

Original Paper

Climate Change, Female Domestic Practices, and Environmental Education Models

Bolatumi Oyegoke^{1*}

¹ Faculty of Education, BA ISAGO University, Gaborone Botswana

* Bolatumi Oyegoke, Faculty of Education, BA ISAGO University, Gaborone Botswana

Received: August 8, 2020

Accepted: August 25, 2020

Online Published: August 30, 2020

doi:10.22158/se.v5n3p76

URL: <http://dx.doi.org/10.22158/se.v5n3p76>

Abstract

This paper focuses on a significant aspect of the topical issue of Sustainable Environmental Development (SED), that of waste management by women. Waste Management (WM) is closely linked to Climate Change (CC). Women agency is an important factor in both WM and CC which have implications for SED. Awareness or perception has been identified as a crucial ecological driver; so awareness, waste management and climate change become crucial issues of SED. The study is of a qualitative type, part of a wider investigation of Osun State, Nigeria, using a mixed approach that includes the quantitative method. It examines the role of awareness in relation to domestic practices that impact on the environment. It advances the benefit of complementary contributions of behavioural change, personal change and social change models of environmental education in resolving SED challenges of our times.

Keywords

awareness, complementary, ecological, waste management, sustainable environmental development

1. Introduction

This study on women civil servants' environmental awareness (knowledge) and perception (understanding) of waste management and its impact on the environment took place in Osun State, Nigeria. It explored the lived experiences, perceptions and opinions of women civil servants residing in this State about their waste management practices and the impact on the environment. Following is a brief description of Osun State which is located in the southwest of Nigeria: the description outlines the context within which the focus of the study, namely, waste management, is practiced.

1.2 Nigerian Space

The condition of the physical environment in Nigeria particularly with regard to waste management has been the focus of research and environmental interest in recent years. Some major cities and towns in the country, for example, Lagos, Ibadan, Osogbo, Warri, Sapele, Benin City, Onitsha, Asaba, Enugu, Aba, Port Harcourt, Kaduna, Kano, and Abuja, were characterized by streets strewn with litter and roadsides dumped with heaps of domestic or factory waste poorly disposed of and abandoned at both officially designated and undesignated points. The street garbage could accumulate to an extent that pedestrians and vehicles are involved in a struggle for access as they plod and meander through the heaps of waste products sitting on the earth and tarred municipal roads. On the rare occasion of the provision of waste containers at mostly irregular intervals, these are overfilled through abandonment and the overfill spills over unto the roads and drains at the roadside. The waste products overflow into the drainage systems to block the flow of water in a rainstorm which further disperses the waste and aggravates the environmental condition in other ways.

Public places like the open markets and residential areas are locations which bear evidence of poorly disposed solid, liquid and gaseous waste materials. Much of the waste items found at the roadsides were mostly generated within and around households the result of domestic activities engaged in by women who are more in number than men and who are the ones mostly involved in activities connected to the general upkeep of the homes, such as feeding and cleaning, which result in domestic waste as a byproduct. Households in the cities and towns have the practice of packing waste in plastic bags and dumping them at the roadside in expectation of their removal by official municipal arrangement to collect and transport the waste to official waste dumps assigned for this purpose.

When the official waste removal process fails to pass through such roads for weeks, sometimes months, cats, dogs, goats and other domestic animals tear open the bags and scatter the litter all over the streets even before the rainstorms disperse the rest of the garbage. During rainfall the waste materials find their way into the drainages to block them and convert them into breeding places for harmful insects like malaria causing mosquitoes, and rodents such as rats (some of which are vendors of lassa fever causing viruses in some parts of the country). Improper waste storage, waste collection, and disposal of waste materials, poses a major threat to the general environmental health of the people, the livestock, and the habitat (Yoda, Chirawurah, & Adongo, 2014, para. 1).

1.1.2 Economic Situation

The country operates a mono-economic system that depends largely on the commercial production and exportation of crude oil. The capitalist exploration, extraction, and shipment of crude oil by multinational companies involving crude oil-spillage and natural gas flaring results in environmental damage which destroys vegetation in the riverine parts of south-south and south-east of the country (the country's crude oil and natural gas deposits are mostly offshore). Gas flaring and oil spillage pollute the entire components of the physical environment; water, air and soil systems. Potable water sources become contaminated, marine life is destroyed, animal and avian life is destroyed by the fires when the

gas-flaring spills to the rain forest undergrowth and, in its wake, consumes the rain forest hardwood such as iroko, teak, and mahogany as well.

The environmentally harmful capitalist activities of the multinational companies of flaring gaseous waste product into the atmosphere apart, several other human activities result in the generation of waste products in one form or another. The situation is made worse by the rather primitive economy operative in the country where each adult fends for his own survival with negligible official social support; many routine activities engaged in by the people for survival lead to high levels of waste generation. Assorted cooked food items in various stages of exposure are readily accessible to buyers, traded mainly by child food hawkers at the roadsides while the adults (women) do the cooking. The processing of the food items from the raw materials usually involves fuelling with firewood, from tree-felling, which process generates a considerable amount of waste products in different forms: smoke, carbon dioxide, wood ash. Non-biodegradable disposable plastic bags and paper have replaced leaves from natural plants as wrapping materials—the norm not too long ago in the country—for the hawked roadside food items. Once the contents have been eaten the wrappings are thrown away and discarded indiscriminately defacing the environment and compounding urban municipal waste management problems (Babalola et al., 2012)

1.1.3 Demographic Characteristics

Urban population density is another factor worth mentioning. Most of the cities and towns are indwelt by millions of people because the country is the most populous and ethnically diverse country in Africa. High population density and the general characteristics of the population are factors that impact waste management and environmental pollution and environmental sustainability. Demographic characteristics such as level and type of education, family size, occupation, age (of children) affect the domestic practices of the people (Yeshalem, 2013, p. 2).

1.1.4 Waste Management Impact on Public Health

The condition of the environment with regard to waste storage, waste collection and disposal in Osun State is of research interest. Environmental degradation involving massive deterioration of natural resources—air, water and soil, is easily observable in many parts of the State. The air, water and soil are heavily polluted with all manner of pollutants. Eroded soil forming gullies is evident around homes, on the streets, and even in the middle of the weathered tarred roads. The streets are filled with all forms of waste products. Many households are surrounded by landfills, smoke from cooking with firewood, paraffin stoves and saw dust (waste materials from processing felled trees) fill the air. Other constituents of foul odour in the air include emitted gases from landfills, overflow waste disposal drums around homes, decomposed waste in roadside drainages. The drainages form breeding grounds for malaria peddling mosquitoes and other health challenging rodents common along the streets and in homes in the State.

1.1.5 Domestic Practices by Women

Osun State female civil servants are involved in cooking, using all sorts of fire-making means that emit different substances into the atmosphere. These sources of energy for cooking include wood, charcoal, kerosene, dung, plant leaves, wastes (both safe and hazardous) and cooking gas (Barau, 2005). They are also involved in the management of waste through domestic activities; these women use and dispose of different containers, tins, plastic bags papers etc., that are degradable and non-degradable (Mbalisi & Ugwu, 2012). Within their schedules is also the fetching, conservation and management of water (Babalola et al., 2010). Some of these female civil servants also drive various types of cars (Babalola et al., 2010). They carry out a number of service oriented activities such as vending around their houses or premises (Ako-Nai et al., 2010, p. 3). All of these activities generate waste and contribute to environmental degradation in the State

1.1.6 Background to Study

Contaminants and pollutants in the form of emissions and waste products have had the effect of altering the environment in some important ways such as climate change—which has become a topical issue at various levels, governmental and non-governmental. The topicality is a positive development because many people do not realize that there is a close connection between WM and CC.

Global warming involving extremity of weather manifestations, including cold spells, is associated with a pattern of conditions that has kept temperatures rising and staying up at an alarming rate including in many parts of the planet that are traditionally associated with cold weather conditions. While some countries experience unpredictable rainfall patterns, high temperature, and drought, many others suffer from too much rainfall, severe and destructive wind and rain storms, the melting of glaciers and an alarming rise in sea-level leading to hazardous flooding (Grossmann & Patt, 2005).

Closely related to the issue of climate change is that of damage to the ozone cover over planet earth. As many scholars have pointed out, when the ozone layer overhead is depleted, human beings are exposed to direct Ultraviolet (UV) radiation (Amcamp & Bjorn, 2010). Overexposure to UV radiation is harmful and may cause sunburn; it can also lead to skin cancer. The condition may also lead to poor eyesight or severe loss of vision (Amcamp & Boom, 2010). This particular aspect of environmental damage is a result of the twin action of overharvesting of natural resources and releasing of harmful industrial by-products into the atmosphere; also the loss of much of the green forest belt, for example, and its beneficial capacity to use up unbeneficial gases such as carbon dioxide on the one hand while on the other hand releasing oxygen into the atmosphere.

Environmental pollution is a major problem of modern times. Pollution is the spilling or spreading of pollutants either in small parts or in large parts on the environment, either deliberately or inadvertently, with scant attention to the potential hazard to animal and plant life. Pollutants may take the form of chemical substance or that of energy such as noise, heat, light; or they may result from mismanagement or poor handling of natural elements associated with human beings and livestock. Some examples of pollutants that may constitute an environmental hazard include industrial waste, commercial waste,

domestic waste, carbon dioxide emitted by motor vehicles that run on fossil fuels, products of poor agricultural practices. In whichever form it occurs, pollution can seriously harm human beings, plants, and animals, and aquatic life. Globally, millions of tons of waste are generated daily, and it poses a major threat to the health of the environment when not properly stored, collected and disposed of (Yoada, Chirawurah, & Adongo, 2014). Pollution adds negatively to the environment and it takes away what is positive and useful from the fragile ecosystem and renders the part of the earth unfit for purposeful use (Amcamp & Bjorn, 2010).

2. Method

2.1 Procedural Assumptions

This study was undertaken against a background of a number of assumptions: These assumptions are outlined as follows: 1) humans have done much over time to exploit and in the process devalue the ability of the earth to yield natural (undoctored) benefits to human beings and other co-inhabitants of planet earth; 2) that both men and women have been implicated in the process of inflicting environmental abuse; 3) that crass materialism has been a dominant factor and motivation for the despoliation of the environment; 4) that some form of ignorance has in some respects also been a culprit in the process of damaging the environment; 5) that the incidence of the major factors responsible for environmental damage has varied from place to place, culture to culture, ethnic group to ethnic group, and from (economic) class to class.

2.1.1 Physical Environment

Firstly, the physical environment has been over exploited. As a result of overuse of natural resources and negative environmental human actions such as poor waste management practices the earth has been faced with environmental challenges such as drought, hailstorms, excessive heat and misplaced and mistimed rainy seasons are evident. These environmental conditions tend to be characterized by disruptive and sometimes destructive effects on human and wild animal and livestock life. In many countries of Africa, industrial pollution of the environment by big and small industries alike continues unabated because of the absence of laws or the will to enforce some control; where there are laws to control damaging environmental practices corruption may undermine an effective implementation of the regulations. Comparatively, Botswana is one African country that has had more success with advocacy and conservation than others in the continent in enforcing measures which are beneficial to the environment.

Secondly, both men and women are implicated in the process of inflicting environmental abuse. The man and the woman both play crucial roles in every community. In Osun State as in the biblical Garden of Eden, the woman is an active agent of environmental engagement and change, while the man might be somewhat passively involved except when there is some specific gain from the effort, some financial or commercial motivation. Osun State is patriarchal. Women tend to get the wrong end of the stick in a patriarchal society such as is being studied. Women engage in several roles in the homes and

are also custodians of the environment. Women's role as the primary care-giver to the family involves providing food for the family in the face of available meagre resources in many instances. The "woman" as wife, mother, and unpaid worker suffers exploitation in many ways, and while performing these roles, she generates a lot of waste materials that are poorly managed.

The female civil servant in Osun State is not exempted in any of the roles performed by any other woman in the State that generates waste materials. Even in instances where the man spends lesser hours at place of work or earns lesser income than the woman, the woman is responsible for cooking, cleaning and backyard gardening. They sometimes rear domestic animals and do school runs with their cars. The man and other members of the family benefit from the role of the women as the primary care giver but the woman takes responsibility for whatever damage it inflicts on the environment.

Thirdly, crass materialism is a dominant factor and motivation for relentless despoliation of the environment. Environmental studies have concentrated on the impact of the so-called industrial revolutions on the environment since the 1700s up to now (Elliot, 2014; Ensenwein, 2010; Schwab, 2016). The field of study has drawn attention to how new knowledge and new skills have been enlisted by humans to unleash more devastating exploitation of the planet with unsavory consequences on the environment. One can admit that the industrial revolutions have been accompanied by many material comforts. It can also be argued, as is shown in studies (Oxfam, 2015) that the industrial revolutions and a lot of other human activities emanating from them are complicit in compromising SED locally and globally. The high levels of material accumulation and consumption are in many ways tantamount to borrowing from the future.

Moreover, the distribution of material comforts and pleasures procurable by capitalist acquisition is skewed demographically: more than 90% of the world's wealth is said to be concentrated in the hands of the richest 1% of humans. This class of people is predictably mostly from the global North (Oxfam, 2015) while one half of the world's poorest people live in five economic South countries of Nigeria, India, Democratic Republic of the Congo, Ethiopia and Bangladesh.

Fourthly, some form of ignorance has in certain respects been a culprit in the process of damaging the environment. "Awareness" refers to formal and informal emotional, instinctual and cognitive acquaintanceship with past, present and prospective geo-physical conditions of the locale of the home(s). Awareness of waste management can be acquired formally, informally or no formally by an individual. Awareness of environmental issues possessed by civil servants could have been formal considering the fact that a civil servant is categorized as having some form of formal education and so should be aware of good waste management practices or the impact of poor waste management practices on the environment.

Fifthly, the incidence of the major factors responsible for environmental damage has varied from place to place, culture to culture, ethnic group to ethnic group, and from (economic) class to class. The physical environment of weather conditions, vegetation and topography vary from place to place (Reily, 2010; Babalola, Babalola, & Okhile, 2010, p. 4). Osun State has a variable landscape stretching from

green forest through Savannah to derived Savannah. The domestic practices that generate waste—which are similar or dissimilar from place to place—of concern to this study impact consequences on the environment in variable ways. The domestic practices, in particular waste generation and management, are also influenced by demographic characteristics of the family as earlier stated.

In the last one and half decades Osun State has been experiencing unpredictable rainfall patterns with unprecedented high levels of rainfall that have claimed lives (Babalola et al., 2010). Many families were rendered homeless by severe rainstorms which have become more common in the State than before. Real life consequences of these environmental conditions have included low yield per hectare, poverty, unemployment and poor health conditions, the net effect of these factors in the global environment is a threat to availability and conservation of potable water, food security and public health (Abbas & Singh, 2014).

In sum, female civil servants in Osun State possess some form of environmental education. The education that they have should enable them engage in good waste management practices. There may be among the women some lapses in perception of aspects of proper waste management as well as ignorance of the potential impact of poor waste management. Therefore, this study explores sources of awareness of environmental knowledge or the lack among female civil servants and the impact of waste management practices. Eclectic theoretical framework enabled the study to establish the content, purpose and appropriate process for effective and efficient environmental education to solve environmental challenges.

2.1.2 Global Warming

Unpleasant environmental conditions and their consequences are experienced in many parts of the world including Nigeria. Poor waste management practices cause waste to decompose producing methane as a byproduct of the decomposing process. Methane is a greenhouse gas which is second to carbon dioxide in its contribution to global warming. Global warming or climate change manifests in increasing high temperatures, extreme cold, wind and rain storms, enormous soil erosion, damaging flood, perennial drought, and other freak weather conditions. Volatile and unreliable climatic patterns have threatened to become the norm almost everywhere (Barr, 2003). There is the gloomy forecast about heat on the earth's surface with temperatures rising by 2 degrees Celsius within one and a half decades counting from 2010 (Africa Partnership Support, 2007; Northrop & Ross, 2016) and that in this period, the earth may experience sulphur rain (Hawking, 2017).

These harsh environmental conditions resulting from global warming are attributable to a diversity of causative factors, not excluding the activities of multinationals/industries, national governments, and harmful human activities (Ogunbode & Arnold, 2012). But Osun State is not a major industrial setting, being mainly agrarian. Yet, it has not been spared the experience of unpredictable rainfall patterns and weather conditions resulting in unprecedented high levels of floodwater that have been destroying life and property in recent times (Mbalisi & Ugwu, 2012).

Osun State is not an industrialized State, the immediate suspected causes of recent environment degradation in Osun State are not industrial activities per se but factors linked to the domestic activities of women and unregulated deforestation. The choice of female civil servants as the targeted population for the study is justified by such factors as women being more populous than men, and women being the main agents of domestic practices in the (State Ako-Nai, Ologunde, & Adekola, 2010). Also, the women being civil servants seem positioned to contribute to policy formulation and implementation concerning waste management in the State. Moreover, women in their role as usually care takers of the family engage in domestic practices such as cooking, waste disposal, livestock rearing as well as income generating activities such as roasting of plantain, maize, yams, etc., for hawking). These activities generate a huge amount of waste which have been identified as being able to negatively impact the environment (Abbas, 2014). Furthermore, the level of understanding of these female civil servants in regard to environmental issues affects the promotion of environmental awareness and good condition of the environment.

The investigation of these “frontline” factors as a way of unraveling the possible causes of recent severe environmental experiences in Osun State is of importance because failure to do so would aggravate the cumulative profile of unfavourable environmental conditions in the State. While it could be expected that female civil servants would be more educated towards waste management and its impact on the environment than those who are not educated, study of the State indicates that the employed and unemployed female residents are not much different in their waste management practices. They dispose of waste in landfills, overflow drums, or burn the waste. Waste from these practices is hazardous to human health and emits greenhouse gases which contribute to climate change. A study that explores awareness issues relating to waste management and perceptions of the impact of poor waste management in the lives of the affected people is there relevant.

3. Result

3.1 Purpose of Study

The main purpose of this study is to explore the female civil servants’ level of awareness and perception of waste management and its impacts on the environment. The study examines varieties of knowledge and the sources of information acquired by the women in respect of the environment, and evaluates the perception or understanding by the women of the problem of waste management in relation to the environment and the issue of environmental sustainability in the State.

3.1.1 Research Objectives

The primary objective of this research is to examine the environmental awareness or knowledge of women civil servants in Osun State and assess the level of their perception or understanding of the impact of their waste management practices on the environment. Secondary objectives of the study include: 1). Explored the opinion of Osun State female civil servants about the condition of the environment. 2). Investigated practices of Osun State female civil servants that generate waste within

the community. 3). Found out waste management practices by female civil servants within communities in the State. 4). Explored sources of environmental knowledge possessed by female civil servants in the State. 5). Investigated the opinion of women on ways and means of improving waste management within communities in Osun State. 6). Explored which factors—religious, economic, social and institutional—affected waste management practices in the community.

3.1.2 Rationale of the Study

This study evaluated female civil servants' environmental awareness and perceptions of the impact of their waste management practices on the environment. Osun State provides an interesting setting for the study because of the peculiarity of the State in certain respects. For one reason, the environment has been highly degraded just like in many other parts of the country. More generally, environmental issues have been a major concern of environmentalists, government authorities at the local, national and regional levels over in recent times.

The study focused on civil servants in the State. This group of people possessed some formal education somewhat related to the environment but experience and observation showed that their waste management practices were not much different from those by others within the community. Also, civil servants in the State, though gainfully employed, were poorly paid or would not get paid for several months, and so could be worse off than the artisans and the unemployed in some respects. Another reason was that the civil servants among the women were a dynamic group worthy of research attention because of their position in the administrative structures and their potential to affect policy making and implementation. At the time of conducting the study there was no evidence from literature to show that any such study with a similar focus had been conducted in the State.

3.1.3 Environmental Education Framework

The conceptual frameworks for supporting the processes for creating environmental awareness would vary according to whether the process is formal or informal, whether the setting is Africa or elsewhere, and whether the subject or agency is woman or man, educated or uneducated. Mappin and Johnson (2005) state: "Thus, the distinction between education and advocacy in environmental education is much more complex than simply distinguishing between definitions and developing standards. The distinction must place the educational and public debates within the context of changing perspectives and content of environmental education" (p. 7).

3.1.4 Behavioural Change

Firstly, the issue of awareness may be approached from the perspective of environmental education as behavioural change involving environmental education through environmental citizenship in a way that brings about responsible environmental behaviour or environmental literacy. This theoretical approach is traceable to the 1970s and became dominant in the 1980s and 1990s. Quoting Disinger and Roth (1992) Johnson and Mappin (2005) explain that: "The environmental literacy framework focused on building a 'capacity to perceive and interpret the relative health of environmental systems and to take appropriate action to maintain, restore, or improve the health of those systems'" (p. 11). The model has,

however, been criticized for not giving sufficient attention to the aesthetic or spiritual aspects of environmental education and being unable to help a person learn how they think, feel, or how to extract meaning from the environment, and, moreover, that it is fixated on individual behavioural change to the exclusion of political and collective dimensions of environmental issues. There is also the difficulty that may come from conflict between action as an outcome of the model and the knowledge or skill that brings about the action but is itself subject to change according to changing environmental factors and perspectives (for example, the variable meanings of ecological content) and, as a result, potential conflict between advocacy and education.

3.1.5 Personal Change

Secondly, environmental education as personal change which is an “alternative approach to increasing environmental responsibility is to focus on developing and nurturing people’s understanding of their personal motivations or attitudes that guide their decisions. A central premise of this perspective is that social reality exists as people experience it and give meaning to it; reality is individually ‘constructed, multiple and holistic’” (p. 14). Ecological education which is an aspect of this model seeks to find concrete symbols for abstract concepts of the environment. Another feature of the model is deep ecology which has its roots in natural philosophy and popular literature, the “intention of this approach is to help individuals develop new perceptions of ecological consciousness, ecological self and life philosophy to help guide everyday living ... Activities within this approach seek to develop ecological consciousness by reawakening connections with the natural world. As such, the approach relies on not only ecology but also literary works and spiritualism” (p. 15). Another approach is bioregionalism which promotes ecoliteracy, ecological thinking, and place-based education; it “seeks to reconnect individuals with their local natural and cultural environments” in a play of relationships and natural laws “supported by indigenous or traditional knowledge and cultural norms of the region” (p. 15). The approach is criticized for placing personal transformation too much above social change that is a necessary catalyst for meaningful social and environmental transformation that is sustainable, and that it can lapse into indoctrination, relativism, mysticism, and holistic science (complex interwoven relationships, interdependencies, connections involving several disciplines such as psychology, spirituality, theology, ancient wisdoms plus ecological principles of cycles, balance, homeostasis, stability, resilience, complexity, and diversity) which it presumes has outpaced science in currency (p. 17).

3.1.6 Social Change

Thirdly, environmental education as social change which emerged during the 1990s is “based on critical social theory that argues that environmental problems are rooted in social, economic, and political systems and the worldviews that support those systems” (p. 17). For this model, environmental education is more than ecology, behavioural change, or interpretation of nature; it is more about changing social values and systems in order to achieve sustainability and social justice. As a curriculum, its wide all-encompassing practicality in terms of social mobilization for change may only make it fit

more a higher level of formal education setting than others (higher than high school education, for instance) while making it suitable for an informal education setting for the same reason. Its ultimate goal is social change for environmental sustainability; this position may place it in an awkward relationship with science which is sometimes viewed as contributing to environmental degradation. It is also criticized for its value-laden assumptions. Still, while acknowledging the complementarity of all three models, despite the short-comings observed of each, environmental education for social change seems appropriate for the setting: Osun State, and subject: the women, of this research. From the point of view of the model, the environmental crisis is a social crisis that invites both social transformation and social activism with respect to the environment. The model's main outcomes include enquiry, emancipation, empowerment, and environmentalism (p. 18).

3.1.7 Educational Qualification

The participants in the study were asked to highlight their current educational level using the semi-structured section of the questionnaire. Participants were made to state whether they had gone through formal or non-formal education. Formal education meant conventional face to face schooling that ranged from primary to tertiary education. Tertiary educations lead to educational qualifications such as masters and bachelors, national certificate in education, and national nursing certificate. Secondary education completers emerge with high school or secondary school certificate. Lastly, for primary schools, completers get primary school leaving certificate. The figure below shows the academic status of the participants.

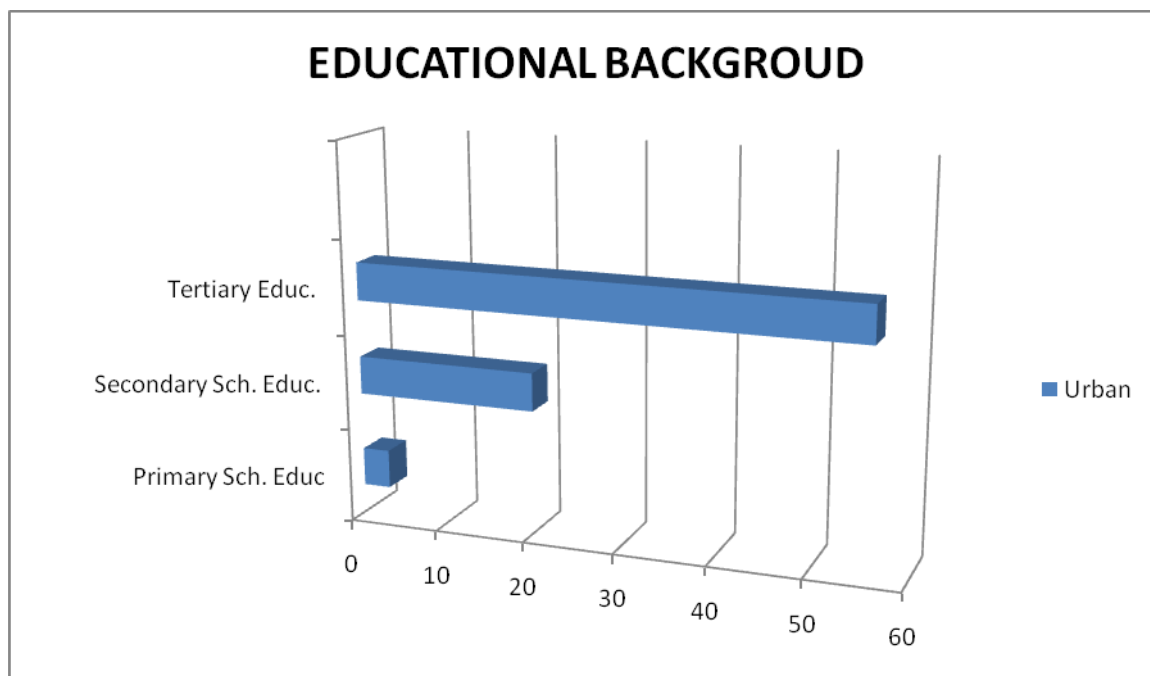


Figure 1. Participants' Educational Qualification

Figure above indicates that the majority of the respondents fifty-six (71%) in urban areas and fifteen (55.56%) in semi-urban areas had tertiary education. A substantial number of the participants equally obtained secondary school (high school) education twenty (25.2%) in urban and nine (25.9%) in semi-urban. Only three (3.8%) respondents in urban and 3 (18.5%) in semi-urban had gone through primary education.

Table 1. Participants' Distribution of Educational Qualification Per Study Site

Educational qualification	urban	Percentages	Semi-urban	Percentages	Total	Percentages
Primary school	3	3.80%	3	18.51%	6	5.66%
Secondary sch	20	25.32%	9	25.93%	29	27.36%
Tertiary educ.	56	70.88%	15	55.56%	71	66.98%
Total	79	100%	27	100%	106	100%

4. Discussion

The significance of this study may be examined from different levels as follows:

4.1 Significance to the Body of Knowledge

The findings of this study contribute to the body of knowledge in the area of environmental education regarding women and the environment with respect to waste management. The study revealed that several factors affect whether people behave pro-environmentally or not. Therefore to address environmental challenge of waste management in Osun State, social, economic, and institutional factors need to be examined. Also, the level of environmental awareness or knowledge of the environment and the perception or understanding of the impact of waste management on the environment by civil servants in the State was ranked low. So awareness or knowledge of the environment must be better facilitated and the perception or understanding of consequences redressed and beefed up. Also the study revealed that that the perceived lived experiences of women civil servants showed that the administration needed to put in place structures that would promote good waste management practices, motivate people to promote pro-environmental behaviour.

4.1.2 Social Factors

Generally, social change drivers on the educational, economic, and political planes designed to empower women must be given considered attention and be activated without further delay. More specifically, women, regardless of their initial levels of perception of environmental issues, need greater empowerment in specific areas of experience such as in domestic practices that generate waste management. This is important because, although the targeted group of this study were women having some form of formal education, they seemed generally to be not much different from other women lacking in formal education in their domestic practices. The women were burdened by patriarchal

prejudices entrenched in society, which worked against women economically, and socially, in some cases compromising their educational development and impairing their access into the middle class of society in a harsh capitalist environment.

4.1.3 Women's Awareness Levels

The women's perception of their economic roles needed to be stepped up together with their perception of activities that affect the environment such as waste management. With a boosting of women's level of perception of environment issues, the civil servants can then serve as effective change agents to facilitate the raising of the level of awareness of the rest of the community with respect to waste management in particular and climate change which has become topical. To bring this about certain theoretical underpinnings of the social change framework of environmental education become relevant, ecofeminism, eco-Marxism, for example, and can shed more light on practical ways to redress the situation.

4.2 Significance to Participants

In the course of conducting this research, the participants—the respondents to questionnaire and Focus Group Discussion (FGD)—were made to realise the impact of their habitual practices of waste management on both the physical and social environment. The FGD gave the women an opportunity to share their experiences. Showing the target group the two sides of the coin of perception still leaves room for choice. Also, to perceive an issue is one thing and to act on what has been seen and understood is another, as scholars have pointed out regarding the behavioural or environmental citizenship framework of analysis (Kollmuss & Agyeman, 2002). Hence, this study provides a tool for making informed choices without being involved in what environmental scholars describe as “naturalistic fallacy”—informed choices rather than correct choices because the latter variety falls under what scholars describe as the “open question” (Mappin & Johnson, 2005).

4.3 Significance to Administrations and Policy Makers

Examination of the perception or understanding of civil servants of the impact of waste management practices in Osun State distilled insights that should assist administration and policymakers. It became clear from the findings that a critical mass of pro-environmental women civil servants who could channel the cause of pro-environmental activities for environmental sustainability did not exist in the State. The study explored the role of ecology in environmental education and the different concerns and considerations for effective environmental education within the existing social context of the State. The findings of the study also revealed that the main source of environmental awareness or knowledge were the media and religious organisations.

The research findings showed that the level of environmental awareness of civil servants and their perception of impact of waste management practices on the environment was low. These findings should be able to assist policy formulation and implementation at various levels—local, national, and regional—with regard to promoting a cleaner healthier environment as well as procuring SED. Policy makers through the recommendations of this study become more informed about the critical challenges

that require immediate environmental action and long-term futuristic action within the State. It has, for example, been recommended that government should provide adequate infrastructures and facilities for waste management.

4.4 Conclusion

Specific awareness on impact of waste management on the environment in relation to climate change and human health and standard of living of the people should be delivered to the people. Environmentally friendly waste management practices should be created and given wide publicity. Environmental education in the State should be participatory and made available at all levels. Creating awareness on environmental issues should involve not only behavioural and personal change frameworks but should include the social change model of investigation and analysis because of the complex factors which daily shape human and environmental experience in the most ethnically diverse country in the continent. Some of these factors are economic, social and political. For this reason, it becomes necessary sometimes to bring to environmental issues a cocktail of theories in select methodologies in order to be able to mediate some of the challenges that have become topical at both local and global levels. Although ingrained attitudes can at times be difficult to change in environmental as in other aspects of human experience, carefully considered conceptual and empirical interrogation can go a long way in shedding light and bringing greater awareness and understanding to administrations, policy makers, educationalists, advocacy groups of preservationists and conservationists, and other vested interests.

References

- Abbas, M. Y., & Singh, R. (2014). A survey of environmental awareness, attitude, and participation amongst university students: A case study. *International Journal of Science and Research (IJSR)*, 5(3). Retrieved from <http://www.ijsr.net>
- Africa Partnership Forum. (2007, May 22-23). *Climate change and Africa*. Paper presented to the 8th meeting of the Berlin, Germany. Africa Partnership Forum (APF) Support Unit and NEPAD Secretariat.
- Ako-Nai, R., Ologunde, A., & Adekola, O. (2010). Global integration, household survival and economic empowerment of women in Osun State, Nigeria. *Journal of Nigeria Studies*, 1(1) 1-24.
- Amcamp, P. J., & Bjorn, L. O. (2010). *Environmental effects assessment panel: United Nations environmental programmes*. UNESCO.
- Babalola, Y. T. (2010). *Startcounter*. Retrieved December 24th, 2013. Free Web Tracker & Counter.
- Babalola, Y., Babalola, A., & Okhale, F. (2010). Awareness and accessibility of environmental information in Nigeria: Evidence from Delta State. *Library Philosophy and Practice*. Retrieved from <http://digitalcommons.unl.edu/libphilprac>
- Barau, A. S. (2005). *An appraisal of the women's level of environmental education in Kano, Nigeria*. Conserve Africa. Retrieved from <http://www.ciesin.columbia.edu/repository/pern/papers/jenda>

- Barr, S. (2003). Strategies for sustainability: Citizens and responsible environmental behaviour. *Area*, 35, 227-240. <https://doi.org/10.1111/1475-4762.00172>
- Elliot, S. (2014). *Britain's first industrial revolution*. Retrieved from <https://www.historytoday.com/simon-elliott/britains-first-industrial-revolution>
- Ensenwein, G. (2010). *Industrial revolution and the rise of socialism*. Retrieved from <http://users.cls.ufl.edu/gesenwei/Socialismndhi.pdf>
- Grossmann, T., & Patt, A. (2005). Adaptive capacity and human assignation: The process of individual adaptation to climate change. *Global Environmental Change*, 15(3), 199-213. <https://doi.org/10.1016/j.gloenvcha.2005.01.002>
- Hawking, S. (2007). *The universe*. Retrieved from <http://www.reddisability.org/famous-disabled/DisFamScience.htm>
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, 8(3), 239-260. <https://doi.org/10.1080/13504620220145401>
- Mbalisi, O. F., & Ugwe, N. A. (2012). Ensuring effective use of forest services to mankind: Implication for environmental education in Nigeria. *Journal of Education and Practice*, 3(3), 1-9. Retrieved from <http://www.iiste.org/Journals/index.php/JEP/article/d>
- Northrop, E., & Ross, K. (2016). *After COP21: What needs to happen for the Paris agreement to take effect?* World Resources Institute.
- Ogunbode, & Arnold, K. (2012). A study of environmental awareness and attitudes in Ibadan, Nigeria. *Human and Ecological Risk Assessment: An International Journal*, 18(3), 21-37. <https://doi.org/10.1080/10807039.2012.672901>
- Oxfam. (2015). *Richest 1% will own more than all the rest by 2016*. Retrieved from <https://www.oxfam.c>
- Reilly, S. (2008). *Environmental education's role in sustainable development: Three case studies from India, South Africa, & United States*. N5523-International Resource Management. Retrieved from <http://www.uwsp.edu/forestry/StuJournals/Documents/IRM/Reilly.pdf>
- Schwab, K. (2015). *The Fourth Industrial Revolution: What it means, how to respond*. Retrieved from <http://www.fourthindustrialrevolution/davos/>
- Yeshalem, A. (2013). *Environmental education about, in and for the environment: The case of two secondary schools in Ethiopia* (Unpublished Master's Thesis). University of Oslo. Retrieved from <https://www.duo.uio.no/handle/10852/37984>
- Yoda, R., Chirawurah, D., & Adong, P. (2014). Domestic waste disposal practice and perceptions of private sector waste management in urban Accra. US National Library of Medicine. *Journal of BMC Public Health*, 697(14). <https://doi.org/10.1186/1471-2458-14-697>