

ЭКОНОМИКА

PROSPECTS AND CHALLENGES OF GREEN PRACTICES ADOPTION BY MANUFACTURING COMPANIES IN OGUN STATE, NIGERIA

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Abstract. *The introduction of green practices in the manufacturing sector has offered significant benefits to manufacturers, individuals, livelihoods and environmental resources. Notwithstanding the benefits, some structural and non-structural challenges undermined the utilization of green innovation, processes, and practices, especially in developing countries like Nigeria. The existence of these challenges has continued to obstruct the process of attaining an improved social, environmental and economic condition in many industrial communities in Nigeria. In a bid to address this problem, the study investigates the prospects and challenges of green practices adoption towards a sustainable environment in Ogun State, Nigeria. The study examines the perception of the employees of selected manufacturing firms, environmental enforcement agencies as well as residents of industrial communities in Ogun State, Nigeria. The study adopts a cross-sectional, descriptive survey research design and area-based technique. A multi-subject household survey and multi-stage sampling technique were used to select a total of 321 respondents for the study and data collection. Both qualitative and quantitative data were collected and analyzed. The quantitative data were analyzed using descriptive statistical method while the qualitative data were analyzed using qualitative content analysis. The findings of the study revealed that green practices adoption brought about social change in consumption patterns, lifestyle, efficient management of waste, environmental risk reduction. In spite of these benefits, the findings revealed that lack of technological know-how, poor maintenance culture, cost of repair and replacement of abatement plant, managerial issues, and corruption were the key obstacles to green practices implementation and sustainable environment in Nigeria. The study concluded that a stakeholder mapping approach will help address the challenges of green practices adoption in Nigeria.*

Keyword: *Challenges, Environment, Green Practices, Industrial communities, Nigeria*

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Introduction

Green practices adoption and infusion by business organizations and manufacturing companies are increasing in volume globally. Global report on environmental performance and management revealed that more business organizations and manufacturing companies are now conducting their operations within the sustainability norms and standards. Utilizing the reasonable worth system of Hart and Milstein (2003), business associations are probably going to work inside the supportability standards to make practical worth investor riches that at the same time drives toward a progressively maintainable world. Regardless of this fact, the

momentous accomplishment in the selection of internal (contamination anticipation and clean innovation) and external (item stewardship and maintainability vision) green practices can be ascribed to the expanding consideration which natural issues have picked up among contemporary scientists, strategy producers, and advancement specialists. It is likewise strengthened by the expanding endeavors to advance green practices appropriation and implementation among business associations globally.

The term green practices have been characterized as eco-bolstered advancements, choices, and standards structured and that are utilized by individuals and associations to improve the natural condition (Ho, Lin, and Tsai, 2012; Conding, Zubir, Hashim and Lanang, 2012; Dallas, 2008). From another point of view, Bergmiller and McCright (2009), Lin and Ho (2011) characterized green practices as the advancement and use of mechanical developments like clean/sunlight based innovation, sustainable power source, cleaner generation method, green building, and eco-accommodating managerial information in an offer to upgrade the ecological presentation of corporate associations. This stance is likewise kept up by Green Jr., Zelbst, Meachan and Bhadauria (2012) who saw green practices as a procedure of presenting new improved advances or methods into authoritative exercises to guarantee dependable assets utilization, green generation, building, showcasing, and compelling waste administration framework. At the end of the day, the term green practices can be depicted as headway in creative procedures, information, and practices that advance ecologically agreeable exercises, innovations, choices, and ways of life among people or corporate associations in building a feasible situation, social and monetary improvement (Schaltegger, 2002; OED, 2011).

Statement of the Problem

Disappointingly, there are varieties in the manner in which associations work and seek after the natural maintainability standards and green practices. While a few organizations have a superior list in green practices appropriation and implement, others have recorded a low execution list. In this unique situation, contemporary specialists have increased their exertion in researching and archiving the substances and elements of green practices reception and mixture among business associations. To support this position, a surviving google search of articles with the title-green practices both in business associations and assembling firms demonstrated that roughly one hundred and thirty million distributions have been distributed as of mid-January 2020. Be that as it may, just not many of the accessible distributions report the situation of green practices selection and implantation among key segments of the economy in the developing nations including Nigeria. This gap in writing may have added to the horrifying degree of ecological execution of business associations and assembling organizations in Nigeria specifically.

A further examination of scholastic writing uncovers that the greater part of the assembling and manufacturing organizations in Ogun State, Nigeria appears to have given practically zero consideration to the need to adjust and inject green practices in their tasks and work frameworks as expanding reports from observational-based inquires about indicated that modern exercises have caused the presence of ecological difficulties, for example, air, water, and land contamination, just as different types of natural corruption coming about because of assembling exercises in mechanical networks in Ogun State, Nigeria. These natural difficulties negatively affect individuals' prosperity, occupation, and cultural improvement. They likewise add to the development pace of medical clinic affirmations, infection flare-up, destitution, and social underestimation. Thusly, the investigations led by Eruola, Ufoegbune, Eruola, Awomeso, Adeofun, Idowu, and Abhulimen (2011), Adewole (2009) revealed that water contamination can cause water-related maladies like poliomyelitis, viral meningitis, hepatitis, fever, loose bowels, cholera, typhoid, looseness of the bowels, just as increment

turbidity and broke down oxygen levels with associative effects on individuals' prosperity, job, and amphibian living beings. Correspondingly, Bada, Olatunde, and Oluwajana (2013) uncovered that human exposure to air contamination can cause intense wellbeing impacts to incorporate eye aggravation, migraines, and queasiness; and constant wellbeing impacts incorporate diminished lung limit and lung malignant growth.

Various formative and natural specialists have uncovered that the vast majority of the inhabitants of assembling or mechanical networks in Ogun State, Nigeria are devastated, and they encountered social and physical issues like unpredictable dumping of squanders, breakdown of building, desertification, decrease in biological assets, the absence of clean consumable water, clamor from modern machines, just as electrical force plant bringing about genuine physical and medical problems. The existence of these challenges has continued to obstruct the process of attaining an improved social, environmental and economic condition in many industrial communities in Nigeria. In a bid to address this problem, the study investigates the prospects and challenges of green practices adoption towards a sustainable environment in Ogun State, Nigeria.

Methodology

This study was conducted in four in four (4) Local Government Areas namely Ado-Odo/Ota, Obafemi-Owode, Ewekoro and Egbado-North in Ogun state, Nigeria where a large concentration of manufacturing companies coexist. The study adopted a descriptive and cross-sectional design in which the questionnaire was employed in collecting data from the respondents on the subject matter. The participants for the study comprised of five hundred (500) employees of ten (10) manufacturing companies in the selected study areas in Ogun State, Nigeria. The participants were employees in the following Departments (Procurement and Logistics, Sales and Marketing, Production and Quality Control, Environmental Management, Human Resource, and Customer Relations). The reason for the consideration of these departments' lies in the fact that employees who work in those Departments are expected to have in-depth knowledge of the subject matter and would be able to provide useful information for the study. Also, the participants for the study cut across different occupational cadres (junior, intermediary, supervisory and senior management cadre) which were selected through a multi-stage sampling technique. The distribution of the sample size is presented in Table 1.

Table 1. Distribution of Sample Size by Each Manufacturing Company

Manufacturing Firms	Size of the Firm	LGAs	Total no. of staff	Samples	Percentage (%)
A	Large	Ado-Odo/Ota (Agbara)	650	66	13.2
B	Large	Ado-Odo/Ota	209	21	4.3
C	Large	Ado-Odo/Ota	410	42	8.3
D	Large	Ado-Odo/Ota	328	34	6.7
E	Large	Ado-Odo/Ota	173	18	3.5
F	Large	Ewekoro	600	60	12.2
G	Medium	Ewekoro	170	18	3.5
H	Medium	Ewekoro	87	9	1.8
I	Large	Egbado-North (Ibese)	1500	152	30.5
J	Large	Obafemi-Owode (Magboro)	790	80	16.0
Total			4917	500	100

Source: Field Survey, 2017.

Instrumentation

A semi-structured questionnaire was used in this study. The questionnaire contained 31 items on a 6-point Likert type scale. The items were adapted with some modifications from the Perceptual Awareness Scale developed by Ramsøy and Overgaard (2004) using the 4-point scoring method. The 4-point scale with responses ranging from 1-Strongly Disagree 2-Disagree 3-Agree 4-Strongly Agree. The questionnaire has a Cronbach alpha value of 0.896 and 0.875 as the internal consistency and revalidation reliability respectively. Also, the questionnaire was subjected to construct and content validity scrutiny by experts in psychometrics who confirmed the validity of the instrument.

Procedure for Data Collection

The participants for the study were administered the questionnaires with the help of two trained research assistants. The collected questionnaires were scored and the data obtained from them were analyzed to achieve the purpose of the study. On the whole, it took the researcher and assistants two months to administer and collect the distributed questionnaires. This is due to the bureaucratic nature of corporate organizations and the need to observe the ethical considerations associated with the study. A total of 321 copies of questionnaires were duly filled and returned, giving a return rate of 64.2%.

Data Analysis

The data collected were analyzed using descriptive statistics and content analysis to depict the respondents' responses to the prospects and challenges of green practices adoption and infusion by manufacturing companies in Ogun State, Nigeria.

Ethical Issues in Data Collection

Ethical standards that incorporate intentional interest, secrecy, and privacy were carefully seen throughout this investigation. As a matter of first importance, the endorsement was looked for from each manager of the division under study. While the assent of the forthcoming respondents was likewise acquired before the instrument was appropriated to them. Additionally, every respondent was made to realize that they are allowed to retreat from the investigation anytime. The respondents were informed about the normal results or advantages of the investigation with the goal that their cooperation in the examination can be intentional. The data got from the respondents was utilized for the scholarly reason just and the personalities of the respondents were kept mysterious and carefully secret.

Results

The employees' respondents' views on the benefits derived from implementing green practices in the selected manufacturing companies are presented in Table 2. The information in the table showed that most of the employees (42.0%) strongly agreed that green practices adoption and infusion reduced the rate of industrial emission discharge and environmental challenges, 37.8% agreed while only 13.1% and 2.2% disagreed and strongly disagreed respectively.

Table 2. Distribution of Respondents' Views on the Benefits of Green Practices Adoption and Infusion by Manufacturing Companies

Green practices adoption and infusion has reduced industrial emissions and environmental challenges	Frequency	Percentage
Strongly disagree	07	2.2
Disagree	42	13.1
Undecided	19	5.9
Agree	118	37.8
Strongly agree	135	42.0
Total	321	100.0
Green practices adoption and infusion have made economic activities to be more friendly with the socio-environmental condition	Frequency	Percentage
Strongly disagree	19	5.9
Disagree	21	6.5
Undecided	71	22.2
Agree	133	41.4
Strongly agree	77	24.0
Total	321	100.0
Green practices adoption has improved material management and social impact of manufacturing activities	Frequency	Percentage
Strongly disagree	32	10.0
Disagree	43	13.4
Undecided	29	9.0
Agree	157	48.9
Strongly agree	60	18.7
Total	321	100.0
Green practices implementation encourages the application of innovation and ideas for manufacturing companies	Frequency	Percentage
Strongly disagree	10	3.1
Disagree	13	4.1
Undecided	28	8.7
Agree	73	22.7
Strongly agree	197	61.4
Total	321	100.0
Green practices adoption is a good strategy to enhance the company's reputation and corporate image	Frequency	Percentage
Strongly disagree	21	6.5
Disagree	11	3.4
Undecided	09	2.8
Agree	107	33.3
Strongly agree	173	54.0
Total	321	100.0

Source: Field Survey, 2017.

Furthermore, the result shows that most of the respondents (41.4%) agreed that green practices adoption and infusion had made economic activities responsive to the socio-environmental condition, while 24.0% strongly agreed. Also, 6.5% and 5.9% disagreed and strongly disagreed respectively. Moreover, it is evident that green practices adoption has improved material management and social impact of manufacturing activities as 48.9%

agreed to this, while 18.7% strongly agreed. On the other hand, 13.4% disagreed with this and 10.0% strongly disagreed. The implication here is that with green practices adoption most manufacturing companies may develop new and efficient production technique which guarantee judicious utilization of resources right from the point of production, packaging, distribution, consumption and reverse waste management. This represents a significant transition from traditional manufacturing strategy (in the era before the green revolution) to modern-day alternative green manufacturing strategy. Moreover, the respondents were asked to indicate whether green practices implementation encourages the application of innovation and ideas for manufacturing companies. The result shows that the bulk of the respondents (61.4%) strongly agreed to the statement, while 22.7% agreed. Likewise, 4.1% and 3.1% disagreed and strongly disagreed respectively. More so, a majority of the respondents (54.0%) strongly support the view that green practices adoption is a good strategy to enhance the company's reputation and corporate image, while 33.3% agreed. Similarly, 3.4% disagreed and 6.5% strongly disagreed. Investigating the issue further, key informant interviews (KIIs) were conducted to know the benefits of green practices adoption and infusion by manufacturing companies in Nigeria. Based on thirty-four years of working experience, an environmental-health officer asserted that:

Honestly speaking, a lot of advantages can be derived from adopting green practices by manufacturing companies. First and foremost, manufacturing activities always generate a lot of unwanted materials that might result to air, water or land pollution if not properly managed. The management there is what green practices are meant to do for any manufacturing company that adopted it. It helps to reduce most of the social and health risks that are generated as a result of manufacturing. Green practices reduce the rate at which emissions are disposed into the atmosphere and it helps to address the issue connected with climate change which has become very important for both developed and developing countries today. Researchers have shown that the environment we have today was not the same with the one we had as far back as the early nineteenth century because a lot of alterations have been done due to growth in human interactions with nature ... I can vividly remember that in the 70s when I was still at college, we used to be so concern with issues of hygiene and sanitation because there was nothing like climate change then. But today, it has been climate change, the spread of deadly diseases, flood, water pollution, air pollution, land pollution, etc. that are now confronting every one of us. Therefore, green practices adoption has enormous benefits that I cannot exhaust in a moment and these benefits are essential to human, plants and animal sustainability (*KII/Director/Environmental Health Dept./Ado-Odo Ota /2017*).

Similarly, a senior environmental health officer at Ewekoro Local Government Area said:

Concerning the benefits associated with the adoption of green practices by manufacturing companies, I will say there are many however, green practices ensure that there is efficient utilization of resources, energy conservation, safety at work, reduction of industrial pollution and environmental degradation as well as profit-maximization (*KII/Officer/Environmental Health Dept./Ewekoro/2017*).

In addition to the above responses, a scientific officer in the ministry of environment stated that:

Scientifically, green practices adoption by manufacturing companies is essentially good. This is because it guarantees the quality of management, organizational workforce, work systems, and community well-being. Also, green practices help to mitigate the impact of manufacturing activities on the environment and societal institutions (i.e. family, education, religion, economy, and politics). For instance, some of the health issues that affect people as an individual or as a group in an industrial environment can be resolved with the

implementation of green practices or clean technologies (*KII/Scientific Officer/Ministry of Environment/Abeokuta/2017*).

From the above responses, it could be deduced that the adoption and infusion of green practices by manufacturing companies have initiated a paradigm shift towards a new manufacturing strategy which has enormous benefits to manufacturers, employees, customers, government, and other stakeholders. For instance, it has improved the environmental and social conditions of people (by reducing the rate of pollution arising from manufacturing activities) within and around the industrial environment, created employment opportunities for ecopreneurs, innovations and improved people's access to eco-friendly products and alternative energy. Green practices implementation has brought about social change which is the alteration of social structure including consequences and manifestations embodied in norms, values, and cultural practices of individuals and groups. In this context, green practices had encouraged sustainable consumption patterns, lifestyle, efficient resource management and utilization, quality management practices, environmental risk reduction, as well as sustainable development.

Challenges of Green Practices Adoption and Infusion in Nigeria

Despite the enormous benefits associated with the adoption and infusion of green practices by manufacturing companies, there are several handfuls of challenges that tend to undermine the implementation and practicality of green manufacturing strategies. Hence, this study attempts to investigate the challenges of green practices adoption and infusion by manufacturing companies in the selected Local Government Areas of Ogun State, Nigeria. To achieve this goal, the qualitative data gathered through key informant interviews and in-depth interviews were analyzed simultaneously. For instance, one of the key informants revealed that:

The issue in Nigerian manufacturing firms is that why some companies are so reluctant in adopting the kind of green practices or environmental management facilities that they needed in ensuring pollution-free manufacturing activities, others do adopt or put in place necessary pollution abatement plants in the management operations. However, many of those who have adopted green systems or practices do face one challenge or the other. Part of the challenges that I have seen in the course of my inspection with many manufacturing companies in Ogun State are; lack of technological know-how, lack of maintenance, cost of repair or replacement when the systems are faulty, importation bottlenecks, managerial issues, lack of trust in indigenous engineers and their products which invariably increase the rate of occurrence of environmental pollution (*KII/Director/Information, Research and Statistics/ Ministry of Environment/Abeokuta/2017*).

Another key informant interviewee shared his experience at a steel-producing industry and said:

Manufacturing companies face different and numerous challenges in terms of adopting and utilizing green practices in Nigeria. One of the challenges, I observed in the company we visited lately was that most of the employees in that company are not using the safety gadgets being given to them by the management and not only that there is also a lack of maintenance culture, non-stringent policies, and rules to reinforce employee's compliance with green practices implementation by the workforce and the management (*KII/Director/Environmental Health Dept./Ewekoro /2017*).

As a rider to why some employees decide not to comply with the management green practices, a respondent submitted that:

Because a majority of the manufacturing companies we have in Ogun State, Nigeria are owned by foreigners (especially Indians) and some of them don't care about the welfare of the

workers. They don't have adequate facilities and toilets. They are also short of staff. All of these are challenges affecting green practices implementation in manufacturing firms in Nigeria that invariably increase the rate at which manufacturing activities generate environmental pollution and other social problems in communities in the industrial environment (*KII/Director/Environmental Health Dept./Ado-Odo Ota /2017*).

To debunk the extent to which the activities of manufacturing firms affect people's wellbeing, in-depth interviews were conducted among residents in the selected communities. During an interview session, a respondent at Ewekoro Local Government Area desolately affirmed that:

This community has one of the largest cement companies in Africa but due to the environmental pollution that accompanies manufacturing activities, we are contending with many environmental challenges in this community, For instance, there is dust and noise pollution. The issue of dust particularly has affected many lives in such a way that we have people with health problems like catarrh, cough, blockage of the lungs, cancer of the lungs and so on. In the same way, noise pollution has caused sleeplessness, hearing difficulties, hypertension, headache and fever to many of us here. These environmental challenges occur due to the blasting and mining of limestone on the site; many of our houses had cracked while a number of them had also collapsed as a result of the vibrations that do occur during the blasting. This is particularly true as you can see (pointing to a shop with a heavy crack on its wall) there are only a few buildings in this community that is not affected by the vibrations. That is not all; we also experience skin cancer and low farm output due to water contamination and loss of soil nutrients in the process of mining of a limestone (*IDI/Male/Resident/Ewekoro Community/Ewekoro/2017*).

In confirming the statement above, some scenery pictures that were taken during the interview session are presented below:



Fig. 1: Showing a Shop Affected by Industrial Blasting at Ewekoro, Nigeria.

Investigating the issue further, the respondent was asked whether the management of the company is aware of the situation in their neighborhood, He said:

Yes, they are fully aware of the situation and they have made several attempts to dialogue with the community on how to address the problems. In the last discussion, they had with the youth group of the community they promised that every year the company will give scholarship and employment to the youth of the community, and also embark on an annual community development project. The first development project that the company did was the construction of modern toilets (that you will see over there and there are still more in other

strategic locations in the community) as well as the grading of the road that leads into the community. However, the main concern is that people in the community are still experiencing serious socio-economic hardship and health hazards due to environmental degradation. This scenario has constantly generated disagreement among the youths and elders in the community because most of the funds that are allocated for community development projects and humanitarian assistance are being embezzled by the committee in charge. For instance, we were told by an insider that a huge amount of money has been given to the committee in response to assist owners of houses or buildings that are affected by the vibrations and blasting of limestone in the community; yet nothing has ever been done to the vulnerable people. The most interesting part of the whole scenario is that there are factions among the committee and even the youth on this matter. While some people are protesting against the misappropriation of the fund, others are not in support of the protest probably because they also spent out of the money for personal purposes or because they are not so affected by the environmental issue. As I speak to you, the Baale (chief leader) of the community is out of the country to see his family abroad; he travels now and then.... He rarely stays for six months with the community members and he does not handle the matter the way we expect him to do... unfortunately, there is little that the majority of the residents can do to address the issue (*IDI/Male/Resident/Ewekoro Community/Ewekoro/2017*).

To corroborate the information above, a key informant in the same Local Government practically explained that:

The human environment is composed of green vegetation that feeds on what we emit as waste. This is because the green vegetation will take whatever we emit as waste as their food and give us oxygen... Thus, when human beings discharge toxic waste, green vegetation will be affected. The challenge here at Ewekoro is that the solid base of the land is composed of cement. Secondly, I discovered that all their vegetation has stunted growth. For instance, if you plant cassava the rate of germination will be very slow just because of the cement base and the emission from the factory. Also, when the company discharges dust and smoke into the atmosphere, it would come back to settle on the green vegetation and at the end of the day, it will block the chlorophyll that the plant will use to manufacture their food. They will not be able to receive the carbon dioxide needed for their growth and at the end of the day they will now turn yellowish – that is lack of chlorophyll. So, that is what we are experiencing here. Even there is no way you will dig a borehole in this area that you will not get hard water because all the land is cement base. Also, the health risks associated with dust cannot be overemphasized because when someone inhales cement dust it may lead to blockage of the lungs (otherwise called cementomiosis) or cancer... That is what I perceived to be the environmental challenges in this area. (*KII/Director/Environmental-Health Dept./Ewekoro/2017*).

Moreover, in an interview session conducted with a respondent who lives in Sango-Ota said:

Although the adoption of green practices by manufacturing companies in Ogun State, Nigeria has significantly reduced the level of environmental atrocities that many manufacturing firms operating in Sango-Ota do commit. In the past, we used to see the heap of waste dumped on street corners, drainage, open space or public land which constitutes pollution in this area. Well, for now, the main environmental pollution from the manufacturing companies that operate in this area is wastewater disposal and unpleasant smell. For sometimes now, we have not had serious environmental challenges apart from the one I mentioned. Though we used to engage in periodic cleaning and sanitation and we are coping with the challenge because there is little or nothing that we can do to control the unsustainable activities of manufacturing companies in our neighborhood. A majority of them are owned by foreigners who are politically affiliated and they are supported by top

politicians in Nigeria. Hence, the only thing that we do is to adjust or cope with the situation here and if we cannot cope we move out to another location. (*IDI/Female/Resident/Sango Ota/Ado-Odo ota/2017*).

In addition to the view above, a key informant said:

A majority of the manufacturing companies in Ado-Odo Ota have political influence across the three tiers of government that we have in Nigeria. As such, they utilize their political affiliation in finding their way out of being sanctioned when they violate environmental regulations. The implication of this act affects the regulatory efforts and well-being of the people who live around the manufacturing companies. Unfortunately, most of the people who reside around the industrial environment (particularly in Awori land here) rarely advocate for green practices or pressurize the companies to adopt green practices in their operations because the companies will give carrot "Isakole" to the community leaders, chiefs and Obas before they commence their business activities. (*KII/Officer/Environmental-Health Dept. /Ado-Odo Ota/2017*).

Arising from the responses above, the key informants were interrogated on a government effort to promote green practices among manufacturing companies in Ogun State, Nigeria. An interview with a scientific officer in the ministry of environment revealed that:

Sincerely speaking, the Nigerian government is trying yet there is still more to improve upon because there is a problem of weak environmental law enforcement as a result of the inadequate provision of needed facilities in the majority of the environmental agencies in Ogun State, Nigeria. This particular challenge limits the extent to which we officers can carry out our duty to ensure that green practices are implemented in manufacturing companies in Ogun State, Nigeria. Take, for example, just yesterday we planned to visit about three companies in Agbara for inspection and monitoring but due to lack of buses, bad roads and other logistic challenges we got to Agbara very late and we could only visit one out of the three companies that we intended to visit. This kind of situation affects the process of green practices implementation and enforcement in Ogun State, Nigeria.... Regardless of the challenge of inadequate facilities, we still ensure that we environmental laws are given utmost priority by manufacturing companies (those who are in operation and those who are yet to commence their operation), we also carry out a critical assessment of the activities of manufacturing companies in Ogun State, Nigeria. Similarly, we regularly visit many of the manufacturing companies and we engage them further on the need to comply with environmental laws and regulations in Ogun State, Nigeria. (*KII/Officer/Ministry of Environment/Abeokuta/2017*).

Similarly, a key informant in Ewekoro Local Government Area affirmed that:

The government has done a great job by setting-up Ogun State Environmental Agency (OGEPA) to monitor and enforce environmental law compliance among companies in Ogun State, Nigeria. They also organize seminars to educate and encourage manufacturers on the importance of environmental law compliance to them, communities and people living around the industrial environment. However, some of the challenges we encountered in the process of discharging our responsibilities as environmental-health officers are lack of personnel, lack of vehicle and waste collection truck as well as other equipment that could facilitate effective enforcement of environmental laws in Ogun State, Nigeria. (*KII/Director/Environmental-Health Dept. /Ewekoro/2017*).

Furthermore, another key informant in Ado-Odo Ota Local Government Area stated that:

One of the major challenges to environmental law enforcement in Ogun State, Nigeria is lack of funds. Truly, the government is trying to provide financial support to environmental enforcement agencies in the State, however, the cost of ensuring livable and healthy environment cannot be paid by the government alone, there is a need for private investors who will join hands with the government in providing financial assistance for the

environmental law enforcement agency. This so important because when there is an outbreak of disease (God forbid it from happening in Nigeria), it will affect everybody and not the government alone or the manufacturing companies; therefore, there is a need for collaboration and public-private partnership on environmental management in Ogun State, Nigeria (KII/Director/Environmental-Health Dept. /Ado-Odo Ota/2017).

From the above responses, it is evident that challenges are facing green practices adoption and infusion in Nigeria as a result of structural and non-structural factors. However, the Nigerian experience may not be as that of countries like Malaysia, China, Thailand, Taiwan, Canada, United States of America, Britain, South Africa, and so on that had been able to advance the level of green practices or sustainable environmental management in manufacturing sector of the economy for several years before now (Dallas, 2008; Bergmiller & McCright 2009; Lin & Ho, 2011; Ho, Lin & Tsai, 2014; Conding, Zubir, Hashim & Lanang, 2012). The respondents revealed that green practices adoption and infusion in Nigeria is faced with the challenging lack of technological know-how, lack of maintenance culture, cost of repair, managerial issues, and lack of trust in indigenous engineers, non-stringent policies, and rules to reinforce employee's compliance to green practices implementation by the management. Sequel to the present reality in the Nigerian manufacturing sector, it can be affirmed that the socio-economic and health conditions of people residing in the selected industrial communities are negatively affected. Though a lot of efforts had been geared toward improving the well-being of the people and their livelihoods by the government, however, more proactive and palliative measures are still much needed in the study area.

Discussion of Findings

The findings of the study established that green practices adoption and infusion have initiated a paradigm shift towards a new manufacturing strategy which has enormous benefits to manufacturers, employees, customers, government, and other stakeholders. For instance, the study shows that green practices adoption and infusion by manufacturing companies can enhance the environmental and social performance of manufacturing firms (by reducing the degree of emission and pollution) within and around the industrial environment, encouraging the use of alternative energy as well as cleaner technologies. The findings uphold the findings of Hamdouch and Depret (2012), Conding, et. al., (2012), Lin & Ho (2011), Chung and Wee (2008) and Schaltegger (2005) who in their studies submitted that green practices adoption or sustainable manufacturing practices provide benefits such as improved water and air quality, energy savings, material management, public health, social impacts, corporate image booster, etc. The findings substantiate the works of Ho et. al., (2014), Lakshmi and Visalakshmi (2012) who established that implementing green practices in production and service activities would create a healthy environment and conservation of natural resources needed for the development of present and future generations. Similarly, the findings support Comoglio and Botta (2012) who noted that companies who adopt green practices in their work systems are likely to enjoy a favorable competitive advantage, employee commitment, profit maximization, customers and suppliers' satisfaction. The study also reveals that green practices implementation has brought about social change which occurs through the alteration of social structure including consequences and manifestations embodied in norms, values, and cultural practices of individuals and groups. In this context, green practices had encouraged sustainable consumption patterns, lifestyle, efficient resource management and utilization, quality management practices, environmental risk reduction, as well as sustainable development.

Furthermore, the challenges of green practices adoption in Nigeria. The findings reveal that there are challenges such as lack of technological know-how, poor maintenance culture,

the huge cost of repair or replacement of abatement plant, managerial issues, and lack of trust in indigenous engineers, and nonchalant attitude of some employees toward green practices implementation in the organization. The findings tally with the findings of Isaksson and Hüge-Brodin (2010), Tzschentke et al., (2008), Barnes, (2007), Gossling et al.,(2002) who in their studies noted that financial, technical, information, managerial and organizational attitude, corporate culture and insufficient knowledge about environmental management strategies are the common barriers to the adoption of green practices or initiatives in business organizations. The findings also support Doody (2010), Ebinger et al., (2006) and Del Brio et al., (2008) who identified lack of adequate human resources capabilities, lack of skills, knowledge, and interest in environmental practices among business organizations operating in developing countries. Furthermore, the findings of the study establish that because the majority of the manufacturing firms are faced with the aforementioned challenges in their efforts to implement green practices in the operations; there were still occurrences of environmental pollution and degradation in the study area. Part of the environmental issues, as affirmed by the respondents, are dust, air, and noise pollution, land vibration, building collapse, stunted farm produce, skin infections, and other health-related issues. The findings support the report published by the International Energy Agency (2015) that manufacturing companies emit over 36 percent of global greenhouse gas emissions annually. The findings of the study also corroborate Eruola et. al., (2011), Akanni (2010) & Adewole (2009) who reported that there is a high incidence of water contamination in Lagos metropolis as a result of dumping of heavy metals and untreated industrial wastewater into public drains, canals, and lagoon. In a similar vein, the findings uphold Ejekwu (2005) who submitted that industrial emission and environmental pollution have increased the volume of disease outbreaks, water stress, restiveness, food insecurity, social marginalization and poverty in Nigeria.

Conclusion and Recommendation

From the foregoing, it is evident that the adoption and infusion of green practices in the manufacturing firms has offered huge benefits to producers, people, livelihoods, and ecological assets. Despite the benefits, some primary and non-underlying challenges sabotaged the use of green advancement, cycles, and practices, particularly in developing nations like Nigeria. The presence of these challenges has kept on deterring the way toward achieving an improved social, ecological, and financial condition in numerous mechanical networks in Nigeria. In an offer to address this issue, the examination researches the prospects and challenges of green practices selection towards a manageable climate in Ogun State, Nigeria. The examination asserted that piece of the ecological issues going with the activity of manufacturing organizations in the investigation area, as attested by the respondents, are residue, air and commotion contamination, land vibration, building breakdown, hindered ranch produce, skin diseases, and other wellbeing related issues. Ensuing this reality, a larger part of the occupants or inhabitants in the study location have an unexcited view on the reception and mixture of green practices by manufacturing firms. This is with a specific presumption that green practices reception by manufacturing organizations has not had the option to decrease the pace of physical and social issues confronting inhabitants of mechanical networks in Nigeria. The discoveries of the investigation uncovered that green practices appropriation achieved social change in utilization designs, way of life, proficient administration of waste, ecological danger decrease. Despite these benefits, the discoveries uncovered that absence of innovative expertise, helpless support culture, cost of the fix and substitution of reduction plant, administrative issues, and debasement were the vital snags to green practices execution and maintainable climate in Nigeria. Thus, the study recommends

that a stakeholder mapping approach will help address the challenges or factors hindering the adoption and infusion of green practices by manufacturing companies in Nigeria.

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ПЕРСПЕКТИВЫ И ВЫЗОВЫ ВНЕДРЕНИЯ «ЗЕЛЕННЫХ» ПРАКТИК ПРОИЗВОДСТВЕННЫМИ ПРЕДПРИЯТИЯМИ ШТАТА ОГУН В НИГЕРИИ

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***Аннотация.** Внедрение в производство «зеленых» технологий и практик призвано сдерживать деградацию окружающей среды и экономить используемые ресурсы. В этом смысле оно полезно как для производителей, так и для индивидуальных потребителей-частных лиц. Однако несмотря на это, внедрение подобных практик, процессов и технологий сталкивается с различными структурными и внеструктурными вызовами, что в особенности остро проявляется в развивающихся странах, таких как Нигерия. Автор исследования изучает восприятие данной проблемы сотрудниками производящих предприятий, населением, природоохранными структурами штата Огун в Нигерии. Подвергнув анализу полученные в ходе исследования данные, автор приходит к выводу, что внедрение «зеленых» практик положительно сказывается на паттернах потребительского поведения, снижает нагрузку на окружающую среду, позволяет осуществлять более эффективное управление отходами. Однако, вместе с этим автор отмечает большое количество препятствий на пути внедрения природоохранных практик, главными из которых являются недостаток технологий и ноу-хау, низкий уровень культуры эксплуатации, высокие издержки на ремонт и замену очистных сооружений, проблемы управленческого характера, высокий уровень коррупции.*

***Ключевые слова:** вызовы, окружающая среда, «зеленые» практики, промышленные районы, Нигерия*

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