption and for sale. The mother's union also rear poultry for sale.

At St. John the Baptist Catholic Church, Christians had initiated so many income generating activities ranging from educational. During the discussion the researcher revealed that the church

in conjunction with other Catholic communities in Malindi synod had so many income generating activities; said that women guild had table banking as their financial institution in the church where they collect their weekly incomes and put in a cash box and then kept in the church's safe after which the money is taken to the bank.

The Impact of Ark on Environmental Conservation in Kilifi County

Introduction

This chapter aims to evaluate the impact ARK has created in respect to its environmental conservation strategies in its areas of confinement. ARK opted to educate the community on conservation of the environment in Watamu and Marafa of Kilifi County due to the deforestation that was going on in the Arabuko-Sokoke forest, Mida creek in Watamu which is an intertidal zone where mangrove deforestation was alarming, and Dakatcha woodland in Marafa.

Value of Land

ARK trained farmers from Marafa 'farming God's way' a form of conservation agriculture which combines Biblical ethics and discipleship training with practical farming techniques geared towards increasing productivity, even in impoverished soils. Farming God's way combats the threat of forest clearance for the extension of subsistence farming land. In farming God's way farmers were trained to kneel down on their farms to pray for the land before and after work as reported by one of the farmers from Mulunguni village in Marafa on (8-4-2016), who admittedly said that before the arrival of ARK in Marafa she just used to plant crops in her shamba without using any manure and she did not offer any prayers for her shamba. As a result, the harvest were always low due to low soil fertility and the destructive work done by the wild pigs and porcupines, this made her clear virgin land each year to ensure the harvest was sufficient for her family all the year round.

However, she confessed that after ARK came, they were trained on how to make compost manure which increased the soil fertility, she no longer clear virgin land on yearly basis for farming, in addition, the culture of praying for her shamba before and after work she believed God made the wild animals who destroyed her crops blind such that they would not see her crops because only her neighbors shambas were attacked by the wild animals. Stella concluded that her farm produce were in abundance, to the extent of looking for a market for the surplus.

Farming God's way

ARK engages in FGW as a way of safeguarding the environment. FGW is a form of conservation agriculture which combines Biblical ethics and discipleship training with practical farming techniques which increases productivity even in impoverished soils. In FGW, farmers are taught to avoid ploughing and burning, but instead prepare the land before planting time according to the seasons, space seeds systematically and mulch well. Thus increasing productivity and curbing families' vulnerability to crop failure. FGW was done to the five villages in Marafa who live adjacent to the Dakatcha woodland (A Rocha: 2015). In FGW, Farmers kneel down to pray before and after farming daily. Farming God's way combats the

gradual clearance of forests for farming. In this kind of farming, heavy mulches are spread on the seedbed as preparations before planting. The mulches are composed of small dry sticks, leaves and grass (Rocha 2011, 2014). The mulches help in suppression of weeds, increasing soil fertility and moisture preservation. Farmers are advised to make and use compost manure to supplement soil fertility. In addition, farmers were trained on how to make and use pesticides from the herbs. Uprooting of weeds is the only weeding method recommended to avoid land and roots disturbance. Tractors are prohibited in this kind of farming.

Value of Forest

The main objective of ARK opening its premises in Watamu was to rescue the Arabuko-Sokoke forest and indeed as revealed during the study the importance of the forest is immeasurable as one of the forest guards made it clear when he said that the forest is the major resource they have around. Apart from the forest, ARK is involved in mangrove forest rescue along the Indian Ocean beach line. Mangrove forests provide Coastal protection from storms and tsunamis, woodland resources, wild life habitat and carbon storage. Despite such enormous importance, mangroves suffer one of the fastest rates of destruction of any habitat worldwide. This has serious implications for local communities which not only benefit from the woodland resources mangroves supply, but are also reliant on the fish that use the mangroves as nursery habitats and on the protection that they provide to Coastlines in times of severe weather events(Huxham, M: 2009). Since mangrove forests protect the shorelines and coastal communities against storms, floods and erosion, supporting fisheries and sequestering and storing huge quantities of carbon, ARK decided to protect and rehabilitate mangroves along the shores of the Indian Ocean from Mida creek and its adjacent environs up to Malindi.

Arabuko-Sokoke forest and its neighboring Mida creek are biologically diverse, productive systems and are home to numerous endemic and endangered plant, bird and mammal species, Sinclair (2011) ARK came up with strategies to protect and restore the habitat. These strategies were indigenous tree planting and mangrove establishment.

ARK and Eco-tourism Schemes

In its effort of conserving the environment, ARK came up with eco-tourism facilities which are eco-friendly in order to solicit funds, since they do not have reliable donors, so as to meet their promise of scholarship funding of children from needy families around the Arabuko-Sokoke forest; because ARK in its research works ranked school fees as the highest need that led to deforestation, made a suspended bridge or board walk at Mida creek where children and adults can climb and have a view of the Ocean and other islands close to the creek which are Kirepwe and Sudhi islands and its surroundings. The suspended boardwalk is 260 meters long. On this suspended board walk, children pay 50/= as climbing fee while adults pay 100/= as a method of soliciting funds for the needy children. People from within and elsewhere enjoy this suspended bridge and the organization benefits a lot from it.

Figure 5: The researcher on the suspended boardwalk at Mida Creek



Photo taken 2nd of July 2017

Apart from the suspended bridge, ARK also made a tree platform at Gedi ruins where people climb and have a clear view of the whole monument from this platform, here both local and foreign tourists are charged, children are charged at 20/=, while adults are charged at 100/= . It is a source of income which boosts the school levies for the needy children. Here, people also enjoy

Figure 6: Tree platform at Gedi Ruins



Photo taken on 2nd of July 2017

Apart from the above two eco-tourism facilities, ARK also trained the Muvera clusters on chicken rearing of local breeds of birds which could be easily obtained from the villages.

Figure 7: Chicken rearing from one of the Muvera members at Chipande cluster.



Photo taken on 2nd of July 2017

4.0 SUMMARY OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

Introduction

Having satisfactorily examined the Christian awareness on environmental degradation in Watamu and Marafa in Kilifi County, Christian obligation towards environmental conservation and the impact ARK has created in the community with regard to environmental conservation; this chapter gives the summary of the findings, conclusion and recommendations under the guidance of the research findings.

Christian Awareness on Environmental Degradation

It has emerged that there is significant degradation of forest and land. These are attributed to poverty, development and ignorance. This pose a challenge to ARK as it has to move an extra mile in as far as environmental conservation is concerned.

Forest destruction is attributed mainly to farming, logging for charcoal and building polls, while wild animals and birds have been made vulnerable due destruction of their habitat. Land is destroyed chiefly for economic reasons by either local or foreign investors through quarrying and or sand harvesting done either manually or by the use of machinery.

Poor agricultural farming technique was another causal of environmental degradation as this made people to encroach the forest every year in search for farm land as there are no legal land ownership in Marafa which has reduced the Dakatcha woodland and the Arabuko-Sokoke forest

Christian Obligation towards Environmental Conservation

Research revealed that Christians in Watamu and Marafa understand that ‘care for creation’ and ‘environmental stewardship’ are their obligations. Research further revealed that the Christian

response towards environmental issues is positive but very gradually. As a response towards environmental stewardship, Christian communities in Watamu opted to creation of employment opportunities to save the deteriorating environment.

The impact of ARK on environmental conservation

The study established that communities from both Watamu and Marafa have responded positively to the organization's strategies of environmental conservation. They have embraced the FGW, indigenous tree planting and mangrove establishment. The FGW participants harvest more than enough, giving a challenge to ARK to look for a market for the surplus. Watamu residents have realized the importance of the forest to the extent of volunteering to guard it. The Muvera members on the other hand move round the forest sourcing for any forms of destruction in the forest so as to do the forest enrichment after identifying any gaps in the forest. They have also acquired the skills for chicken rearing and nursery establishment for the indigenous trees. Since ARK has initiated very many environmental initiatives that are eco-friendly like the FGW, indigenous tree planting after which forest enrichment is carried out, suspended boardwalk on which people pay small levies for climbing to view the ocean and the surrounding islands, tree platform on which people also pay small levies as charges for climbing to view the monument and lastly the organization consistently conducts environmental conservation seminars to remind the ASSETS beneficiaries and their parents or guardians on the need to conserve the environment.

Conclusions of the Study

According to the research, it emerged that human activities form the greatest of the factors threatening habitats, hence degrading the environment. The local communities living around the Arabuko-Sokoke forest, Mida creek, Gedi ruins in Watamu and those around Dakatcha woodland in Marafa struggle to make ends meet the environment is struggling to survive. The study revealed that communities living in these two areas of the County were aware of all the forms of environmental degradation going on in their areas as well as the impact of this environmental decay to their lives. Deforestation, quarrying and sand harvesting were the major forms of environmental degradation in these two areas of the county. The impact of the environmental degradation as reported by the respondents were insufficient rainfall, infestation by airborne diseases, looming desertification, insecurity posed by the abandoned quarries, vulnerability of wild animals and birds and a collapse of the tourism industry in the area. The contributing factors towards environmental degradation in the two areas were poverty, development and ignorance.

The researcher further observed that the Christians in Watamu and Marafa were not fully informed of their obligations as Christians. However, the study deduced 'care for creation' and 'environmental stewardship' as their obligations towards environmental conservation. Again the researcher further observed that ARK had created environmental conservation awareness and the communities had embraced the strategies. FGW picked well in Marafa as the farmers had acquired the skills of the compost manure making which was also an added advantage. Indigenous tree planting and mangrove establishment had also picked up well in Watamu. Apart from that the Watamu community enjoys the 'eco-tourism' facilities in their area as the ASSETS

beneficiaries were able to secure scholarships from them. They also acquired nursery establishment and poultry rearing skills.

The organization is working quite hard to conserve the environment but it faces quite a number of drawbacks chiefly of them being financial, in its effort to prioritize the challenges that threaten the different habitats in relation to the communities living around them, It realized that school fees was the worst challenge that threaten the habitats and thus came up with the issue of secondary school bursary funding for children from needy families. However, according to the research ARK has no reliable sources of funding for these children but only rely on well-wishers and their small collections from their eco-tourism facilities, this hinders the organization from expanding its environmental conservation activities. The area is too big for the organization to operate well.

Though ARK is working towards conservation of the environment, there is need to address the issue of quarries in the county as this is the earth treatment and healing proposed by Boff(1995), that means the scars on the landscape left by quarrying and sand harvesting have to be rehabilitated. Research findings revealed that the church is not very much supportive to environmental conservation in the county as most of the respondents admitted that they only hear environmental teachings during seminars organized by ARK or if it was ever conducted in the church then it was a period of not less than three years back or more and probably by a visitor who had visited that Christian community, this makes environmental conservation very difficult since change takes time as it involves changing people's attitudes and how they view nature such that if they see a tree; they look at it as shade, God's creation, air cleanser and not charcoal or timber; thus the environmental sermons have to be repeatedly and tirelessly preached and the seminars conducted by both the churches and the organization and other stakeholders.

Recommendations of the Study

There is need to create more awareness on the importance of forest and its resources so as to create a positive attitude towards its conservation. Again there is need to train people to embrace proper farming methods like FGW done by ARK. Quarrying and sand harvesting are mainly for economic reasons; Although ARK is mainly involved in scientific research and species monitoring whereby it restores integrity to endangered and endemic species, it has an obligation as a Christian conservation organization to address the issue of land degradation in the county because without the land there can be no birds, trees, animals and all the other creation that move on the ground. The activities which ARK engages in are quite viable in these detritated land fragments as indigenous tree planting can be done both in the abandoned quarries and sandpits. Again ARK should take the initiative of involving more churches in their environmental conservation strategies so that more Christians have access to the environmental conservation education.

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