American Journal of Alternative Education
ISSN: 2997-3953 (Online)
Vol. 2, No. 8, Aug 2025,
Available online at: https://scientificbulletin.com/index.php/AJAE

Benefits, Practices and Factors that Support Implementation of Circular Economy in Nigerian Schoools

Niyi Jacob Ogunode
Department of Education, University of Abuja, Nigeria
niyijacobogunode@gmail.com

Conrad Ugochukwu Ukozor
Department of Educational Management, University of Abuja, Nigeria
conradorare@gmail.com

Victor Olugbenga Ayoko
Department of Educational Foundations, Faculty of Education, Open University of Faculty of Education, National, Nigeria
victorayoko@gmail.com

Article information:
Manuscript received: 02 Jun 2025; **Accepted:** 03 Jul 2025; **Published:** 12 Aug 2025

Abstract: The paper explored the benefits, practices and the factors that will support implementation circular economy in the Nigeria schools. The study adopted the use of secondary data. The secondary data were collected from online and print resources. The paper revealed that the benefits of a circular economy in schools includes; 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 paper outlined the circular economy practices commonly implemented in schools. The circular economy practices includes; waste reduction to sustainable purchasing policies, schools are taking significant steps towards promoting a more sustainable future. By integrating these practices, schools are not only reducing their environmental impact but also shaping the next generation to be mindful of their actions. Development of national Policy on circular economy, provision of special funding for implementation of circular economy, organization of capacity building for implementer of circular economy in schools, education and awareness, collaboration and partnerships and incentives and recognition are some of the factors to enhances implementation of circular economy in Nigerian schools. Based on this, the paper recommends that the governments should invest on the implementation of circular economy in the Nigerian schools because of the numerous benefits to the teachers, students and the communities. The government should include private institutions and international organization in the implementation team. Effective monitoring and evaluation should be implemented with the circular economy programme in all the schools.

Keys words: Circular Economy, Schools.

1.0 Introduction

The school is an organized social community for the implementation of educational services. The school is established for the implementation of teaching and learning and for the award of certificates after

graduation. The school is an institutions that is teaching and learning inclined for the transformation and development of the societies and nation. The school is host to the school administrators, teachers and the students.

The school is designed to implement teaching and learning that demands the use of other material and human resources. The process of teaching and learning lead to various activities that constitute problems to the environment. The actions of the school are directly and indirectly contributing in climate change problem in the schools and in the host communities. Some of the school activities contributing to climate in Nigeria includes;

Deforestation. Schools Nigeria often require large amounts of paper for various teaching and administrative purposes. As a result, there is a high demand for timber which has led to widespread deforestation in the country. Deforestation not only contributes to the release of carbon dioxide into the atmosphere but also leads to loss of biodiversity and disrupts the natural balance of the ecosystem.

Energy Consumption. Schools in Nigeria heavily rely on electricity for various activities such as lighting, air conditioning, and technology usage. The majority of this electricity comes from non-renewable sources such as coal and oil, which emit large amounts of greenhouse gases when burned. This contributes to the overall carbon footprint of the country and exacerbates the effects of climate change.

Waste Generation: Schools in Nigeria generate a significant amount of waste, including plastic, paper, and food waste. Improper disposal of these wastes leads to the emission of methane, a potent greenhouse gas. Additionally, the production of these materials also contributes to carbon emissions, further worsening the impact on climate change.

Transportation Emissions: The transportation of students and staff to and from basic schools in Nigeria also contributes to climate change. The majority of transportation in the country relies on fossil fuels, which emit large amounts of carbon dioxide and other pollutants into the atmosphere. Increased traffic and congestion around schools also lead to air pollution, which has harmful effects on the environment and human health.

To address the problem of climate change impact in schools and to promote environmental sustainability in schools and host communities, circular economy model have been implemented and promoted in all private and public institutions. Circular economy is a sustainable approach that promotes a more efficient use of resources and aims to create a better future for our planet. The adoption of circular economy practices in schools is becoming more prevalent across the globe (Ganawi, 2025).. These practices are crucial for promoting sustainable behavior and reducing the environmental impact of educational institutions. This paper seek to discuss the benefits, practices and the factors that will support implementation circular economy in the Nigeria schools.

2.0 Literature Review

2.1 Concept of Circular Economy

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).

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 again and again, 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 system where materials never become waste and nature is regenerated. In a circular economy, products and materials are kept in circulation through processes like maintenance, reuse, refurbishment, remanufacture, recycling, and composting. The circular economy tackles climate change and other global challenges, like biodiversity loss, waste, and pollution, by decoupling economic activity from the consumption of finite resources. The circular economy is based on three principles that includes; driven by design: eliminate waste and pollution; circulate products and materials (at their highest value) and regenerate nature (Ellen MacArthur Foundation 2025).

From the above, circular economy in this paper is a model of economic development that aims to reduce waste and maximize the use of resources. It is based on the principles of recycling, reuse, and regeneration, and aims to create a closed loop system where resources are constantly cycled and reused rather than ending up in landfills. The concept of circular economy has gained popularity in recent years due to the growing concern over the environmental impact of traditional linear economic models. By utilizing circular economy principles, businesses, industries and educational institutions can minimize waste, reduce their carbon footprint, and increase efficiency. Some examples of circular economy practices include product redesign, reusing materials, and implementing closed-loop production systems.

3.0 Method

The paper examine the benefits, practices and the factors that will support implementation circular economy in the Nigeria schools. The paper is a position paper that adopted a systematic literature review-based method. The method allows to collect and review the related previous literature from various online sources. With the aid of digital platform, the researcher collected secondary information to generate knowledge on this topic from 2015-2025. The position paper followed qualitative narrative design method. The researcher has visited different online sites to collect the previous literature and analyze the literatures on the benefits, practices and the factors that will support implementation circular economy in the Nigeria schools. The previous findings are critically analyzed and presented in different themes as on the benefits, practices and the factors that will support implementation circular economy in the Nigeria schools.

Inclusion and exclusion criteria

Inclusion

This output of the literatures on the benefits, practices and the factors that will support implementation circular economy in the Nigeria schools presents an in-depth study and result that can infer conclusion on the topic. The study includes: online publication; conference paper, journals sorted from from reputable international journals such as CEON, Elsevier, Hindawi, JSTOR, IEEE, Learn Techlib, SAGE, Nebraska and Springer (Adapted from Ogunode, 2025v).

Exclusion

Also, the literature review excludes information from edited books, preprints, monographs, information below 2015 and book chapters (Adapted from Ogunode, 2025).

4.0 Result and Discussion on benefits of a circular economy, circular economy practices in schools and factors that will enhances circular economy implementation in the Nigerian schools.

Benefits of implementing circular economy in Nigerian schools

There are many benefits of implementing circular economy in schools. Some of these benefits includes;

1) The benefits of a circular economy in schools are numerous and far-reaching. Firstly, it promotes sustainability and environmental consciousness among students, teaching them the importance of reducing, reusing, and recycling resources (Ogunode, 2025). This not only creates a more eco-friendly

school environment but also instills valuable values and habits in students that they can carry with them throughout their lives.

2) Circular economy in schools can also lead to cost savings for educational institutions (IMD, 2024). By implementing sustainable practices, such as using renewable energy sources and reducing waste, schools can significantly cut down on expenses. This, in turn, allows for more resources to be allocated towards improving the quality of education for students.

3) Circular economy model 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.

4) 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.

Circular economy practices in schools

The following are the circular economy practices should be implemented 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.

Factors to enhance Circular Economy

Circular economy is an important concept that is gaining traction in various industries, including education. In order to successfully implement circular economy practices in schools, it is crucial to identify and address key factors that contribute to its success. Some of the factors that can enhance the implementation of circular economy in schools include:

1) Development of national Policy on circular economy:

The development of a national policy on circular economy which will enhance the implementation of circular economy in schools. The policy will focus on creating a sustainable and circular approach

towards the use of resources in school settings. It will provide guidelines and measures for schools to adopt in order to reduce waste, promote recycling, and create a circular economy mindset among students. The policy will also address the role of schools in educating students about the importance of circular economy and how they can make a positive impact on the environment.

2) Provision of special funding for implementation of circular economy:

The circular economy is a powerful tool for promoting sustainability and reducing environmental impact. It involves the implementation of a circular system, in which resources are continually reused and recycled instead of being discarded. In order to promote the adoption of the circular economy in schools, special funding can be provided. This funding can be used to implement various initiatives and programs aimed at educating students about the principles of the circular economy and encouraging them to incorporate these practices in their daily lives. By investing in the circular economy in schools, we can create a more sustainable future for the next generation. This approach according to Ellen MacArthur Foundation (2025) not only benefits the environment, but also has the potential to save schools money in the long run.

3) Organization of capacity building for implementer of circular economy in schools:

The potential benefits of organizing capacity building programs for the implementation of circular economy practices in schools cannot be underestimated. By implementing circular economy practices, schools can contribute to a more sustainable future while also promoting a circular mindset among students. Through capacity building, implementers can develop the necessary skills and knowledge to effectively implement circular economy practices in schools. This in turn can enhance the overall implementation of circular economy practices in schools, leading to tangible environmental and economic benefits (UNDP (2023).

4) Education and awareness:

Schools should prioritize educating students, teachers, and staff about circular economy principles and their importance. This will help create a culture of sustainability within the school community (Wilson-Oshilim, & Efedhoma, 2025).

5) Infrastructure and resources:

Schools should have the necessary infrastructure and resources to support circular economy practices. This may include recycling bins, composting facilities, and renewable energy sources.

6) Collaboration and partnerships:

Implementation of circular economy in schools can be strengthened through collaboration with local businesses, waste management companies, and other organizations that have expertise in this area (Rezk, Piccinetti, Salem, Omoruyi & Santoro, 2024).

7) Curriculum integration:

Incorporating circular economy principles into the curriculum can help students understand the concept and its relevance in their daily lives.

8) Incentives and recognition:

Schools can provide incentives and recognition for students and staff who actively participate in circular economy practices. This will encourage greater involvement and commitment. By considering these factors and implementing them effectively, schools can create a sustainable and circular environment where students can learn and practice circular economy principles (European Union 2025).

4.1 Conclusion and Recommendations

In conclusion, this study explored benefits, practices and factors to enhance implementation of a circular economy in the Nigeria schools. The benefits of a circular economy in schools includes; 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 paper outlined the circular economy practices commonly implemented in schools. The circular economy practices includes; waste reduction to sustainable purchasing policies, schools are taking significant steps towards promoting a more sustainable future. By integrating these practices, schools are not only reducing their environmental impact but also shaping the next generation to be mindful of their actions.

The factors to enhances implementation of circular economy in schools include; development of national Policy on circular economy, provision of special funding for implementation of circular economy, organization of capacity building for implementer of circular economy in schools, education and awareness, collaboration and partnerships and incentives and recognition

Based on this, the paper recommends that the governments should invest on the implementation of circular economy in the Nigerian schools because of the numerous benefits to the teachers, students and the communities. The government should include private institutions and international organization in the implementation team. Effective monitoring and evaluation should be implemented with the circular economy programme in all the schools.

References

1. Ellen MacArthur Foundation (2025) Education and Learning of Circular Economy. https://www.ellenmacarthurfoundation.org/resources/education-and-learning/overview
2. European Union (2025). Circular-economy-definition-importance-and-benefits https://www.europarl.europa.eu/topics/en/article/20151201STO05603/circular-economy-definition-importance-and-benefits
3. Ganawi, N,. K. (2025). Sustainable Development and the Circular Economy and Its Role in Achieving Environmental and Economic Development: Applied Study in the Netherlands, Finland, Sweden, and Japan, *American Journal of Education and Evaluation Studies,* .2(7),346-360
4. Go Sharpener (2025). From-Waste-to-Wonder-Integrating-Circular-Economy-Concepts-into School https://blob.gosharpener.com/blogs/801299/From-Waste-to-Wonder-Integrating-Circular-Economy-Concepts-into-School
5. IMD (2024). 7-pillars-of-circular-economy https://www.imd.org/blog/sustainability/7-pillars-of-circular-economy/
6. Ogunode, N, J. (2025v). Inaugural Lectures in Nigerian Universities: Importance and Effects. *Best Journal of Innovation In Science, Research And Development,* 4(7),99-105.
7. Ogunode, N. J. (2025). Integration of Circular Economy Programme into Tertiary Education Management in Nigeria. *Spanish Journal of Innovation and Integrity*, *45*, 38–44. Retrieved from https://sjii.es/index.php/journal/article/view/770
8. Rezk, M.R.A., Piccinetti, L., Salem, N., Omoruyi, T.U., Santoro, D. (2024). Nigeria's transition to a circular economy: challenges, opportunities and future perspectives. *Insights Into Regional Development*, 6(1), 11-23. http://doi.org/10.9770/IRD.2024.6.2(1)
9. Onukwulu, E,. C,. Agho, M,. O. & Eyo-Udo, N,. L. (2022)**.** Circular economy models for sustainable resource management in energy supply chains. World Journal of Advanced Science and Technology, 2022, 02(02), 034-057**.**
10. UNDP (2023).What is circular economy and why does it matter? https://climatepromise.undp.org/news-and-stories/what-is-circular-economy-and-how-it-helps-fight-

climate-change.

11. Wilson-Oshilim, U,. D. & Efedhoma, P,. E. (2025). Circular Economy and Sustainable Consumer Behaviour in Edo State, Nigeria. JOURNAL OF ACADEMIC RESEARCH IN ECONOMICS ,17(1),162-175