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# A Local Perspective of Global Warming and Climate Change in Kwahu Tafo: A Theological and Ethical Reflection

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## *ABSTRACT*

*Kwahu Tafo is a town in the Eastern Region of Ghana in Kwahu Traditional Area. The town has experienced serious climatic changes that have impacted negatively on the environment and the social life of the people. Atmospheric conditions which play vital role in the maintenance of natural resources and sustenance of livelihood have changed drastically. The climate change phenomenon is caused by human activities and natural factors. Factors such as deforestation, bush burning and inappropriate management of the land and water resources have contributed to the frequency and impact of natural climatic events in the area. Women, children, the aged have suffered most from high temperatures, dryness, drought and flooding, which are regular climatic features.*


***Keywords**: Local, Perspective, Global Warming and Climate Change and Theological and Ethical Reflection.*

**Introduction:**

But the year had gone mad. Rain fell as it had never fallen before. For days and nights together, it poured down in violent torrents, and washed away the yams. Trees were uprooted and deep gorges appeared everywhere. That year the harvest was sad, like a funeral, and many farmers wept as they dug up the miserable and rotten yams. One man tied his cloth to a tree branch and hanged himself.[1] I agree with Achebe that the year had gone mad; and that most parts of Africa are extremely vulnerable to climatic variability and climate change. At South Kwahu in Ghana, one could easily observe variations in rainfall patterns that have led to incidences of high temperatures, heat waves, drought, abnormal rainfall patterns, storms and flooding with disastrous consequences for the people and for the environment. Air quality is an emerging issue of concern in many parts of Africa, especially in expanding urban areas where concentrations of population, industry and vehicles are increasing air pollution.[2] A remarkable consensus has emerged among climatologists and other atmospheric scientists that global warming and some dire attendant effects are high probabilities.[124] Global warming is caused primarily by human-induced unbalances of carbon dioxide and other trace gases in the lower atmosphere. Climate change in Ghana has become a threat to livelihoods. High temperatures, dryness, drought and

[1] Chinua Achebe, Things Fall Apart, (Malta: St Paul's Press Ltd, 1967), 22.

[2] Africa Environment Outlook, (Kenya: UNEP, 2002), xviii [124] James A. Nash, Loving Nature, (Washington DC: Abingdon Press, 1991), 32.

flooding are regular climatic features of some part of Kwahu South and East Districts in particular.

In 1966, at the age of 13, our schools were surrounded by thick forest. The town (Kwahu Tafo) was surrounded by thick forest. We walked under huge trees when we weekly visited the farms and set our traps. But 1983 bush fire destroyed the rich forest. In 2011 when I made a trip to my grand mothers' land, the trees were all gone. They have been replaced by short grasses. Climate variability is obvious. The seasonal and annual variations in both temperature and rainfall patterns have been observed by the local people. One could observe some considerable climate variations both spatial and temporal. Extreme events such as heat waves, dryness, drought, flooding, and landslides have also been observed and recorded at Kwahu Tafo. Local people testify to the fact that the world has been turned upside down; they noted that the dew no longer falls at night. The rains no longer come on time; desertification, poor farm yields and natural disasters are real. Human activities, such as deforestation and inappropriate management of land and water resources have contributed to the frequency and impacts of natural climatic events. For example, apart from the 1983 national bush fire disaster, the clearing of the remaining forest for farming and the illegal chain-saw operators on lumbering have altered the local climate and rainfall patterns which has increased the risk of drought. Earlier, the construction of the Akosombo Dam had caused considerable climatic variations and change in the ecology. Since human beings exploit their environment for their existence resulting in the creation of environmental hazards for themselves; the extent of these interventions in nature has been very high that the repercussions have pointed to negative effects on the environment. Consequently, civic, political and religious bodies are calling for humankind's rational relation with naturehuman and non-human. The call for a reversal of human's negative and degrading impact on nature points to a new Christian response which underscores the need to develop a theology of nature that examines Scriptures from a theocentric perspective and a theological task to uncover the larger relational paradigms that involve nature in the divine-nature relation. Again, in situations where human activities have proved dangerous to human existence, the environment, and the climate, a new sense of value and ethical standards are required to save humankind, the environment and the climate.

**Basic Concepts**

We wish to state some basic concepts that undergird this research:

First, the sun is the primary source of energy for the Earth's climate system. The Earth's energy is in balance or equilibrium when the Earth emits the same amount of energy as it absorbs.

Second, the climate system is dynamic and has many interrelated components. A change in any one component can influence the equilibrium of the system and result in climate change.

Third, climate varies over space and time through both natural and human sources. These forces operate over time periods ranging from years to hundreds of years and vary widely with location on Earth.

Fourth, human activities particularly, the increase in atmospheric carbon dioxide since the industrial revolution is affecting the climate system, leading to warming temperatures globally.

Fifth, evidence for variations in the past is held in drying up of rivers, lakes and ponds and other geologic records.

Six, understanding past climate informs us about how the present climate system works and how it might change in the future.

Seven, climate change will have consequences for the Earth's systems including human society. Research into climate change therefore should involve extensive observation, theory and modelling.

Eight, future climate scenarios are essentials to informing efforts to mitigate and to adapt to the consequences of climate change.

From the above, one could establish a foundational truth of existence that the life-support systems of every living organism depend on maintaining harmony with everything else. Hence the dynamic and complex structure of interrelationships that support life on the planet should not be toiled with. Climate change and global warming should encourage all to view life holistically and to challenge worldviews that cannot easily accommodate such thinking. Anthropogenic factors have demonstrated far beyond doubt that what we do to the climate often has adverse repercussions on our well-being. Again, climate variability and change could have direct relationship with desertification and land degradation involving soil erosion, drier conditions and loss of biodiversity. Climate change in its deepest sense needs to be understood as an ethical issue that raises serious questions about how we define our role and responsibilities towards one another, future generations and other species.

**Causes of Climate Change**

The study was based on information from relevant documents and from fieldwork that focused on the selected zones that are principal agro-ecological zones, namely, the semi-arid savannah zone and the semi humid forest savannah zone. Emphasis was placed on these two zones because they appear to be the major areas under the threat of desertification. Climates have been changing and still are constantly changing at all scales, from local to global and over varying time-spans. Climate change poses a serious threat to development and poverty reduction in the Kwahu-Tafo area. Factors for climate change are both natural and anthropogenic.

**Natural Factors**

Some of the natural factors are: variation in solar energy; changes in mass air circulation in and around the Volta Lake. The mountain ranges serving as natural barriers whilst places along leeward directions experience little or no rainfall for

several months; atmospheric tides which are caused by oscillation in the atmosphere controlled by the sun and the moon predominantly affecting pressure and the wind. People living along the Volta Lake have experienced atmospheric tides which sometimes make the lake to overflow her banks. Climate variability and change are found to have direct relationship with desertification and land degradation involving soil erosion, hardening of soils and drier conditions. During the months of November and December, January and February, Kwahu-Tafo and its environs experience lower night temperatures with higher daytime temperatures. Such temperature variations could affect plant growth. It has been observed that lower night temperature with higher daytime temperatures influence seasonal plant growth and plant biodiversity, germination, bud-setting, blooming, fertilization, flowering and seed setting and maturity within the planting and growing period. Erratic rainfall pattern has also affected available groundwater level. Available groundwater level has reduced considerably such that local people digging wells for water have not succeeded. One could count seven open empty wells posing danger to both human life and domestic animals within a ten-acre space. Water for domestic use and plant use has become scarce. Such adverse weather condition has affected the water cycle resulting in the decline in rainfall, lowering of groundwater and drying up of streams and wells in the study area.

In addition, the poor water retention capacity of the soils, is responsible to the large inter-year variations in the production potential. The amount of available water is the primary factor that limits food production in the Kwahu Tafo area. Water availability for plants, animals and human life, has reduced considerably. Reduced rainfall is very serious because nearly all the farmers in the Kwahu Tafo area rely on rain-fed agriculture. As the environment becomes drier and drier, aridity increases and causes reductions in groundwater recharge. These natural factors contribute to affect human and non-human elements. Herdsmen drive their cattle to distant lands in search of water.

**Anthropogenic Factors**

Anthropogenic activities have increased in the research area. The activities include burning of fossil fuel. Fossil fuel emits carbon dioxide in to the air when they are burned, which contributes to the greenhouse effect and global warming. Fossil fuel is a non-renewable resource because people use them much faster than they form naturally. The cutting of trees for charcoal burning is a major human activity prevailing in Kwahu Tafo and its environs. Daily and weekly, heavy trucks carry tons of charcoal to urban centers. A huge market has been created in and around urban centers. Commercial production of charcoal for urban markets is one of the causes of environmental degradation in the study area. Most of urban households lack access to clean energy sources such as liquefied petroleum gas (LPG) and electricity. Trees are harvested as firewood which serves as source of domestic energy gathered from the environment. Hard arid trees do not grow into maturity before harvesting. Firewood gathered from

the immediate surroundings has become scarce. Trees are giving way to grassland. Seasonal and annual bush burning produce large smoke to pollute the atmosphere. Human activities intensify the natural greenhouse effect by emitting heat-trapping gases such as carbon dioxide, methane and nitrous oxide. At the start of the rains, local people harvest all grasses for domestic purposes. Some of the grasses are woven into mats while others use them for roofing houses. Some are woven for door and window blinds. Women weave baskets and bags out of the dry grasses that have been harvested.

**Global Warming and Climate Change Impact**

We wish to examine the impact of global warming and climate change on the following:

1. Cocoa production
2. Food production in the Kwahu-Tafo zone
3. Women and children's livelihoods
4. Poverty linkages

**Cocoa Production**

Before the construction of the Akosombo dam, farmers from Mpraeso, Nkwatia, Obo, Abetifi migrated to the area to engage in cocoa production. The area was highly forested. But by the early 70s most of the cocoa farmers had left their farms because the place was becoming drier and hotter. Cocoa production in Ghana is said to follow a discernible cycle. [3] The main characteristics of this cycle are:

First, "forest rent", which is the perfect growing environment represented by the forest ecosystem whose benefits include soil fertility, protection from erosion, moisture or high humidity, protection from drying winds, stabilizing effects of precipitation within rain forest zone, protection from diseases and pests.

Second is the migration process-a process by which cocoa farmers habitually migrate in search of new "forest rent". It is this process of "mining" the forest and moving on to new forest that has seen the scale of cocoa production moving from Agyebura, Mpaemu, Adowso, Oframoase, Kotope to Kwahu west, known by the people as Obuase. The Obuase cocoa settlements are Oframoase, Amanfrom, Kwawu Nsabaa, Nkawanda, Abentensu and Kwawu Jejeti.

Cocoa is highly susceptible to drought and the pattern of cropping is related to rainfall distribution. The rainfall distribution pattern has long ceased to be in bimodal. Rainfall is short about three to four months from March to June, and long dry period, resulting in soil water high deficit. Humidity is very low with cocoa seedling mortality very high. Cocoa is not a dry resistance plant and

[3] Masdar, Socio-economic study of Cocoa farming in Ghana.
Consultancy
Report, Accra: MASDAR International Consults/ Ghana Cocoa Board, 1998.

so as the environment becomes drier and hotter, adult plants have lower yields and quickly die off. Cocoa Research Institute of Ghana claims that cocoa has a light saturation point and a low maximum photosynthetic rate. This implies that the photosynthetic rate of the crop decreases if the photosynthetic system is exposed to light intensities exceeding 60% of full sunlight. In an interview with the technical officer of the Seed Production Unit of the COCOBOD at Juaso, Madam Rosemond explained that prolonged exposure to high light intensities damages the photosynthetic mechanism of the leaves. Cocoa can also thrive in areas with temperatures of 30-32`C maximum and 18-21`C minimum. The average annual temperature should be around 25`C.[4] Our study area has temperatures far exceeding 25`C. Black pod disease is closely related to weather and climate (EPA 2008:33). It is more prevalent in damp situations and is most destructive in years when the short dry period from July to August is very wet in cocoa growing areas.

Again, cocoa is highly sensitive to change in climate-from hours of sun, to rainfall and application of water and particularly to temperature due to its effect on evapo-transpiration. Climate change could also alter stages and rates of development of cocoa pests and pathogens, alter crop yields and crop losses. As relative humidity becomes generally low in the study area and mean annual temperature changes rise, these projected changes in climate will worsen soil moisture conditions and aggravate the vulnerability of cocoa production to adverse climate change. Since cocoa is highly sensitive to drought in terms of growth and yield, it is reasonable to anticipate consistent decreases in projected cocoa output in Ghana.

**Food Production**

*Agricultural Production and Food Security:*

Changes in temperature, rainfall patterns and water availability have long term impacts on the viability and productivity of agricultural systems. The Food and Agriculture Organization of the United Nations estimates that an expected increase in average world temperatures of 1' to 3'C would lead to a drop in cereal production in more than 65 countries now accounting for half the world's population.[5] Agricultural productivity has been affected by climate change and global warming in several ways. Climate change and global warming cause response in many human and natural systems, hence, understanding climate variability and change will certainly improve agro decision-making and productivity. We have noted earlier that climate change could lead to degradation of soil and impacts on water resources and subsequently subsistence agriculture production.

[4] Cocoa Manual 2010: 10

[5] Media Development 2009:9

Farmers in and around Kwahu-Tafo are subsistence farmers in root and tuber crops, maize, onion and groundnuts. Forty years ago, our surroundings were farmlands of plantain, cocoyam, yams and cassava.
Indeed, any empty space was cropped by onions, groundnuts and maize. These farms were not fenced and the cropping was twice within the year. Today, the opposite is the truth.

The study observes current trends in crop production, distribution and growth within the ecological zone is controlled by climate whiles some crops have stable genotypes and therefore do not react to variation in environmental changes, others are excessively stressed with slight changes in climate. The main biotic stress factors affecting root and tuber crops are drought, water distribution, temperature extremes, solar radiation extremes, and soil nutrient imbalance. Rainfall within the study area was unreliable, irregular and unpredictable. Farmers have noticed that duration of rainfall has been shortened and sometimes, it is too much -causing flooding, or too little causing drought. Onion and groundnut production have been affected by high daily temperatures that scorched the crops.

**Women and Children's Livelihood**

In Ghana, women constitute about 50.5% of the total population and about 30% are heads of households. Their socio-economic impute, lies in the fact that they control key production sectors particularly in agriculture. Women again constitute 52% of the agriculture labour force, contribute 46% to the total gross domestic product (GDP) and produce 70% of subsistence crops. Women also play major roles in distribution and production. Climate change and global warming do affect women livelihood in several ways.[6]

***Climate Change Impacts and Vulnerabilities:***

Climate change and global warming affect women in the study area due to their reliance on subsistence farming activities. We have noted earlier that climate change and global warming affect soil fertility. Unreliable, irregular and unpredictable rainfall, adversely affect soil conditions and therefore have adverse impact on food production. Women's income from their livelihoods and other economic activities would be reduced, making them poorer. This reinforces the importance of the environment and climate change in women's life. As the environment becomes drier and hotter, women and children become direct victims of environmental degradation. Again, as a result of climate variability and change, global warming, resulting in recurring droughts and chronic water shortage, the poor, majority of whom are women, and children pay high price for water. Women, girls and children travel long distances in search of water. Most girl child follows their mothers in search of water whilst the boy

[6] Ghana Climate Change Impacts, Vulnerability and Adaptation Assessment. EPA (2008:29 -30).

child follows their fathers in grazing the cattle and sheep. Education facilities are scarce in such dry environment. Women carrying their children walk long distances on market days to Kwahu-Tafo under the scorching sun. Women and children are most vulnerable to hunger related death and illness which could be directly or indirectly exacerbated by climate change through food and water shortages. A visit to the St. Joseph Hospital at Kwahu-Tafo showed evidence of cases of diarrhoea, malaria, malnutrition in children and heat related diseases such as Cerebra Spinal Meningitis (CSM) resulting in deaths. The biggest percentage of all the energy requirements in the rural household is biomass and more women are in the forefront of the production and conservation of this energy resource.[7] It is the women who go around searching for firewood for household purposes. They prepare the family meals which depend on the use of firewood as the source of energy.

**Poverty Linkages**

In Ghana, there is a clear example of a vicious cycle involving poverty and a deteriorating ecosystem. Poverty is a source of environmental problems like deforestation whilst a deteriorating ecosystem affects the [8]poor and increases their poverty.[9] The study provides a theoretical framework of the relationship between climate change, global warming and poverty. We have observed and are acutely aware that understanding the multi-dimensional relationship between poverty and environment are crucial for poverty reduction in the study area. The district falls within two ecological zones with high temperatures, low and irregular rainfall pattern which tend to have high poverty incidence. The zones could be described as "harsh" climatic conditions. The life of "the poor" is a life of vulnerability, which reflects the deeper problems of insecurity. The poor tend to depend heavily on environmental goods and services. Their livelihood depends on agriculture, fisheries, and forestry, and on the capacity of the ecosystem to provide the services vital for environmental balance without which food production and other productive activities cannot be carried out on a sustainable basis.[10]

During the wet season, rain is excessive and its force leaches out valuable minerals and nutrients from the soil. Besides, the first heavy drops in a heavy downpour clog the pores of the soil with fine particles washed from the surface. After a few minutes, the soil cannot absorb more than a small fraction of the rain to facilitate the growth of crops. [11] The poor subsistence farmer suffers from the climatic condition. Too much heat creates "incubator effects" on biological activities, leading to hazards, [12] the flourishing of life forms hostile to

[7] Ghana Climate Change Impacts, 2008:30.

[8] Ghana Climate Change Impacts, 2008:30.

[9] Adow Obeng, In Theology of Reconstruction, Acton: 2003:12

[10] Ghana Climate Change Impact: 21

[11] Obeng, 12

[12] Obeng, 12

humankind-disease-carrying mosquitoes, tsetse flies, black flies, sand flies and biting insects. There are also different forms of parasites, microbes and fungi, attacking and killing the people. The excessive heat also affects tropical plants. Heat again affects the productivity of the people since it drains people's vitality. These climatic conditions are primary causes of poverty in the study area.

**Salient Issues**

From the above discussion, we could draw up the following salient points:

First, climate change and global warming in Kwahu-Tafo has already damaged and continues to damage at increasing rate agriculture. Scanty rainfall and long period of hot weather do not support agriculture especially in situations where farmers do not have access to irrigation facilities.

Second, as the environment gets drier and drier, drainage systems are dried up but most inhabitants do not have access to portable water sources. Women and children travel long distances in search of water. When water bodies dry up, humans and animals are in constant danger of extinction.

Third, soil erosion affects soil fertility, and the two adversely affect food production in Kwahu-Tafo ecological zones. Farmers are poor and are unable to feed themselves.

Fourth, species extinction: animal, insect, bird and plant species are extinct. Reasons for the extinction are many including destruction of habitat, deforestation, hunting and poaching. Annual bush burning for games has also caused severe damage to species.

Fifth, the human and cultural degradation: Cultures that have lived in harmony with the land have been affected by social pressures and environmental problems. Families have migrated to more conducive environments leaving buildings behind to collapse. As the environments are degraded, people lose their lands, culture and lives.

Sixth, firewood gathering from the immediate surroundings of settlements has become scarce, and commercial production of biomass fuel for urban markets is a major cause of environmental degradation in the Kwahu-Tafo ecological zone.

**Theological and Ethical Perspectives**

Ecology has been defined as the study of the relationships that exist between all animate and inanimate forms in a particular ecosystem. The science of ecology tries to seek to understand the harmony and interrelationships within a system, rather than to study a single organism in isolation from its habitat. Responsible stewardship requires that people do not upset the delicate balance of the total created order that support life on this earth. Does God care when the environment is degraded?

**Theology of land:**

The earth is the Lord's and everything in it; The world and all who live in it;
For he founded it upon the seas and established it Upon the waters,[13]

The earth is the Lord's and everything in it, the world and all who live in it, for He founded it upon the seas and established upon the seawaters. The earth and its fullness and all who dwell on the earth belong to the Lord by virtue of the fact that both the earth and its people owe the being to God's creative act. Since God is the creator and owner of the land, He has absolute right over it. He alone disposes of its goods (Gen. 2:16), establishes it laws (Ezek 23:10), and causes it to bear fruit (Psalm 65: 9 10; Ps104:27 -30). He is the Lord of the land. The earth is His footstool (Is 66:1, Acts 7:49) God commands that the land shall not be sold for good because the land, its resources belongs to Him (Lev. 25: 23-).

Again, God instructs, "do not pollute the land where you are… do not defile the land where you live and where I dwell, for I the Lord dwell among the Israelites" (Lev 35:34-35). All of these point to the fact that the land, the ecology and the environment-all belong to God and therefore are holy and sacred. God demands righteousness from all inhabitants of the earth. When the people of Kwahu-Tafo cut all the trees for firewood, for charcoal, the people defile the environment. When people at KwahuTafo set up bush burning to get games, it destroys the biodiversity, species and defiles the land. From the perspective of the Bible, human's life depends completely on the riches the earth conceals in the fertility of the soil. It behooves on all the people of Kwahu-Tafo to do all to maintain the fertility of the soil so that the soil will continue to produce its fruit to feed the people. Adam (man) was to work the Garden of Eden and care for it (Gen 2:15). Man was to use but not abuse it. Man's use was to be sustainable. Indeed, the people of Kwahu-Tafo should care about the kind of environment, ecology our children and those yet unborn will inherit (Prov 13:22). God gave specific commands for exercising stewardship of the environment. In the Old Testament theocracy, God commanded the Israelites to care for the land (Lev 25:1-12), to treat domesticated animals properly, and to respect wildlife (Deut 25:4, 22:6). The people were to conserve trees (Deut 20:19-20) and bury their wastes (Deut 23:13). God also judged those who misused the land (Is 5:8-10).

In the New Testament, the earth is linked with the redeemed of the Lord. The earth "awaits the revelation of the sons of God… with hope of being itself delivered from the slavery of corruption in order to enter into the liberty and the glory of the children of God" (Rom 8:19). According to Asante, the redeemed of the Lord, like the earth is an object of redemption, although in a mysterious way. [14] Theological perspective on a creation is theocentric. This implies that God is the center of the universe and that He is the source and upholder of meaning, purpose, value and ethics, as well as the unifying principle of the

[13] Psalm 24:1-2.

[14] Asante E. "He Who Possesses The Land," *Trinity Journal of Church and Theology*, Vol XI Jan/ July 200, nos. 1&2 :20-21.

cosmos. Indeed, everything finds existence, value, purpose and meaning in the infinite transcendent God.[15]

**An Ethical Perspective**

Environmental ethics pertains to what people should or should not do in regard to the use and management of nature. It delves into such question as human and animal rights, sustainability, conflict resolution, ecojustice and future generations. Traditional morals systems, appears to fall flat in responding to the growing problem of environment ethics. Aldo Leopold was one of the early advocates of the need to establish a new ethics that included nature. He noted that there is as yet no ethic dealing with man's relation to land and to the animals and plant that grow upon it. [16] Land is still considered as property. The land-relation is still strictly economic, entailing privileges but not obligation. Odeyoye notes that "the earth is our home, we have no other, and our survival depends on its health and wholeness. Studies of environment have called our attention to the larger neighbourhood within which our human communities develop. As earth dwellers, our lives are in constant relationship with the sun, the moon and the atmosphere around us.[17]Again, on earth, other beings are our neighboursplants, animals-some too small for the eyes to behold and others much larger than we are Ecological sensitivities underlined the principles of connectedness, interdependence and mutual sustainability. When air and water and vegetation are in danger, human life too is endangered. Environmental concern and ecological orientation remind us of the need for recycling, reforestation and cleaning up waters around us. Environmental ethics also demands that we should care about the kind of world our children will inherit. Richard Young quoted Ian Barbour as saying that "ecological concern will be short lived and ineffective unless it deals with the values and social institutions that have led ravaging of the environment ".[17] Those destructive values that must be addressed involve placing supreme value on self and utilitarian value on everything else. We wish to advocate for a theocentric ethics based on the purpose God has for all creation and the value He places on it. A theocentric creation -redemption model is an ought to derive from an imperative that transcends the natural order. Biblical ethics summons humanity to solidarity with other members of creation, a community under God with any conflict of interest to be resolved in view of Gods purpose for creation rather than an arbitration of sectarian interests. We are obligated before God to ensure a

[15] Richard A. Young, *Healing The Earth: A Theocentric Perspective on Environmental Problems and Their Solutions*, Nashville; Broadman & Holman, 1994:128.

[16] Aldo Leopold, *A Sand County Almanac With Other Essays on Conservation From Round River*, New York: Oxford University Press ,1961:218 [17] Amba Oduyoye M., *Beads And Strands*, Ghana:
Regnum Africa,2002:46.

[17] Young, *Healing the Earth*, 209.

benevolent and just use of God's earth and, at the same time to preserve the harmony and integrity of creation.

Over exploitation, deforestation and abuse of the land, animals or any species constitutes a sin against God because it harms God's creation, ignores God's injunction for proper stewardship, and deviates from God's purpose in creation. We agree with Richard Young that "the scripture present a balanced ethics that favours neither humanity (anthropocentrism) nor nature (biocentrism)". This balanced ethics is not merely concerned with management for the sake of human social justice, but with caring for everything God has made.[18] Again, one is acutely aware that ethics cannot stop with a code of conduct. For any ethical system to be truly effective it must have a sound metaphysical base, a code of conduct properly derived from that base, the motivation to comply, and the enablement to overcome the problem of self. Only scripture offer a true ethical system that meets these criteria. The motivational appeal is our accountability to God.

**Interventions**

The government in conjunction with the Ministry of Science and
Environment since May 2008 produced a document entitled: Ghana Climate, Vulnerability and Adaptation Assessment. The document has climate change policies that are consistent with the Ghana Poverty Reduction Strategy, which facilitates the integration of climate change concerns in to national and districts sustainable development policies. The document also assesses the socio-economic implications of climate change on the various sectors and the associated vulnerable groups; and proposes appropriate adaptation strategies. The government of Ghana and her development partners have succeeded in constructing a very good road to open up the area. The government of Ghana and the US government through the Millennium Fund have built a modern Junior High School for the people of Adowso. This school serves seven communities that are distant apart. The world vision has also drilled a few bore holes for the scattered communities.

The Presbyterian Church of Ghana has posted a Minister of the Gospel to Adowso as a local Manager of the Presbyterian schools and also provide spiritual and counselling services to the church members. The Catholic Hospital at Kwahu-Tafo and the Presbyterian Hospital at Donkokrom are the only health facilities close to some of the settlements. The nearest settlement to a hospital is about 30km away. A local entrepreneur who is now a member of parliament has established a petrol station at Adowso to serve the fishing community on the Volta Lake. In spite of these interventions, most people have migrated to the urban centres and the population continues to decrease. The two District Assemblies namely, Kwahu South and Kwahu East that oversee the various communities under discussion have community assemblies where the

[18] Young, *Healing the Earth*, 236.

communities are invited to be educated on the dangers of bush fire. As a result of these fora, community fire brigades have been established in two communities.

**Conclusion**

Science and the experiences of the people of Kwahu-Tafo ecological zones confirm the reality of human induced climate change and global warming. Deforestation, annual bush burning that generates volumes of smoke into the atmosphere, charcoal burning for survival, over grazing by cattle herds have all contributed in no small way to the degraded environment. As the environment experiences little or no rains for several months, the environment gets drier and drier, water sources dry up, but when it rains, the degraded environment experiences soil erosion, and soil fertility is reduced. A combination of all these factors further creates hot weather conditions. The poor and vulnerable communities suffer adversely; some affected people migrate to safer areas leaving behind buildings and property to rot.

We believe that caring for life on earth is a spiritual commitment that taps resources from a theocentric perspective. Theocentrism provides the basis for true stewardship – the effectiveness of the stewardship would be contingent on the moral sensitivity of each person to the needs of others, the environment and God's demand on stewardship. People and other species have their right to life unthreatened by greed and destructiveness. Faith communities are called upon to address climate change and global warming because it is a spiritual and ethical issue of justice, equity, solidarity, sufficiency and sustainability. The situation is critical. We must all act now. We pray that governments in Africa will demonstrate leadership in responding to the cry of the earth.

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