

## Effects and Challenges with Implementation of Green Management in Public Sector Institutions in the Bono Region of Ghana

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### Abstract

*The push to adopt and implement green management in the business world has attracted global attention due its impact on the work environment. The main purpose of the study was to assess the effects and challenges associated with the adoption and implementation of green management among public sector institutions in the Bono region. A mixed-method was employed with a descriptive design to recruit participants through the use of stratified sampling technique. The quantitative data was collected using a 5-point Likert scale while a semi-structured interview guide was used to collect the qualitative data. After using SPSS version 23 software and thematic content technique to analyse the quantitative and qualitative data, the results showed that implementation of green management contributes to reduce energy consumption, improve waste generation and management, improve financial efficiency and enhance corporate image in public sector institutions. On the other hand, inadequate financial resources, lack of management support, inadequate knowledge and capacity building were found as the main challenges associated with the implementation of green management in public sector institutions. Based on the findings, the study concludes that the adoption and implementation of green management has positive effects on public sector institution but is faced with challenges.*

**Keywords:** Bono Region, Challenges, Effects, Green Management, Public Sector Institutions.

### Introduction

#### Background of the Study

It is notably evident that the green wave is currently surging through the business world in full force, and it's not expected to let up anytime soon. As a result, there has never been a better time to transform our office environment into a green workspace.

It is against this backdrop that environmental sustainability has become one of the major global concerns that has attracted the attention of world leaders in recent years. The world's environmental scientist on the

Intergovernmental Panel on Climate Change has since 1988 reported on the state of awareness of climate change with evidence that suggests that the world stands to suffer the devastating consequence of global warming and other environmental issues due to rising sea levels, droughts, ocean acidification and loss of biodiversity [1].

In response to the challenging environmental issues, several efforts have been made by the world to find solutions to the menace. As a result, the Rio Earth Summit organized in 1992 devised the United Nations (UN) framework Convention on Climate Change to promote

international political response to climate change [2]. Also, the Millennium Development Goals declared by the UN in 2000 committed member states to a global partnership to as part of the goals, to work toward ensuring environmental sustainability. In 2015, the Conference of the Parties (COP21) had 195 UN member states meeting in Paris where a legally binding agreement was signed by members to keep global warming below 2°C [2]. Although, the world is yet to achieve environmental sustainability, green management is widely proposed as an effective mechanism that institutions and organizations should embrace to achieve their goals without causing harm to the environment.

The paradigm known as “green management” involves raising awareness of environmental issues, utilizing energy sources and eco-friendly technologies, reusing waste, and recycling operations that span throughout the activities of institutions and organizations [3]. The objectives of green management include making sure that operations are conducted with respect for the environment, preserving the environment in business objectives, visions, and goals, as well as operation functions, enabling continuous development, and selecting technologies following sustainability principles [4].

Due to environmental destruction arising from the activities of various sectors including transportation, manufacturing and mining resulting in adverse impacts on resources and human lives, businesses and organizations are now conscious that the environment needs to be protected and managed sustainably [5]. The adoption of green management which is largely focused on keeping a healthy environment for the present and the future is associated with several benefits. Many studies have attested to the positive effects associated with the adoption and implementation of green management [6]–[11]. However, other studies have acknowledged that the implementation of green

management is confronted with several challenges [12]–[16].

In recent years, there has been a global shift towards adopting green management practices in public institutions [17]. This shift is driven by the recognition of the need for sustainable development and the mitigation of environmental impacts. Public institutions play a crucial role in promoting and implementing sustainable practices due to their scale, influence, and capacity for large-scale change. Green management practices in these institutions involve integrating environmental considerations into decision-making processes, adopting eco-friendly technologies, promoting energy efficiency, managing waste, conserving natural resources, and fostering environmental awareness.

Green management practices in public institutions are gaining momentum in Africa as the continent faces increasing environmental challenges, such as climate change, deforestation, and pollution. African governments have recognized the importance of adopting sustainable practices to preserve their natural resources and promote sustainable development as part of the Sustainable Development Goals. The 2015 Johannesburg Action Plan of the Forum on China-Africa Cooperation makes special mention of combating climate change and environmental preservation [18]. Several African countries have developed national green growth strategies, policies, and action plans to address these challenges. These initiatives focus on sustainable land and forest management, renewable energy, waste management, water conservation, and enhancing climate resilience.

In Ghana, there is a growing recognition of the importance of green management practices in public institutions. The country faces environmental challenges such as deforestation, water pollution, and inadequate waste management. The Government of Ghana has taken steps to address these issues by incorporating sustainability into its

development agenda. Initiatives such as the National Climate Change Policy [19], Renewable Energy Act [20], and Sustainable Development Goals (SDGs) [21] implementation highlight Ghana's commitment to green management practices.

With all the efforts made toward achieving environmental sustainability in Ghana, researchers have not paid attention to the effects and challenges associated with implementation of green management practices in public sector institutions. This has resulted in a paucity of knowledge and hence the need to conduct the current study.

### **Problem Statement**

The adoption and implementation of green management practices in Ghana is essential given its abundant natural resources whose exploitation tends to create a negative impact on the environment. Lack of sustainable environmental practices is a risk of losing resources as well as causing harm to the national population. As a result, the subject of green management practice is of paramount importance to the socio-economic development of Ghana. Despite Ghana's efforts in recent years to mitigate climate change and promote sustainable development through green practices, there is limited research conducted to

assess the effects and challenges associated with the adoption and implementation of green management in public sector institutions. This problem, if left unsolved would make it difficult for the country to understand the needed policy direction to achieve its green initiatives.

### **Purpose**

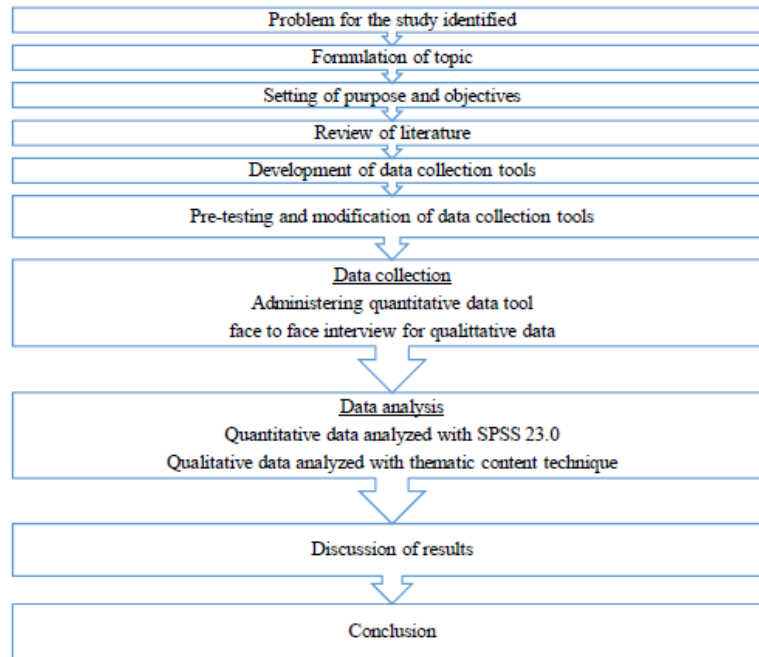
The purpose of the study was to assess the effects and challenges associated with the adoption and implementation of green management in public sector institutions in the Bono Region of Ghana.

### **Limitation of the Study**

One major limitation of the study is the lack of generalizability of the study findings to other contexts or countries. The study focused specifically on the Bono Region of Ghana and as a result, the findings may not apply to public institutions in other regions or countries with different socio-economic or cultural factors. This limitation should be acknowledged, and the results of the study should be interpreted within the context of Ghana specifically.

### **Schematic Diagram**

Fig. 1 below is the schematic diagram showing the study process.



**Figure 1.** Schematic Diagram Showing the Study Process

## Materials and Methods

### Study Design and Setting

The Bono Region, one of the sixteen administrative regions in Ghana, is located in the middle portion of the country. The region is made up of twelve Municipal and District Assemblies (MDAs) and has Sunyani as the capital town [22]. With an abundance of natural resources, diverse landscapes, and a growing commitment to sustainable practices, the Bono Region has become a hub for green initiatives in public institutions.

The region covers an area of approximately 9,826 square kilometres (3,790 square miles) and is bordered by six other regions. The region's topography encompasses vast grasslands, forests, rivers, and hilly landscapes, contributing to its ecological diversity [22]. The dominant climate is tropical, characterized by two primary seasons: a wet season (April to October) and a dry season (November to March).

According to the 2020 Population and Housing Census conducted by the Ghana Statistical Service (GSS), the population of the region is 1,208,649 consisting of 596,676 males

and 611,973 females with 708,481 being urban dwellers and 500,168 as rural population [23].

Bono Region is endowed with abundant natural resources, including fertile arable land suitable for agriculture, mineral deposits, and rich biodiversity. The region boasts a variety of crops such as cocoa, yam, maize, and oil palm, contributing significantly to Ghana's agricultural output. Additionally, its dense forests support timber and other non-timber forest products, emphasizing the importance of sustainable forest management practices. Public institutions in the Bono Region have the responsibility to lead in the implementation of green management practices to protect to promote sustainability and preserve the region's natural heritage thus making it suitable for the study.

### Study Population, Sampling and Sample Size

The population of the study consisted of 2,147 employees of seven public sector institutions comprising of the Regional Coordination Council (RCC), University of Energy and Natural Resources (UNER), National Pension Regulatory Authority (NPRA), Ghana Education Service (GES),

Regional Hospital, Ghana Commercial Bank and Ghana Health Service (GHS) in the Bono region.

Stratified random sampling technique was used for the study where quantitative data of 328 participants and qualitative data of 15 respondents was collected for analysis.

### Data Collection Tool and Procedure

A 5-point Likert scale and a semi-structured interview guide were used to respectively collect quantitative and qualitative data for the study. While both tools were pre-tested, reliability test was done to ensure that items with Cronbach alpha values less than 0.70 were dropped from the scale. The interview guide on the other hand was subjected to peer and expert review to ensure face and content validity respectively.

Prior permission and approval were sought from the authorities of the selected institutions before collection of data commenced. Participants were subsequently met and briefed about the study where comprehensive clarification was provided. The quantitative data tool was then administered to participants for completion from one institution to the other.

On the other hand, face to face interviews were held with respondents to collect qualitative data. All interviews were conducted in English and were recorded using audiotape

recorders. A journal was also used to make field notes during interview sessions.

### Data Analysis

The quantitative data collected for the study was processed and analyzed using SPSS version 23. A descriptive analysis of the data was done. The descriptive analysis focused on descriptive statistics such as mean, standard deviation, frequency and percentages as well as mode.

The qualitative data was analyzed manually using thematic content technique. Before the analysis, all recorded interview audio was transcribed verbatim. The scripts were then read multiple times to identify similar patterns which were grouped into themes and sub-themes. An in-depth description of the themes and sub-themes was done and supported with quotes from participants.

### Results

#### Socio-Demographic Characteristics of Participants

Table 1 shows the socio-demographic characteristics of participants.

#### Descriptive Statistics

The results of the descriptive statistics of the quantitative data is as indicated in Table 2.

**Table 1.** Socio-Demographic Characteristics of Participants

Characteristics	Frequency	Percentage (%)
<b>Gender</b>		
Male	221	57.4
Female	107	32.6
<b>Total</b>	<b>328</b>	<b>100.0</b>
<b>Age (Years)</b>		
20-29	33	10.1
30-39	208	63.4
40-49	84	25.6
50 or more	3	0.9
<b>Total</b>	<b>328</b>	<b>100.00</b>

<b>Marital status</b>		
Married	176	53.7
Single	152	46.3
<b>Total</b>	<b>328</b>	<b>100.0</b>
<b>Religion</b>		
Christians	316	96.3
Muslims	12	3.7
<b>Total</b>	<b>328</b>	<b>100.0</b>
<b>Education status</b>		
PhD	31	9.5
Master's degree	93	28.4
First degree	157	47.9
HND	36	11.0
Basic education	11	3.4
<b>Total</b>	<b>328</b>	<b>100.0</b>
<b>Institution of work</b>		
NPRA	21	6.4
GHS	54	16.5
RCC	72	22.0
UNER	54	16.5
GES	60	18.3
Regional Hospital	30	9.1
GCB Bank	37	11.3
<b>Total</b>	<b>328</b>	<b>100.0</b>
<b>Number of years at the institution</b>		
0-2 years	25	7.6
3-5 years	155	47.3
6-8 years	77	23.5
9-11 years	14	4.3
12 years or more	57	17.4
<b>Total</b>	<b>328</b>	<b>100.0</b>

**Table 2.** Descriptive Statistics

Construct	Mean	Mode	Std. de	Interpretation of results
<b>Effects of green management</b>				
<i>EGI:</i> The adoption of green management practices has resulted in a reduction of energy consumption in this institution	3.44	4	1.00	Agree

<b>EG2:</b> Green Management practices have led to a decrease in the amount of waste generated in this institution	3.56	4	0.98	Agree
<b>EG3:</b> My institution has witnessed an improvement in waste management processes through the adoption of green management practices	3.56	4	0.93	Agree
<b>EG4:</b> My institution is seen as a leader in environmental sustainability because of the adoption of green management practices.	3.40	4	1.06	Neutral
<b>Challenges of implementation green management</b>				
<b>CG1:</b> Consumers are not aware of our institution's green management practices and its benefits	3.39	4	1.01	Neutral
<b>CG2:</b> There are inadequate financial resources allocated for the implementation of green management practices in this institution.	3.69	4	1.02	Agree
<b>CG3:</b> Consumers are unwilling to pay for premium services	3.63	4	0.99	Agree
<b>CG4:</b> There is inadequate support and commitment from top management toward the implementation of green management practices in this institution	3.57	4	1.02	Agree
<b>CG5:</b> There are insufficient training and capacity-building programs on green management practices in this institution	3.74	4	1.02	Agree
<b>1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree</b>				

## Qualitative Results

### Effects of Green Management Practices in Institutions

Concerning the effect of green management practices in institutions, there was a consensus among participants that it increases operational efficiency in many forms. The sub-themes

identified under this theme were financial efficiency, resource management and waste management. The opinions of participants expressed as contained in some of the statements below.

### **Financial Efficiency**

Financial efficiency was noted among participants as one of the effects of the adoption and implementation of green management practices in their institutions. The majority of the participants believed adhering to green management practices has some financial benefits for their institutions. These effects were generally expressed about how they benefit in terms of saving energy, which implies their finances.

**G3:** *'I can tell for a fact that adoption and implementation of green practices have positive financial implications for our institution. Financially, we can save money from electricity through the use of energy-efficient bulbs and electrical gadgets. Although, I cannot tell the exact amount of money we save by adhering to this practice, it has contributed to financial efficiency'.*

**G9:** *"Green practices have indeed financial benefits for our institution. This is because when we started buying only new fridges, we realized that we don't spend much on repairs like we used to do with our old fridges and again electricity consumption is low which leads to reduced cost of light bills. All these indirectly contribute to positively affect our finances".*

**G10:** *"I think green practices have a lot of effects on the institution. I say that it contributes to saving money for the institution. For instance, the energy bulbs are noted to consume less electricity which means we are not paying higher electricity bills, and this is good for our finances".*

### **Efficient Waste Management**

Another effect of green management practices revealed by participants of the study

was waste management. The majority of the study participants believed that green practices have an effect on the management of waste in the institution as they use biodegradable products and eco-friendly products for their operations.

**G6:** *"We are very mindful to buy eco-friendly products and most of these are biodegradable hence we don't have a problem with dealing with waste and its negative impact on the environment. As a result, green practice is good in terms of waste management".*

**G11:** *"Here we use water dispensers and reusable cups for drinking water. We have adopted this practice because we don't want individual staff to come to work with sachet water or bottled ones which will lead to waste after drinking the water. In that way, we are preventing the generation of plastic waste which may end up contributing to polluting the environment".*

### **Enhanced Image**

Some of the study participants also observed that the adoption and implementation of green management practices have contributed to enhancing the image of their institutions. This was largely expressed in terms of the nature of the physical environment they maintain as an institution. Their observations were as indicated in the statements below.

**G12:** *"I will say the contribution of green management practice to our health is something that you cannot see with your eyes. As you can see the green grass and trees on our compound and how it has provided a conducive environment for us and visitors. I can say with confidence that because we practice keeping our environment green, people come here just to relax under the trees while some come for photo shoots during weddings and programs. It has impacted on our institution's image and makes it attractive to the general public".*

**G13:** *"One thing I have observed about this institution is that our visitors and the public are always happy about our green lawns and the*



trees. They openly praise us for such a serene atmosphere within our environment and I will attribute all this to our practice of keeping our environment green all the time. It has enhanced our image in the eyes of the public”.

**G15:** “In fact, we feel proud because of how our practice has attracted a lot of commendations from visitors and other institutions. We have intentionally kept our green grasses and trees and they have become a point of attraction to people. Other institutions come to learn our green practices and even pick some of our trees and flowers to grow on their compounds. We have a good public image because of our practice”.

### **Challenges in the Adoption and Implementation of Green Management Practices**

Concerning the challenges faced by institutions in the adoption and implementation of green management practices, inadequate knowledge, lack of management commitment and lack of resources emerged as sub-themes.

#### **Inadequate Knowledge**

Inadequate knowledge about green management practices was noted by participants as one of the challenges faced in the adoption and implementation of the practice in institutions. According to the participants, their understanding of the management practice is limited thus impedes their capacity to increase the scope of adoption and implementation.

**G4:** “Let me be frank with you that this study has opened my eyes about green management practices because I didn’t even know that we do constitute it. This should tell you how we lack adequate knowledge about it and that is affecting its adoption and implementation. I know there many managers of institutions in this region that equally lack understanding of the concept and I believe that is a major challenge”.

**G6:** “I think the knowledge of green management practice is very low among authorities of institutions and that is one of the challenges we face. Although we are implementing it, some of us did not know that it is a very important management concept that needs to be taken seriously. Because we lack adequate knowledge, we are not able to know exactly what to adopt for implementation in our institutions”.

**G10:** “I will say our challenge is lack of knowledge. Just as the Bible says, lack of knowledge my people perish, I have realized that we don’t have enough knowledge in terms of information about green management practice. Even as a top management member of the institution, I can tell you that this is the first time I have gotten information about green management practices. Even though we are implementing the practice, we did not know about it and that has limited the extent to which we are handling it. I believe if we had more information about it before as I have learned from this study, we would widen the level of adoption and implementation of it in the institution.

#### **Lack of Management Commitment**

Another challenge that was identified among participants in the adoption and implementation of green management practices was the lack of commitment by the management of the institutions. The majority of the participants believe management was not doing much to implement green management practices in the institutions. The following were some of the statements expressed by participants in that regard.

**G1:** “I think management has not done enough toward the adoption and implementation of green management practice in this institution. You know the decision of every organization is driven by the priority of top management and I can say that green management practices have not been the focus of management of this institution. It is a major

*challenge that is affecting the practice in this institution”.*

**G2:** *“I will say management of this institution has not given attention to the implementation of green management practices. Everything in this institution is centered on management and if they show commitment, it will be done. In the case of green management practice, I have not seen their commitment and that is a major challenge to executing practices like that”.*

**G5:** *“Lack of commitment from management is the key challenge facing the adoption and implementation of green management practice in this institution. I am saying this because if they should give it priority, I can say that its implementation will be easy. I don’t want to blame them because it could be that they don’t understand the concept and that is why they are not committed to implementing it”.*

### **Lack of Resources**

Resources for implementing green management practices were also found among participants as a challenge. The majority of the participants believed that the adoption and implementation of green management practices in their institution are challenged because there is a lack of resources. The various opinions were shared in the statements below.

**G5:** *“One challenge that I can say is lack of resources. Both financial or material and human resources are challenges that are confronting this institution in terms of the adoption and implementation of green management practices. I don’t think we have allocated any budget to protect our environment or train employees on sustainability practices and this is a challenge to the adoption and implementation of green management practices here”.*

**G10:** *“I think there is a lack of financial resources toward the adoption and implementation of green management practice in this institution. This is a challenge that is*

*hampering the implementation of the concept in our institution”.*

**G14:** *“Green management practice requires resources before any institution can implement it successfully. In this institution, I will say that there is a lack of needed resources to make it work. We don’t devote money or build the capacity of staff to implement the practice and it is our major challenge in terms of adoption and implementation of green management practices”.*

### **Discussion**

The study also sought to examine the effects of the adoption of green management practices in enhancing direct environmental sustainability in public institutions. The quantitative results of the study revealed that the adoption and implementation of green management practices have resulted in a reduction of energy consumption and, a decrease in waste generation and management in public sector institutions in the Bono region. The finding is in line with the results of studies by Hohne, Kusakana and Numbi [7] and Pujara et al. [8] where the adoption and implementation of green management practices had a positive impact on energy consumption, waste generation and management in organizations. The findings mean that Ghana can save more energy if green management practices are promoted across all sectors in the country. This would greatly impact the energy sector of the country and ensure a stable power supply for both domestic and commercial purposes. Given this, the finding has brought to light the need to promote green management practices as a measure to deal with the deficit in the power supply of the country.

Similarly, the results of the qualitative data identified themes such as financial efficiency, efficient waste management and enhanced image as the effects of the adoption and implementation of green management practices. Except for enhanced images, the results of the qualitative data are consistent with

the results of the quantitative data. The recognition of enhanced image as the effect of the adoption and implementation of green management practice is unique compared to the effects identified by other studies in the literature. However, it is an important finding as it would serve as the basis for institutions that need to enhance their image to adopt and implement green management practices.

The study also aimed to identify the challenges associated with the adoption and implementation of green management practices in public sector institutions in the Bono region. The results of the quantitative data indicate that inadequate financial resources, unwillingness of consumers to pay for premium services, inadequate support from top management, and lack of capacity building were identified as the challenges affecting the adoption and implementation of green management practices in public sector institutions. This finding supports the results of studies by Islam et al. [12], Ye, Liu and Wang [13], Waxin, Knuteson and Bartholomew [14] where lack of financial resources, lack of management support and lack of capacity of employees were found as major challenges to the adoption and implementation of green management practices.

The lack of financial resources for the implementation of green management practices identified by the study is a call for regulations to consider making provisions for the allocation of budgets towards environmental sustainability practices such as green management. This would compel institutions to be accountable for the adoption and implementation of green management practices. Also, concerning the challenge of management support and commitment, the result can be attributed to a lack of awareness among top management regarding the benefits of green management practices. As a result, they lack the inspiration to lead the promotion of green management practices in their

institution. Given this, the finding is a significant call to create awareness about green management practices among top management of institutions. This by extension would also contribute to building the capacity of employees towards the implementation of green management practices.

## Equations

Sample size for the study was determined using the Yamane formula given by.

$$\text{Sample size (n)} = \frac{N}{1 + Ne^2}, \quad (1)$$

Where N = Population.

e = margin of error at 95% confidence interval = 5% = 0.05.

Putting N = 2147 and e = 0.05 into Equation (1).

$$\begin{aligned} \text{Sample size, n} &= \frac{2147}{1 + 2147(0.05)^2} \quad (2) \\ &= 337 \end{aligned}$$

## Conclusion

In conclusion, implementation of green management in public sector institutions is associated with positive effects such as efficient energy consumption, improved waste generation and management and enhanced corporate image. However, the implementation of the practice is affected by challenges including lack of resources, knowledge and capacity building as well as lack of management support.

## Acknowledgement

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## Conflict of Interest

There is no conflict of interest as far as the conduct of the study is concerned.

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