APT 4 (June, 2014) 52 - 62 © by The National Missionary Seminary of St Paul, Gwagwalada, Abuja. All reserved

GAS FLARING AND ECOLOGICAL CRISIS IN AFRICA: CONTEXT OF AN AFRO-CHRISTIAN MISSION

Idara OTU

Since the beginning of oil production in Africa (about 1910 in Egypt), the flaring of associated petroleum gas has raised ecological concerns for oil-producing countries and the entire continent. This is the experience of oil-producing nations like Algeria, Angola, Egypt, Libya, and Nigeria. In the past decade, concerted efforts have been made by civil governments to curb the practice of gas flaring in Africa to no avail. With the reality of climate change, global warming and other forms of eco-crisis in the world, this article argues that gas flaring is no longer acceptable because of its adverse impacts on human and other life forms. Accordingly, there is a dire need to explore eco-sustainable methods of oil production in Africa in order to preserve creation for the sake of future generations.

This contribution, from a Christian perspective, aims at delineating significant eco-theological dynamics appropriate for the dialogue between respective African governments and oil companies in order to curb gas flaring associated in Africa. The essay is structured in four sections. The first presents a brief overview of the meaning of gas flaring and the statistical data of the volume of gas being flared by select countries in Africa. The second section discusses the immediate ecological impact of gas flaring on humans and the entire ecosystem. The third section is an examination of some African governments' strategies in addressing the practice of gas flaring in their respective countries and their regional blocs. The fourth section explores the eco-theological presuppositions, which can further strengthen the interdisciplinary conversation on how to adequately respond to the challenge of gas flaring in Africa. The essay concludes with

some fundamental socio-pastoral recommendations that serve as a bedrock for Christian ecological action.

Overview of Gas Flaring in Africa

Associated gas is the natural gas that comes from oil wells, found in association with oil, either dissolved in the crude or separated from the oil.[1] Such gases include soot, carbon monoxide, sulfur oxide and nitrogen oxide. In separating associated gas from crude oil, various procedures are used: re-injection of associated gas into the earth crust for future use, harvesting for domestic and commercial use, and gas flaring. Gas flaring is a process of disposing of the natural gas associated with crude oil because there is no infrastructure to make use of the gas.[2]

Gas flaring is an ecologically destructive process in oil production. Yet, it is a method that is employed by several countries of the world in disposing associated gas. On this note, the annual volume of gas being flared globally is over 150 billion cubic meters (bcm). This volume of gas is equivalent to 25 percent of United State of America's gas consumption or 30 percent of European Union's gas consumption.[3] As well, the annual volume of gas flared in Africa stands at 35bcm, which is capable of generating 200 terawatt-hours of electricity to half of Sub-Saharan Africa.[4] Based on these statistics, the World Bank is working with public-private partnership and oil companies (Global Gas Flaring Reduction Partnership) to reduce gas flaring. The World Bank observes that the increase in gas flaring from 138bcm in 2010 to 140bcm in 2011 is a call for global action.

The African continent is a cistern of crude oil reserves. Africa's proven oil reserves have grown from 57 billion barrels in 1980 to 124 billion barrels in 2012. Research shows that there are about 100 billion barrels of undiscovered crude oil in offshore Africa.[5] Africa's crude oil reserves have drawn many multinational

1. World Bank, *Glossary of Terms: CDM/JI Projects* (Washington, DC: World Bank Publication, 2010), 11.
2. Christopher Elvidge, *A Twelve Year Record of National and Global Gas Flaring Volumes Estimated Using Satellite Data* (Geneva: World Bank Publication, 2007), 1.
3. World Bank, "Global Gas Flaring Reduction: A Public Private-Partnership," 1, http://go.worldbank.org/016TLXI7N0 (accessed 22.02.2014).
4. *Ibid.*, 1.
5. KPMG, *Oil and Gas in Africa: Africa's Reserves Potential and Prospects* (Switzerland: KPMG Limited, 2013), 5.

oil companies to the continent where there are already existing national oil companies. Unfortunately, the practice of gas flaring employed by these oil companies has turned some African countries into repositories of flaring sites.

In Nigeria, since the discovery of oil in1956 by Shell D'Arcy at Oloibiri community in the Niger Delta, gas flaring has remained an ecological albatross.[6] Nigeria is a major producer of crude oil in Africa with estimated crude oil reserves of 37.1 billion barrels.[7] The method of crude oil production used by oil companies involves the flaring of associated gas.[8] There are more than 100 gas flaring sites in Nigeria.[9] A World Bank Report, based on satellite data, estimated that Nigeria's gas flaring amounts to about 14.6 bcm in 2011.[10] This figure places Nigeria as the second leading gas flaring country in the world, with about 45 percent of its total gas production being flared due to the absence of infrastructure to harvest associated gas.

Another country is Algeria that is a major crude oil producer and hosts Africa's third largest oil reserves of about 12.2 billion barrels. Algeria's annual oil production stood at 1.14 million barrels per day between 2005 and 2010. During this period, Algeria flared an average of about 5.4bcm of associated gas. Algeria is ranked second in terms of the volume of gas flaring in Africa and is sixth in the world.[11]

Oil-producing countries located along the Gulf of Guinea are not spared either. Studies show that Angola, Equatorial Guinea, Gabon, Congo and Cameroon collectively flared 10bcm in 2009. This volume of gas amounts to 65 percent of Nigeria's 17.2bcm of gas flared per year.[12] Among these five aforementioned countries,

6. Augustine A. Ikein, *The Impact of Oil on a Developing Country: The Case of Nigeria* (New York, NY: Prager, 1990), 3.
7. Organization of the Exporting Petroleum Countries, "OPEC Share of World Crude Oil Reserves 2012," 1, http://www.opec.org/opec_web/en/data_graphs/330.htm (accessed 22.02.2014).
8. Stella Madueme, "Gas Flaring Activities of Major Oil Companies in Nigeria: An Economic Investigation," *International Journal of Engineering Science and Technology* 2, no.4 (2010): 610-617, at 611.
9. Tunde Obadina, "Harnessing Abundant Gas Reserves," *Africa Recovery* 13, no.1 (1999): 1-16, at 16.
10. World Bank, "Estimated Flared Volumes from Satellite Data: 2006-2011," 1, http://go.worldbank.org/G20AW2Dk20 (accessed 22.02.2014).
11. *Ibid.*, 1.
12. Ezekiel Adesina, *Gas Flaring In Africa: A Critical Overview of Gas Flaring Reduction in Nigeria Oil Sector and its Challenges* (Hamburg: Nigerian LNG, 2012), 9.

Angola accounts for the highest volume due to increase in oil production. Angola oil production rose from 0.7 million barrels per day in 2000 to 2.0 million barrels per day in 2010. Within this period, 75 percent of associated gas was flared in Angola.[13] Today, Angola ranks third in Africa in terms of the volume of gas flaring.

Libya has Africa's largest proven oil reserves – 47.1 billion barrels. These reserves are mainly located in the Sirte Basin. The average volume of gas flared in Libya between 2007 and 2010 was about 3.7bcm. With the advent of the 2011 civil war that ousted Col. Muammar al-Gaddafi's regime, Libya flaring volumes dropped to 2.2bcm.[14] Libya ranks fourth among the countries of Africa in terms of the volume of gas flaring. Libya is a step ahead of Egypt. In 2011 alone, Egypt flared an estimated 1.6bcm volume of associated gas.[15] Egypt ranks fifth in Africa.

The above overview of estimated volume of flared associated gas in some African countries comes with a caveat. Gas flaring statistics are debatable. However, the statistics demonstrate the absence of infrastructure to harness associated gas in a manner that can benefit and improve the welfare of Africans. Oil-producing countries in Africa may not be the largest contributors to gas flaring emission in the world. However, Africa is the continent that suffers most from the adverse impact of gas flaring due to its limited resources and mechanisms to deal with the ecological consequences.

Gas Flaring and the Ecosystem

Indicators of the immediate and direct ecological effects of gas flaring are abundant: air and water pollution, the decline of bio-diversity, the degradation of wetlands, forest and other life forms. I shall consider just three adverse impacts of gas flaring to argue my point that gas flaring is ecologically unsustainable: climate change, the formation of acid rain and the detrimental brunt on human community.

13. *Ibid.*
14. World Bank, "Estimated Flared Volumes," 1.
15. *Ibid.*

Gas flaring contributes to climate change. The *United Nations Framework Convention on Climate Change* defines climate change as "change in climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods."[16] The continuous emissions of carbon monoxide and other greenhouse gases[17] through flaring contribute to climate change and global warming. These emissions know no boundaries. Their effects are both local and global. For example, in 2003, verifiable statistics showed that over the past decade, in West Africa, temperatures increased from 0.2 to 0.3 degree centigrade.[18] Again, the high temperatures (1,300-1,400 degrees centigrade) in which gases are flared into the atmosphere have contributed to the extinction of wild life and aquatic life around flaring sites in Nigeria.[19] Research has also shown that vegetables like okra, and palm trees planted near gas flaring sites do not flower and produce fruits; thus threatening their extinction.[20]

Second, gas flaring is linked to the formation of acid rain. Acid rain is caused by the emissions of sulphur dioxide and nitrogen oxide which combine with atmospheric moisture to form sulphuric acid and nitric acid respectively.[21] Acid rain formation can result from natural sources, such as volcanoes, as well as from human activity, for example, through the emission of greenhouse gases during gas flaring. Some countries in Africa including Nigeria, Algeria and Libya have experienced acid rain in recent times. Acid rain contributes to high levels of soil salinity and acidified rivers. For example, high soil salinity depletes soil

16. United Nations, "United Nations Framework Convention on Climate Change," art. 1, http://unfccc/resource/docs/conukp/conveng.pdf (assessed 22.02.2014).
17. Greenhouse gasses resulting from gas flaring include sulfur oxide, nitrogen oxide, toluene and benzene. A. E. Gobo, G. Richard, and I. U. Ubong, "Health Impact of Gas Flares in Igwuruta/Umuechem Communities in Rivers State," *Journal of Applied Science and Environmental Management* 13, no.3 (2009): 27-33, at 28.
18. Federal Republic of Nigeria, "Nigeria's First National Communication under the United Nations Framework Convention on Climate Change," no. 8, http://unfccc.int/resource/docs/natc/nignc1.pdf (accessed 22.02. 2014).
19. Kenneth Omeje, *High Stakes and Stakeholders: Oil Conflict and Security in Nigeria* (Farnham: Ashgate, 2006), 58.
20. O.O. I. Orimoogunje, A. Ayanlade, T. A. Akinkuolie and A. U. Odiong, "Perception on Effect of Gas Flaring on the Environment," *Research Journal of Environment and Earth Sciences* 2, no.4 (2010):188-193, at188.
21. Anslem O. Ajugwo, "Negative Effects of Gas Flaring: The Nigerian Experience," *Journal of Environment Pollution and Human Health* 1, no.1 (2013): 6-8, at 7.

nutrients, which in turn affects the nutritional value of crops planted on such lands; eventually this leads to complete erosion of nutrients on arable lands.[22] In the case of rivers, when acid rain increases the acidity of rivers, the pH count goes down, which leads to fish infertility and migration.[23] In addition, D. Hallman notes that acid rain dissolves metals like aluminium and lead into the soil. The high levels of these poisonous metals in water systems are harmful to human life. Also, the increased level of aluminium clogs the gills of fish cause them to suffocate and die. Other poisonous elements from acid rain accumulate in fish tissue harming the birds, animals and people that consume them.[24] Acid rain pollutes fresh water sources through the infiltration of poisonous mineral components into the soil. This contributes to a change in the normal thermal structure of minerals in watersheds which in turn degrade water quality leading to lack of access to clean water.[25] Such contamination threatens watersheds in many countries of Africa.

Third, the inimical impact of gas flaring on humans cannot be over-stated. The emission of poisonous gases into the atmosphere constitutes health hazards to humans. Human inhalation of gas emitted from flaring contributes to various forms of diseases such as disorders in the female reproductive cycle, respiratory illnesses, anaemia (aplastic), changes in haematological parameters, skin irritations and cancer.[26] Many fishing and farming communities located near flaring sites are often cut off from their sources of livelihood because of depleted reserves of fish in the rivers and the degeneration of soil fertility.[27] Rise in sea levels which is an indirect consequence of gas flaring affects riverine communities. This was the case with Nigeria in 2012 when some oil-producing communities in the Niger Delta

22. *Ibid.*
23. The pH scale refers to the acidity of a solution. When pH count in rivers goes down to 4.5, it cannot support aquatic life. David G. Hallman, *Caring for Creation: The Environment Crisis a Canadian Call to Action* (Kelowna, BC: Friesen Printers, 1989), 40.
24. *Ibid.*, 40-41.
25. Omeje, *High Stakes*, 32-34.
26. Gobo *et al.*, "Health Impact of Gas Flares," 27; Ajugwo, "Negative Effects of Gas Flaring," 7.
27. P. B. Eregha and I. R. Irughe, "Oil Induced Environmental Degradation in the Nigeria's Niger-Delta: The Multiplier Effects," *Journal of Sustainable Development in Africa* 11, no. 4 (2004): 160-175, at 163.

were submerged by widespread and an unprecedented flooding. Statistics from the National Emergency Management Agency (NEMA) estimated that the floods claimed 363 human lives and displaced 2.1 million people.[28] Indeed, the effect of gas flaring on human life is inexhaustible.

I. Gebara offers an image of the ecological effects of gas flaring in many oil-producing communities: "Today, in many places, the 'lilies of the field' barely even exist, and we do not often see the blue sky. We hardly ever find springs of pure water or breathe air that invigorates us."[29] This is true of the African continent.

Response of African Governments to Gas Flaring

The principal approach employed by many African governments to curb gas flaring is two-pronged, consisting of legislation and the establishment of petroleum infrastructure to utilize associated gas from crude oil production. Oil-producing countries in Africa have relevant laws and have established regulatory agencies to deal with gas flaring. Equally, some African oil-producing nations are signatories to international conventions aimed at reducing gas flaring. Unfortunately, only a few countries have effectively complied with or implemented these provisions.

Angola, for example, has a lot of legislations addressing gas flaring. These include the *1976 Concession Decree*, *1989 Model Petroleum Contract*, *1991 Model Concession Decree* and *General Environmental Law of 1998*. Nevertheless, a World Bank report reveals that these laws have not been adequately enforced. A sign of this inaptness is the inability of the Petroleum Ministry to regulate emission standards for oil companies. Another example is Nigeria, which has a long history of legislating gas flaring laws. This started with the *1969 Petroleum Act*, which considered gas

28. Richard Eyers, Chituru Obowu and Bola Lasisi, "Report on Nigeria Niger Delta Flooding: Monitoring, Forecasting & Emergency Response Support from SPDC," 1, http://www.fig.net/pub/fig2013/papers/ts06d/TS06D_lasisi_obowu_et_al_6659.pdf (22.02.2014).
29. Ivone Gebara, *Longing for Running Water: Eco-feminism and Liberation* (Minneapolis: Fortress Press, 1999), 197.

flaring a breach of good oil field practices. Yet, this Act has not been adhered to by oil companies.[30] This was also the case with subsequent laws, namely, the *Associated Gas Re-Injection Act of 1979* and the *Associated Gas Re-injection Decree of 1985*. Currently, there is a proposed *Petroleum Industry Bill* (PIB), which mandates that natural gas cannot be flared in any oil and gas production operation, onshore or offshore.[31] However, the PIB is still under debate within the legislative arm of government since 2012. The examples from Angola and Nigeria demonstrate the complexities involved in promulgating and enforcing gas flaring laws in Africa. They also reveal the lack of political will by African leaders to deal with the flaring of associated gas.

In the area of petroleum infrastructure, some African governments have supported the establishment of natural gas liquefying plants for domestic and commercial purpose. Worthy of note is the West African government initiative to reduce gas flaring through the regional gas transmission system - West African Gas Pipeline (WAGP). This project began in 2010. The pipeline runs from Nigeria through Benin and Togo into power stations in Ghana. Another example of such a project is the Nigerian Liquefied Natural Gas Plant in Bonny. This project has helped to harness Nigeria's natural gas for export purposes. Such liquefied plants exist in countries like Algeria, Equatorial Guinea, and Angola. The building of liquefied gas plants remains a realisable goal in the attempt to reduce gas flaring in Africa. Gas liquefying plants offer alternatives to gas flaring and opportunities for harvesting associated gases in a manner that does not devastate the ecosystem. Unfortunately, political leaders in African oil-producing countries are not investing adequately in the establishment of liquefying gas plants.

30. World Bank, "Regulation of Associated Gas Flaring and Venting: A Global Overview and Lessons," 60, http://wwwwds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2004/07/16/000012009_20040716133951/Rendered/PDF/295540Regulati1aring0no10301public1.pdf (accessed 20.02.2014).
31. Federal Republic of Nigeria, *The Petroleum Industry Bill 2012* (Abuja: Petroleum Ministry, 2012), Section 275.

On the other hand, the effort of some African governments to curb gas flaring lacks a developmental model that takes the earth and its well-being as a referent value in order to promote human well-being.[32] This is discernible in the disconnection between economic needs and ecological needs, as well as in the gulf between human well-being and earth welfare. In the case of Nigeria, there are no concrete plans to address gas flaring in terms of the economic and developmental strategy of the government. It seems that the Nigerian government is more concerned with revenue accruing from the oil industry and the subsequent increase in GDP. This can be said of some oil-producing countries in Africa. Civil governments in Africa lack the moral will and political commitment to stop gas flaring, thereby sacrificing the well-being of the ecosystem, their citizenry and future generations on the altar of economic progress.

Towards an Eco-theological Mission

Blessed Pope John Paul II describes the ecological crisis as a moral problem. Christians must realise that their responsibility within creation and their duty towards nature and the Creator are an essential part of their faith.[33] Consequently, the preservation of certain common goods, such as the natural and human environments, cannot be safeguarded simply by market forces, but rather by the State and all of society. Christians particularly have a duty to defend these collective goods.[34] Within the African continent, the dialogue between the Christian faith and the response to the eco-crisis is ongoing. Christianity in Africa understands its mission of salvation as integral, which involves promoting the dignity of the human person and the integrity of creation. The Episcopal Conference of Africa and Madagascar (SECAM) affirms the Christian responsibility to preserve the

32. Leonardo Boff, *Cry of the Earth, Cry of the Poor* (Maryknoll, NY: Orbis Books, 1997), 86.
33. John Paul II, "*The Ecological Crisis: A Common Responsibility*," no. 6, http://www.vatican.va/holy_father/john_paul_ii/messages/peace/documents/hf_jp-ii_mes_1981208_xxiii-world-day-for-peace_en.html (accessed 22.02.2014).
34. John Paul II, *Centesimus Annus: On the Hundredth Anniversary of Rerum Novarum* (Washington, DC: Publication and Promotion Services, United States Catholic Bishops' Conference, 1991), no. 40.

integrity of creation. This Christian ecological mission resonates with the 2011 declaration by the World Conference of Churches (WCC) on the need for a covenant of justice, peace and integrity of creation. In 2009, the Second Special Assembly of the Synod of Bishops for Africa focused on the theme, "The Church in Africa in Service to Reconciliation, Justice and Peace: 'You are the salt of the earth….You are the light of the world'" (Matt. 5:14). This Synodal assembly affirmed care for creation as an essential component of reconciliation, justice and peace. In the same vein, the Catholic Bishops of Nigeria focused the 2011 Lenten Campaign on ecology with the theme: "Sustaining Our Environment for Integral Human Development." The First Sunday of Lent reflections addressed the issues of 'Oil Spillage and Gas Flaring' in Nigeria.[35] This campaign was a significant step by the Catholic Church in Nigeria to bring a Christian dimension to the dialogue in the effort to eliminate gas flaring. While the above courageous enunciation of justice for the earth is commendable, the rest of this article articulates a tripartite dynamic that must inform an integral theological perspective on the issue of gas flaring in Africa.

Traditional African Wisdom

In the traditional African cosmology, the sacredness of creation is paramount because God is the source of all creation. The most common African ancestral image employed to describe the earth is *mother*. The earth conceived as *mother* embodies the totality of life and welfare of creation. The earth is the repository of the divine with links between the present generation and past ancestors as well as between humans and non-humans. The earth as *mother* is *ad rem* with the understanding of the universe as an eco-system. The prefix *eco* is derived from the Greek word *oikos*, meaning 'house, home or hearth.' This notion of *oikos* does not refer to a merely physical structure of the dwelling, but rather to the relationship produced within a home.[36] Thus, an ecosystem is a community of diverse forms of life held together by a complex web

35. Catholic Bishops Conference of Nigeria, *Sustaining our Environment for Integral Human Development* (Lagos: Gazub Prints Ltd, 2011), 18.
36. Alicio Cáceres Aguirre, "Eco-theology: Epistemological Approaches," in *Eco-Theology*, eds. Elaine Wainwright, Luiz Carlos Susin and Felix Wilfred (London: SCM Press, 2009), 55-65, at 55.

of relations that exist between the living members of the community and its environment.[37]

In African cosmology, the earth conceived as *mother* is treated with reverence and protected from abusers in order to foster continuity in its sustaining role. The sacredness of creation was discernible in the protection of certain species of animals and the preservation of groves and streams.[38] The individual person was understood as a being in communion with other humans and connected within a complex interrelated web of life. Often, this interdependence between the human person and the cosmos is compared to a spider's web, which shivers in sympathy when a single strand is touched.[39] Emphasis on the interrelations that exist between humans and the earth inspired early African communities to respect, protect, and preserve their environment. The Ashanti of Ghana express this ecological interdependence thus, "Earth and dust, the dependable one, I lean upon you. Earth, when I am about to die, I lean upon you. Earth, when I am alive, I depend upon you."[40] Hence, human existence is dependent on the earth and fully realised by living in harmony with the rest of creation. Gas flaring degrades the earth, emits impurities which deface God's creation and creates disharmony in the ecosystem. Therefore, in the production of crude oil, political leaders in Africa should explore eco-sustainable means to foster healthy coexistence among all God's creature on earth.

The Integrity of Creation

From the foregoing, traditional African ecological wisdom is at par with Judeo-Christian ecological tradition. However, some scholars, like Lynn White, see the Christian creation narrative as a

37 Rob Clobus, *Environmental Care: A Possible Way to Restore God's Image to the Earth* (Eldoret: AMECEA, Gaba Publications, 1992), 8.
38. For instance, among the Kuku of Southern Sudan vegetation and forest were preserved as revered groves. Such religious practices enhanced the protection and maintenance of ecological balance. Samson Gitau, "Environmental Crisis: A Challenge to the Church in Africa," *African Ecclesial Review* 53, no. 2 (2011): 308-322, at 317.
39. See Bénézet Bujo, *Foundations of an African Ethics Beyond the Universal Claims of Western Morality* (New York: The Crossroad Publishing Company, 2001), 56.
40. Samson K. Gitua, *The Environmental Crisis: A Challenge for African Christian* (Nairobi: Acton Publishers, 2000), 33.

factor in the eco-crisis. They argue that biblical tradition fuelled the anthropocentrism, which regarded nature as lacking intrinsic value and that likewise promoted human domination over the earth. While a literal reading and application of the creation stories can be misleading, such arguments fail to understand the creation narratives using the appropriate hermeneutical and exegetical methods. In the creation stories (Genesis 1:1–2), the sacred scriptures proclaim the work of a good God and the goodness of creation. Creation is seen as a gift of God to humanity and humans as God's gift to creation. The priestly creation story teaches that the "Lord God took the man and put him in the Garden of Eden to *serve* and *guard* it" (Gen. 2:15).[41] This text captures the reality that creation is a gift of God to humanity and that humans are God's gift to creation. Simply put, human life and the earth are intrinsically connected. The African ecosystem can be described as God's garden providing humans with beauty, food, water, vegetation, crude oil and other natural resources. God, therefore, demands that Africans reciprocate this provision by caring for the earth. John Paul II notes:

> man has a specific responsibility towards the environment in which he lives, towards the creation which God has put at the service of his personal dignity, of his life, not only for the present but also for future generations. It is the ecological question – ranging from the preservation of the natural habitats of the different species of animals and of other forms of life to "human ecology" properly speaking which finds in the Bible clear and strong ethical direction, leading to a solution which respects the great good of life, of every life.[42]

Consequently, this relationship between the earth and humans as its servants ought to define the relationship between Africans and their ecosystem. Here Christians have the example of Jesus who came to serve rather than to be served and to give his

41. The Hebrew word *abad* can be translated as 'serve.' The Hebrew word *shamar* can be translated as 'take care of' or 'guard.'
42. John Paul II, *The Gospel of Life – Evangelium Vitae* (New York, NY: Random House, 1995), no. 42.

life a ransom for many (Matt.5:13-14). Ongoing gas flaring in Africa degrades the earth. The earth is God's gift to humanity and humans are God's gift to the earth. Humans are born of the earth, nourished by the earth, and healed by the earth. But what is humanity's responsibility to the earth? The biosphere and ecosphere provide humans with food, water, shelter and clothing. Through gas flaring, Africans have allowed their ecosystem to be plundered to the point of plant and animal extinction and to the irreplaceable loss of earth's integrity. But how are humans to serve creation?[43]

Solidarity with the Earth

Solidarity is a firm and preserving determination to commit oneself to the common good; that is to say to the good of all, because we are really responsible to and for all.[44] Solidarity fosters the use of earth resources for the good of all, and in a manner that recognises the interdependence between the human community and earth community. Benedict XVI asserts: "The goods of creation belong to humanity as a whole. Yet the current pace of environmental exploitation is seriously endangering the supply of certain natural resources not only for the present generation, but above all for generations yet to come."[45] Solidarity with the earth calls for a recognition of the natural interdependence between humans and their environment. Here solidarity must not be conceived as an anthropocentric primacy that excludes the intrinsic value of all life forms. Rather, solidarity embodies the reality that the cry of the earth community is inseparable from the cry of the human community and that the reverse holds true as well. The well-being of the human person is dependent on the well-being of the earth. Gas flaring contaminates the basic elements of human existence (air, water, vegetation), and this adversely impacts the entire well-being of humans and non-humans. Gas flaring in Africa creates a rupture within the biotic community (earth) where humans are both subjects and dependents.

43. Thomas Berry, "Evening Thoughts," *Earth Light* 39 (2000): 1-4, at 2.
44. John Paul II, *Sollicitudo Rei Socialis: On the Twentieth Anniversary of Populorum Progressio* (Ottawa: Canadian Conference of Catholic Bishops, 1988), no. 38.
45. Benedict XVI, "*If you want to Cultivate Peace, Protect Creation*," no. 7, http://www.vatican.va/holy_father/benedict_xvi/message/peace/documents/hf_ben-xvimes_20091208_xliii-world-day-peace_en.html (accessed 22.02.2014).

Socio-Pastoral Recommendations and Conclusion

Without doubt, gas flaring poses a threat to the well-being of Africans and African ecological systems. This was substantiated by drawing on the experience of some oil-producing countries in Africa. This article equally highlighted the eco-theological dynamics appropriate for the African context. Of course, these dynamics are not exhaustive but are meant to further open up discussions on the Christian responsibility towards the environment. Significantly, curbing gas flaring in Africa is an integral dimension of the Christian mission. Consequently, Christianity in Africa has a moral responsibility to protect and preserve the integrity of creation. This vocation insists that Christians cannot remain unconcerned while the environment is devastated by oil companies.

The Christian faith cannot remain an expression of religious piety that has no bearing to human socio-ecological context. Rather, it must express a religiosity that is translated into concrete actions which promote the integrity of creation. Christians must participate in promoting the ecological health of the environment and live in a way that enhances the well-being of creation. Theologians in Africa have a sacred duty to further deepen the eco-theological discourse by interfacing traditional African ecological wisdom *vis-a-vis* the Christian creation narratives. This requires a renewed eco-theological imagination and a correlation of traditional African values to tackle the myriad of ecological concerns in Africa.

The Catholic Justice, Development and Peace Commission has a social mission to engage oil companies in exploring alternative technologies for crude oil exploration that have the capacity to preserve the African ecosystem. The Catholic episcopal conferences in Africa have a duty to provide the needed direction for their respective countries. The Catholic bishops of oil-producing countries in Africa ought to form a forum to theologically reflect on how to adequately respond to the practice of gas flaring across the continent. Such an ecclesiastical body would serve as a pacesetter for all Christians in Africa on oil-

related issues. The Catholic Church and other Christian denominations in Africa should initiate a dialogical process that will pressure political leaders in Africa to enforce legislation which mandate zero gas flaring. Equally, such Christian collaboration must extend to include the various faith traditions in Africa.

In conclusion, Christianity in Africa cannot remain indifferent to the ongoing despoliation of the African ecosystem through the practice of gas flaring. Christianity must be an informed, consistent and committed voice for the earth in Africa. Christians cannot afford to bequeath an inhabitable ecosystem to the next generation. The ecological *kairos* to act is now.