

An Assessment of the Benefits of Circular Economy Implementation in Public Secondary Schools in Federal Capital Territory, Abuja, Nigeria

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Abstract

The study assessed the benefits of Circular Economy implementation in Public Secondary Schools in Federal Capital Territory, Abuja, Nigeria. The study adopted descriptive survey design. The population comprised all the principals and secondary school teachers in FCT public secondary school. The proportionate stratified random sampling technique was used to draw 58 principals and 217 teachers as the sample size. The data collected for the study were analysed using mean and standard deviation. The findings revealed that the benefits of implementation of circular economy in public secondary school in FCT include; promotion sustainability and environmental consciousness among students, cost savings, enhance the learning experience for students, positive impact on the local community, can lead to sustainable skills and knowledge on students, improve their sustainable skills and knowledge of school administrators, sustainability and environmental skills on teachers, enhance students' academic performance, renewable energy sources and sustainable purchasing policies. The challenges militating against implementation of Circular Economy programme in Public Secondary Schools in FCT are poor funding, poor capacity building programme, poor monitoring and evaluation system, lack of definite national policy for schools on circular economy programme, poor private institutions participation and Inadequate facilities. Based on these findings, the paper recommends that the government should direct full implementation of the circular economy in the secondary schools in FCT. The Government should enact national policy on implementation of circular economy programme and practices in all the secondary schools in FCT and adequate budgetary allocation should be provided to address of potential challenges.

Keyword: *Circular Economy, Sustainability Education, Public Secondary Schools, Abuja, Environmental Education, Capacity Building*

INTRODUCTION

In Nigeria, education is the cornerstone that promotes national and economic progress. It is the foundation for achieving sustainable development. Nigeria's educational system is divided into four levels: pre-primary, primary, secondary and postsecondary (Federal Republic of Nigeria (FRN), 2013). This research focuses on secondary education. Secondary school education is the stage of education that follows primary school and precedes higher education. Its significance stems from its role as both a bridge between primary and secondary education and an agency for

educating persons for productive lives in society. According to the FRN, secondary education is the education that pupils get after completing nine years of basic education. The broad objectives of secondary education in Nigeria, according to FRN, are to prepare individuals for a meaningful life in society and further education.

The realization of the objective of secondary school education in Nigeria depends on the implementation of programme like the circular economy. Circular economy is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the life cycle of products is extended. In practice, it implies reducing waste to a minimum. When a product reaches the end of its life, its materials are kept within the economy wherever possible thanks to recycling. These can be productively used repeatedly, thereby creating further value. This is a departure from the traditional, linear economic model, which is based on a take-make-consume-throw away pattern. This model relies on large quantities of cheap, easily accessible materials and energy (European Union 2025). Circular economy is a systematic process focusing on services and goods production, its utilization practices, consumption behaviour and recycling or reuse of the resources to minimize waste and maximize the use of resources. Circular economy deals with an organized and planned actions and activities to ensure regeneration of waste resources and ensuring by-product and materials are reuse by recycling and regenerating natural systems for sustainable environment (Ogunode, 2025).

According to Ogunode, Ukozor, and Ayoko (2025:7) the following are the circular economy practices in schools:

A) Schools are increasingly focusing on waste reduction and management. This includes implementing recycling programs, reducing paper usage, and composting food waste. By incorporating these practices, schools can significantly decrease their carbon footprint and promote an environmentally conscious mindset among students.

B) Another important practice is the use of renewable energy sources. Many schools have integrated solar panels, wind turbines, and geothermal systems to power their buildings. This not only reduces the school's reliance on fossil fuels but also serves as a learning opportunity for students to understand the importance of renewable energy.

C) Schools are also incorporating sustainable purchasing policies. This includes purchasing environmentally friendly products, promoting local and fair-trade products, and reducing the use

of single-use plastics. By doing so, schools are not only reducing their impact on the environment but also setting an example for students to make sustainable choices in their own lives.

D) Circular economy practices in schools also involve promoting sustainable transportation methods. This can include encouraging students and staff to walk, bike, or use public transportation to reduce carbon emissions. Some schools have even implemented bike-sharing programs or electric vehicles for school transportation.

E) Schools are incorporating sustainable practices in their curriculum. This includes teaching students about the circular economy, sustainable development, and how to apply these principles in their daily lives. By educating the youth about these practices, schools are instilling important values and promoting a sustainable culture.

Many Nigerian schools have been partially implementing environmental programme such as circular economy to mitigate against climate change actions in the schools. Ogunode, et al (2025) noted that Circular economy model implementation in schools can also enhance the learning experience for students. By incorporating hands-on learning opportunities, such as composting or repurposing materials, students can gain a deeper understanding of sustainability and its importance. This type of experiential learning goes beyond traditional classroom teaching and helps students develop critical thinking skills and a sense of responsibility towards the planet. Ogunode, et al (2025) also opined that implementing a circular economy in schools can also have a positive impact on the local community. By promoting sustainable practices, schools can serve as role models for the surrounding community, inspiring others to adopt similar practices. This can create a ripple effect, leading to a more sustainable and environmentally conscious society.

It has been observed that public secondary schools in Federal Capital Territory have partially been implement environmental programme like the circular economy. It is also observed that there seem to be poor awareness on the implementation of the circular economy programme. The circular economy programme in most of the FCT schools seem to draw poor participation of critical stakeholders such as the government agencies and private institutions and international organizations. It is based on this that this paper seeks to explore the benefits of Circular Economy Programme implementation in Public Secondary Schools in Federal Capital Territory, Abuja, Nigeria.

Purpose of the Study

The study assessed the benefits of Circular Economy implementation in Public Secondary Schools in Federal Capital Territory, Abuja, Nigeria. The specific objectives include:

1. To find out the Benefits of Circular Economy Programme Implementation in Public Secondary Schools in Federal Capital Territory, Abuja, Nigeria.
2. To find out the challenges militating against implementation of Circular Economy Programme in Public Secondary Schools in Federal Capital Territory, Abuja, Nigeria.

Research Questions

Based on the purpose of the study, the following research questions were generated for the study:

1. What is the Benefits of Circular Economy Programme implementation in Public Secondary Schools in Federal Capital Territory, Abuja, Nigeria?
2. What is the challenges militating against implementation of Circular Economy Programme in Public Secondary Schools in Federal Capital Territory, Abuja, Nigeria?

METHOD

The study adopted the descriptive survey design. The population comprised all the principals and secondary school teachers in FCT public secondary school. The proportionate stratified random sampling technique was used to draw 58 principals and 217 teachers as the sample size. The instrument that guided the study was a self-designed questionnaire tagged: Implementation of Circular economy Questionnaire (ICEQ) and it was structured and weighted after the modified four-point Likert rating scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) respectively. The instrument was duly validated, and the reliability was tested using the test re-test method, which was calculated with Pearson's Product Moment Correlation Coefficient, and it yielded an index of 0.87. The data collected for the study were analysed using mean and standard deviation.

RESULT AND DISCUSSION

Benefits of Circular Economy implementation in Public Secondary Schools in Federal Capital Territory, Abuja, Nigeria

Table 1. Benefits of Circular Economy Programme implementation in Public Secondary Schools in Federal Capital Territory, Abuja, Nigeria

S/N	My school implementing the following Circular Economy Practices;	X	SD	Decision
1	it promotes sustainability and environmental consciousness among students	3.20	9.6	Agree
2	circular economy in schools can also lead to cost savings	3.25	9.2	Agree
3	Circular economy model can also enhance the learning experience for students.	3.21	9.2	Agree
4	implementing a circular economy in schools can also have a positive impact on the local community	3.18	9.3	Agree
5	implementing a circular economy teaching programme in schools can lead to sustainable skills and knowledge on students	3.11	9.1	Agree
6	implementing a circular economy capacity building programme for school administrators and teachers improve their sustainable skills and knowledge	3.32	9.2	Agree
7	implementing a circular economy in schools leads to promotes sustainability and environmental skills on teachers	3.08	8.0	Agree
8	Circular economy model can also enhance students' academic performance	3.27	9.0	Agree
9	implementing a circular economy in schools leads to renewable energy sources.	3.15	9.4	Agree
10	implementing a circular economy in schools leads to sustainable purchasing policies	3.05	8.8	Agree
	Total mean	3.49	8.6	Agree

The result collected on table one showed that majorities of respondents agreed that implementation of circular economy in schools would lead to promotion sustainability and environmental consciousness among students, cost savings, enhance the learning experience for students, positive impact on the local community, can lead to sustainable skills and knowledge on students, improve their sustainable skills and knowledge of school administrators, sustainability and environmental skills on teachers, enhance students' academic performance, renewable energy sources and sustainable purchasing policies in public secondary schools with the following mean (item 1, X = 3.20), (item 2, X = 3.25), (item 3, X = 3.21), (item 4, X = 3.18), (item 5, X = 3.14), (item 6, X = 3.32), (item 7, X = 3.08), (item 8, X = 3.27), (item 9, X = 3.15) and (item 10, X = 3.05) with an average mean of 3.49 which is higher than the cut-off point of 2.50. This implies that promotion sustainability and environmental consciousness among students, cost savings, enhance the learning experience for students, positive impact on the local community, can lead to sustainable skills and knowledge on students, improve their sustainable skills and knowledge of school administrators, sustainability and environmental skills on teachers, enhance students' academic performance,

renewable energy sources and sustainable purchasing policies are the benefits Of implementing circular economy in the in Public Secondary Schools in Federal Capital Territory, Abuja, Nigeria.

Table 2. Challenges militating against implementation of Circular Economy Programme in Public Secondary Schools in Federal Capital Territory, Abuja, Nigeria

S/N	The challenges militating against implementation of Circular Economy Programme in Public Secondary Schools in FCT includes:	X	SD	Decision
1	Poor Funding	2.95	9.0	Agree
2	Poor capacity building programme	3.05	9.0	Agree
3	Poor monitoring and evaluation system	2.90	8.7	Agree
4	Lack of definite national policy for schools on circular economy programme	3.10	9.0	Agree
5	Poor private institutions participation	2.85	8.9	Agree
6	Inadequate facilities	3.15	9.15	Agree
		3.00		Agree

The result obtained disclosed that that the respondents agreed that that challenges militating against implementation of Circular Economy programme in Public Secondary Schools in Federal Capital Territory, Abuja, Nigeria include; Poor Funding, Poor capacity building programme, Poor monitoring and evaluation system, Lack of definite national policy for schools on circular economy programme, Poor private institutions participation and Inadequate facilities with mean (item 1, X = 2.95), (item 2, X = 3.05), (item 3, X = 2.90), (item 4, X = 3.10), (item 5, X = 2.85), (item 6, X = 3.15) with an average mean of 3.00 which is greater than the cut-off point of 2.50. Based on this the result indicated that poor funding, poor capacity building programme, poor monitoring and evaluation system, lack of definite national policy for schools on circular economy programme, Poor private institutions participation and Inadequate facilities are the challenges militating against implementation of Circular Economy programme in Public Secondary Schools in Federal Capital Territory, Abuja, Nigeria.

Discussion of Finding

The result on table one indicated that implementation of circular economy in schools would lead to promotion sustainability and environmental consciousness among students, cost savings, enhance the learning experience for students, positive impact on the local community, can lead to sustainable skills and knowledge on students, improve their sustainable skills and knowledge of school administrators, sustainability and environmental skills on teachers, enhance students' academic performance, renewable energy sources and sustainable purchasing policies in public secondary schools. This result is in line with the findings of Onukwulu, Agho, and Eyo-Udo (2022); Rezk, Piccinetti, Salem, Omoruyi, and Santoro, (2024) that concluded that implementation of circular economy will benefits the schools in promotion of sustainability and cost savings to enhancing the learning experience and inspiring the community, this model has the potential to transform the education system for the better. By implementing a circular economy, schools can

play a significant role in creating a more sustainable and prosperous future for both students and the planet.

Also, the result on table two revealed that poor funding, poor capacity building programme, poor monitoring and evaluation system, lack of definite national policy for schools on circular economy programme, poor private institutions participation and Inadequate facilities are the challenges militating against implementation of Circular Economy programme in Public Secondary Schools in Federal Capital Territory, Abuja. This result is in agreement with the founding of Ahlstrom, Arregle, Hitt, Qian, and Faems, (2020); Agupugo, Ajayi, Nwanevu and Oladipo, (2022) that discovered that inadequate funding, shortage of facilities, lack of national policies, poor awareness, ineffective monitoring and evaluation and corruption are the problems facing the implementation of Circular Economy programme in Public Secondary Schools in Federal Capital Territory, Abuja.

Conclusion and Recommendations

The paper conclude that the benefits of implementation of circular economy in public secondary school in FCT include; promotion sustainability and environmental consciousness among students, cost savings, enhance the learning experience for students, positive impact on the local community, can lead to sustainable skills and knowledge on students, improve their sustainable skills and knowledge of school administrators, sustainability and environmental skills on teachers, enhance students' academic performance, renewable energy sources and sustainable purchasing policies.

The challenges militating against implementation of Circular Economy programme in Public Secondary Schools in FCT are poor funding, poor capacity building programme, poor monitoring and evaluation system, lack of definite national policy for schools on circular economy programme, poor private institutions participation and Inadequate facilities.

Based on these findings, the paper recommends that:

1. The government should direct full implementation of the circular economy in the secondary schools in FCT.
2. The Government should enact national policy on implementation of circular economy programme and practices in all the secondary schools in FCT and adequate budgetary allocation should be provided to address of potential challenges.

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