AN INTROSPECTIVE DISCOURSE ON CERAMIC CULTURE AND ENVIRONMENTAL ISSUES: A WAKE UP CALL FOR NIGERIAN CERAMISTS

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Abstract
Over the years, there has been an increasing rate of environmental issues which have posed serious threat to nature and humanity. Some studies have testified that, there are certain cultural practices which put the earth and its inhabitants at risk. Ceramics, being an area that touches human society in multi-dimensional ways, there is need to analyze its practices that are inimical to life and nature. Not just in the processes involved in the creation of certain ceramic products, but also the effects of some ceramic by-products released to the environment. This paper therefore, looks at specific ways that ceramic practice can meaningfully contribute to reducing the environmental depletion/degradation as well as safe-guard natural environment. This is achieved by examining the relationship between ceramics and culture, as well as cultural practices that endanger the environment. Part of the recommendations is that, environmental Impact assessment should be carried out periodically to check the effects of existing ceramic industry, and develop strategic plans to address it.

Introduction
Environmental safety means ensuring that all necessary conditions supporting human existence for healthy living and preservation of nature are met. This includes keeping watch on human practices that can endanger not only the earth and its inhabitants, but also distorts the nature's order of sequence where natural resources are used up and replaced, without posing harm upon the environment. According to Bisong (2002) "all human life is supported by the resources of the biosphere". The term biosphere (which is synonymous to the word environment) is used to describe the whole area of Earth's surface, atmosphere, and sea that is inhabited by living things (Microsoft Encarta, 2009). Hence, the need to preserve the environment by adopting refined cultural practices of minimal or no danger to the environment is not just imperative but also timely. In responding to this issue of saving the biosphere, environmental scientists have made efforts to explain the interrelationship of constituent elements which co-exist and depend on one another for the benefit of the whole global life-system. Consequently, this has open-up a global campaign on the need to save the environment from all sorts of life-threatening hazards caused by various human activities that, if not addressed, might one day bring a catastrophic end to the world.

In dealing with this challenge, contemporary artists of diverse practicing backgrounds have attempted in their individual ways to reduce the harmful impact of wastes upon the environment. For example, Kunde (2011) on "The Art of Recycling Waste", discussed how artists, such as El-Anatsui ("Peak Project" 1998) uses bottle-tops and other metallic waste materials as a creative means of expression; Anthony S. Ekpe ("Trumpeter, 2009"), employs similar technique in his art expressions; as well as other European artists like Subodh Gupta ("Very Hungry God", 2006) and Michel Tuffery ("Pisupo Lau Afe", 2000).

According to Ukeles (2011), campaigns on environmental issues should not be left in the hands of environmentalists alone, but artists should also get involved. This, in a way, does not only justify the essence of this paper, but also expose, by describing, the crucial role that ceramic practitioners can play in solving environmental issues.

This paper, therefore presents an introspective discourse on ceramic culture by exploring ways that ceramic practice can meaningfully contribute to safer environment, especially by adopting better production practices that are less harmful to environment. Also, it discusses how some ceramic products can be used to creatively sensitize people, and promote safer environment. In order to address this, the paper first of all, analyzes the relationship between culture, ceramic and environment. It also highlight and discussed specific anti environmental (biospheric) cultural practices that are related to ceramic production, and ways that ceramic practice can help contribute to reducing environmental issues.

Ceramic Culture/Practice

In order to understand ceramic culture, it is important to define what culture is within the context of its usage in this paper. The term culture has been defined in various ways over the years, but one classic definition developed by E.B. Taylor is frequently cited. According to Taylor (1975), culture is "that complex whole which includes knowledge, beliefs, art, morals, law, custom, and any other capabilities and habits acquire by man as member of society". Bodley (2008), also supports this definition by stating that, a people's culture includes their beliefs, rules of behaviour, language, rituals, art, technology, style of dressing, ways of producing and cooking food, religion, and political and economic systems. This means that, every activity that human beings engaged into is directly or indirectly an aspect of culture. As such, the term culture is illusive in itself but more meaningful when attached to its constituents elements or products (Veltman, 1997). For example, language culture, dance culture, Tiv culture, music culture and so on. It is on this premise that the phrase "ceramic culture" is fashioned and applied in this paper.

Ceramic culture, therefore, involves all practices that have to do with the creation and use of ceramic products in a given society. On the other hand, ceramics practice can be described as an ancient human culture, which involves the making of earthen-wares and other products of value to mankind. The process of achieving its products also involves different stages and methods. These include unearthing of clay, processing the clay into usable quality by removing impurities, shaping of clay into desirable forms, drying the forms at given temperature, firing the products into terra-cotta, as well as a glazing to achieve a fine-finish coating of the end-product. All these, produce some degrees of negative impact upon the environment. While some of the effects can either manifest immediately, or within a short time, others take years to be noticed due to prolong obstruction of the ecological system. The question therefore is that, what does the term "environment" suggests, and what happens when the environment is adversely challenged by human activities? To arrive at a satisfying answer for these questions will require the understanding of the concept of environment and its related issues.

The Concept of Environment and its related issues

The concept of environment is described by Zimmerman (2009) as all the external factors influencing the life and activities of people, plants, and animals. It is also considered, by extension, as the natural world, especially when it is regarded as being at risk from the harmful influences of human activities**.** On the other hand, environmental issues are generally described as problems that have cross-boundary effect on human society. Examples of such issues are air, water, and land pollution; erosion, depletion of ozone layer, global warming, and so on. The effect of all these on the ecosystem, ranges from mild to grievous; sometimes, it tends to put the earth and its inhabitants at a high-risk of diverse catastrophic incidents. The growing need to control such incidence is what led to the United Nations Conference on Environment and Development (also called the Earth Summit), which was held in Rio de Janeiro, Brazil in June 1992. In the Summit, environmental representatives from One Hundred and Seventy Eight (178) countries, attended and discussed how the effect of

various anti-ecological practices can be managed. Apart from that, several studies have been published within the context of how people can be sensitized on the need to safe guard their environment by adopting cultural practices of minimal harm to the environment. For example, Mandel (2012), in an article titled "Saving Earth: An Environmental Ethical Perspective", exposes the dangers of various human practices and the inherent dangers that are hidden therein. The author's opinion was that, cultural/industrial practices relating to chemicals, that are harmful to the environment must conform to general standard to save the earth. Similarly, Beauliu (2013), while discussing the importance of greenhouse technology, outlined ways one can help save the earth. Also, Mintmagazine (2015) sponsored an Essay writing competition on "How to Help Save the Earth". These are few among many studies which could be seen as attempts to globally tackle the different issues of environmental safety, by sensitizing people of the world on the right cultural practices that impart negatively on the environment.

Above all, the significance of the Rio de Janeiro's event (Earth Summit) is that, environmental issues affect everybody on the globe and for it to be meaningfully addressed; it requires efforts of all stakeholders on the globe, including the ceramic sub-sector. Although, the impact of ceramic production activities of cottage pottery centers in Nigeria may not be initially drastic or noticeable within a short time, however, a long time result of these activities could have a cumulative effect on the environment.

Ceramic Production Practices that Endanger the Environment

Kiln-Firing: Every ceramic product must have to go through firing. Firing is usually done either through kilns or in open firing method. With advancement in technology, different kinds of kilns have been developed and used at different levels of the society, according to the economic strength of the potters/ceramists. These include Gas-kiln, Wood-kiln, Coal-kiln, Electric-kiln, and so on. Most kilns are built or designed according the size/volume of the ceramic product it can contain during firing. Also, the energy level required to power every kiln is designed in relation to its firing capacity.

Countries that have inadequate power supply have resorted to cheap energy source like coal to power their industrial kilns (Plate 1). The use of coal partly contributes to air pollution which is an increasingly serious environmental problem. In China for example, coal supplies about three-quarters of China's electricity. Previous studies have shown that, the process of burning coal produces carbon dioxide (CO_2), sulfur dioxide (SO_2), and other environmentally harmful emissions. Carbon dioxide, for instance, is a greenhouse gas that collects in the Earth's atmosphere and traps heat. On the other hand, atmospheric moisture when mixed with sulfur dioxide, forms acid rain which precipitates to the earth, damaging crops, forests, and streams.

Cutting of wood for Traditional ceramic Firing: Recent studies conducted by ceramic researchers, such as Ada (2005), Bakinde (2007), and Aero (2011) indicate that, traditional pottery is still practiced in most Nigerian communities. In most (if not all) local pottery centers where traditional practice still exists, the major source of energy for firing ceramic works is wood. This is done either by open firing method, or by using crude-kilns that largely depend on wood as their source of energy. Ojie and Ogede (2007), and Ali (2011), reveals that, the use of wood as fuel as a paramount means of firing by traditional potters (Plate 2).

This implies that, tons of wood are consumed yearly, for firing purpose. According to Steinberg (2009), the falling of trees for such purposes has contributed in no small measure to deforestation. Kricher (1997) describes deforestation as the cutting, clearing, and removal of rainforest or related ecosystems into less bio-diverse ecosystems such as pasture, cropland, or plantations. On the other hand, deforestation is among the major causes of erosion as it exposes the top-soil for agents of environmental degradation like rain and wind to set in. The issue of deforestation in most traditional Nigerian communities is that, trees are indiscriminately cut-down either for farming or fuel, without planting new ones. The picture below is an example of a local wood kiln used by some Nigerian ceramists in firing pottery wares (Plate 3).

Earth Depletion: In big ceramic industries, a large quantity of earth (clay) is constantly being removed for the purpose of producing various ceramic wares and other industrial products such as sanitary wares, floor and wall tiles, electrical insulators, and so on. This usually creates a deep land ditches that later constitutes to other problems in the environment. Studies have shown that, continuous removal of earth does not only distort the ecological system, but also contributes to dangers of land slide to that environment. Landslide, if severe, could bury farm lands, claim roads, and in some cases, it could render major infrastructure/facilities that serve the communities on various needs useless (Plate 4).

Use of poisonous chemicals in producing ceramic wares: certain ceramic wares which are glazed with poisonous chemical also constitute environmental hazard to users' health. For example, Aluya (2009) mentions in a stakeholder forum, in Apapa Lagos that, "about 50 containers of ceramic products, come into the country daily, and some of the ceramic tableware imported from China, may not be safe for human health". This statement is further corroborated by Oluwasina (2009) who states that, "there is need for real caution, to avert producing wares that are glazed with poisonous materials, such as lead, galena and borax". According to the author, "such materials are used as fluxes, but they are dangerous to health". The implication of this statement is that, inappropriate disposal of by-products from such chemicals could lead to contamination of the environment. Asides from that, Nigerian ceramic industry needs to review its importation policies to prevent the influx of unsafe ceramic wares in the environment. On the other hand, indigenous existing ceramic firms of either small or medium scale should be supported to advance in the production of ceramic wares that would be environmentally safe for Nigerian users. This will boost, not only the structural repositioning of ceramics industry in Nigeria, it will also contribute in helping local ceramic industry towards meeting up both the domestic and export demands.

The Reality of Nigerian Ceramic industries

At the moment the Nigerian ceramic industry has not grown to the extent of having such a huge effect on the environment. That does not rule out the fact that, the effect of the current ones, no matter how few they may be, is not contributing to the global environmental issues. Hence, there is need, therefore, to take absolute pre-cautions, not only to institute but also to sustainably entrench ceramic production practices that are safer for the generality of Nigerian environment. This is because; issues relating to environment do not respect human boundaries. For example, air pollution in one place can affect life, miles away from its point of emission. Also, environmental impact assessment which produces a written statement on the environmental effect of an existing or proposed factory or industry are often not undertaken before locating an industry in Nigeria. This makes it difficult for most company owners, and the people within the host-community, to know whether or not, the by-products of their industrial chemicals have environmental consequences. Even when they know, most are unwilling to respond appropriately to such issues as it is desirous of the situations.

On the other hand, various cost effective ceramic firing experiments are being carried out by local Nigerian ceramists to enhance their practice and boost production/business fortunes. These have led to the development of fabricated burners which used different kinds of petroleum derived oils to support ceramic firing activities. Eweke (2009), Omoraka and Akinbogun (2009), as well as Sadiq and Munai (2007) are few examples of published materials that make reference to such experiments. While these experiments are necessary, it is also important that environmental factors are considered. It is in this context that Echeta's (2009) view is relevant. According to the author, studies on fuel-saving strategies in kiln-firing should not be completely based on cost-effectiveness alone, but also take into consideration the environmental issue. This is because, "The biosphere, of which clay is a component, is a natural resource which deserves to be handled in a sustainable manner".

Summary/Conclusion

This study discusses relevant environmental issues that are directly or indirectly linked to ceramic practice. In achieving this, it explains ceramic culture, as well as discusses ceramic

practices that have negative effects on the ecological system. Hence, methods of producing ceramic wares/products like using coal as energy source for firing of ceramics, excessive/indiscriminate cutting down of trees for fuel by local pottery workers, as well as, the use of poisonous chemicals in glazing of household ceramic wares, were identified as some of the practices that Nigerian ceramists must be watchful of. Also, lack of periodic reports on environmental impact assessment, which usually indicate the progressive state or condition of an area over a period of time (particularly the extent to which it is being affected by human activities), is identified to have contributed to the people's ignorance on the environmental effects of most ceramic practices.

In conclusion, it is important to note that, the resultant effects of some of these practices are air pollution leading to depletion of ozone layer, acid rain, global warming; deforestation leading erosion, release of chemicals to the land and water causing obstruction of the eco-system, and direct or indirect exposure to harmful chemicals used for glazing ceramic wares. Most of these issues mentioned, sometimes take a longer period of time to manifest and their effect could be mild or colossal, depending on the prevailing situation. Actions, therefore, need to be taken by contemporary ceramic practitioners, to contribute in their own little way towards helping to address environmental issues using their profession.

Recommendations

Sensitization campaigns on environmentally safe methods of ceramic production should be taken to local potters in remote Nigerian towns/villages where traditional pottery is known to still practice. This will help to reducing the falling of trees for fuel purposes, which is used for open-firing method.

Ceramist practitioners should try to acquire and install ceramic machines and other equipments that have low or no effect on the environment. For example, the use of electric or solar kilns will help drastically in reducing the emission of obnoxious gases into the atmosphere which cause harm to the eco-system.

Environmental Impact assessment should be carried out periodically to check the effects of existing ceramic industry, and develop strategic plans to address it. This can also be done before the siting (location) of new ones, particularly when it is found to be affecting the people in the communities where they are to be sited.

Land deeps created as a result of prolong removal of earth (clay) should be converted to other uses for effective support of the eco-system. Dajo pottery Limited, for example, has converted some of its deeps into fish-ponds. This will help in strengthening the eco-system of the environment and over time restore the lost elements of the soil used.

Plate 1: A scenario of carbon dioxide release into the atmosphere due to industrial coal firing process of Ceramic wares

Plate 2: Open firing process of Ceramic wares by traditional potters

Plate 3: A local ceramic kiln that uses wood in firing of Ceramic wares by traditional potters

Plate 4: Devastating effect of Land slide

References

Ada, O. P. (2005), "The Use of Pottery Works in Western Idoma of Benue State: Problems and Prospects as a Vacation", Ashakwu-Journal of Ceramics", Vol. 2. No. 1 (June), p 64-72.

Ali, V. E. (2011), "Towards sustainable Development of Traditional Pottery Industry in Igbo of South-Eastern Nigeria", Ashakwu-Journal of Ceramics", Vol. 8, (June, 2011), pp 1-8

Aluya, J. (2009), "Harnessing Nigeria's ceramic resources", http://www.punchng.com, retrieved on the 22/08/2014, 07:05pm

Areo, A. B. and Areo, M. O. (2011) "Marketing Strategy Application by Nigerian Traditional Pottery", In: Ashakwu-Journal of Ceramics", Vol. 8, (June, 2011), pp 20-28

Bakinde, C. O. (2007) "Traditional Pottery as Channel in Group Identity", Ashakwu-Journal of Ceramics", Vol. 4, No. 1 (June, 2007), Pp 40-46.

Beaulieu, D. (2013) It's easy being green: Six ways your parish can help save the earth http://salt.claretianpubs.org/issues/envir/beaulieu.html

Bisong, F. (2001) "National Resource System for Sustainable Rural Development" ; National Resource Use and Conservation System for Rural Development. Francis Bisong Ed. Calabar Baaj, Nigeria.

Bodley, J. H. (2008) "Culture." Microsoft Encarta 2009 [DVD]. Redmond, WA: Microsoft Corporation.

Clunas, C., Pannell, C.W., Ebrey, P., Nathan, A.P, and Yang, T. (2009), "China", Microsoft Encarta 2009 [DVD], Redmond, WA: Microsoft Corporation, 2008.

Echeta, C. (2009) "Bagwalling and Thermal Possibilities: Some Fuel-Saving Strategies in Kiln-Firing", CPAN Journal of Ceramics Nos. 2 & 3, pp 3-10.

Eweke, K.J. (2009), "Fabrication of Waste Engine Oil Burner: Trends and Challenges in Nigerian Pottery Ceramic Firing", In: Ashakwu-Journal of Ceramics", Vol. 6, (June, 2009), pp 48-56.

Kricher, J. (1997). "Deforestation", A Neotropical Companion: An introduction to the animals, plants, & ecosystems of the New World Tropics. New Jersey: Princeton University Press. http://kids.mongabay.com

Kunde, T. M. (2011), "The Art of Recycling Waste", Art in Disguise (Art in Disguise is a blogspot that seeks to define the meaning/role of art in relevant social issues of critical concern to the progress of mankind), http://art-in-disguise.blogspot.com Retrieved on 01/09/2015, 08:52am.

Mandal, V. S. (2012) "Saving Earth: An Environmental Ethical Perspective" posted by Pankoj Kanti Sarka,
http://www.academia.edu/1565612/Saving_Earth_An_Environmental_Ethical_Perspective

Microsoft Encarta, (2009), "Biosphere", Microsoft [DVD]. Redmond, WA: Microsoft Corporation.

Mintmagazine (2015) "How to help save the earth Essay", Mintmagazine.com , http://mintmagazine.com/index.php/2015/08/6335-how-to-help-save-the-earth-essay, Retrieved on the 28/08/2015, at 09:12pm

Ojie, G. N. and Egede, S. E. (2007) "An Empirical Study of the Artistry of Amai Potters", Ashakwu-Journal of Ceramics", Vol. 4, No. 1 (June, 2007), Pp.60-71.

Oluwasina, E. O. (2009) “Toxic Kitchen Ware: General Notes and Suggestions”, CPAN: Journal of Ceramics, Nos. 2 & 3, p.44

Omoraka, A. E. and Akinbogun, T. L. (2009) “Evaluation and Production of Atmospheric Gas Burners for Ceramic Firing”, Ashakwu-Journal of Ceramics”, Vol. 6 (June), p 57-64.

Sadiq, Y.O. and Munai, D.M. (2007) “Hazards of Kerosene Firing in Learning Process” Ashakwu-Journal of Ceramics”, Vol. 4, (June, 2007), pp 99-103.

Steinberg, D. J. (2009) "Deforestation”, Republic of the Philippines. Microsoft Encarta 2009 [DVD]. Redmond, WA: Microsoft Corporation, 2008

Taylor, E. B. in Hebbding, D. E. and Glick, L. (1975), “Introduction to Sociology”, Addisoh Wesley, Chicago, United States of America, p. 56

Ukeles, M. L. (2011) “Artists & Environmental Changes: The Elusive Power”, http://www.artesmagazine.com/2011/10/artists-environmental-change-the-elusive-power-of-contemporary-art/ 14 Oct 2011, Retrieved on the 02/09/2015, 09:42, pm

Veltman, K. H. (1997) “Why Culture is Important in a World of New Technologies”, Sydney Panel on Cultural Ecology, 28th Annual Conference: International Institute of Communications Conference, Regency Hotel, Sydney.

Zimmerman, M. (2009) "Environment", Microsoft Encarta 2009 [DVD], Redmond, WA: Microsoft Corporation, 2008