

Integration of Circular Economy Programme into Tertiary Education Management in Nigeria

Niyi Jacob Ogunode

Department of Education, University of Abuja, Nigeria

niyijacobogunode@gmail.com

Abstract: *The paper discussed the import of integrating circular economy programme into management of tertiary education in Nigeria. The study employed the used of secondary data. The secondary data were collected from print resources and online publication. Content analysis was used for select the literatures. The paper concluded that strategies to integrate circular economy in management of tertiary institutions in Nigeria include: implementing sustainable waste management strategies, promoting resource conservation through recycling and reuse, encouraging a shift towards renewable energy sources, promoting green procurement and sustainable transportation methods, fostering collaboration and knowledge sharing among different stakeholders, and actively engaging students in circular economy initiatives. The government through the Federal and State ministries should direct tertiary institutions managers to implement policies and programmes that will enhance circular economy practices in the various tertiary institutions in Nigeria. Government should provide adequate funding and capacity building for both academic staff, non-academic staff and students of all the tertiary institutions for effective implementation.*

Keywords: *Circular economy, Tertiary education management.*

1.0 Introduction

Climate change affects world populations, especially developing nations, may be the most sensitive due to their poor economies and weak organizational structures. For decades environmental pressures that is imposed by human activities have bedeviled developing economies, Nigeria inclusive. The most profound consequences for developing economies are drought, biodiversity loss, change in vegetation type, depletion of forest resources, loss of soil fertility, increased risks to public health, destruction of infrastructure and agricultural products and unhealthy environment, changes in living standards and so on. In particular, Nigeria the major challenges are soil and land degradation, flooding, emission of greenhouse gases and waste management problem (Gbadamosi 2021; Olayide, 2021, Gbadamosi, 2018). A number of contributing factors in Nigeria, including poor waste management, carbon reliance, deforestation and the incessant fares of gas throughout the Niger Delta's oil exploration processes, are boosting the threat of climate change. Climate change paves the way to environmental degradation and resource scarcity as a result of rapid economic development, two of the most pressing issues that must be addressed (Gbadamosi 2021; Olayide, 2021).

Several measures regulations and policy have been put in place to complement the traditional linear model on the assumption that resources are abundant, available, easy to source and cheap to dispose of. In addition, with increased demands on natural resources, the principle of more cost-effective material and resource use has quickly become a global imperative. The transformation to a more beneficial economy, in which the value of products, materials, and resources is kept in the economy for as long as humanly possible and waste generation is minimized, is a critical component in the development of a sustainable, low-carbon, resource-efficient, and competitive economy (Gbadamosi 2021; European

Commission, 2018; Murray, Skene, and Haynes, 2017). Consequently, the circular economy was introduced to break the global "take-make-consume and dispose" pattern of growth. A field of knowledge that contributes holistically to sustainability is the circular economy. The circular economy is not only a new economic revolution but also a global one because it implies the adaptation of the whole society including educational institutions such as tertiary institutions. Ogunode, and Obiakor (2023); Ogunode and Odo (2023) concluded that tertiary institutions are micro section of the larger society. Tertiary institutions is an organized fraction of the whole society curved out for teaching programme, research and provision of community service. Tertiary institution can also be seen as a subset of the general society that is made of collection of different people, different culture, different life style and different value. Societies globally have been known to have some peculiar social problem and social issues. Social problems of most societies are migrated into the tertiary institutions because the societies and the tertiary institutions are inseparable to some extent. The actions, activities and services in educational institutions demand circular economy. Every day activities in the educational institutions and school facilities results to throwing away of things such as papers, plastic bottles, old clothes, leftover food, broken gadgets without giving a thought for reuse and recycling. This is the idea behind the circular economy (GoSharpener 2025). The circular economy is more than recycling. It's about designing systems where nothing goes to waste. It teaches us to reuse, repair, share, and rethink the way we use resources. When students learn these ideas early, they grow into responsible citizens who care about the Earth. That's why integrating circular economy concepts into the management of tertiary institutions is so important. This paper seeks to discuss import of integrating circular economy programme into management of tertiary education in Nigeria.

2.0 Literature Review

2.1 Concept of Tertiary Education Management

Tertiary education management refers to the process of planning, organizing, and directing tertiary education resources to achieve a particular goal or objective. It involves making decisions, coordinating activities, and controlling resources to ensure efficiency and effectiveness in achieving desired outcomes of tertiary education. Effective tertiary education management is essential for the success of the institutions as it helps to optimize resources and adapt to changing external and internal factors. In the academic context, management can refer to the management of a school, college, or university, which involves overseeing various administrative and educational functions. Tertiary education management is the practice of overseeing and coordinating the policies, procedures, and resources involved in higher education institutions. This includes managing administrative tasks, such as admissions, budgeting, and academic programs, as well as addressing broader educational concerns, such as student success and institutional effectiveness. Tertiary education management also involves working with various stakeholders, including faculty, staff, students, and external organizations, to ensure the smooth operation and advancement of the institution.

Tertiary education management aims to facilitate the attainment of academic goals by providing support and guidance to students. It also aims to enhance students' critical thinking, problem-solving, and communication skills. Additionally, tertiary education management focuses on promoting effective time management and self-discipline among students. Furthermore, it aims to foster a sense of responsibility and independence in students. Lastly, tertiary education management strives to create a conducive learning environment for students to excel academically.

2.2 Concept of Circular Economy

A circular economy is an alternative model of responsible production and consumption, a growth strategy that ensures zero waste. The concept of circular economy was first proposed by Pearce and Turner in (Gbadamosi, 2021). The primary goal of the circular economy is to decouple economic growth

from resource depletion and environmental degradation (Ogunsanwo, & Ayo-Balogun, 2020; Murray, Skene, and Haynes, 2017).

European Commission (2018) reported that the concept of circular economy can be summarized as a '4R' approach: reduce, reuse, recycle, and recover. In reality, this procedure helps to reduce waste generated from generation to disposal while also improving waste management. As previously stated, the development of a circular economy may represent a solution to solve environmental issues affecting human health and social advancement, strengthening an economic strategy distinguished by resource conservation, and promoting healthier consumer behaviours, all through a shift in growth models and environmental protection. The circular economy envisions a regenerative model where waste is designed out; products and materials remain in use and Natural systems are regenerated (Ganawi, 2025)). It demands skills in systems thinking, design innovation, collaboration, and sustainable entrepreneurship—all critical competencies for 21st-century learners.

A circular economy is an economic system aimed at minimising waste and making the most of resources. Unlike the traditional linear economy, which follows a 'take, make, dispose' model, a circular economy focuses on reducing, reusing, and recycling materials to keep products, components, and materials at their highest utility and value at all times (Oknkwor, 2024). The CE is an economic modeling that is very different from the conventional linear model (production - consumption - disposal) which is predicated on the depletion of natural resources. In turn, the CE aiming for on the reuse, recycling, preservation, and regeneration of products and wherewithal in a continuous cycle of production and consuming, contributing to the reduction of waste and squandering. This system relies on closing manufacture loops, so that the products are intended to be easy to dismantle and reuse, thus reducing the need to abstract new resources, and reducing the environmental influence of waste disposal. The CE aims to create a lasting economic system that preserves the environment and reducing the negative impacts of excessive consumption on understandable resources (Bass, in Gbadamosi ,2021).

The CE is an innovative modeling that contributes to transforming environmental defiance into economic opportunities, by reducing disproportionate consumption of natural resources and widening the circle of reuse and recycling. Applying this modeling can lead to sustainable economic growth, environmental safeguard, and social justice through sustainable job establishment (Ganawi, 2025).

From the above, circular economy in this paper is view as 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.

Circular economy is the activities of closed-loop systems and it involves the following; products and materials are designed to be reused, recycled, or repurposed at the end of their life rather than being disposed of as waste; reduction of the amount of resources extracted from the environment and the amount of waste sent to landfills; presents economic opportunities by creating a closed-loop system, education services can save money on raw materials; reduction of waste disposal costs, and potentially develop new revenue streams from recycled to schools; and stimulate innovation as schools look for ways to design products that can be easily reused or recycled.

3.0 Method

The paper explore import of integrating circular economy programme into management of tertiary education in Nigeria. 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 import of integrating circular economy programme into management of tertiary education in Nigeria. The previous findings are critically analyzed and presented in different themes as on import of integrating circular economy programme into management of tertiary education in Nigeria.

Inclusion and exclusion criteria

Inclusion

This output of the literatures on import of integrating circular economy programme into management of tertiary education in Nigeria 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 Strategies to integrate circular economy in management of tertiary institutions in Nigeria

Strategies to integrate circular economy in management of tertiary institutions in Nigeria include: implementing sustainable waste management strategies, promoting resource conservation through recycling and reuse, encouraging a shift towards renewable energy sources, promoting green procurement and sustainable transportation methods, fostering collaboration and knowledge sharing among different stakeholders, and actively engaging students in circular economy initiatives.

Implementing sustainable waste management strategies

Implementing sustainable waste management strategies in tertiary institutions is essential for promoting a circular economy. These strategies can include reducing waste production, implementing recycling programs, and utilizing renewable energy sources. By effectively managing waste in these institutions, institutions can create a circular economy where resources are reused, reducing our environmental impact. These strategies can also be cost-effective in the long run, as they can reduce waste disposal fees and potentially generate revenue through recycling. Implementing these strategies can also serve as a learning opportunity for students, helping them understand the importance of sustainable practices and how to apply them in their future careers.

Promoting resource conservation through recycling and reuse, encouraging a shift towards renewable energy sources

By promoting resource conservation through recycling and reuse, and encouraging a shift towards renewable energy sources in the Nigerian tertiary institutions, the circular economy can be effectively integrated into the academic setting. This will not only benefit the environment, but also create a more efficient and cost-effective system for the institutions. Therefore, it is imperative that we continue to support and implement these practices in order to achieve a more sustainable future for our planet. This move not only helps in conserving valuable natural resources, but also reduces waste production and promotes a more sustainable way of living. Through recycling and reuse, materials that would otherwise end up in landfills are being repurposed and utilized, further decreasing the burden on the environment. The inclusion of renewable energy sources in the operations of tertiary institutions is crucial in reducing the carbon footprint and promoting a greener future (Olatunde-Aiyedun, Olatunde, & Ogunode 2025).

Promoting green procurement and sustainable transportation methods

The use of green procurement and sustainable transportation methods in tertiary institutions is vital for promoting circular economy. Institutions can reduce their impact on the environment and contribute to a more sustainable future. This includes adopting eco-friendly purchasing practices, such as using renewable materials and reducing waste, as well as encouraging the use of sustainable transportation options, such as public transit or electric vehicles. By promoting these actions within the academic community, Institutions can work towards creating a circular economy that benefits both the environment and society as a whole.

Fostering collaboration and knowledge sharing among different stakeholders

Collaboration and knowledge sharing among different stakeholders in tertiary institutions is crucial for promoting a circular economy. In today's fast-paced world, it is essential to foster collaboration and exchange of knowledge in order to effectively implement and sustain a circular economy model. This can lead to many benefits, such as reducing waste and promoting resource efficiency, creating new job opportunities, and achieving sustainable development goals. One of the main reasons for promoting collaboration and knowledge sharing among stakeholders in tertiary institutions is to address the complex challenges of implementing a circular economy. This requires diverse expertise and perspectives from various stakeholders, including academics, policymakers, businesses, and community leaders. By working together, these stakeholders can develop innovative solutions and strategies that can effectively address the challenges and barriers to implementing a circular economy. Fostering collaboration and knowledge sharing can also facilitate the exchange of best practices and lessons learned. This can lead to the development of a knowledge base that can guide and inform future projects and initiatives related to circular economy in tertiary institutions. By sharing knowledge, stakeholders can also learn from each other's successes and failures, and build on each other's work to achieve better results. Promoting collaboration and knowledge sharing among stakeholders can also enhance the visibility and impact of circular economy initiatives. By working together, Peter, (2024) stakeholders can amplify their message and engage a wider audience, including students, researchers, and the general public. This can create a ripple effect and inspire others to join the circular economy movement, thus promoting its widespread adoption.

Actively engaging students in circular economy initiatives

The circular economy is becoming an increasingly important concept, especially in the world of academia. In order to promote this concept, it is essential to engage students in circular economy initiatives within tertiary institutions. This not only helps to raise awareness about the concept, but also encourages students to actively participate and contribute to the circular economy. One of the main reasons for engaging students in these initiatives is to create a sense of responsibility and sustainability among the future leaders and decision-makers. By involving students in circular economy initiatives, they can gain firsthand experience and knowledge on how to implement sustainable practices in their future careers. These initiatives can also foster innovation and creativity among students as they work towards finding solutions for sustainable development. Including circular economy initiatives in tertiary institutions can also lead to the development of a network of like-minded individuals who are dedicated to promoting a circular economy. This can result in the formation of partnerships and collaborations between students, universities, and businesses, further enhancing the impact of these initiatives (Ogbuabor & Egwuchukwu, 2017).

4.1 Findings

The paper disclosed that implementing sustainable waste management strategies, promoting resource conservation through recycling and reuse, encouraging a shift towards renewable energy sources, promoting green procurement and sustainable transportation methods, fostering collaboration and

knowledge sharing among different stakeholders, and actively engaging students in circular economy initiatives are some of the strategies to integrate circular economy in management of tertiary institutions in Nigeria.

4.2 Conclusion and Recommendations

In conclusion, implementing sustainable waste management strategies, promoting resource conservation through recycling and reuse, encouraging a shift towards renewable energy sources, promoting green procurement and sustainable transportation methods, fostering collaboration and knowledge sharing among different stakeholders, and actively engaging students in circular economy initiatives are some of the strategies to integrate circular economy in management of tertiary institutions in Nigeria. Promoting circular economy in tertiary institutions in Nigeria is crucial for both economic and environmental reasons. It can lead to cost savings, environmental benefits, and community engagement, making it a worthwhile and important endeavor. These practices have the potential to drive a more sustainable and circular approach to the operations of tertiary institutions in Nigeria, leading to long-term environmental and economic benefits.

The government through the Federal and State ministries should direct tertiary institutions managers to implement policies and programmes that will enhance circular economy practices in the various tertiary institutions in Nigeria. Government should provide adequate funding and capacity building for both academic staff, non-academic staff and students of all the tertiary institutions for effective implementation.

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