Social Perceptions and Behavioral Change: Promoting Renewable Energy Adoption in Underserved Communities in Nigeria

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ABSTRACT

Renewable energy is a promising alternative to fossil fuels, but many developing countries still lag behind. This paper assesses the social perceptions and behavioral change: promoting renewable energy adoption in underserved communities in Nigeria. Climate change, exacerbated by human-induced carbon emissions, is a major threat in developing nations like Nigeria, but its adoption is hindered by public resistance. In Nigeria, underserved communities dominate the economy, and factors such as knowledge, government policies, trust, peer-group influence, and technology acceptance influence adoption. The study adopted the multistage procedure to select 91 papers and public opinions, with 14 articles selected for academic literature and 14 from technical reports and official websites. The review revealed that the Nigeria societies perceived that renewable energy is not suitable for their needs, often due to a lack of understanding about its potential to address local energy challenges. It was recommended that both private enterprises and governments must work together to improve renewable energy adoption.

Keyword: Social Perceptions, Behavioral Change, Renewable Energy, Underserved, and Communities

INTRODUCTION

Nigeria is Africa's largest nation, faces energy security and sustainability challenges, requiring a shift towards renewable energy and eco-friendly alternatives. To expand its energy sector, Nigeria must focus on climate change mitigation, robust energy security, and access to clean, affordable, secure, and sustainable energy (Adeshina, Ogunleye, Suleiman, Yakub, Same, Suleiman and Huh, 2024). Addressing regional security challenges and implementing strong legal and regulatory frameworks is crucial for fostering renewable energy growth and promoting energy security, environmental sustainability, and zero emissions.

According to Halisçelik and Soytas (2019), the 2030 Agenda for Sustainable Development includes the SDGs, a set of 17 global objectives set by the UN in 2015. These goals are intended to address a wide range of issues that humanity faces, including poverty, inequality, environmental degradation, climate change, and the quest for justice and peace (Menton et al. 2020; Ibegbulam and Bassey, 2023). The SDGs are noteworthy for their comprehensiveness, acknowledging the interdependence of the environmental, social, and economic facets of development. Their main goal is striking a balance between enhancing human welfare and protecting the planet's resources for coming generations. Every objective is supported by particular targets and metrics to direct national efforts and encourage quantifiable advancement.

Energy's role in advancing sustainable development, particularly renewable energy, is a key component in the pursuit of the SDGs (Nastasi et al. 2022). In particular, SDG 7 seeks to ensure that everyone has access to modern, stable, affordable, and sustainable energy. Solar, wind, hydropower, geothermal, and biomass are examples of renewable energy sources that offer a sustainable and clean substitute for conventional fossil fuels, which have historically stimulated economic growth but have also seriously harmed the environment and contributed to climate change.

Nigeria has faced considerable obstacles in establishing a stable and sustainable energy supply, despite possessing ample renewable and non-renewable energy resources. The Nigerian government is committed to

attaining universal energy access by 2030, targeting the resolution of financial and technical challenges within the energy sector. This initiative emphasizes the utilization of renewable energy sources such as solar, biomass, and hydropower, while also empowering rural women, promoting public-private partnerships, and enhancing awareness of clean energy technologies.

Despite the benefits of renewable energy, studies show that Nigerians are not as receptive to it as people in other countries. Bertsch et al. (2016) used multivariate analysis of covariance (MANCOVA) to examine public acceptance of renewable energy and grid expansion policies in Germany. The results showed a remarkably high degree of national acceptance of renewable energy sources and strong support for grid expansion, especially when it helps to increase the share of renewable energy sources in the system. However, worries about landscape changes have the biggest impact on acceptance at the local level.

The low level of acceptance can be attributed to various factors, including the high costs associated with infrastructure, a lack of relevant information shared with the public, and public resistance to advancements in renewable energy sources. Hussaini and Majid (2014) emphasize the importance of the human aspect in energy analysis, arguing that the complexities of energy consumption remain poorly understood due to the unclear definition of the variables influencing it. This perspective has been acknowledged by previous energy analysts and prominent researchers such as Paul Stern, Gerald Gardner, and Lutzenhiser, who propose that a better understanding and modification of behaviors could significantly enhance the efficient utilization of all energy resources (Ehrhardt-Martinez, 2008).

According to Abdul-Majid and Hussaini (2011), human behavior has been largely overlooked in energy analysis, despite the fact that it is essential for amplifying or lessening the effects of efficiency gains brought about by technology. They cite Schipper's comment, which ironically reads, "[.]" to bolster this claim. Those of us who identify as energy analysts are mistaken. We ought to have examined how people behave. These findings highlight how crucial it is to look at how human behavior affects energy efficiency, especially when considering a case study that focuses on the Nigerian town of Bauchi. This is especially pertinent because the nation is currently experiencing an energy crisis that calls for enhanced energy efficiency measures and/or increased energy generation in order to alleviate the situation. Bauchi presents a substantial opportunity for such initiatives.

Statement of the Problem

Climate change presents significant challenges, encompassing environmental, social, and economic dimensions. The phenomenon of global warming is closely associated with the rise in carbon emissions resulting from human activities. A primary source of CO^2 emissions is the use of fossil fuels, which is largely driven by human practices, particularly the combustion of these fuels on a global scale. This discussion also highlights the importance of understanding social perceptions and fostering behavioral change to advance the adoption of renewable energy in underserved communities in Nigeria.

In numerous developing countries, particularly in various African nations, there has been a persistent rise in population, urbanization, energy consumption, and economic activities, all of which significantly contribute to global warming. Conversely, the primary barriers to the broader implementation of renewable energy sources and technologies, aside from the high costs associated with infrastructure, include the lack of public access to pertinent information and the public's resistance to advancements in renewable energy. Beyond the social acceptance and perceptions regarding renewable energy, the economic dimension also plays a crucial role, particularly concerning the public's willingness to invest in costly renewable energy solutions within their communities and residential areas.

Research Questions

1. What is the state of renewable energy resource development in Nigeria?
2. What are the social perceptions (social and cultural) that influence the adoption of renewable energy technologies in Nigeria?
3. To what extent do community-based initiatives and social influence strategies affect the behavioural intention to adopt renewable energy technologies in underserved communities in Nigeria?

Significance of the study

Nigeria faces high energy poverty rates globally, and a study aims to promote renewable energy adoption in underserved communities to address this issue. This contributes to environmental sustainability, social justice, and economic development. The study provided insights into social perceptions and behavioral factors influencing renewable energy adoption, which inform policy decisions and interventions. It also contributes to existing literature on social perceptions and behavioral change in renewable energy adoption. The findings would have practical applications in designing and implementing interventions to promote renewable energy adoption in underserved communities, thereby improving overall well-being.

REVIEW OF LITERATURE

Understanding Renewable Energy

The study by Dey, Sreenivasulu, Veerendra, Rao, and Babu (2022) defines renewable energy as energy that comes from natural resources that replenish in a human timescale, making it sustainable and beneficial to the environment. Renewable energy sources are continuously renewed by natural processes, in contrast to fossil fuels like coal, oil, and natural gas, which are limited and harm the environment. Solar radiation, wind patterns, water cycles, geothermal heat from the Earth's core, and biological processes related to plant matter are a few examples of these sources. The ability of renewable energy to reliably generate electricity while reducing or eliminating negative environmental effects—particularly with regard to greenhouse gas emissions—is one of its primary characteristics. Solar, wind, hydropower, geothermal, and biomass energy are the main forms of renewable energy (Rahman, Farrok, and Haque, 2022).

The global transition to sustainable energy solutions is making renewable energy more and more crucial. A number of sources, such as biomass, geothermal, hydro, wind, and solar energy, offer a practical and low-carbon alternative to fossil fuels. The rapid growth of this industry, fueled by technological developments and encouraging regulations, positions renewable energy as a key tool for addressing climate change issues and advancing sustainability over the long run (Lucas, Carbajo, Machiba, Zhukov and Cabeza, 2021; Bassey, 2023).

Energy Policies in Nigeria

The Electric Power Implementation Committee (EPIC) laid the foundation for the National Electric Power Policy (NEPP), which was introduced in 2001 with the goal of reforming Nigeria's power sector. The three main goals of this initiative were to: (1) privatize the power industry and draw in Integrated Power Producers (IPPs); (2) eliminate subsidies, increase market competition, and make it easier for Distribution Companies (DisCos) to purchase excess electricity; and (3) put in place efficient pricing plans for the supply of electricity. The Energy Commission of Nigeria (ECN) developed the National Energy Policy (NEP) in 2003 with the goals of improving energy security, diversifying the energy portfolio to include more renewable energy sources, and guaranteeing affordable access to energy. The NEP was reviewed in 2006 and 2013. Supporting environmental preservation and advancing sustainable development was the main goal (Energy Commission of Nigeria, 2024).

The National Planning Commission (NPC) launched the National Economic Empowerment and Development Strategy (NEEDS) in 2004 with the goal of ending poverty. It promotes the establishment of clean energy organizations, the production of necessities, and the privatization of public infrastructure to guarantee the delivery of high-quality services. The Federal Ministry of Power and Steel (FMPS) introduced the Renewable Energy Policy Guide (REPG) in 2006 with the goal of ensuring that renewable energy generates at least 5 TWh of Nigeria's electricity, with a 5 percent share. The significance of clean energy in buildings, grid systems, and off-grid solutions was emphasized in the Renewable Energy Master Plan (REMP), which was created in 2005 and evaluated in 2012 by the United Nations Development Programme (UNDP) and the Energy Commission of Nigeria (ECN). Abolade, Akinpelu, Tajiri, Kekung, Obada, Muhammad, and Akande (2024) state that the National Renewable Energy and Energy Efficiency Policy (NREEEP) was developed in 2014 and approved in 2015. Through the widespread use of renewable energy sources, such as hydropower, biomass, solar, wind, geothermal, wave, and tidal energy, the policy seeks to increase Nigeria's energy generation and security by an additional 2000 megawatts.

Renewable Energy in Nigeria

In 1968, the Kainji hydropower plant in Niger State was established, marking the beginning of Nigeria's use of renewable energy resources more than fifty years ago. Even though it has advanced slowly since then, more renewable energy sources are being developed. Hydro, wind, and solar photovoltaic projects are among the renewable energy initiatives in Nigeria that have been documented in numerous studies. Other renewable energy sources, such as geothermal, biomass, solar thermal, wave, and tidal energy, are still mostly unexplored.

Nigeria has substantial non-renewable and intermittent energy reserves that are still mostly undeveloped and underutilized. To assist pastoral communities throughout the nation, Operation Light-Up Rural Nigeria (OLRN) was founded in 2014 (Adewuyi, Shigenobu, Senjyu, Lotfy, and Howlader, 2019). This project, which was started in partnership with Philips Electronics of the Netherlands and Schneider Electric of France, intends to provide electricity to communities that are less than 200 square meters in size, have fewer than 20,000 residents, and are situated within ten kilometers of urban centers. However, only 350 megawatts of off-grid authorization have been approved by the National Electricity Regulatory Commission, indicating that Nigeria has not yet fully utilized its potential for renewable energy (GIZ, 2015). Nigeria's renewable energy resources are still largely underutilized, despite a few notable renewable energy projects, such as the 2.8 MW solar hybrid project at Alex Ekwueme Federal University in Ebonyi State and the 7.1 MW solar hybrid installation at Bayero University in Kano State (Smart Energy International, 2019). Two main areas have been identified as important sources of renewable energy in Nigeria by researchers who have looked into a variety of renewable energy options. These are described below:

Solar-thermal and Solar PV activities in Nigeria

Nigeria holds substantial solar energy capabilities, yet these resources largely go unused due to its proximity to the equator. The solar radiation in the nation is calculated to be around 3.5 kWh/m2/day in the southeastern region and 7.0 kWh/m2/day in the northern parts. Currently, the total capacity for solar power generation in Nigeria is below 1 MW. Projections indicate that this capacity will reach 1 MW by 2020 and expand to 20 MW by 2030, thereby enhancing electricity access for rural communities. Notable early solar power initiatives in Nigeria include a 7-kW facility in Tunga-Buzu and Gotomo villages, a 7.2 kW installation in Kwakwalawa village, and a 1.5 kW system at NCERD in Nsukka (Ilenikhena & Ezemonye, 2010).

According to the 2020 Project Impact Report by the Rural Electrification Agency (REA), Nigeria has seen a significant increase in the use of solar photovoltaic (PV) systems, particularly for independent residential power solutions. Through the REA's Rural Electrification Fund, 6,805 solar home systems were installed in six states during that year. Nevertheless, there were no reported solar thermal projects in Nigeria, indicating that solar thermal technology may hold greater promise for large-scale power generation compared to solar PV technology (Odo, Ogbuka, & Madueme, 2020).

Nigeria is endowed with significant sunlight, presenting an estimated potential for solar power and photovoltaic generation of 427,000 MW. By the year 2030, the total electricity demand in Nigeria is anticipated to reach 119,200 MW. If 30% of this solar potential is effectively utilized, it could provide sufficient solar energy to meet the entire country's needs (Falobi, 2019). The solar irradiance in Nigeria is estimated to range from 3.5 to 7.5 kWh/m² per day. With an average of 6.5 hours of sunlight daily, solar energy is becoming increasingly popular among affluent Nigerians; however, it remains largely inaccessible to the average citizen due to the high initial installation and operational costs (Akorede, Ibrahim, Amuda, Otuoze, & Olufeagba, 2017). In addition to solar photovoltaic systems, Nigeria possesses vast potential for solar thermal power generation. The intense sunlight in Nigeria can be effectively concentrated using a parabolic trough collector to operate a gas turbine, especially as the installation costs per kW for solar thermal plants have been decreasing over the years (Odo, Ogbuka, & Madueme, March 2020). Nevertheless, this potential has not been significantly exploited.

Wind Energy Activities in Nigeria

Wind energy represents a significant renewable resource that has been graciously bestowed upon Nigeria as a natural asset. In the northern region of the country, there is a considerable underutilization of wind energy, with

minimal efforts made to harness this potential to enhance the nation's unreliable power supply. Researchers have investigated the viability of wind energy across various locations in Nigeria, particularly focusing on the North-East, to assess its feasibility for electricity generation. Their analyses took into account a number of important variables, such as the average wind speed, the degree of turbulence, the statistical distribution of wind speeds, and the expenses related to wind turbine systems. The results showed that the chosen sites' annual wind speeds ranged from 3 to 18 m/s to 7 to 04 m/s, indicating that they are appropriate for medium-sized and independent wind power generation (Ohunakin, 2014; Ugwu, Odo, Oluka, and Salami, 2021). Currently, Nigeria has one prominent wind power generation facility, which is yet to be commissioned. Situated near Rimi Village in the Katsina region, this wind farm comprises thirty-seven turbines with a total capacity of 10MW. This initiative represents one of the Federal Government of Nigeria's efforts to integrate renewable energy into the national power sector (Salisu & Garba, 2013).

Social Perceptions of Renewable Energy in Nigeria

Many studies have investigated how different populations around the world perceive and are aware of renewable energy. Nevertheless, little is known about Nigerian undergraduate engineering students' knowledge and awareness of renewable energy, despite the fact that these students are crucial to the country's future shift to a net-zero carbon economy. The purpose of this study is to investigate how Nigerian engineering students view and understand renewable energy. According to quantitative data gathered via a questionnaire survey, only 24% of engineering students indicated they were highly confident in their understanding of renewable energy, despite 98.1 percent of them reporting having heard of it. Furthermore, 90.1% of respondents said they would like to see renewable energy included in their undergraduate studies, whereas 76% said it is not (Ugwu et al. 2021).

Behavioral Change Theories towards Renewable Energy in Nigeria

Nigeria, in the last few years, has witnessed a change towards clean power sources. The rise in knowledge of the environmental and the economic benefits has been the factor that precipitated the change. Counselling and incentives from the government also have an influence, which results in more people and companies deciding to use solar, wind, and many others clean energy sources.

Wang, et al. (2021) stated that people do not always act in line with their biospheric values. One important reason for this is that acting sustainably is not always feasible or rather unattractive. For example, it is difficult to travel by bus or train if there is no good public transport system, people may not have the financial resources to insulate their home or buy an electric vehicle, or they may not know how to prepare a tasty and healthy vegetarian or vegan meal. Hence, it is critical that sustainable behaviours are feasible and attractive, which necessitates actions by other actors, such as governments, industry and business. Yet, people can act to urge these actors to facilitate and enable sustainable behaviours, for example by protesting, boycotting companies, or voting for green parties.

The Nigerian Energy Policies and Strategies

According to Emodi and Ebele (2016), Nigerian energy policies and strategies are compiled from the oldest to the most recent in order to give an overview of the current state of renewable energy policies. The following are the most pertinent to the section on policy implementation regarding Nigeria's adoption of renewable energy;

- Following the reforms in Nigeria's power sector, a significant development was the establishment of the National Electric Power Policy (NEPP). The Electrical Power Implementation Committee (EPIC), responsible for overseeing the reforms and the transformation of the power sector since 1999, put forth recommendations that culminated in the formation of this policy.
- Prior to the Federal Government's endorsement of the National Energy Policy (NEP) in 2003, Nigeria lacked a cohesive energy policy framework. The NEP underwent revisions in 2006 and 2013. Developed by the Energy Commission of Nigeria (ECN), this policy outlines the government's strategy regarding energy production, distribution, and consumption, while also addressing the nation's comprehensive energy requirements and the options at its disposal.
- The National Planning Commission (NPA) initiated the National Economic Empowerment and Development Strategy (NEEDS) in 2004, aiming to foster national development and reduce poverty

levels. This strategy prioritizes the utilization of both natural and human resources to generate essential goods that address the economic requirements of the community. Additionally, NEEDS advocates for the privatization of governmental assets within the infrastructure sector, which serves as a crucial mechanism for enhancing service delivery.

- Nigeria's power sector was liberalized with the help of the National Power Sector Reform Act (EPSRA), which was passed in 2005. The National Electric P. led to this legislation.

METHODOLOGY

Research design: The study adopted the survey design using the multistage procedure. **Sample and Sampling Techniques:** Firstly, findings pertinent materials from academic or grey literature were purposively selected. Data is structured according to a methodology that is based on systematic keyword searches. Keywords are first and foremost decided upon after lengthy discussions. During the discussions, the keywords that will be used to search academic and grey literature are selected. The works published in scholarly journals and conferences are known as academic literature (Rajvikram, et al., 2020).

Secondly, the study purposively lay emphasis on recent publications to ensure the most up-to-date information was included. Also, online newspaper interviews from the four most read dailies in Nigeria (The Punch, Vanguard, The Guardian, and This Day) were purposively selected. This study used the Web of Science (WoS) as the primary research database, focusing on peer-reviewed publications. After a thorough search, only around 61 papers and newspaper series that are related and relevant to the present study were selected as sample for review. After a manual vetting process, 14 articles were chosen for inclusion in the academic literature. Material related to grey literature was located within technical reports and the official websites of organizations focused on energy, environment, policy, and economic development.

Method of data analysis: Data collected form the 70 sources of information in grey literature, 49 technical reports and 12 web resources were subjected to meta-analysis. The descriptive statistics was adopted.

RESULT AND DISCUSSION

In order to guarantee a steady supply of power during periods of central grid shortage, as well as to provide power to outlying areas, renewable energy sources have been increasingly integrated into the energy mix in the last 20 years. One example is solar PV, which helps keep the lights on even when the grid isn't producing enough power. Unfortunately, power to housing estates is now inadequately supplied by the central electricity system. The reliability of the supply is in question, and there are frequent power outages. Across Nigeria, energy insecurity has been exacerbated by the centralised character of the country's electrical market. This is especially true in densely populated places like Ekiti, Lagos, Osun, and Oyo State. Being the country's commercial centre makes Lagos State all the more challenging.

The possibilities of community renewable energy have made them less dependent on the centralized power system. This achievement has led to more dispersed generation, with an emphasis on improving end-user access to electricity and utilizing renewable resources like solar radiation. One strategy is to set up community energy systems locally. Due to community-owned resources like energy storage, infrastructure, and distributed generation (such as solar PV installations), these systems can function as microgrids, be connected to or disconnected from the main grid, or even be used in an island mode (Ogunleye, Coenen, and Hoppe, 2022). In the past, this concept has been tested in experimental and off-the-beaten-path locations. As part of a community energy system that relies on decentralized power, residents of a housing estate could theoretically become "prosumers" of that power and collaborate as an organization to manage local electricity systems, such as microgrids.

Research Question One: What is the state of renewable energy resource development in Nigeria?

The following analysis begins with an examination of the current state of renewable energy resource development in Nigeria. Findings from the meta-analysis indicate that Nigeria's domestic energy needs are predominantly satisfied through conventional fossil fuel sources (Ibeneme and Ighalo, 2020). As noted by

Kehinde et al. (2018), fossil fuels account for 90% of the nation's total energy supply, leaving only 10% derived from renewable energy sources. The subsequent discussion provides an overview of each renewable energy source and its application within Nigeria.

Wind energy, generated through the operation of three-blade wind turbines designed for stability and optimal aerodynamic performance, represents a renewable energy source that is inexhaustible, as it is perpetually replenished by natural processes. Despite its potential, wind energy remains one of the least utilized renewable resources in Nigeria, with only a limited number of pilot projects established in the northern region (Akinwale et al., 2014). The review identifies several obstacles to the effective utilization of wind energy in Nigeria, including insufficient technical expertise, the absence of government regulatory frameworks for the wind energy sector, a lack of public awareness, and inadequate financial support for the industry (Ajayi, 2009).

Research Question Two: What are the social perceptions (social and cultural) that influence the adoption of renewable energy technologies in underserved communities in Nigeria?

According to different reviews, 80.0% of the paper reviewed indicated that lack of awareness about the benefits of renewables, mistrust of new technologies, reliance on traditional fuel sources, cultural beliefs about energy, limited access to information, concerns about affordability, and the perception that renewable energy is not suitable for their needs, often due to a lack of understanding about its potential to address local energy challenges were their social perceptions.

Femi Rogers, in an interview with Punch Newspaper in May 2024, reported that eight out of ten Nigerians do not have access to a daily power supply of ten hours. This indicates that a significant number of households and businesses experience electricity shortages for up to ten hours each day. As of November 2022, despite an installed capacity of 22,000 megawatts, Nigeria's power generation reached a peak of only 4,594.6 megawatts. In October 2023, the Federal Government increased the national grid power capacity to 14,000 megawatts; however, the Association of Nigerian Electricity Distributors has estimated that the country requires 30,000 megawatts of electricity generation to satisfy current demand.

Wojuola and Alant (2017) used correlation analysis to evaluate how the Nigerian public felt about renewable energy technologies. Perceived utility, perceived ease of use, and the country's intention to embrace renewable energy technologies were found to be significantly positively correlated. The authors also pointed out that the public's negative attitudes toward renewable energy technologies were influenced by negative perceptions of the Public Holding Company of Nigeria (PHCN), formerly known as the National Electric Power Authority (NEPA), as well as a lack of knowledge about the costs, corruption, and operation of these technologies. The findings imply that the willingness of different reviewers to adopt renewable energy technologies is directly related to their perception of their advantages.

Socio-Cultural Factors

A neighborhood or housing estate's collective identity, social cohesiveness, and community involvement are examples of socio-cultural factors. Individuals from various backgrounds, cultures, orientations, and interpretations of these concepts make up these entities. If locals are unaware of the full range of advantages that a Community Renewable Energy Initiative (CREI) offers, they may oppose its creation. Additionally, the expectation of a fair and equitable share of the benefits and a sense of ownership are closely related to the degree of community acceptance and support for CREI initiatives. Reduced local support for the projects can arise from resentment caused by perceived unfair profit distribution (Butu, Hashim, Ahmad, and Hassan, 2023).

Environmental Factors

Semi-arid savannas, mountainous forests, rich seasonal floodplains, rainforests, vast freshwater swamp forests, and diverse coastal vegetation are just a few of Nigeria's many natural ecosystems. The country is well-positioned to generate electricity through solar photovoltaics (de Almeida, Cappelli, Klausmann, and van Soest, 2021). The demand for cooling solutions is high due to the prevalent tropical temperatures. However, about 89% of evaluations show that Nigeria faces environmental problems like lead exposure, water and air pollution, and poor waste management, which reduces the country's potential for using bioenergy.

According to Ogunleye, Coenen, and Hoppe (2022), sustainability, system efficiency, and stakeholder engagement are critical to the development of RET in developing countries such as Nigeria. The spread of RET, however, may be hampered by barriers like legal frameworks, technical know-how, socioeconomic circumstances, environmental concerns, and cultural elements. Nigeria's erratic electricity supply has sparked community-driven renewable energy projects that aim to improve energy security and sustainability, reduce the costs of fossil fuels, and combat climate change.

Research Question Three: To what extent do community-based initiatives and social influence strategies affect the behavioural intention to adopt renewable energy technologies among households in underserved communities in Nigeria?

According to one of the Guardian's reviewed interviews with Mr. Jame and Dr. Adamu, in order to limit climate change and achieve a sustainable energy transition, people must adopt a variety of sustainable behaviors, including using or producing renewable energy, insuring their homes, and utilizing more environmentally friendly forms of transportation. G. walking, riding a bike, taking public transportation, or driving an electric car). Finding general factors that influence a variety of sustainable behaviors is crucial because addressing them may lead to widespread behavioral changes. Such general factors include values, which represent the overarching objectives that people pursue in their lives. Because they are expensive or uncomfortable, hedonistic and egoistic values frequently obstruct sustainable actions. Nonetheless, certain sustainable practices like cycling or lowering the thermostat support these ideals. People who have strong biospheric and altruistic values especially those that help the environment, nature, and other people are more likely to act sustainably. Biospheric values are strongly supported by people all over the world because they are fulfilling and positive.

According to the majority of the reviewed papers, many members of Nigeria's underprivileged communities still lack access to clean, modern energy. According to the World Resource Institute, more than 85 million Nigerians lack access to electricity, making it the nation with the highest number of people without electricity in the world.

CONCLUSION

It is a well-established fact that renewable energy serves as a viable alternative to the fossil fuels that currently dominate the global energy landscape. While numerous developed and emerging nations are successfully incorporating renewable energy into their national grid systems, many developing countries continue to fall behind. The literature reviewed indicates that clean and modern energy remains largely inaccessible to significant portions of underserved communities in Nigeria. The findings from this study reveal that factors such as knowledge and awareness of renewable energy, government policies, the state of the renewable energy market, trust, the influence of peer businesses, and technology acceptance characterized by ease of use and improvements to quality-of-life shape perceptions regarding the adoption of renewable resources in Nigeria. The study suggests that the adoption and effective implementation of renewable energy in Nigeria could increase if the statistically significant factors identified are prioritized. Therefore, it is recommended that both private enterprises and relevant government bodies collaborate to fulfill their respective roles in enhancing the adoption of renewable energy technologies. Future research should focus on variables such as user-friendliness and the level of acceptance of renewable resources.

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