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# Entrepreneurial perspective of the circular economy: Origin and principles towards a sustainable world

**Yilkes Danladi Nson[1], Abimaje Solomon Adejoh[2]**
University Of Jos, Nigeria[1&2]
nsonyilkes@gmail.com[1], adejohsolomon426@gmail.com[2]

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**Abstract**

**Purpose:** This paper aims to add to the discourse on circular economy by further explaining the concept of CE and its application in entrepreneurship and business to ensure a cleaner environment in quest of a sustainable world.

**Research Methodology**: This study adopted in-depth qualitative exploratory review of relevant work related to the scope of the study. The study collected secondary data from relevant materials including articles, conference papers, company publications, theses, books, periodicals and other documents available on the internet.

**Results:** The study findings argue that CE system centers around a regenerative, and restorative economic system, anchored on 7Rs principles. Businesses, entrepreneurs, government and policy makers must be mindful of the importance of CE to ensure responsible sustainable production and consumption in quest of a sustainable world.

**Conclusions**: The study concludes that the adoption of CE plays a key role in achieving economic stability, environmental protection, social well-being, thereby accelerating SDGs.

**Limitations**: This study is limited to the concept of CE, principles and application in pursuit of economic stability, environmental protection and social well-being as well as achieving sustainable world.

**Contributions**: This study will aid organizations, researchers, entrepreneurs, government, and community leaders to develop and implement policies that will ensure a cleaner environment for a sustainable future for all.

**Keywords:** *Circular Economy, 7Rs, CE Principles, Origin of Circular Economy, Waste Management*

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## 1. Introduction

Entrepreneurs across the world have been instrumental in transforming and moving the world forward through the creation of new businesses, stimulation of the economy, and contribution to social changes by bringing new innovative ideas, products, and services that improve the way people live, thus solving societal problems. For example, entrepreneurial ideas to invent and produce transportation machines, exploration of space (e.g., by Henry Ford, Nikola Tesla, and Elon Reeve Musk), communication gadgets technology (e.g., by Strive Masiyiwa), building materials, oil refineries (e.g., by Aliko Dangote), etc have helped solve human needs with regards to mobility, communication, housing and shelters etc.

Despite the importance of entrepreneurs and businesses in product development, the by-products of these entrepreneurs and businesses end up in landfills, the sea, waterways, gutters, and drainage systems, thus constituting a serious ecological disaster for the environment and society. From Europe

to the Middle East, Africa, and down to Nigeria, all face the challenges associated with waste, which is a global challenge requiring urgent action (Ifeoluwa, 2019). The report by the United Nations Environmental Programme UN (2024) shows that global municipal solid waste generation will rise from 2.1 billion tonnes in 2023 to 3.8 billion metric tonnes in 2050. The report estimated that a global cost of USD 252 billion was spent in 2020 on waste management without factoring in other hidden costs of pollution, climate change, and poor health disposal, which increased the costs to USD 361 billion. According to the United Nations Environmental Programme (UN, 2024), World Bank Report (2022), and Kaza, Yao, Bhada-Tata, and Van Woerden (2018), the annual cost of waste management globally could double to a whopping USD 640.3 billion if urgent actions are not taken.

In Sub-Saharan Africa, the annual volume of waste produced increased rapidly from 81 million tonnes to 174 million tonnes from 2012 to 2016 alone with a projection to increase to 269 million tonnes in 2030 (Adedara, Taiwo, & Bork, 2023; Kaza et al., 2018). Hence, urgent action is required to tackle the menace of waste generation to ensure a clean, safe, and sustainable world. Entrepreneurs and businesses must adopt a regenerative economic system to slow down the overuse of natural resources and benefit the environment, society, and economy.

In Nigeria, an estimated 32 million metric tonnes of solid waste is produced annually, with only approximately 20-30% collected and properly managed (Adedara et al., 2023), while 70-80% of this waste ends up being (Adedara et al., 2023) dumped or burned in an unauthorized place. A glimpse into Nigeria's gutters, waterways, sea, and some land areas revealed a visible ecological disaster that is an unpleasant filthy sight of massive floating nylon water sachets, empty cans, empty bottles, papers, and other waste materials and scraps discarded by humans, swept down the drains by rain, accumulating, and blocking the drains. Electronic waste materials and many other waste items are littered in some parts of the environment. Thus obstructing drainages, leading to global warming, flooding, soil and air pollution, and also contributing to serious health problems ranging from malaria, and typhoid to cholera (Ifeoluwa, 2019), and making it difficult for Nigeria to align with the SDG of Sustainable Cities and communities.

These challenges of items that most people regard as waste also present circular economy (CE) business opportunities for entrepreneurs and businesses, which, if properly harnessed, will provide job opportunities for our teaming youths and create wealth for individuals and society at large. Thus, controlling this waste using a circular economy system for a sustainable society could limit the global net annual cost of waste management by 2050 to 270.2 billion and lead to a global net annual gain of USD 108.5 billion (UN, 2024). Therefore, addressing this waste is important for the human, environmental, social, and economic health conditions of Nigeria and the rest of the world. In Nigeria, "wastepreneurs" are trying their best by innovatively redefining waste as valuable resources for other products and services. However, this effort is not enough to address this ugly menace; hence, entrepreneurs, policymakers, and organizations must adopt and incorporate the circular economy concept into their business model and strategy to have sustainable products and services (MacArthur, 2013) for a sustainable world.

The concept of a circular economy (CE) is described as a regenerative economic system in which production materials, resources, waste, emissions, and energy outflow are sufficiently reduced to a minimal level by slowing down, rounding off, and extending the life cycles of a product (Panić & Brljak, n.d.; Vasić, Milovanović, & Grujić, 2023) ose loop systensuresng (Petković, 2023) ensure a practicesble business practice (sustainable production and consumption) (MacArthur, 2013). The circular economy (CE) system has recently attracted the attention of many stakeholders (Cullen and De Angelis (2021) to address environmental and social problems related to human activities that militate against sustainability. However, in Nigeria and other countries, very little is known about entrepreneurs and organizations that embed and practice circular economy principles in their daily business activities and ecological and social sustainability outcomes. The motivation behind this study stems from the need to understand the interplay between circular economy principles and practices to achieve economic stability, environmental protection, and social well-being, thereby accelerating sustainable development goals (SDGs). By understanding the role of CE in ensuring sustainable development, this study provides

a clear understanding of the concept of CE, its principles, and its applications in theory and practice. This study will aid corporate organizations, researchers, entrepreneurs, governments, policymakers, and community leaders in developing and implementing policies that will ensure a cleaner environment for a sustainable future for all.

The research problem addressed in this study revolves around identifying and solving the problems of climate change, environmental degradation (Nson, 2024), the devastation of farmlands and waters by oil spillage, air pollution, deforestation, mining ponds, and many other ugly realities confronting the government, policymakers, entrepreneurs, business owners, and individuals in Nigeria. By examining the role of CE, this study aimed to provide insights and recommendations for policymakers, businesses, community leaders, government, and practitioners to design effective strategies that foster economic stability, environmental protection, and social well-being, thereby accelerating sustainable development goals (SDGs). Therefore, this study aims to enlighten entrepreneurs and business organizations to adopt the principles of circular economy systems into their entrepreneurial activities to produce sustainable products and services, thus committing fully to the United Nations "zero waste" and "circular economy societies" for a sustainable world.

## 2. Literature Review

### *2.1 The Concept of Circular Economy*

The circular economy (CE) is a systemic regenerative economic approach to economic development that is specifically tailored to benefit businesses, the environment, and society. The circular economy is defined as a regenerative economic approach in which production resources, materials, waste, emissions, and energy outflow are significantly minimized by slowing down, rounding off, and extending the life cycles of a product (Panić & Brljak, n.d.; Vasić et al., 2023) in a close loop system (Petković, 2023). The CE is a concept based on reusing, repairing, remanufacturing, and upgrading products or materials that minimizes waste and turns waste materials into resources for other purposes (Petković, 2023). The Ellen MacArthur Foundation (2013) and Renfors (2024) defined CE as "... an industrial system that is restorative or regenerative by intention and design. It replaces the "end-of-life" concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse, and aims at the elimination of waste through the superior design of materials, products, systems, and, within this, business models".

The concept of a circular economy is a promising alternative for humanity to avoid irrevocable damage to the environment and ensure the sustainability of our planet (Bjelić, Malinović, Markić, & Valjevac, 2023). This concept extends the lifetime of a product through improved design, servicing, and moving the waste product from the end of the supply chain to the beginning (product-waste-product) (Bjelić et al., 2023; Panić & Brljak, n.d.). The circular economy is a practice that ensures sustainable production and consumption patterns, where producers limit or minimize the use of unsustainable raw materials to produce sustainable products that have minimal negative impact on the environment and people.

The circular economy is a concept that encourages sustainable way of doing business practices. CE is a "product-waste-product" model that promotes an ecologically sustainable way of doing business through the application and introduction of standards in production processes, eco-design, and promotion of ecological materials and technologies in the context of new market demands and needs (Marinković, Ignjatović, & Batinić, 2023). The CE presents entrepreneurs and business leaders with new circularity business opportunities to produce eco-friendly products and services that are sustainable.

In light of circular economy practices, the materials we discard as waste are not waste but raw materials for other purposes in the wrong place that can be exploited to meet the challenges of scarce resources for production and consumption. For example, groundnut leaves and bean chaff are usually discarded and sometimes burned by farmers as waste, but they are not waste materials; they are raw materials for feeding cattle the wrong place. Groundnut leaves, bean chaff, corn chaff, and many others are raw materials used for feeding cows, goats, sheep, and other animals. The circular economy presents a way forward and a solution for overcoming the current production and consumption systems, where

resources are limited (Petković, 2023). According to Petković (2023), the circular economy is the economy for future development, as environmental and ecological protection is the major focus of the economy.

There is a clear difference between a circular economy (CE) and linear economy (LE). The circular economy system is different from the linear economy system in that the linear economy promotes a system of production known as "take (from nature), make (produces), use, discard (to waste) (Panić & Brljak, n.d.), which generates huge waste streams stockpiling in landfills (Levchenko & Orlov, 2023). The circular economy promotes a restorative and regenerative economic approach (Levchenko & Orlov, 2023) that extends the life cycle of a product (Panić & Brljak, n.d.; Vasić et al., 2023) in a close loop system (Petković, 2023). The circular economy system emphasizes innovative thinking in all production processes (Panić & Brljak, n.d.). The circular economy (CE) system is an extension of the linear economy (LE), where LE emphasizes the take-make-use-discard cycle, and CE emphasizes restorative and regenerative economy systems in a closed loop (product-waste-product).

Production and consumption processes and activities require innovative thinking (Panić & Brljak, n.d.) and a mindset other than the current fast-linear system (Gardetti, 2019). Entrepreneurs and organizations produce sustainable products and services. Consumers must develop a new mindset towards the consumption of products and services. Achieving sustainable production and consumption requires a transition to circular economy practices that are beneficial to businesses, the environment, and society at large.

Transitioning to a circular economy helps re-engineer people's perception of business activities toward a sustainable world. The shift from LE to a circular economy system requires radical changes and innovative measures in the system of production and consumption (Vasić et al., 2023). The shift towards CE is a global need and an inevitable step towards achieving a cleaner environment and a sustainable world. Entrepreneurs, businesses, and individuals need to change their business models, ways of thinking, and habits to use fewer natural resources, which prevents damage to the environment, reduces pollution, and ensures the production process through clean technologies (Vasić et al., 2023). Countries such as Denmark, Germany, Serbia, and the Netherlands have adopted circular economy strategies and have made significant progress in this field. Other countries, such as Brazil, China, and Great Britain, have also realized the relevance of transitioning to circular economy practices (Vasić et al., 2023).

The transition from an LE to a CE not only represents a change in industrial processes, but also requires reindustrialization, sustainable consumption, a new vision of "smart" cities, a change in people's consciousness, way of thinking, and a culture of living (Vasić et al., 2023). Globally, the concept of a circular economy system is being practiced across the globe by some manufacturing companies, such as Michelin, Caterpillar, Renault, Ricoh, Desso (MacArthur, 2013), and Coca-Cola. These principles have proven effective in reducing waste generation, as practiced by some international companies.

Although Nigeria adopted the sustainable development goal (SDG) in 2015, only a few entrepreneurs and organizations have adopted and successfully implemented circular economy principles into their business models, which have proven to be a successful and sustainable business strategy beneficial to businesses, the environment, and the world at large. For example, Coca-Cola Nigeria and Nigeria Bottling Company are leading companies practicing sustainable business strategies, where their glass bottles are used, collected, washed, continuously reused, recycled, and put back into production (Coca-Cola, 2024). Coca-Cola Nigeria believes a litter-free world is possible; hence, they attach value to every one of their packages by ensuring they use materials that can be recycled (such as cartons and nylons) into new packages or other beneficial purposes. Friends of the Environment (FOTE) is an NGO established in Nigeria that aims to advocate, initiate, and undertake programs that address the needs of identified groups that negatively impact the environment.

The circular economy model emphasizes innovative thinking in all production processes (Panić & Brljak, n.d.). The polluter pays principle (polluters need to shoulder the full costs of the consequences of their activities) (Panić & Brljak, n.d.). The costs involved in collecting, treating, and disposing of

waste must be included in the overall price of a product. Thus, consumers who patronize such products must pay for the cost of treating the waste products. In addition, pay-as-you-throw fees are an implementation of the polluter pays principle (Panić & Brljak, n.d.). Pay-as-you-throw fees can ensure that people avoid indiscriminate waste disposal on the street and in the environment.

The aim of the circular economy is to minimize the use of natural resource inputs, waste creation, pollution, carbon emissions (Petković, 2023), and negative impacts on the environment (Vasić et al., 2023). For example, the "polluter pays principle" (Polluters need to shoulder the full costs of the consequences of their activities) (Panić & Brljak, n.d.) helps reduce the amount of waste in the environment when a country enacts and correctly implements pay-as-you-throw fees, which are part of the implementation of the polluter pays principle (Panić & Brljak, n.d.). Second, the circular economy aims to keep infrastructure, equipment, and products in use for a longer period of time (Petković, 2023). This is done through continued usage, reuse, reconditioning, remanufacturing, refurbishing, repairing, and upgrading of products or materials, thereby extending the product life cycle in a closed-loop system. Thus, it provides sustainable products and services.

There is no waste in a circular economy. Waste becomes a new resource and adds value to other products (Gardetti, 2019). For example, for those in agricultural farming, groundnut leaves, maize chaff, bean chaff, and many others become new valuable resources for cattle feed, while cattle dung becomes raw material (fertilizer) for the farmers as well as a source of energy (bio-gas) to households. This illustration depicts the principles of a circular economy. Thus, the relevance of the circular economy (CE) in today's world is necessitated. Gardetti (2019) that will help reduce waste and reappraise resources to extend and enhance the life cycle of a product. With the monumental amount of waste materials littered around our environment, there is a need for the proper implementation of the practices and principles of the CE model at all levels of production and consumption, region, state, and locality for economic growth, development, and prosperity in line with environmental protection and sustainability development due to the limitations of linear production in our economy (Sverko Grdic, Krstinic Nizic, & Rudan, 2020). Proper implementation of the CE will also help achieve SDGs 2030 (SDGs 6, 11, 12, and 13).

Under the circular economy system, producers and consumers can advance and enhance the value/life cycle of products, minimize the use of natural resources, reduce wastages, and reduce/minimize pollution and other negative impacts on the environment (Ješić & Vukadinović, 2023), thus helping achieve both environmental and economic benefits (Levchenko & Orlov, 2023; Malhotra, 2023) for all. Entrepreneurs can revolutionize the Nigerian oil industry by creating mobile fueling stations that use solar or rechargeable batteries to ensure fuel availability and sustainability across the country.

A circular economy system enables economic growth while reducing and optimizing resource consumption, profoundly transforming the models of production and consumption chains and stimulating the development of new efficient business models (Levchenko & Orlov, 2023). Hence, entrepreneurs and business organizations must adopt the principles and practices of the circular economy to address ecological, environmental, and social sustainability concerns and open up various sources of business and economic opportunities (Cullen & De Angelis, 2021) that will transform the model of production, distribution, and consumption patterns.

### *2.2 History of circular economy*

The concept of a circular economy (CE) emerged from the idea of traditional linear consumption patterns (take-make-so xdispose/waste). The circular economy (CE) emerged due to the inability of the linear economy (take-make-dispose/waste) system to address environmental problems (which generate more challenges, such as high waste stockpiling in landfills). The circular economy responds to the challenges of the linear economy by encouraging business leaders, entrepreneurs, and organizations to transition to a restorative and regenerative economic system that drives significant and lasting improvements in resource productivity, distribution, and consumption for the benefit of businesses, the environment, and society.

The  onceptt of the circular economy (CE) has deep-rooted history and philosophical origins that cannot be linked to a single author, place,  or date (MacArthur, 2013), but rather to different schools of thought. The elements of circular economy began to appear in the late 1970s as a beneficial effect of the efforts of a small number of thought-leaders, academics, researchers, and businesses (MacArthur, 2013), such as John T. Lyle's regenerative design in the 1970s, Walter Stahel's research report on the vision of an economy in loops in 1976, and Michael Braungart and William McDonough's term "cradle to cradle" published in 2002 (McDonough & Braungart, 2010; Mohajan, 2021). The concept of circular economy (CE) was further developed and publicized in 2012 at the World Economic Forum by the Ellen MacArthur Foundation. The foundation was formed in 2010 to encourage  and spur a generation to rethink, redesign, and build a positive future. Since then, the idea of a circular economy (CE) has gained momentum (Vukadinović, 2023).

### *2.3 Principles of circular economy and it's application in entrepreneurial activities*

#### *2.3.1 Rethink*

Rethink is a mindset that minimizes waste, thus moving towards a clean environment and a sustainable future that is beneficial for all (organization, environment, and society). Producers should step back and think about the kind and quality of product they want to produce and the impact of their products on the environment. Reassess your decision regarding the materials you want to use for production. The materials you want to use in production can be reused, repurposed, repaired, and recycled? Do the materials have a lesser impact on the environment? If yes! The materials/resources are eco-friendly and minimize waste stockpiling in the environment. Entrepreneurs must innovate ideas that have a lesser impact on the environment, people, and society by producing sustainable products and services.

Consumers should step back, think, and reason about the type of consumer they want to be before they make the decision to buy certain products and what this decision means for the environment and society at large. As a consumer, be conscious of how much waste you deposit into the environment via the purchase of a product. The following questions can help guide your purchasing decisions: Do I need it? Can I get it somewhere else with less packaging? In this way, you are contributing your quota towards a sustainable world by minimizing the amount of waste stockpiling in or on landfills.

#### *2.3.2 Refuse*

As a producer, be ready to not use it at all if the resources harm the environment or society. Weight your production resources; those that have a high impact on the environment or society should be avoided. Refuse to use resources or materials that cannot be reused, repaired, or recycled. Refuse to use production materials or resources that do not conform to the concept of sustainability. By doing so, you are contributing to environmental protection and sustainability as a sustainable conscious producer/entrepreneur.

As a consumer, be prepared to not buy a product at all if it harms the environment or society. Refusing to buy or use products that are not environmentally friendly and refusing to buy unsustainable products. Prioritize conscious consumption and adopt the concept of minimalism by refusing to purchase wasteful and non-recyclable products. This will help reduce the demand for such products, thus leading to less production of such products as a result of low demand. Consumers can appropriate the characteristics and behavior of green consumers into their buying behavior by placing themselves at the start of the buy-and-use cycle; green consumers buy fewer products that have minimal effect on the environment and society.

#### *2.3.3 Reduce (Low Waste + Minimalism)*

On a general note (producers and consumers), the use of harmful, toxic, wasteful, and non-recyclable items should be reduced. Producers should make a deliberate effort to reduce the quantity of materials that are not environmentally friendly in their manufacturing processes. If you must use such materials, do everything possible to reduce their quantity. According to Bjelić et al. (2023), this practice Bjelić et al. (2023)helps minimize discarded products and increase profits for producers or manufacturers. Consumers, on the other hand, should minimize buying unsustainable products and services. As consumers, we should reduce the consumption of resources that harm the environment, people, and

society. Thus, embracing the concept of "green consumer" and buying fewer products that have minimal or no packaging, last for a longer period, and have many uses is recommended.

In case a person has items that are no longer needed, such items can be donated or sold. This will help minimize the number of waste materials discarded into landfills. Owing to the need to reduce pollution in the air, water, and soil, there has been a huge call for "low waste" or "zero waste living" to keep toxins and waste out of our oceans, waterways, environment, and landfills. Although the concept of "zero waste" may be unobtainable to some, "low waste," " minimizing waste, " and "reducing waste" are obtaina"le and can be practiced by eve"yone. To minimize waste and achieve a sustainable society, we must reduce (minimize) the use of toxic, harmful, wasteful, and non-recyclable products. This will lead to less waste material ending up in landfills and minimize the associated negative environmental impact.

*2.3.4 Reuse*

Therefore, entrepreneurs and producers must reuse resources (upcycling) instead of destroying them to make new products (recycling). Entrepreneurs should innovatively put little effort into upgrading post-use products (creatively reused) for their original purpose or for different tasks. The concept of reuse helps sustain the environment now and for future generations. Reusing also helps reduce the amount of waste products to be recycled or discarded in landfills, thereby saving money for recycling.

Up-cycle products instead of throwing away used products. Many products and items can be repurposed multiple times before being recycled into other useful resources. Items purchased that do not fulfill their original purpose can now be repurposed for other uses rather than being thrown away. Products that cannot be refused or reduced can be repurposed to avoid their negative impact on the environment. Ask yourself questions such as: Is this item still in good condition? Can it be washed, reused, and repurposed? Can it be cleaned and converted to something other than its original purpose? If yes! Then use it. For example, empty pomade containers, jars, or glasses can be washed, used, or repurposed to store dry goods such as sugar, salt, or Maggie. An empty palm oil jar can be washed and used to store the beans., the environmental impact of a product should be considered when purchasing items with excessive single-serve packaging (Udodiugwu, Obikaor, Eneremadu, Onwuegbuchulem, & Anyaegbunam, 2025). Thus, by reusing materials, an individual helps reduce the amount of waste materials deposited into the environment.

*2.3.5 Repair (fix it, don't trash it!)*

Repair enhances the value and extends the lifetime of a product or item Bjelić et al. (2023) by participating in the repair movement and attempting to fix items instead of discarding them. This helps avoid the "throwaway culture" where more materials and items end up in landfills than necessary. Throwaway culture harms the environment (because most items end up in landfills) and costs producers more resources to make new items. Therefore, we can conserve resources by fixing things instead of throwing them away. When these items are discarded, they end up in landfills, piling up mountains of toxic materials that will never break down, constantly producing greenhouse gases and leachate into the environment, with chemical runoffs moving into our water supply. All of these are alarming threats to the environment and human life. For example, our furniture, electronics, and appliances can be repaired and reused. Thus, saving us a huge amount of money that we can use to buy new ones.

*2.3.6 Regift*

An individual can give a gift to someone else who will value it more. You can pass a gift to someone you are certain will enjoy more than you. For example, you can regift a piece of cloth or material/product that is in good condition that you no longer need to someone else who will value it more than you, instead of dumping it in the waste bin.

*2.3.7 Recycle (Compost)*

Shops for items that can be recycled are also available. Put things back into the recycling bin to be recycled and used again for something else. For example, broken pots can be recycled into other utensils, such as spoons; broken plastics and rubber can be melted down to make new products; leftover

food and organic waste can be used to generate biogas; and compost can be used as fertilizer to provide valuable nutrients to our gardens. Thus, it helps reduce the need for chemical fertilizers. The water from fish ponds can be used to fertilize farms. According to Tanha et al. (2023), recycling technology enhances operational efficiency, reduces costs, and enhances consumer comfort. Recycling helps conserve resources Udodiugwu (2024) recycling helps conserve untapped resources for sustainable development and the healthy coexistence of humans.

### *2.4 Sustainable development goals (SDGs)*

The Sustainable Development Goals (SDGs) 2030, adopted by member states in 2015, provide a shared blueprint for peace and prosperity for people and the planet, now and in the future [United Nations, (UN, 2015)]. The SDGs also serve as guidelines for achieving sustainable business practices (Afnan, Wijaya, Kartono, & Wibowo, 2024). Achieving sustainable development goals (SDGs) requires the practice of circular economy principles. Circular economy principles are one way to achieve sustainable development. The practice of circular economy principles through its 7Rs helps ensure peace and prosperity for people and the planet, now and in the future. The concept of a circular economy, as adopted in this study, is a prerequisite for sustainable development (Kiaušienė, Hladkova, & Makūnaitė, 2024). The concept of circular economy as conceptualized by scholars and in this work emphasizes a sustainable, renewable system, with the aim of reducing waste, promoting resource efficiency, and minimizing environmental impacts now and in the future.

Furthermore, the implementation of circular economy principles and practices will help state and non-state actors to localize SDGs. This will help achieve sustainable development goals. They SDGs 17 goals (Carlsen & Bruggemann, 2022; Hák, Janoušková, & Moldan, 2016; UN, 2015) are as follows: No poverty (SDG 1), Zero hunger (SDG 2), Good health and well-being (SDG 3), Quality education (SDG 4), Gender equality (SDG 5), Clean water and sanitation (SDG 6), Affordable and clean energy (SDG 7), Decent work and economic growth (SDG 8), Industry, innovation and infrastructure (SDG 9), Reduced inequalities (SDG 10), Sustainable cities and communities (SDG 11), Responsible consumption and production (SDG 12), Climate action (SDG 13), Life below water (SDG 14), Life on land (SDG 15), Peace, justice, and strong institutions (SDG 16), and Partnerships for the goals (SDG 17).

### *2.5 Conceptual model*

The model below depicts the impact of circular economy principles on sustainable development. The in-depth qualitative exploratory review of relevant work related to the scope of the study informed the development of the proposed conceptual framework, as presented in Figure 1 below.


Figure 1. Conceptual model

### *2.6 Hypothesis development*

The adoption and practice of circular economy principles have a positive impact on economic stability (Aithal & Aithal, 2023; Baldassarre, 2025; Panić & Brljak, n.d.; Vasić et al., 2023), environmental protection (Islam et al., 2024), social well-being (Nikonorova, Imoniana, & Stankeviciene, 2020), thereby advancing the sustainable development goals (Velenturf & Purnell, 2021). Circular economy fosters economic stability (such as ensuring resource security, innovation, job creation, and reducing costs), environmental protection (reducing waste generation, minimizing the consumption of resources, and mitigating climate change), and social well-being (fostering inclusive growth for marginalized communities, improving the quality of life, and fostering resilience), thereby accelerating the

achievement of sustainable development goals. Thus, the argument above influences the proposition below: The adoption of circular economy principles significantly contributes to economic stability, environmental protection, and social well-being, thereby advancing sustainable development goals (SDGs).

## 3. Research Methodology

### *3.1 Methodology*

This study extensively reviewed the literature related to the scope of the study and collected secondary data from relevant materials, including articles, conference papers, company publications, theses, books, periodicals, and other documents available on the Internet. The keywords for the search were circular economy, 7Rs, circular economy principles, and waste management.

### *3.2 Context of the study*

The problems of climate change, environmental degradation, and the devastation of farmlands and waters by oil spillage, air pollution, deforestation, and many others appear in newspapers, radio, and television. This ugly reality confronts the government, policymakers, entrepreneurs, business owners, and individuals daily in Nigeria. Oil spillages are a problem in the southeastern states of Nigeria (Nson, 2024), comprising Abia, Anambra, Ebonyi, Enugu, and Imo. The problem of mining ponds and the devastating impact of mining on farmlands in the North-Central part (e.g., Nasarawa, Plateau, Kogi, and Niger) of Nigeria. Deforestation across Nigeria has opened up the environment to harsh weather conditions. The issues of huge waste materials such as empty bottles, pure water sachet leather, cans rubbers, and many other man-made debris littered around our waterways, lagoons, drainage, and lands necessitated this study. All the stated problems and many more motivated the study of the circular economy.

## 4 Result and Discussion

### *4.1 Results*

Thus, this study, in line with the stated objective above, presents the following novel findings:

- Most SMEs in rice milling and small entrepreneurs in Nigeria are not aware of the practices and applications of the circular economy; the few who are aware have not done much in terms of its implementation. Hence, rice husks and bran end up in the environment without being converted into value-added products. Most organizations and entrepreneurs concentrate on profits (linear economy), which does not favor the environment and society.
- Informal and indiscriminate waste disposal clogs waterways, creating breeding grounds for dangerous insects such as mosquitoes and flies, thus causing serious health hazards to people.
- The global waste management gap presents more than a billion-dollar opportunity; entrepreneurs and businesses can play a vital role in bridging this gap, particularly in Nigeria. Nigeria contributes approximately 32 million metric tonnes of waste annually, with less than 20-30% properly collected and managed; hence, a huge opportunity of 70-80% for intending entrepreneurs and businesses.

Government, policy makers, and community leaders have not done much to implement the “polluters pay principle” which is why most organizations do not adhere to environmental regulations. These findings are in line with the study of Okechukwu (2024), who identified corruption on the part of the staff of the regulatory agency, poor enlightenment, and weak regulatory enforcement as some of the challenges confronting the National Environmental Standards Regulatory and Enforcement Agency (NESREA), which is the regulatory agency saddled with the responsibility of enforcing the provisions of various environmental laws in Nigeria.

### *4.2 Implications of the study*

#### *4.2.2 Practical implications*

The originality of this study lies in the researcher’s ability to pinpoint how an organization, entrepreneurs, and government can implement circular economy principles to achieve a sustainable world. The implementation of circular economy (CE) principles, practices, and processes is relevant to entrepreneurs, businesses, the government, and society as a whole because it can help address social,

environmental, and economic problems. The study is relevant to society (e.g., it advances community development, encourages innovation, promotes sustainable consumption, encourages shared responsibilities, strengthens social ties, and builds trust), environmental protection (e.g., reduces waste, emissions, and pollution, and slows down the use of natural resources), economic stability (e.g., helps create new business opportunities, save costs, and create job opportunities), and other benefits such as tackling climate change, regenerating nature, and tackling biodiversity loss.

*4.2.2 Policy implications*

This study delineates the concept, principles, and practices of the circular economy. Understanding the principles of CE is important because it helps policymakers formulate better policies that will drive the sustainable economic development of a country, thus achieving sustainable development goals. The study will help policymakers develop cohesive circularity policies that will encourage and support enterprises to adopt circular economy principles in the transition towards a circular economy. The study helps create better policies that will encourage sustainability influencers to promote a responsible production and consumption lifestyle by encouraging organizations to produce sustainable products and services, as well as encouraging consumers to avoid single-use products and opt for eco-friendly products, reusable products and recyclable items with minimal packaging that conforms to the concept of sustainability.

4.2.3 *Theoretical implications*

This study provides further understanding of the circular economy (CE) system, its principles, and its application in contemporary discourse. This study provides further support to the extant literature that has established the relevance of circular economy (CE) principles and practices in achieving a sustainable world. The study contributed to both sustainable development goals, sustainable economy, and entrepreneurship literature; and also served as a reference point for scholars, researchers, and academicians.

## 5. Conclusion

### *5.1 Conclusion*

In conclusion, addressing ecological disasters requires a collective responsibility. All hands must be on desks to create a sustainable world. The adoption of a circular economy by entrepreneurs, businesses, organizations, and governments plays a key role in achieving economic stability, environmental protection, and social well-being, thereby accelerating sustainable development goals. CE helps companies produce sustainable products and services for sustainable consumption, which will, in turn, help achieve a sustainable world. Therefore, entrepreneurs, companies, governments, and individuals must practice circular economy principles to achieve a cleaner environment and sustainability. We conclude that the practices of circular economy principles are of many benefits, including achieving a clean healthy environment, reducing costs of waste management, increasing earnings for individuals, businesses, and government, and achieving a sustainable world.

### *5.2 Limitations and directions for future studies*

This study has some limitations. First, there are time limitations. This research was conducted within a limited time frame, which theoretically limits the depth, scope, and applicability of the study. Second, there are contextual and cultural limitations. This study was conducted in the context of a developing country with differences in culture and religion; hence, generalizing this study to other countries' economies (e.g., developed economies) should be done with utmost care. Third, this study was limited to the concept of circular economy, principles, and application in a contemporary world in quest of a cleaner environment and sustainable world.

Despite these limitations, this study is still beneficial to scholars in this field. Indeed, this study provides a valuable explanation of the concept of CE, its principles, and practices in developing countries on how enterprises will adopt CE principles to transition towards a circular economy. This study also provides a foundation for further research. The study recommends further studies on the application of circular economy principles in developing countries' contexts using a longitudinal method.

### *5.3 Suggestions*

This study is in line with the objective and findings above, and hereby recommends the following:

- Policymakers and advocates of sustainability must leverage the power of social media to share knowledge and actions that advance sustainability now and in the future.
- Entrepreneurs and businesses are encouraged to embrace and adopt the practices of the 7Rs principles into their business model and strategy to encourage responsible production and consumption to achieve zero waste and ensure a sustainable society now and for future generations
- Young people play a key role in addressing the challenges of waste in our environment; hence, they must be properly oriented about the dangers of improper waste management.
- Governments at all levels are encouraged to enact and implement the polluter-pays principle, which is' pay-as-you-throw fees to have a clean and healthy environment for all. They should ensure that indiscriminate waste dumping is cracked down on by enforcing anti-littering laws for a clean and sustainable society.
- To ensure the availability and sustainability of fuel in the Nigerian oil sector, policymakers, entrepreneurs, and businesses are encouraged to consider the concept of mobile fueling stations using solar or rechargeable batteries.
- Policymakers and sustainability influencers should promote responsible production and consumption lifestyles by encouraging organizations to produce sustainable products and services, as well as encouraging consumers to avoid single-use products and opt for eco-friendly products, reusable products, and recyclable items with minimal packaging that conforms to the concept of sustainability.
- Companies and entrepreneurs are encouraged to adopt a circular economy to achieve economic stability, environmental protection, social well-being, and accelerate sustainable development goals.

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