NEAR EAST UNIVERSITY
INSTITUTE OF GRADUATE STUDIES
DEPARTMENT OF ENVIRONMENTAL EDUCATION

ASSESSING ENVIRONMENTAL LITERACY AND ITS IMPACT ON ENVIRONMENTAL PROTECTION AMONG FARMERS IN AKINYELE LOCAL GOVERNMENT, OYO STATE, NIGERIA

MASTER'S THESIS

ADEBAYO TEMITAYO ADEMOLA

Nicosia

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Approval

We certify that we have read the thesis submitted by Adebayo Temitayo Ademola titled "**Assessing environmental literacy and its impact on environmental protection among farmers in Akinyele local government, Oyo State, Nigeria**" and that in our combined opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Doctor of Educational Sciences.

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Declaration

I hereby declare that this thesis study is my study, I had no unethical behavior in all stages from the planning of the thesis until writing thereof, I obtained all the information in this thesis in academic and ethical rules, I provided reference to all of the information and comments which could not be obtained by this thesis study and took these references into the reference list and had no behavior of breaching patent rights and copyright infringement during the study and writing of this thesis.

Adebayo Temitayo Ademola

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Adebayo Temitayo Ademola

Dedication

All praise to Allah for lighting up my path to reach where I'm standing now, for gifting me a wonderful parent who I'll forever be thankful for, leading my way to success and gave most of their time helping and advising me. Because of all these, I am proudly dedicated to this achievement and others with the support of my parents, lovely teachers, friends, and every person who helped, or shared my way. Thank you all, God bless you!

Abstract

Assessing environmental literacy and its impact on environmental protection among farmers in Akinyele local government, Oyo State, Nigeria

Adebayo Temitayo Ademola

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The safety of humanity and the preservation and protection of the natural environment for future generations is collective global responsibilities that can be achieved through the conscious efforts of humans. This study assessed environmental literacy and its impact on environmental protection among farmers in Akinyele local government, Oyo State, Nigeria. The quantitative survey research design was adopted, and data was collected from a conveniently sampled 200 farmers using the Environmental Literacy Survey, and the Multiple Motives toward Environmental Protection (MEPS) scale by Gkargkavouzi, Halkos & Matsiori (2019).

Our study found that the majority of the surveyed farmers are environmental literate are they have a high level of environmental consciousness, a high level of environmental anxiety, and a high level of environmental awareness through environmental information acquire from watching environmental protection TV programmes, reading newspapers information and news on environmental issues. The high level of environmental literacy among the farmers drives their opinions that environmental education should be given in elementary education, the government should take steps to engender renewable energy sources use and discourage other human activities that can be harmful to the environment.

Our study also reported that the surveyed farmers engage in environmental protection activities and behaviours as they feel obliged to protect the environment and treat nature with respect, as expected by people around them. The farmers believe that natural resources must be protected for the coming generation, degradation of the environment and every other harmful activity should be discouraged, and that good environmental condition improves community health. The farmers are concerned about biodiversity loss and agreed that the natural ecosystem is destructible due to

environmental deterioration, and every scrap of biodiversity must be protected as all living organisms are of equal value, intrinsically. It identified barriers to environmental protection are that environmental protection activities are that environmental protection is expensive, time-consuming, requires concerted efforts, and could be draining and inconvenient. There is no significant relationship (p-value at 0.452; r=0.056) between environmental literacy and environmental protection among farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria.

This study concluded that the surveyed farmers are environmental literate, and are active in environmental protection. It is recommended that the farmers should improve in contributing their quota to environmental protection while the government encourages the use of renewable energy sources, provision of eco-friendly items, equipment, and vehicles for public transportation, and grants subsidies, and tax deductions for engaging in eco-friendly activities.

Keywords: Environmental Literacy, Environmental Protection, Farmers, Akinyele Local Government, Oyo State, Nigeria

Özet

İnsanlığın güvenliği ve gelecek nesiller için doğal çevrenin korunması ve korunması, insanların bilinçli çabalarıyla elde edilebilecek ortak küresel sorumluluklardır. Bu çalışma, Nijerya, Oyo Eyaleti, Akinyele yerel yönetimindeki çiftçiler arasında çevre okuryazarlığı ve çevre koruma üzerindeki etkisi. Nicel anket araştırma tasarımı benimsendi ve veriler, Çevre Okuryazarlığı Anketi ve Gkargkavouzi, Halkos & Matsiori (2019) tarafından Çevre Korumaya Yönelik Çoklu Motifler (MEPS) ölçeği kullanılarak uygun şekilde örneklenmiş 200 çiftçiden toplandı.

Araştırmamız, ankete katılan çiftçilerin çoğunluğunun çevre okuryazarı olduğunu, yüksek düzeyde çevre bilincine, yüksek düzeyde çevre kaygısına ve çevre koruma TV programlarını izlemekten, gazete okumaktan edinilen çevresel bilgiler yoluyla yüksek düzeyde çevre bilincine sahip olduklarını buldu. çevre sorunları hakkında bilgi ve haberler. Çiftçiler arasındaki yüksek çevre okuryazarlığı seviyesi, çevre eğitiminin ilköğretimde verilmesi gerektiği, hükümetin yenilenebilir enerji kaynaklarının kullanımını geliştirmek için adımlar atması ve çevreye zararlı olabilecek diğer insan faaliyetlerini caydırması gerektiği görüşlerini yönlendiriyor.

Araştırmamız ayrıca, ankete katılan çiftçilerin, çevrelerindeki insanlardan beklendiği gibi çevreyi korumak ve doğaya saygılı davranmak zorunda hissettikleri için çevre koruma faaliyetleri ve davranışlarında bulunduklarını bildirdi. Çiftçiler, gelecek nesiller için doğal kaynakların korunması, çevrenin bozulması ve diğer tüm zararlı faaliyetlerden vazgeçilmesi gerektiğine ve iyi çevre koşullarının toplum sağlığını iyileştirdiğine inanmaktadır. Çiftçiler biyoçeşitlilik kaybından endişe duyuyorlar ve doğal ekosistemin çevresel bozulma nedeniyle yok edilebilir olduğu ve tüm canlı organizmaların özünde eşit değerde olduğu için biyoçeşitliliğin her bir parçasının korunması gerektiği konusunda hemfikirdiler. Çevre korumanın önündeki engeller, çevre koruma faaliyetlerinin çevre korumanın pahalı olması, zaman alıcı olması, uyumlu çabalar gerektirmesi ve yorucu ve uygunsuz olabilmesidir. Akinyele yerel yönetim alanı, Ibadan, Oyo Eyaleti, Nijerya'daki çiftçiler arasında çevre okuryazarlığı ile çevre koruma arasında anlamlı bir ilişki (p-değeri 0.452; r=0.056) yoktur.

Bu çalışma, ankete katılan çiftçilerin çevre literatürü olduğu ve çevre koruma konusunda aktif oldukları sonucuna varmıştır. Hükümet yenilenebilir enerji

kaynaklarının kullanımını, toplu taşıma için çevre dostu ürün, ekipman ve araçların sağlanmasını teşvik ederken, sübvansiyonlar ve vergi indirimleri sağlarken, çiftçilerin kotalarını çevre korumaya katkıda bulunmalarını iyileştirmeleri önerilir. çevre dostu faaliyetlerde kesintiler.

Anahtar Kelimeler: Çevre Okuryazarlığı, Çevre Koruma, Çiftçiler, Akinyele Yerel Yönetim, Oyo Eyaleti, Nijerya

Table of Contents

List of Tables

List of Figures

CHAPTER I

Introduction

Introduction

The implications of climate change have continued to alter, drive and influence human activities positively and negatively. All sectors of the world economy actively address the climate change development to protect and preserve the human race, ensure environmental protection, address food production and security, and most importantly, harness the technological, innovative, and economic benefits that may come as a result of climate change. Climate change directly affects the environment, and around which all human activities revolve. Thus, there is the need for the environment to be adequately preserved and protected from climate change threats by individuals, industries, and organisations, as well as government and non-governmental organisations, as a destroyed environment is a pointer to human extinction.

The United Nations Sustainable Development Goal 13 highlights the need to take climate actions as failure to do so will make it almost impossible to actualise all other goals with the view that a climate-unfriendly environment is detrimental to human existence and activities. In 2005, the United Nations adopted 17 global goals as a universal call to put an end to poverty across populations, protect the planet, and ensure global peace and prosperity by 2030 with the consciousness that the 17 goals are interconnected, and that a failure in addressing one will affect outcomes in others (United Nations Development Programme, 2021).

The intensity of climate change makes the human race susceptible to environmental hazards and destructions, hunger, drought, displacement, wildlife destruction and extinction and infrastructural destruction, and ultimately, death. Intense heat, sea-level rise, terrific storms, and bush/wide fires are some other far-reaching effects of climate change on the earth's surface, and all human life activities thereon (Council on Foreign Relations, 2021). Therefore, mitigating the effects of climate change on the environment is the responsibility of all, especially professionals and experts who directly interact with the environment in their day-to-day activities.

The environment is the space where non-living things and resources are domiciled for living things: animals and humans, to explore and exploit. "Environment encompasses all the physical, chemical, and biological factors external to the human host," as well as those factors impacting related behaviours (World Health Organisation, 2021). In the natural environment, human carry out various activities and some of these activities puts the environment and its inhabitants at risk. According to Mondal (2021), the environment is described as the natural habitat of organisms, where the life of the organisms is being controlled and regulated.

As enshrined in the Nigerian law, the environment encompasses earth components which include water, land, and air, atmosphere layers, as well as all organic and inorganic matter and living organisms and, the interacting natural systems (Ogbodo, 2009). Arguably, the activities of organisms affect the environment positively or negatively. More significantly, human interaction with the environment bits every other living organism. Thus, human contributes more to the destruction of the environment and should take full responsibility in its protection. To ensure that the environment is peaceful and healthy shape at all times, it must be protected from human hazardous activities.

Environmental protection involves all steps and conscious actions taken to protect the environment from any form of aggression, attack, or destruction. There is a need to protect the environment irrespective of the achievement of the concept of 4Rs-reduce, recycle, recovery, and reuse (Environmental Management, 2017). Protection of the environment is the sole responsibility of humans, and this must be consciously done through every means possible, especially with the increased pressure on the environment as a result of human unending activities. It is expedient to take the domestic and international cause of action to achieve environmental protection (Hamilton, Macintosh, Patrizi, and Bastianoni, 2019). Environmental protection is a collective responsibility, and adequate environmental plans are essential to achieve the protection of the environment. For instance, in China, a green finance initiative is put in place to fund the protection of the environment, through China's green finance industry (Muganyi, Yan, and Sun, 2021).

While individuals, corporate and non-governmental organisations have roles to play in environmental protection, it is worthy of note to established that the

government has the most significant roles to play in terms of policy formulation, environmental protection law enactment, and enforcement, and provision of resources to actualise environmental action plans (Fang, Kong, Sensoy, Cui, and Cheng, 2021). More than individual destruction of the environment, firms and companies are major pollutants and abusers of the environment through their industrial and production activities.

Mostly, human interaction with environmental systems is associated with discourses such as pollution, land degradation, biodiversity loss, conservation, and environmental policy, and preferring solutions to issues emanating from the human-environment interaction is the objective of environmental protection. Simply put, protecting the environment is protecting humans and animals from the consequences of their activities in the environment. Therefore, environmental protection actions are targeted at mitigating natural environment degradation induced by population increase, and technology proliferation across major sectors of the economy. Conserving the environment keeps it and the inhabitants healthy, ensures the preservation of wildlife and animal species, promotes healthy biodiversity, and drives swift recovery from natural disasters, and improves climate change adaptability (StudyMalaysia, 2018).

According to Franjic (2018), environmental protection is a sine qua non to national and global socio-economic and all-round development. Laws, regulations, and policies are essential to achieve a significant environmental protection success, while individuals, industries government, and non-governmental organisation execute the action plans the awareness creation on the need to conserve the environment by through prevention of activities that negatively impact it. Environmental protection programs and actions address pollution prevention measures, engenders environmental emergency response plans, and drive regulatory compliance to reduces the risks associated with natural disasters, and environmental contaminations from harmful materials, wastes, oils, fuels, emissions from industries, and other contaminants generated through machines, engines, and equipment (Pennsylvania State University, 2015).

To achieve a safe and conserved environment, there are international laws and treaties which nations domesticate, and or domestic laws enacted by nations,

states, local governments as well as common law to suit their environmental peculiarities for the safety of lives and properties. Ogbodo (2009) reported that the Koko incident, now over three decades ago, struck the attention of the Nigerian government on the consequences of toxic waste exposure on the environment, and the increasing need for measures to guard against the risks associated with such exposure. The occurrence led to the enactment of treaties and laws, domesticated, and reviewed from time to time to meet environmental developments. In tandem with Nigeria environmental law, individuals, professionals, and experts that interact with the environment, industries and the government have roles to play in ensuring a safe environment.

Farmers are one of the major users of the environment as their interaction with the land, forest, and wildlife directly or indirectly impacts the environment. The agricultural activities of farmers are largely affected by unfavourable climatic conditions, especially in recent times with depletion of the ozone layers, and distortion of the raining pattern, an implication for loss and low yield. How well knowledgeable about the environment, its peculiarities, systems, protection, and its implication on their agricultural activities determine how significantly, farmers can and will protect the environment.

Environmental literacy describes the competence of individuals to address environmental issues. Environmental literacy can be defined as an individual's ability or capacity, knowledge, skills, understanding, and motivation to make environmentally responsible decisions that into consideration, his or her interactions with natural systems, communities, and future generations (Oregon State University, 2020). Here, an individual has scientific information about the environment, is critically attuned to solving environmental problems, is knowledgeable about the activities that can put his environment at risk, and by implication put the communities, and generations to come into environmental chaos.

An environmentally literate person, a farmer in this case should possess knowledge experience, and understanding of the environment, and takes conscious actions to protect it for the collective good (Maryland Association for Environmental and Outdoor Education, 2021). This study aims to assess how environmentally

literate farmers in Akinyele local government area, Ibadan, Nigeria are, and how it impacts the protection of their environment.

Statement of the Problem

The increasing change in climatic and atmospheric conditions and its adverse implications on the human race calls for a global swift reaction. Therefore the need for individuals, experts, and professionals, industries, government across all levels, as well as non-governmental organisations, to take drastic steps and actions, for instance, promoting literacy and environmental education to protect the environment and the inhabitants from the impending environmental doom cannot be over-emphasised. Known to this researcher, no study has paid attention to the role of farmers in protecting the environment and how well environmental literacy contributes to their ability to protect the environment as they interact with it in their agricultural and farming activities. This is the gap in literature this study aims to fill by contributing to the body of knowledge with a focus on farmers in Akinyele local government area, Ibadan, Nigeria.

Purpose of the Study

This study aims to assess environmental literacy and its impact on environmental protection among farmers in Akinyele local government, Ibadan, Oyo State, Nigeria. However, the sub/specific objectives are to:

i) identify the level of environmental literacy among farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria.
ii) investigate the relationship between environmental literacy and environmental protection among farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria.
iii) identify the environmental barriers to farming activities among farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria.
iv) identify the farming activities that protect the environment among farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria.

Research Questions

This study will be guided by the following research questions.

i) What is the level of environmental literacy among farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria?
ii) What are the environmental barriers to farming activities in Akinyele local government area, Ibadan, Oyo State, Nigeria?
iii) What are the farming activities that protect the environment in Akinyele local government area, Ibadan, Oyo State, Nigeria.

Research Hypothesis

HO_1: There is no significant relationship between environmental literacy and environmental protection in Akinyele local government area, Ibadan, Oyo State, Nigeria.

Significance of the Study

The findings of this study will help to create awareness of the need to protect the environment to mitigate the risks and implications of pollution and destruction. The outcomes will be an eye-opener for farmers on the roles expected of them in addressing environmental challenges. The finding of this study will help in policy formulation at the local level of governance on how to engender an all-inclusive environmental action plan, which will help farmers to tackle the environmental and climatic challenges affecting agricultural yield and productivity.

Limitations

This study is limited to identifying the environmental literacy level of farmers, environmental protection practices, and challenges among farmers in Akinyele Local Government Area, Ibadan, Oyo State.

Definition of Terms

Environmental Literacy: This describes the competence and ability of individuals to make environmentally responsible decisions and interact with the environment positively.

Environmental Protection: This describes the conscious and unconscious actions taken to protect the environment from any form of aggression, attack, or destruction.

Farmers: These are individuals who engage in the agricultural practices of crop production and animal rearing for human consumption and industrial use.

CHAPTER II

Literature Review

Conceptual Review

Environmental Issues: Causes and Typologies

Environment issues vary from one place to the other depending on the climatic condition or peculiarities of the region. These environmental issues and challenges often arise from natural occurrences and disasters, or as a result of human activities over the years. Human interaction with the environment has been identified to negatively impact the environment over the years as climatic change becomes an issue of national and international concern. Environmental challenges can be described as harmful environmental phenomena on human survival and development in a region of over the world, these harmful environmental phenomena may be a result of human activities or otherwise (Zhong and Shi, 2020).

On this premise, Zhong and Shi (2020) classified environmental issues into two categories-the native environmental issues" which is induced by natural evolutions or natural disasters, for example, earthquakes, floods, droughts, typhoons, avalanches, landslides, and mudslides, and the human activities induced environmental issues and this type is named as "the secondary environmental issues" or "environmental hazard" (the damage caused by the exploitation of natural resources and the environmental pollution caused by industrial development or urbanization). In recent times, human activities are responsible for the many environmental issues being experienced in society. According to Blowers (1995), an environmental issue can be described as the distortion in the natural order of things in the environment, a change of state in the physical environment which is brought orchestrated by human interference, negative destructive and unacceptable interaction with the physical environment.

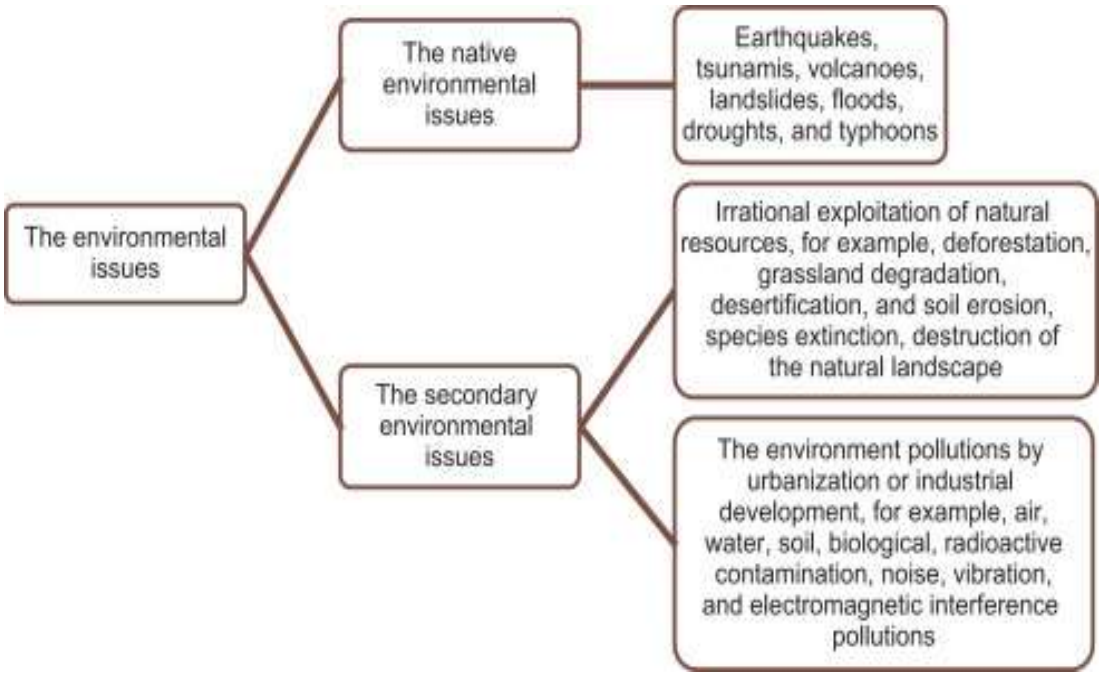

Figure 2.1. The classification of the environmental issues

Over the years, degradation of the environment is on the increase, and this has become a matter of national interest for all and sundry. All stakeholders in the society are focusing on action plans to address the increasing rate of environmental degradation to save the planet earth from sudden collapse and extinction. This intervention is aimed to reduce if not eradicate the degradation. These stakeholder's interventions are geared towards awareness creation through seminars, symposia, conferences, lectures, webinars, and campaigns with efforts and contributions from various strata of the society. According to Abbas and Singh (2014), reduction in quality of life, and life expectancy, as well as environmental quality, can be traced to the continued reduction in air quality, water quality, food quality, ocean and water pollution, species, and wildlife extinction, and biodiversity loss, among others.

Generally, it is believed that economic and environmental sustainability is achievable through individual and collective behavioural changes towards more sustainable human lifestyle changes, and behaviour that will in turn influence and drive environment and human health development (Biswas, 2020). The essence of environmental education is to build and sustain an environmentally-conscious and responsive population, a people and race that is conscious and aware of their environment and has the interest to protect it through their actions and inactions.

They work as individuals and teams to profer solutions to environmental challenges and avert the occurrence of other environmental issues, further expanding the environmental literacy campaign.

Environmental Education

Literacy in environmental issues is best achieved through formal and informal education. An increase in environmental challenges across populations requires quality educational steps. Human-young and old have responsibilities to protect the environment, and through education, citizens can be made to identify, realise and understand their responsibilities (Muda, Ismail, Suandi, and Rashid (2011). Quality education is a pointer to environmental literacy, as, through quality education, literacy in environmental issues can be achieved. The public is educated to understand the peculiarities of the environment, identify environmental-friendly beehaviour, and encourage the protection of the environment by avoiding actions and activities that could affect the environment. Proper environmental teaching would drive environmentally sound decisions making by the citizens.

An environmentally literate person has knowledge about the environment, is aware of environmental issues, employs the knowledge to address environmental issues, and also transfers the knowledge to other people in the society. Environmental literacy can be achieved through formal and informal education as well as specifically-designed programmes to create environmental awareness among the people. Environmental education teachers or environmental literacy facilitators play significant and pivotal roles in developing environmental literacy to address present environmental conditions and for future generations. It is the role of teachers to transfer knowledge. However, it is the knowledge earned that can be transferred. If teachers are not equipped with the required knowledge in environmental education, it will be impossible to significantly implement environmental education in the classroom. Summarily, school children with a deficiency in environmental education and knowledge will contribute to environmental rot in society (Coyle, 2005).

According to Kılınç (2010), the human race is faced with critical environmental challenges such as depletion of the ozone layer, global warming, the gradual destruction of the ecosystem, and species extinction among others (Saribas, Teksoz, and Ertepinar, 2014). In addressing the numerous environmental threats, we

need to explore the education approach. Through education, we can address the excruciating implications of climate change for the future, especially in tandem with the 1976 education goals in the Belgrade Charter: The goal of environmental education is to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones" (UNESCO-UNEP, 1976).

Environmental Literacy: Historical Background, Concepts, and Components

As a concept, environmental literacy encompasses environmental skills and competence to address environmental challenges, understanding environmental challenges, sensitivity, environmental awareness, motivation, environmentally-relevant values, and willingness to act (Roth, 1992; Hollweg et al., 2011). Karatekin (2012) also reported that environmental awareness, ecological knowledge, attitude, and environment-compliant behaviours are the many components of environmental literacy. According to Shri & Tiwari (2021), environmental responsiveness can be achieved by environmental literacy through environmental education. Here, present and future environmental consciousness are driven to enable societal sustainability and healthy living.

Having identified the categories of environmental issues and challenges experienced in society, it is essential to identify ways to address the issues to protect the environment from further destruction and prevent the human race from extinction. One of the ways to address environmental issues is through environmental literacy. The 1972 Stokholm Declaration marked the commencement of environmental education sponsored by UNESCO. Environmental education was designed to create awareness, impact knowledge and transfer same from one generation to the other about the environment and its dynamics year in year out. Subsequently, conferences, summits, workshops, symposia, and more formal gatherings were held to give environmental education more focus and design more critical frameworks, models, and theories to better understand and conceptualise environmental education (Hollweg, 2011).

In 1975, a 10-day regional workshop held produced The Belgrade Charter (1975) that x-rayed the goals, objectives, challenges, and the target audience for environmental education programs. Thes wad strung together to design framework and guideline principles of global environmental education. Shortly after, in 1977, The Tbilisi Declaration (1977) presented more detailed paperwork on the components of environmental education which translated into environmental literacy, a major feat in the 1977 Declaration. The Declaration gave a more lucid and comprehensive explanation of the features, goals, objectives, framework, theories, models, and guidelines of environmental education. Tbilisi Declaration focused on the 5 categories; knowledge, awareness, skill, participation, and attitude.

Going forward, in 1988 and 1991 respectively, The Copernicus Charter (1988) and Halifax Declaration (1991) built on the previous documents and paperwork on environmental education for a more expanded environmental education scope to cover and address the importance of teaching and practicing environmental education in universities. This aims to introduce youth to issues about the environment and equip them with the knowledge and responsibility to see to the safety of their environment and be literate, environmental-wise. This assesses the strength and weakness of universities in becoming environmental literate, and producing and churning out environmentally-literate graduates into society.

It is believed that the gown should have the capacity to positively influence the town. Therefore, to aid in building an environmentally-conscious and literate society, there is the need to start impacting knowledge into the young generation from the primary level of education to the tertiary level of education. Agenda 21 (1992) queried if the curriculum of universities was designed to impact environmental knowledge into graduates and produce environmentally-literate graduates. In 1993 and 2002 respectively, The Swansea Declaration (1993) and the Ubuntu Declaration (2002) emphasised the need to explore environmental education and its importance to individuals and society.

According to Ramdas and Mohamed (2014), the attitude, perception, disposition, knowledge, idea, view, knowledge, behaviour, sensitivity, and perception of the environment, and environmental peculiarities are essential in promoting an environmentally-safe society. The environment belongs to all humans, and our personal and collective activities have both negative and positive implications on it. Literacy in the environment focuses on environmental knowledge

that drives responsible attitudes towards the environment. Here, we talk about the individual and collective responsiveness, ability, and capacity to understand climatic developments and conditions and tailor their activities in tandem with these conditions to keep the environment safe and healthy for everyone.

Environmental literacy is a broad concept that focuses on knowledge and drives responsible personal and collective attitudes towards the environment. It is the ability and capacity to synthesis knowledge and climatic developments to guide their actions and behaviours in the environment. Literacy on and about the environment (knowledge on physical and ecological systems) enables humans to live and carry out their activities in the environment responsibly, putting into consideration, the health and wellbeing of other people in the environment and putting into perspective, the futuristic implications of their activities on the environment and its habitants. Environmental literacy describes people's ideas, views, understanding, and perception about the physical environment which makes the process and synthesise environmental information within their reach to make an environmentally-informed decision. Environmental literacy is built up of personal learning processes, which are dictated by ecological peculiarities as well as many other cultural, socio-economic, political, and historical factors.

Similarly, there are some demographic factors such as age, educational background, and level of exposure that influences and predict the behaviour and environmental literacy of people from time to time. This may be different based on geographic locations as the overall perception and exposure of a person determines how they interact with nature and their physical environment. Thus, environmental literacy is subjective and individual although it is closely linked to a broader framework at local, national, and global levels. People belong to various groups that affect how the environment is perceived and interpreted, for instance, through traditions, beliefs, and values.

The environment is perceived based on certain standards peculiar to people and places. This makes the environment appear like a dynamic phenomenon that is perceived by people in a way different from the perception of others. Therefore, environmental literacy can also be studied as a characteristic of a certain group. A group, such as a village or work community, may have common environmental ideas which can be a focus of research: for example, a study of influences of formal education on environmental perceptions of pupils at the same grade level may

concentrate on environmental literacy of a group with common characteristics of age and education. It seems that no one is completely illiterate of his or her surroundings but people's ability to process and analyse information varies.

Access to information on the environment and applying the information to make a decision is an environmental literacy achievement that includes the elements of perceiving, decoding, and also using information from the environment. It consists, in addition to reading, of the ability to ''write'' on the environment, that is to sustainably use, conserve, maintain and co-exist with the environment. In other words, environmental literacy is a manifestation in action, attitude, behaviour, and activities of people, an indication or representation of the mind of people about their immediate environment. Unsound actions, however, leading to unsustainable situations may take place due to insufficient knowledge, the difficulty of interpretation, or distorted perception of the environment. This can happen not only at an individual level but also at societal and cultural levels (cf. Orr, 1992; Prakash, 1995).

Environmental behaviour is also affected by other factors along with environmental literacy. Because of these other factors, people may end up in environmental problems despite their environmental literacy. Hsu and Roth (1998), for example, in their research on environmental literacy of secondary school teachers in Taiwan, concluded that the environmental literacy variables they used could explain only about 35% of the variance in responsible environmental behavior. These other influencing factors can be political, cultural, economic, or social. Furthermore, people do not always behave in the way generally regarded as optimal or expedient. For instance, to secure their immediate livelihood, people may feel obliged to harm their environment even if they know the negative long-term consequences of their actions.

On the other hand, people may end up with perfectly sustainable solutions even though they lack the knowledge considered scientifically correct. They may conclude based on their beliefs or traditional practices, for instance, but this process can also guide them to appropriate strategies. It is also possible that individuals are aware of environmental problems, but they lack knowledge of or commitment to collective action. Sustainable collective action to conserve, protect, and rehabilitate the environment may require extensive participation from various stakeholders. In common property land, collective action may pose a particular challenge, for the

stakeholders may have conflicting views on how the common resources should be used (Adams et al., 2003).

Power is also one of the significant factors influencing how people think and act. The perceptions of environmental problems may differ between communities with different access to power. In administration, the preference of the views of certain groups may affect the decisions made. An interesting question thus is: whose way of reading and manipulating nature becomes dominant and to what extent does power modify these activities (see Banuri and Marglin, 1993; Dove, 2000; Siebers, 2004). Research on environmental literacy could encourage the empowerment of people. Identifying the environmental literacy of minority groups and those living in peripheral areas can improve the status of these groups in environmental policy formulation.

Arguably, the environmental background of individuals is connected with their environmental literacy, participation in environmental activities, and drive to proffer solutions to environmental challenges (Tuncer, Tekkaya, Sungur, Cakiroglu, Ertepinar, and Kaplowitz, 2009). Human activities disrupt the structure and components of the environment in such as way that the environment is becoming hazardous to humans and animals. This calls for a conscious effort by the society at large to be deliberate in becoming knowledgeable about the environment and how to operate responsibly in it. Environmental issues are multi-faceted, and they could be social, political, or cultural, and unless the society undergoes a re-orientation and teaching about environmental peculiarities, such challenges may remain unsolved, and become more grievous for the society at large (Hares et al; 2004; Hollweg et al, 2011; Erdogan et al, 2009).

Over the years, the learning environment evolves and theories and concepts are getting modified to capture current developments in the 21st century. Scholars-Simmons (1995); Volk & McBeth (1997) posted that to better understand the Environmental Literacy concept, it is broken down into six main domains which are, Knowledge of environmental issues, Socio-Political knowledge, Ecological knowledge, Affect, Cognitive skills, and Environmentally responsible behaviors. **Environmental Knowledge:** This describes the possession of requisite information about the environment and the application of such information in interpreting and addressing environmental issues. As posited by Varisli (2009), environmental knowledge describes the cognitive understanding of the components of the

environment and the connecting issues. For instance, the components of the environment, its nature, and challenges. This knowledge of the ecosystem and the environment in its entirety, is wide, central, and general, can be traditionally or formally acquired, being abstract and concrete. It encompasses the overall understanding of its relationships, facts and concepts, theories, models, and frameworks (Hamalainen, 2012).

The concrete knowledge focuses on the behavioural knowledge and attitude connected with the benefits derivable from an action, either persuasive or physical, while the abstract knowledge explains the identification of a cause and solution to a given environmental problem. Goerge (2007) further demonstrated that recycling and picking up trash are environmentally-conscious lifestyles categorised as physical actions while encouraging others to conserve and protect the environment is considered a persuasive action. Environmental knowledge acquired either through physical actions or persuasive actions enable understanding of environmental peculiarities and gives people the needed experience, awareness, drive, consciousness, and positive attitude to safely interact with the environment (Daniel et al, 2007; Harun et al, 2011; Lee et al, 2013).

Knowledge of Physical and Ecological Systems: Knowledge of physical and ecological compromise of basic understanding of the biosphere which includes air, water, and land which serve as life support to all living organisms for survival and hospitality. The concept of how organisms and populations interact and interrelate is also included in the content. Principle concepts of natural and man-made ecological systems which include biogeochemical cycles, production and energy flow, food chain, food web, and the interaction of these principles with the society also form the content (Berkowitz et al, 2004; Loubser et al, 2001).

Knowledge of environmental issues: Every individual is expected to know a little about his or her environment. This knowledge will make one easily identify the presence of environmental threats or challenges, and the method to adopt in proffering solutions to the identified environmental issues. When the environment is over-stretched through human activities, environmental issues become inevitable, and other inhabitants in the ecosystem as subjected to harm which may lead to their extinction in severe cases. The culmination of the effects of individual environmental destructive activities comes to the fore when the environment can no longer contain

the negative implications, and soon the environment becomes dangerous and inhabitable if steps are not taken to cushion the outcomes of the stretch pf the environment. Environmental issues include society-environment interconnection, technological and economic implications on the state of the environment, air and water pollution, greenhouse effect, global warming, and other environmental occurrences (Aminrad et al, 2010; Hollweg et al, 2011, Ireland, 2013).

Cognitive and Affective Disposition: Human action and attitude are mosts time due to inclination, a personal conviction to do or not to do. Responsible interaction with the environment could be driven by inclination, a feeling to do the right thing, and put the people into consideration when carrying out certain activities in the environment. The inclination of feelings, values, and concerns that sways an individual to protect and conserve the environment and make conscious efforts and decisions to proffer solutions to environmental challenges describes environmental disposition (Daudi, 2008, Hollweg et al, 2011). Sensitivity about the environment, predisposition and attitude, intention, and willingness to put up protective actions towards the environment characterises individuals with environmental disposition.

Environmental Sensitivity: The collection of cognitive and affective attributes combined in an individual gained through a variety of internal (needs, abilities, interest, and emotion) and external experiences describes environmental sensitivity. Environmental sensitivity is an innate predisposition to perceived environmental challenges even before they occur. These experiences will help the view the environmental problem and issues surrounding empathy (Lee et al, 2013; Varisli, 2009).

Attitudes and Concern: Individuals have a positive or negative attitude which determines how they show concern about the environment. Environmental attitudes consist of complex perceptions formed by the values and beliefs of an individual which brings out the verbal commitment, actual commitment, motivation, and intention to act in participating actively towards environmental protection and improvement (Aminrad et al, 2010; Harun et al, 2011; Varisli, 2009). Environmental attitude can also define as a combination of personal experiences, cultural norms, and values which derives as an opinion towards on giving environmental issue (Daudi, 2008).

Environmental attitudes derive from three dimensions which consist of environmental worldview, concern, and commitment. Environmental worldwide is

environmental values that in the most basic and general form (Aminrad et al, 2010). Environmental concern refers to the cognitive (insight to the problem) and emotional response (feeling of fear, anger, etc.) by an individual towards concrete and abstract environmental problems. Concrete environmental problems are visible and local environmental degradation such as water and air pollution that has an immediate and direct effect on individuals. Abstract environmental problems are less visible and are more global problems that do not conjure immediate threat to individuals such as ozone depletion and global warming (Gosken et al, 2002; Liebe et al, 2010).

Motivation and Intention: Individuals can be intrinsically or extrinsically motivated to protect the environment. This motivation brews the intention and willingness to act and express concerns and take actions or make decisions on environmental issues (Hollweg et al; 2011).

Environmental Protection

The safety and protection of the environment is a global issue, and respective nations are expected to play significant roles in protecting their environment, especially with the change in climatic conditions occasioned by human direct or indirect activities. Hamilton and Macintosh (2008) submitted that the protection of the environment is a common human practice, though there is the need to drive a systematic approach to environmental protection to be able to address the rising environmental challenges across the globe.

As a universal phenomenon, addressing environmental issues requires domestic and international measures. With efforts from non-governmental organisations such as the United Nations, in tandem with international laws, and rules of diplomatic engagements, international measures to address climate change are being introduced to the government of countries across the globe for the domestication of such measures to address national peculiar climate and environmental challenges. Where needed, funding is provided to assist countries set in motion, measures that can drive an environmentally-friendly society. In the words of Hamilton, environmental issues are better addressed through a multi-dimensional approach that combines regulatory, economic, voluntary and information tools.

Actualising the environmental protection goals and objectives requires political will and adequate legislation at the domestic and international levels.

Human activities such as land use/tilling, water use, waste management, natural resources mining, degradation, and evolving industrialisation have both negative and positive implications, perhaps more negative effects on the environment. These activities by individuals, businesses and the government must be regulated to ensure a preserved and healthy environment, human health protection, and the protection of the ecosystems chemical contaminants which can impair the quality of natural resources, especially water, and to drive the speedy recovery and revitalization of explored land. For instance, in the case of the Niger Delta region of Nigeria where crude oil has been explored over the years, and several hectares of land in Agrarian communities, tilled over the years for agricultural activities.

Addressing Environmental Literacy and Protection: the Role of the Government and Non-governmental Organisation

While it is undisputable that individuals-citizens should and must play an active role in environmental protection, it goes without saying that the government owns the political will to ensure that the citizens are environmentally responsive and conscious. According to Wu, Cheng & Zhang (2019), the predisposition of the government and non-governmental organisations (NGOs), public institutions, companies, business, and commercial institutions, and schools towards environmental protection goes a long way in addressing environmental challenges and building an environmentally responsive society. The collective efforts of these institutions are instrumental to environmental education for the citizen.

The government across all tiers is constitutionally responsible for policy formulations, enforcement of environmental laws, and funding of environmental policies and campaigns to ensure that their countries operate within the confines of environmental global practices. Schools and other formal and informal institutions, as well as religious bodies, are also expected to preach and expand the message of environmentally responsive behaviours among students, staff, employees, worshippers, and followers.

According to Oruonye and Ahmed (2020), over the years, the Nigerian government established institutions and agencies given the responsibility to enforce environmental laws and regulations to ensure compliance. However, significant

compliance has not been achieved despite these legislative and institutional frameworks.

The Nigerian government in its plans and actions towards a safer and healthier environment. These actions are as well domesticated by the 36 states of the Federation in tandem with their environmental peculiarities. According to the National Environmental Standards and regulation enforcement agency (NESREA) (2022), the key pieces of environmental legislation are the following:

- National Environmental Standards Regulations and Enforcement Agency (Establishment) Act 2007 (NESREAA) and the 33 Regulations made by the Minister of Environment under section 34 of the Act This statute was created under the 1999 Constitution of the Federal Republic of Nigeria (section 20) and repealed the Federal Environmental Protection Act 1988. The NESREA, the major federal body responsible for protecting Nigeria's environment is responsible for enforcing all environmental laws, regulations, guidelines, and standards. This includes enforcing environmental conventions, treaties, and protocols to which Nigeria is a signatory.

- Environmental Impact Assessment Act (Cap E12 LFN 2004). This law sets out the general principles, procedures and methods of environmental impact assessment in various sectors.

- Harmful Waste (Special Criminal Provisions etc) Act (Cap H1 LFN 2004). This law prohibits the carrying, depositing and dumping of harmful waste on land and in territorial waters.

- Endangered Species (Control of International Trade and Traffic) Act (Cap E9 LFN 2004).This provides for the conservation and management of wildlife and the protection of endangered species, as required under certain international treaties.

- National Oil Spill, Detection and Response Agency Act 2006 (NOSDRA). The objective of this law is to put in place machinery for the coordination and implementation of the National Oil Spill Contingency Plan for Nigeria to ensure a safe, timely, effective, and appropriate response to major or disastrous oil pollution.

- National Park Services Act (Cap N65 LFN 2004). This makes provision for the conservation and protection of natural resources and plants in national parks.
- Nigerian Minerals and Mining Act 2007. This repealed the Minerals and Mining Act No. 34 of 1999 and re-enacted the Nigerian Minerals and Mining Act 2007 to regulate the exploration of solid minerals, among other purposes.
- Water Resources Act (Cap W2 LFN 2004). This aims at promoting the optimum development, use, and protection of water resources.
- Hydrocarbon Oil Refineries Act: The Act is concerned with the licensing and control of refining activities.
- Associated Gas re-injection Act: This law deals with gas flaring activities by oil and gas companies. Prohibits, without lawful permission, any oil and gas company from flaring gas in Nigeria and stipulates the penalty for breach of permit conditions.
- Nuclear Safety and Radiation Protection Act: The Act regulates the use of radioactive substances and equipment emitting and generating ionising radiation. In particular, it enables the making of regulations for protecting the environment from the harmful effects of ionising radiation.
- Oil In Navigable Waters Act: This is concerned with the discharge of oil from ships. It prohibits the discharge of oil from ships into territorial waters or shorelines.

The environmental regulatory bodies and agencies in Nigeria are:

- National Environmental Standards and Regulations Enforcement Agency (NESREA).
- National Oil Spill Detection and Response Agency.
- Federal Ministry of Environment.
- Directorate of Petroleum Resources (DPR).
- Nigerian Nuclear Regulatory Authority.

- Federal Ministry of Water Resources
- National Oil spill Detection and Response Agency (NOSDRA)
- National Biosafety Management Agency
- Department of Climate Change
- Energy Commission of Nigeria
- Erosion, Floods, and Coastal Zone Management
- Department of Planning, Research and Statistics
- Drought and Desertification Agency

The National Environmental Standards and Regulations Enforcement Agency (NESREA) normally adopts pre-emptive measures to secure compliance with relevant legislative requirements and licensing provisions but the agency will use its enforcement powers where voluntary compliance is not forthcoming.

The United Nations is a major non-governmental organisation that operates on the global level, providing various humanitarian services across the globe. Climate change and environmental protection as some of the organisation's focus in making the world a safer and healthier place to live. The United Nations Environment Programme (UNEP) is the leading environmental authority in the United Nations system. UNEP uses its expertise to strengthen environmental standards and practices while helping implement environmental obligations at the country, regional and global levels. UNEP's mission is to provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations (The United Nations, 2013).

The major six areas of focus and concentration of the United Nations Environmental Programme are as follows:

i) CLIMATE CHANGE UNEP strengthens the ability of countries to integrate climate change responses by providing leadership in adaptation, mitigation, technology, and finance. UNEP is focusing on facilitating the transition to low-carbon societies, improving the understanding of climate science, facilitating the development of renewable energy and raising public awareness.

ii) POST-CONFLICT AND DISASTER MANAGEMENT UNEP conducts environmental assessments in crisis-affected countries and provides guidance for implementing legislative and institutional frameworks for improved environmental management. Activities undertaken by UNEP's Post-Conflict & Disaster Management Branch (PCDMB) include post-conflict environmental assessment in Afghanistan, Côte d'Ivoire, Lebanon, Nigeria, and Sudan.

iii) ECOSYSTEM MANAGEMENT Facilitates management and restoration of ecosystems in a manner consistent with sustainable development, and promotes the use of ecosystem services. Examples include the Global Programme of Action (GPA) for the Protection of the Marine Environment from Land-Based Activities.

iv) ENVIRONMENTAL GOVERNANCE UNEP supports governments in establishing, implementing and strengthening the necessary processes, institutions, laws, policies and programs to achieve sustainable development at the country, regional and global levels, and mainstreaming environment in development planning.

v) HARMFUL SUBSTANCES UNEP strives to minimise the impact of harmful substances and hazardous waste on the environment and human beings. UNEP has launched negotiations for a global agreement on mercury and implements projects on mercury and the Strategic Approach to International Chemicals Management (SAICM) to reduce risks to human health and the environment.

vi) RESOURCE EFFICIENCY/SUSTAINABLE CONSUMPTION AND PRODUCTION UNEP focuses on regional and global efforts to ensure natural resources are produced, processed, and consumed in a more environmentally friendly way. For example, the Marrakesh Process is a global strategy to support the elaboration of a 10-Year Framework of Programs on sustainable consumption and production

Empirical Review

Environmental Literacy and Environmental Protection: Factors and Issues

Literacy in environmental issues can be driven by many factors as established in some previous literature. Adopting the environmental literacy model to assess environmental literacy and predicting factors, environmental knowledge, values, value, and ecological behaviour, as well as environmental knowledge and ecological behaviour, all have linear relationships (Maurer and Bogner (2020). Knowledge and literacy influence the behaviour of people to their environment, and the value they attach to the environment to either protect it or destroy it with their activities. The need to grow an environmentally-literate population cannot be over-emphasised as the need for collective effort at protecting the environment increases daily as a result of climatic dynamics. Access to environmental information informs positive behaviour that protects the environment and addresses the increasing environmental issues in society.

A 2018 study reported that specially designed programs or modules can boost, improve or impact environmental literacy in students or participants in the learning arrangement. It is believed that programs on environmental literacy expose learners to the methods and behaviours that best protect the environment, in this case, recycling is perceived as the foremost means for environmentally-responsible behavior.

Also, Craig and Allen (2015) demonstrated that literacy in the environment and environmental issues can be acquired through training and specifically designed programs as elementary schools students in a rural south-central US state significantly improved their environmental literacy. This indicates that a curriculum that is environment-centered will produce students with environmental literacy. The ability of people to take charge of the environment and its interactions describes environmental literacy, and thus demonstrated that rural inhabitants in the State of North Kordofan, Sudan, and the Chiang Mai Province in Thailand can understand their environment and this enables them to considerably address environmental challenges and promote sustainable environmental management practices (Hares, Eskonheimo, Myllyntaus & Luukkanen, 2006).

A 2009 study among pre-service teachers in a Turkish university demonstrated that there is a correlation between the environmental background of the

teachers and environmental literacy as well as their attitude and disposition to environmental issues (Tuncer, Tekkaya, Sungur, Cakiroglu, Ertepinar, Kaplowitz, 2009). This indicates that having an environment-minded background goes a long way in acquiring environmental literacy. Another study showed that components of environmental literacy did not get the same attention in science curriculum, and as such do not efficiently impact environmental knowledge (Srbinovski, Erdogan and Ismaili, 2010). This demonstrates that the curriculum cannot aid the building of an environmentally-sound population whose actions and attitudes can protect the environment.

Also, from an education point of view, a study demonstrated the need to develop an environmentally literate population, and to solve the increasingly complex environmental issues facing society through increased students' access to environmental education field experiences and to connect these outdoor experiences to relevant curricula within the classroom (O'Neil, Newton, Bone, Birney, Green, Merrick, Goodwin-Segal, Moore, and Fraioli, 2020). This implies that environmental literacy can be achieved in the same manner learning and teaching is achievable in other disciplines.

Another study examined the level of preservice elementary teachers' literacy and self-efficacy beliefs and investigates the relationship between their environmental literacy and self-efficacy beliefs among 2nd-year students in a Turkish university, and demonstrated that the students are deficient in self-efficacy beliefs and environmental knowledge related to environmental education. However, they have a relatively significant and high/positive environmental attitude, concern, and perception of environmental issues (Saribas, Teksoz, and Ertepinar, 2014). This finding suggests that self-efficacy beliefs predict concern for the protection of the environment..

A study assessed the effect of Internet penetration on the government's environmental protection expenditure (GEPE) in China and found that Internet penetration has a significant relationship with the GEPE in China (Zhang, Zhang, and Gong, 2022). Take away from this study is that environmental protection is a conscious effort, and high cost-effective as the fund is required to push adequate measures to protect the environment, especially with increasing environmental challenges. It is also noteworthy that the Internet plays a vital role in addressing environmental protection.

Another study on environmental protection among marine recreationists around the beaches of Tel Aviv, Israel indicated that those who practice surfing on a regular or frequent level indicate lower levels of environmental behaviours and interest in ocean topics, but somewhat higher levels of knowledge about the marine environment. Inference from this study is that the marine recreationists are not more aware, or interested in marine environment conservation or protection, and this puts the marine environment at risk (Portman and Camporesi, 2020).

According to Latinopoulos, Mentis, and Bithas (2018), information campaign can help to sensitise people on the need to protect the environment and be environmentally conscious when carrying out human activities as there are economic benefits accruable from such measures (environmental protection), especially the avoidance of environmental issues that make the state or nation spend a fortune in addressing environmental hazards such as destruction of properties, and loss of lives. In addition, a study established a correlation between attitude toward nature and attitude toward environmental protection, and there is a need for a systematic approach to driving a change in the attitudes among the populate to engender environmental protection (Kaiser, Brügger, Hartig, Bogner, and Gutscher, 2014).

A 2018 study reported that literacy in environmental issues among undergraduates Sri Lanka is low, though engage in environmental issues and activities on a moderate scale, and howe a relatively moderate level of interest in environmental issues. Statistically, environmental engagement among the undergraduates was reported to be predicted by environmental literacy and environmental interest (Sachitra and Kaluarachchi, 2018). Focusing on the relationship between relation variables, a 2014 study reported that undergraduates in Turkey have high attitudes, concerns, perceptions of environmental issues, however, this does not translate to adequate self-efficacy beliefs or environmental knowledge. This informs a significant relationship between self-efficacy beliefs and environmental concerns among the students. In addition, a study among pre-service teachers in Nigeria reported that gender predicts the gender (difference) predicts the moderate level of attitude of the teachers toward climate change (Oladipo, Awofala & Osokoya, 2020). This indicates that there could be varying gender perspectives towards climate change and environmental issues across the globe.

Another 2020 survey reported that literacy in environmental issues can be achieved through specifically designed environmental literary programs to provide

the information and impart the knowledge needed of various categories of people in society. The study among students in Ponorogo revealed that the eco-school program has a relationship (sig value. 0.000) with environmental literacy as it improves and increases EL among the students. This indicates that the high the impact or deployment of the eco-school program, the higher the environmental literacy among the students. However, it was reported that EL is on a low level among the students. Also, there is variation in the EL capacity of the junior high school students between males and females (sig value. 0.004) (Nurwaqidah, Suciati, & Ramli, 2020).

Furthermore, a 2020 survey of environmental literacy among college students of Manipal University of Higher Education (MAHE), Karnataka. reported that the majority of the students were oblivion, that is, unaware about the environment, as such are not interested in species protecting environmental behaviours to prevent species from going into extinction. Findings also indicate that the student does not oblige to put up environmental-friendly actions and behaviours such as lifestyle change, and inappropriate or eco-unfriendly (Shri & Tiwari, 2021).

Furthermore, a survey among the Beijing population revealed that the citizens have a high literacy level with 3.77 out of 5 as citizens in the high- and middle-scoring groups showed interest in “ecological science knowledge”, while the low-scoring group preferred “the knowledge of environmental factors” and “environmental ethics”. The result of the survey also showed that the citizens across categories showed a significantly high preference for environmental education (natural education) when taking part in outdoor activities, followed by exhibition places and activities, with a relatively low preference for lecture and community activities. With little or no preference for traditional media such as radio, television, and newspapers, their major environmental information source and most preferred channel for environmental education were the mass media: WeChat, MicroBlog, WeChat, and short video applications (Wu, Cheng & Zhang, 2019).

Achieving environmental protection and spreading environmental literacy is such a herculean task, especially as it involves the coordination of people of different orientations and behaviour, pulling of resources, legislation, and political will. A 2020 study on the role of enforcement in environmental protection in Nigeria reported that administrative institutions and agencies in the country are saddled with enforcement actions following laid down rules to control and check pollution and manage natural resources for environmental protection. The study also reported that

identified challenges to environmental protection are high cost of environmental standards, outdated laws, weak institutional capacity, poor governance, understaffing, inadequate funding, vested interest, the multiplicity of legislation/conflicting laws, ignorance, and lack of rule of law among others (Oruonye and Ahmed, 2020). Another study reported that the challenges to environmental protection are not only laws but by implementation, enforcement, the attitude of people, compromising stand of heads of agencies.

Summary of Literature Review

This review showed that environmental protection is a global issue. Despite being a universal issue, it requires both global and domestic measures based on the peculiarities of each nation and region. This review showed that researches have been carried out on teachers, students, marine recreationists, and other active people in the environment. Known to the researcher, none of these studies have investigated the attitude and perceptions of farmers who are active in their interaction with the environment across the globe. This is the gap in literature this study aims to fill by gaining perspective into environmental literacy among farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria, and identifying how they protect the environment.

CHAPTER III

Methodology

The study design

This study employed the quantitative survey research design. This type of research allows for the description of human behaviour through various methods to the respondent selection, data collection and analysis, and interpretation(Singleton & Straits, 2009).

The study site

Location Description

In the West African region, Nigeria is the most populous black nation with over 200 million people with her Capital domiciled in Abuja, the Federal Capital Territory. Apart from Abuja, it is made up of 36 states (divided into six geopolitical zones: southwest, south-south, southeast, northeast, north-central, and northwest). Nigeria is bordered by the Benin Republic, Niger Republic, Republic of Chad, and Cameroon in the west, north, northeast, and east respectively.
Though Nigeria has over 500 indigenous languages and ethnic nationalities, Yoruba, Hausa, and Igbo are the three major languages, and the adopted official language is English. In addition, Christianity, Islam, and African Traditional Religion are constitutionally-recognised religions.

Nigeria is rich in numerous natural resources, and her economy is mostly funded by crude oil-generated revenue. Agriculture is also one of the nation's sources of income, especially with revenue from cocoa exportations in the early years of her nationhood. As income from crude oil dwindles across the globe, Nigeria is channelling efforts to diversify the economy, efforts are being pushed to mechanise agriculture to encourage youths in agriculture. The South West region of Nigeria is identified with agricultural activities, and Oyo State is known for high agricultural activities as farm produces is being transported to neighbouring states, especially Lagos, in high proportion.

Ibadan, an ancient city with brown-rusted roofs, rich in Yoruba culture and history, blessed with a large landmass for agriculture and evolving industrialisation, is the Oyo State capital. Comprising 11 local government areas, Ibadan plays host to many first institutional establishments in Nigeria, one of which is the University of Ibadan.

Study population and sampling

The population of the study is the entire people, object, or case under study. The population of this study is farmers in Akinyele Local Government Area, Ibadan, Oyo State, who are between the ages of 18 and 70 and farm actively. This population is indeterminate as there is no available statistic for the figure of the population.

- **Sample size determination**

In research, it is considered a herculean task to study the entire population. There is the need to select a portion of a population to study and identify the characteristics of that population. Sampling describes the process of selecting a portion of a given population to represent the population (Singleton & Straits, 2009). Employing the convenience sampling technique, 200 farmers were selected as the sample for this study.

Inclusion criteria: Men and women who are between the ages of 18 and 70, farm actively, who are literates, were selected to participate in the study.

Exclusion criteria: Children and adults above 70 years, who do not farm actively, and who are illiterate, and individuals who do not want to participate in the study were excluded.

Data Collection

Questions form

In this research, we adopted standardised questionnaire designed and used by researchers in previous related studies. These are the Environmental Literacy Survey, and the Multiple Motives toward Environmental Protection (MEPS) scale by Gkargkavouzi, Halkos & Matsiori (2019). Data will be collected using the standardised questionnaire between November 2021 and December 2021. The introductory section of the questionnaire presents the information about the study, a

request for res[ondent's consent to participate in the study, and a statement of confidentiality.

Data form application (Questionnaire)

The researcher collected data with copies of the questionnaire administered to farmers in Akinyele Local Government Area by visiting the secretariat to meet farmers on days of their meeting. In line with the COVID-19 protocols, there were limited numbers of farmers in attendance. Thus, the researcher moved to visit the farmers on their farms to administer the questionnaire to them. Two research assistants were hired for fieldwork/data collection.

Evaluation of research data

The researcher, at the end of the data collection, sorted the copies of the questionnaire and entered the data into the Statistical Package for Social Science version 20, after which the data was cleaned and analyses were run. The results were reported using percentage count and Spearman correlation analysis. The level of significance for the analysis was a p-value of < 0.05.

Ethical considerations

The researcher received ethical approval from the board with the support and guidance of the thesis supervisor before proceeding with the study. The consent of participants was obtained before enlisting them to participate in the study.

CHAPTER IV

Results

Table 4.1 Distribution descriptive characteristics (n=183)

Variables	Number (n)	Percentage (%)
Gender		
Male	157	85.8
Female	26	14.2
Age		
18-25 years	14	7.7
26-34 years	32	17.5
35-49 years	122	66.7
50 years and Above	15	8.2
Highest Educational Qualification		
None	4	2.2
Primary School Leaving Certificate	11	6.0
Senior Secondary Certificate Examination	12	6.6
Ordinary National Diploma	14	7.7
Higher National Diploma	39	21.3
Bachelor Degree	97	53.0
Masters Degree	6	3.3
Type of Farming		
Crop Farming	128	69.9
Livestock Farming	36	19.7
Mixed Farming	19	10.4
Farm Size		
1-5 acres	160	87.4
6-10 acres	20	10.9
10 acres and Above	3	1.6

Socio-demographics variables of the surveyed farmers in Akinyele Local Government Area, Ibadan, Oyo State, Nigeria as shown in Table 4.1 indicates that the majority (85.8%) of the surveyed farmers were male, while the majority (66.7%) are between the ages of 35-49 years; the majority (53%) were Degree holders; the majority (69.9%) were crop farmers and majority (87.4%) farm on 1-5 acres of farmland.

Analysis of Research Data and Answers to Research Questions

In analysing the data for this study, the 5-Likert scale (SD+D) = D, and A+SA=A) is compressed into 2- Disagree, and Agree, for easy data and the result interpretation and explanation.

Research Questions One: What is the level of environmental literacy among farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria?

Research question one assesses environmental literacy among farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria.

Table 4.2: Environmental Literacy

Environmental Literacy	SA (%)	A (%)	SD (%)	D (%)
Environmental Consciousness Level				
I believe that government should support the renewable energy sources (sun, wind, water, geothermal).	121 (66.1)	48 (26.2)	7 (3.8)	7 (3.8)
Environmental education should be given from the beginning of elementary education in order to provide environmental awareness.	47 (25.7)	109 (59.6)	20 (10.9)	7 (3.8)
I, as well as others, have responsibility for the protection of the environment.	15 (8.2)	130 (71)	31 (16.9)	7 (3.8)
I'm in favour of using solar power in traffic lights and street lamps in order to keep the future generations' life.	47 (25.7)	122 (66.7)	14 (7.7)	-
I would throw away my garbage if there were nobody there. (-)	8 (4.4)	10 (5.5)	120 (65.6)	45 (24.6)
There is nothing wrong with pouring waste cooking oil into the sink. (-)	15 (8.2)	10 (5.5)	31 (16.9)	127 (69.4)
I'm in favour of using energy sources like solar power and natural gas since the gases given out from stoves are more harmful.	47 (25.7)	109 (59.6)	20 (10.9)	7 (3.8)
I would use recycling boxes if there were any.	8 (4.4)	110 (60.1)	38 (20.8)	27 (14.8)
I would use e-bill in order to protect the environment.	47 (25.7)	109 (59.6)	20 (10.9)	7 (3.8)
Environmental Anxiety Level				
I think seeds should be kept for the future of life.	108 (59)	68 (37.2)	7 (3.8)	-
I think we will not find a place to have picnic within a few generation.	16 (8.7)	8 (4.4)	114 (62.3)	45 (24.6)
I think everybody should sow a tree in his or her life.	115 (62.8)	60 (32.8)	1 (0.5)	7 (3.8)
I would warn people if they caused harm to the	146	29	1 (0.5)	7 (3.8)

environment	(79.8)	(15.8)		
I think indiscriminate hunting can cause environmental problems	135 (73.8)	40 (21.9)	1 (0.5)	7 (3.8)
Environmental Awareness Level				
I prefer to use public transportation rather than private transportation to protect the environment.	121 (66.1)	46 (25.1)	9 (4.9)	7 (3.8)
I would rather buy environmentally friendly items than economic ones	46 (25.1)	129 (70.5)	1 (0.5)	7 (3.8)
For the protection of environment caused by waste, I watch TV programs that give information about re-use of them	35 (19.1)	108 (59)	33 (18)	7 (3.8)
When I read a newspaper I pay attention to the topics related to the environment.	46 (25.1)	122 (66.7)	1 (0.5)	14 (7.7)
I would like to learn about environmental issues.	46 (25.1)	128 (69.9)	2 (1.1)	7 (3.8)

Results presented in Table 4.2 revealed that the majority of the surveyed farmers in Akinyele local government area, Ibadan, Nigeria, believe that environmental education should be given in elementary education to create needed and necessary awareness from the start of life to school children. The further shows that the government should take steps to engender renewable energy sources, while staying true to their responsibility to protect the environment through the use of solar (light/lamps) energy and natural gas, proper waste and garbage disposal, use of recycling boxes, and the adoption of e-bill for environmental protection. This indicates a high level of environmental consciousness among the farmers.

Results further showed that the majority of the surveyed farmers think that every human show sow (plant) trees, and have seeds kept for future life, discourage hunting and other human activities that can be harmful to the environment, all without which there will be environmental-friendly sites for recreation (picnic) within a few generations in the nearest future. In addition, the majority of the surveyed farmers. These indicate that the majority of the surveyed farmers are concerned and worried about the future of the environment and its inhabitants, a high level of environmental anxiety.

Also, results showed that the majority of the surveyed farmers have a preference for public transportation, prefer environmentally-friendly items, watch environmental protection TV programmes, read newspapers information and news on environmental issues, and acquire environmental knowledge to protect the environment. This is a high level of environmental awareness among the surveyed farmers.

Research Questions Two: What is the environmental protection behaviour (activities) of farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria?

Research question two evaluates the environmental protection behaviour (activities) of farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria.

Table 4.3: Environmental Protection

Environmental Protection	SA (%)	A (%)	SD (%)	D (%)
Normative motives				
I feel a moral obligation to protect the environment.	46 (25.1)	129 (70.5)	1 (0.5)	7 (3.8)
Don't know; It is not my responsibility to treat nature with respect. (r)	15 (8.2)	9 (4.9)	114 (62.3)	45 (24.6)
The people I care about believe that one ought to protect the environment with his/her actions.	46 (25.1)	128 (69.9)	2 (1.1)	7 (3.8)
Most people who are important to me engage in pro-environmental practices.	46 (25.1)	129 (70.5)	1 (0.5)	7 (3.8)
Altruistic motives				
Good environmental conditions benefit the health of the community and its members.	28 (15.3)	148 (80.9)	7 (3.8)	-
It is urgent to safeguard natural resources for future generations.	128 (69.9)	48 (26.2)	7 (3.8)	-
Environmental degradation has adverse consequences on humanity.	146 (79.8)	29 (15.8)	1 (0.5)	7 (3.8)
Don't know; I am not concerned about the welfare of other people. (r)	8 (4.4)	9 (4.9)	59 (32.2)	107 (58.5)
Biospheric motives				
All living organisms have equal intrinsic value.	46 (25.1)	130 (71)	7 (3.8)	-
We need to preserve every scrap of biodiversity.	128 (69.9)	48 (26.2)	7 (3.8)	-
Environmental deterioration has adverse consequences on natural ecosystems.	54 (29.5)	122 (66.7)	7 (3.8)	-
Don't' know; I am not concerned about biodiversity loss. (r)	16 (8.7)	9 (4.9)	58 (31.7)	100 (54.6)
Egoistic motives				
Nature provides people with food and raw materials.	128 (69.9)	48 (26.2)	7 (3.8)	-
Ecosystems provide recreation and cultural services.	116 (63.4)	60 (32.8)	7 (3.8)	-
A healthy environment is strongly	53 (29)	103	20 (10.9)	7 (3.8)

associated with my physical health.		(56.3)		
Natural areas provide ecosystem services that clean the air and the water.	102 (55.7)	54 (29.5)	20 (10.9)	7 (3.8)
Gain motives				
I save money by using public transportation.	46 (25.1)	103 (56.3)	27 (14.8)	7 (3.8)
Government provides monetary subsidies for pro-environmental activities.	8 (4.4)	9 (4.9)	59 (32.2)	107 (58.5)
I gain tax and fees deduction by adopting eco-friendly behaviors.	28 (15.3)	9 (4.9)	39 (21.3)	107 (58.5)
By preserving water and energy, I pay lower utility bills at home.	15 (8.2)		32 (17.5)	128 (69.9)
Hedonic motives				
I derive pleasure and satisfaction when I engage in environmental behaviors.	47 (25.7)	121 (66.1)	1 (0.5)	14 (7.7)
Don't know; I do not feel any better by protecting the environment. (r)	8 (4.4)	10 (5.5)	58 (31.7)	107 (58.5)
Makes me happy to prevent natural scenery.	46 (25.1)	128 (69.9)	2 (1.1)	7 (3.8)
I enjoy spending time in nature.	108 (59)	47 (25.7)	21 (11.5)	7 (3.8)

Results presented in Table 4.3 showed that the majority of the surveyed farmers think that they feel obliged to protect the environment and treat nature with respect, as expected by people around them. Results also showed that the majority of the farmers agreed natural resources must be protected for the coming generation, degradation of the environment should be discouraged, and that good environmental condition improves community health. Results further showed that the majority of the farmers are concerned about biodiversity loss and agreed that the natural ecosystem is destructible due to environmental deterioration, and every scrap of biodiversity must be protected as all living organisms are of equal value, intrinsically. Results further revealed that the majority of the farmers opined that a natural healthy environment-the ecosystem provides humanity with food and raw materials, recreational, health, and cultural services. Also, results indicated that the majority of the surveyed farmers use public transportation also for economic reasons, though there are no encouragements such as subsidies and tax deductions for engaging in eco-friendly activities. Lastly, results showed that the majority of the surveyed farmers derive satisfaction and pleasure in environmental-friendly activities.

Research Question Three: What are the barriers to environmental protection among the farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria?

Research question three identifies the barriers to environmental protection among the farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria?

Table 4.4: Barriers to Environmental Protection

Barriers to Environmental Protection	SA (%)	A (%)	SD (%)	D (%)
Constraints to Motives				
It is expensive to adopt environmental behaviours.	129 (70.5)	47 (25.7)	7 (3.8)	-
It is time-consuming.	53 (29)	122 (66.7)	1 (0.5)	7 (3.8)
Needed effort makes the engagement in environmental behaviours difficult.	8 (4.4)	129 (70.5)	39 (21.3)	7 (3.8)
My lifestyle in terms of convenience would change for the worse.	23 (12.6)	9 (4.9)	31 (16.9)	120 (65.6)

Results presented in Table 4.4 showed that the surveyed farmers opined that the challenges of engaging in environmental protection activities are that environmental protection is expensive, time-consuming, requires concerted efforts, and could be draining and inconvenient.

Test of Hypothesis

The hypothesis is tested using Spearman correlation analysis.

HO_1: There is no significant relationship between environmental literacy and environmental protection among farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria.

Table 4.4: Spearman Correlation Analysis of the relationship between environmental literacy and environmental protection

	Environmental Literacy	Environmental Protection
Pearson Correlation Coeficient	**1**	0.056
Sig. (2-tailed)		.452
N	**183**	

This hypothesis was tested using Spearman correlation analysis. Table 4.4 presents the results of the correlation analysis of the relationship between environmental literacy and environmental protection among farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria. The correlation has a p-value at 0.452 (r=0.056) which is higher than the 0.05 significance level, for which reason the null hypothesis is accepted. The results imply that there is no significant relationship between environmental literacy and environmental protection among farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria.

CHAPTER V

Discussion

This is quantitative survey research on environmental literacy and its impact on environmental protection among farmers in Akinyele local government, Oyo State, Nigeria. These are the Environmental Literacy Survey, and the Multiple Motives toward Environmental Protection (MEPS) scale by Gkargkavouzi, Halkos & Matsiori (2019) were adopted to collect quantitative data from the sampled 200 farmers, 191 copies were retrieved, while 183 correctly filled copies were ok for data entry and analysis. This study investigated environmental literacy, environmental protection, and the barriers to environmental protection among the farmers, as well as the relationship between environmental literacy and environmental protection.

Environmental Literacy

Our findings submit that the majority of the surveyed farmers in Akinyele local government area, Ibadan, Nigeria, have a high level of environmental literacy as they believe that environmental education should be given in elementary education to create needed and necessary awareness from the start of life to school children. Our finding is consistent with that of Wu, Cheng & Zhang (2019) that reported a high environmental literacy level (3.77 out of 5) among the Beijing citizens in the construction industry whose interests are in ecological science knowledge, knowledge of environmental factors, and environmental ethics. This indicates that high environmental literacy increases the thirst to acquire more information and environmental knowledge, and transfer such knowledge to other people to build an environmentally-literate and conscious society.

The findings further show that the government should take steps to engender renewable energy sources while staying true to their responsibility to protect the environment through the use of solar (light/lamps) energy and natural gas, proper waste and garbage disposal, use of recycling boxes, and the adoption of e-bill for environmental protection. This indicates a high level of environmental consciousness among the farmers.

Results further showed that the majority of the surveyed farmers think that every human show sow (plant) trees, and have seeds kept for future life, discourage hunting and other human activities that can be harmful to the environment, all

without which there will be environmental-friendly sites for recreation (picnic) within a few generations in the nearest future. In addition, the majority of the surveyed farmers. These indicate that the majority of the surveyed farmers are concerned and worried about the future of the environment and its inhabitants, a high level of environmental anxiety.

Also, results showed that the majority of the surveyed farmers have a preference for public transportation, prefer environmentally-friendly items, watch environmental protection TV programmes, read newspapers information and news on environmental issues, and acquire environmental knowledge to protect the environment. This is a high level of environmental awareness among the surveyed farmers.

Our finding corroborates the position Tuncer et al. (2009) submission that environmental literacy drives human participation, concern and solution providence to environmental challenges. Our study established that the surveyed farmers have a high level of environmental consciousness, awareness, and anxiety which translates to how they show concern about the environment, and exhibit environmental positive behaviours. This aligns with the findings of Maurer and Bogner (2020) that the knowledge of the environmental, and ecological behaviours indicates significant environmental literacy levels across populations. Our finding also agrees with a 2018 study among students that environmental literacy creates awareness among students, exposes them to best environmental practices, and environmentally-responsible behaviours.

While our study established that the farmers are aware of the environment and its challenges, Shri & Tiwari (2021) reported contrarily that college students of Manipal University of Higher Education (MAHE), Karnataka were unaware of the environment and thus, do not show concern about it. This showed that the farmers may have had post-college experience which made them have acquired environmental literacy and develop consciousness and awareness of the environment. Their career path could also have availed them the opportunities to acquire environmental literacy which will help them in understanding the environment, and climate change implications to achieve success in their farming and agricultural business.

Environmental Protection

Our study established that the majority of the surveyed farmers think that they feel obliged to protect the environment and treat nature with respect, as expected by people around them. Results also showed that the majority of the farmers agreed natural resources must be protected for the coming generation, degradation of the environment should be discouraged, and that good environmental condition improves community health. Results further showed that the majority of the farmers are concerned about biodiversity loss and agreed that the natural ecosystem is destructible due to environmental deterioration, and every scrap of biodiversity must be protected as all living organisms are of equal value, intrinsically.

Furthermore, our results further revealed that the majority of the farmers opined that a natural healthy environment-the ecosystem provides humanity with food and raw materials, recreational, health, and cultural services. Also, results indicated that the majority of the surveyed farmers use public transportation also for economic reasons, though there are no encouragements such as subsidies and tax deductions for engaging in eco-friendly activities. Lastly, results showed that the majority of the surveyed farmers derive satisfaction and pleasure in environmental-friendly activities.

On contrary to our findings on environmental protection, risk Portman and Camporesi (2020). reported a low environmental protection behavior among marine recreationists around the beaches of Tel Aviv, Israel. This variation can be connected with their low level of environmental literacy.

Our study reported that farmers in the surveyed local government show a high level of environmental protection and responsiveness. This contradicts the submission of Shri & Tiwari (2021) that college students do not possess environmental protection behaviour as they do not care to protect extinction of species, and are not conscious of actions that may affect the environment.

Barriers to Environmental Protection

Our study established that the surveyed farmers opined that the challenges of engaging in environmental protection activities are that environmental protection is expensive, time-consuming, requires concerted efforts and could be draining and inconvenient. Our findings on these constraints corroborate that Oruonye and Ahmed

(2020) that reported that the challenges to environmental protection are high cost of environmental standards, outdated laws, weak institutional capacity, poor governance, understaffing, inadequate funding, vested interest, the multiplicity of legislation/conflicting laws, ignorance and lack of rule of law among others. This shows that achieving environmental protection is beyond the capacity of individuals, rather the efforts of the government and other institutions with huge financial capacity and resources.

Our findings that environmental protection requires critical efforts and is cost effective also aligns with Budnukaeku and Hyginus (2021) which reports that implementation and enforcement of environmental laws and policies, the attitude of people, compromising stand of heads of agencies are challenges of environmental protection. Implementing laws and policies requires high funding.

Relationship between environmental literacy and environmental protection

Our study found no significant relationship (p-value at 0.452; r=0.056) between environmental literacy and environmental protection among farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria. This is consistent with the finding of Shri & Tiwari (2021) which also reported no significant relationship between awareness level and attitude for environmental protection among college students ($R^2 = 0.002$; $P = 0.975$). This applies as environmental awareness is a major component of environmental literacy and environmental protection is a factor of attitude and predisposition to the environment.

CHAPTER VI

Results and Recommendations

This study assessed environmental literacy and its impact on environmental protection among farmers in Akinyele local government, Oyo State, Nigeria. Based on the research questions of this research, the following conclusions are reached;

i) The majority of the surveyed farmers are environmental literate are they have a high level of environmental consciousness, a high level of environmental anxiety, and a high level of environmental awareness.

ii) The surveyed farmers engage in environmental protection activities and behaviours as they feel obliged to protect the environment and treat nature with respect, as expected by people around them.

iii) The farmers believe that natural resources must be protected for the coming generation, degradation of the environment and every other harmful activity should be discouraged, and that good environmental condition improves community health.

iv) The farmers are concerned about biodiversity loss and agreed that the natural ecosystem is destructible due to environmental deterioration, and every scrap of biodiversity must be protected as all living organisms are of equal value, intrinsically.

v) The identified barriers to environmental protection are that environmental protection activities are expensive, time-consuming, require concerted efforts, and could be draining and inconvenient.

vi) There is no significant relationship (p-value at 0.452; r=0.056) between environmental literacy and environmental protection among farmers in Akinyele local government area, Ibadan, Oyo State, Nigeria.

Recommendations

Based on the findings of the study, the following are recommended.

i) Farmers should improve in contributing their quota to environmental protection by engaging in more environmental behaviours and

encouraging people around them to do the same.

ii) The government across all levels should consciously encourage the use of renewable energy sources, provide eco-friendly items, equipment, and vehicles for public transportation, and grants subsidies, and tax deductions to citizens for engaging in eco-friendly activities.

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APPENDICES

Appendix B:

QUESTIONNAIRE

ASSESSING ENVIRONMENTAL LITERACY AND ITS IMPACT ON ENVIRONMENTAL PROTECTION AMONG FARMERS IN AKINYELE LOCAL GOVERNMENT, OYO STATE, NIGERIA

Dear Respondent,

This questionnaire is designed to elicit your views and opinions on environmental literacy and its impact on environmental protection. Be assured of confidentiality on all personal information you give as information obtained from this questionnaire will be used for the purpose of this research only.

Statement of Consent

Dear respondent(s), participation in this study is voluntary. Pleae, put a tick [√] if you are willing and give consent to participate in this survey. Thank you.

I agree to participate in this study. Agree [ ] Disagree [ ]

The question items on on environmental literacy and its impact on environmental protection are on the following pages. Thank you for your anticipated cooperation and contribution.

Temitayo

PART A: Socio- demographic Characteristics of Respondents

(Please put a tick [√] in the appropriate place)

1. Gender: Male [ ] Female [ ]
2. Age: 18-25 years [ ] 26-34 years [ ] 35-49 years [ ] 50 years and above [ ]

Highest Educational Qualification: None [ ] Primary School Leaving Certificate [ ] Senior Secondary Certificate Examination [ ] Ordinary National Diploma [ ] Higher National Diploma [ ] Bachelor Degree [ ] Masters Degree [ ] Doctorate Degree [ ]

3. Type of Farming: Crop Farming [ ] Livestock Farming [ ] Mixed Farming [ ]
4. Farm Location:…….
5. Farm Size/Capacity:…….

	Environmental Literacy	SA	A	SD	D
	Environmental Consciousness Level				
	I believe that government should support the renewable energy sources (sun, wind, water, geothermal).				
	Environmental education should be given from the beginning of elementary education in order to provide environmental awareness.				
	I, as well as others, have responsibility for the protection of the environment.				
	I'm in favour of using solar power in traffic lights and street lamps in order to keep the future generations' life.				
	I would throw away my garbage if there were nobody there. (-)				
	There is nothing wrong with pouring waste cooking oil into the sink. (-)				
	I'm in favour of using energy sources like solar power and natural gas since the gases given out from stoves are more harmful.				
	I would use recycling boxes if there were any.				
	I would use e-bill in order to protect the environment.				
	Environmental Anxiety Level				
	I think seeds should be kept for the future of life.				
	I think we will not find a place to have picnic within a few generation.				
	I think everybody should sow a tree in his or her life.				
	I would warn people if they caused harm to the environment				
	I think indiscriminate hunting can cause environmental problems				
	Environmental Awareness Level				
	I prefer to use public transportation rather than private				

	transportation to protect the environment.				
	I would rather buy environmentally friendly items than economic ones				
	For the protection of environment caused by waste, I watch TV programs that give information about re-use of them				
	When I read a newspaper I pay attention to the topics related to the environment.				
	I would like to learn about environmental issues.				
	Environmental Protection	SA	A	SD	D
	Normative motives				
	I feel a moral obligation to protect the environment.				
	Don't know; It is not my responsibility to treat nature with respect. (r)				
	The people I care about believe that one ought to protect the environment with his/her actions.				
	Most people who are important to me engage in pro-environmental practices.				
	Altruistic motives				
	Good environmental conditions benefit the health of the community and its members.				
	It is urgent to safeguard natural resources for future generations.				
	Environmental degradation has adverse consequences on humanity.				
	Don't know; I am not concerned about the welfare of other people. (r)				
	Biospheric motives				
	All living organisms have equal intrinsic value.				
	We need to preserve every scrap of biodiversity.				
	Environmental deterioration has adverse consequences on natural ecosystems.				

	Don’t’ know; I am not concerned about biodiversity loss. (r)				
	Egoistic motives				
	Nature provides people with food and raw materials.				
	Ecosystems provide recreation and cultural services.				
	A healthy environment is strongly associated with my physical health.				
	Natural areas provide ecosystem services that clean the air and the water.				
	Gain motives				
	I save money by using public transportation.				
	Government provides monetary subsidies for pro-environmental activities.				
	I gain tax and fees deduction by adopting eco-friendly behaviors.				
	By preserving water and energy, I pay lower utility bills at home.				
	Hedonic motives				
	I derive pleasure and satisfaction when I engage in environmental behaviors.				
	Don’t know; I do not feel any better by protecting the environment. (r)				
	Makes me happy to prevent natural scenery.				
	I enjoy spending time in nature.				
	Constraints to motives				
	It is expensive to adopt environmental behaviors.				
	It is time-consuming.				
	Needed effort makes the engagement in environmental behaviors difficult.				
	My lifestyle in terms of convenience would change for the worse.				

Thank you for filling this questionnaire

Ethics Approval

YAKIN DOĞU ÜNİVERSİTESİ

BİLİMSEL ARAŞTIRMALAR ETİK KURULU

27.01.2022

Dear Adebayo Temitayo Ademola

Your application titled **"Assessing Environmental Literacy and Its Impact on Environmental Protection Among Farmers in Akinyele Local Government, Oyo State, Nigeria"** with the application number NEU/SS/2022/1192 has been evaluated by the Scientific Research Ethics Committee and granted approval. You can start your research on the condition that you will abide by the information provided in your application form.

Assoc. Prof. Dr. Direnç Kanol
Rapporteur of the Scientific Research Ethics Committee
Direnc Kanol

Note: If you need to provide an official letter to an institution with the signature of the Head of NEU Scientific Research Ethics Committee, please apply to the secretariat of the ethics committee by showing this document.

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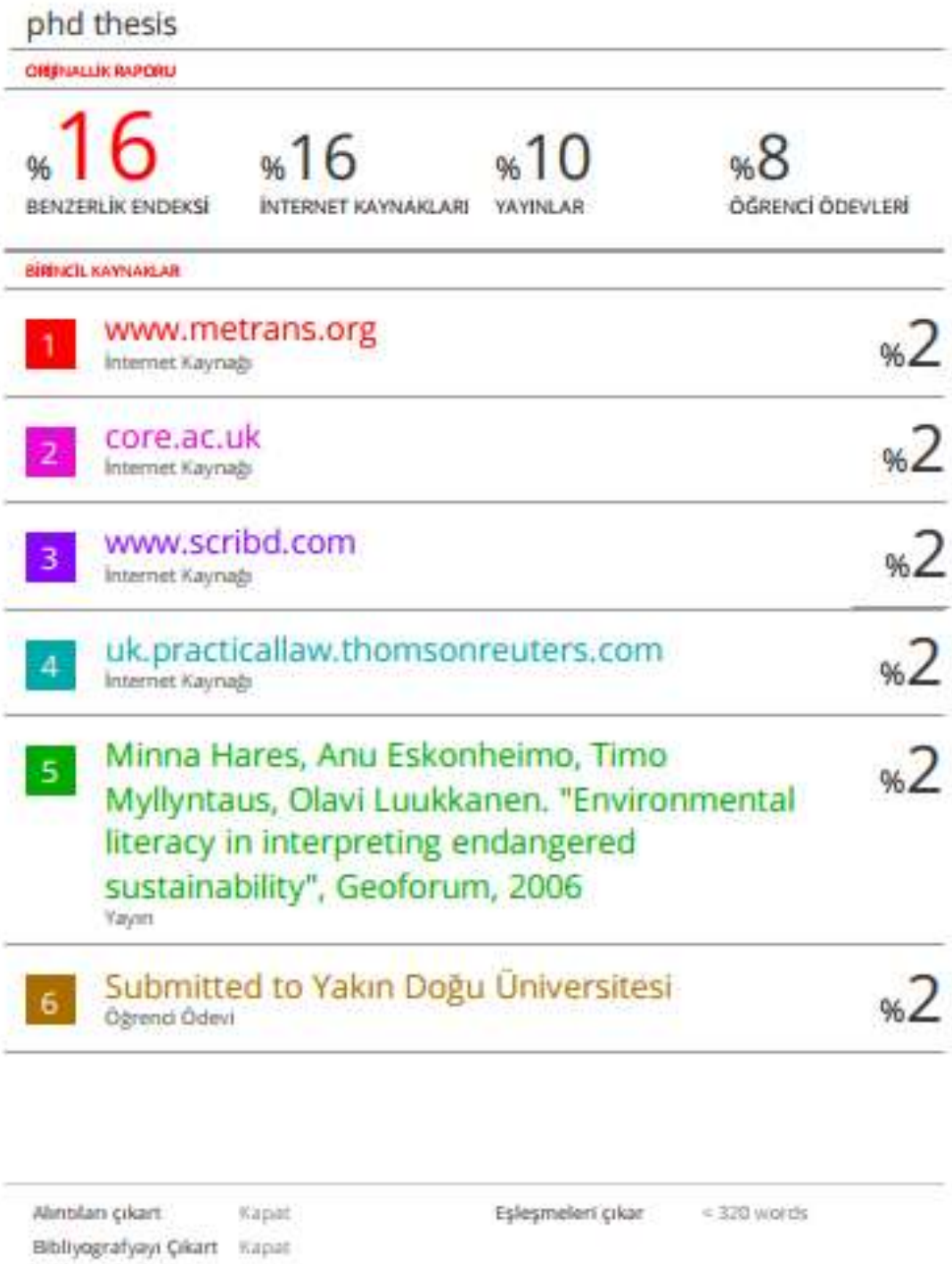

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