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Sustainability and sustainable development research around the world

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Abstract

In this paper, I review the sustainability and sustainable development research around the world. I begin by defining the sustainability and sustainable development concepts. Thereafter, I highlight the dimensions of sustainable development and sustainability based on the literature. I also show the relationship between sustainability and sustainable development. The key findings in this review indicate that sustainability and sustainable development lead to greater resource availability, and are influenced by country policies, structural challenges, institutional bottlenecks, and political willingness to pursue the sustainable development goals. Also, sustainable development is a widely acknowledged concept in academia while its practicality in policy circles has been contested. Also, existing empirical studies show that incorporating sustainability or sustainable development concerns into business or environmental management yields some positive benefits. Finally, some areas for future research are suggested.

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1. Introduction

There is growing interest in sustainability and sustainable development in the academic and policy literatures. These two concepts have dominated the international development policy arena for over two decades now. In the policy arena, recent events such as climate change risk, the race to reduce fossil fuel emission, the transition to renewable energy, and the transition to a circular economy, have intensified the push towards sustainability and sustainable development (Aven, 2020; Leal Filho et al 2019; Ozili, 2021; Wackernagel et al, 2017).

There is a need to identify the research in the literature that encourage the convergence of sustainability and sustainable development practices, globally. To date, no literature review has emerged to identify and consolidate the research in the sustainability and sustainable development literature. This paper presents a review of the state of sustainability and sustainable development research across several regions of the world. It also identifies areas for future research to advance the sustainability and sustainable development literature.

Sustainable development has a very broad meaning depending on the dimensions being considered. Sustainable development has received much attention from policy makers and academics for four main reasons. One, sustainable development is considered to be the end-goal of the United Nation's plan for the planet, and many countries have agreed to achieve the sustainable development goal (Linnér and Selin, 2013; Bexell and Jönsson, 2017). Secondly, sustainable development helps to promote a sustainable planet for every generation (Weiss, 1992; Emina, 2021). Thirdly, sustainable development is considered to be the mother of all development goals, because the aim of all other development goals is to achieve sustainable development. Lastly, sustainable development is expected to bring lasting socio-economic benefits to all people and the environment (Szymańska, 2021).

Prior studies have examined several themes in the sustainability and sustainable development literature such as promoting sustainable development through building infrastructure and innovations (Thacker et al, 2019; Silvestre and Țîrcă, 2019), the

determinants of sustainability and sustainable development (Vinuesa et al, 2020), the different approaches to sustainable development (Liu et al, 2018); and country-specific sustainable development practices (Roy and Pramanick, 2019; Wang et al, 2020).

Regarding the methodology used in this review paper, the articles used in the review must meet two criteria. One, the articles should be published as an empirical study, analytical study, policy discussion paper or a related working paper. This means that unpublished dissertations and information from website and online blogs were excluded in this review. Two, the articles to be included should be recent articles. Three, older articles may be included if they address the relevant issue(s) covered in this review. Finally, the included article should explore sustainability and sustainable development as a major theme in the study or one that explore the interlinkages between sustainable development, sustainability and other relevant topics or issues.

This review paper contributes to the literature in the following way. One, it contributes to the literature that examine the role of sustainability and sustainable development for better development outcomes. Secondly, this review contributes to the on-going debate about the sustainability of the planet. Thirdly, for academics and researchers, the discussion in this review adds to the sustainable development and sustainability literature that attempt to proffer solutions to the challenges affecting the world such as climate change, greenhouse gas emission, and fossil fuel pollution.

The rest of the article is structured as follows. Section 2 presents the conceptual framework. Section 3 discuss the global research on sustainability and sustainable development. Section 4 reviews some empirical studies. Section 5 presents some areas for future research. Section 6 concludes.

2. Conceptual framework

2.1. Defining the sustainable development concept

The first definition of sustainable development surfaced in a 1987 United Nations report titled 'Our Common Future' which is now generally referred to as the Brundtland Report of the World commission on Environment and Development 1987. It defined sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland, 1987). Also, the National Sustainable Development Strategy¹ defines sustainable development as a targeted, long-term, comprehensive and synergic process that (i) affects the conditions and all aspects of life at all levels, (ii) satisfies the biological, material, spiritual and social needs and interests of people, (iii) eliminates or significantly reduces interference that endangers, damages or destroys conditions and forms of life, (iv) does not burden the country, (v) preserve resources and (vi) protects cultural and natural heritage. In the academic literature, sustainable development is defined as the process of improving the quality of human life while living within the carrying capacity of supporting ecosystems. (see, Willers, 1994). Pearce et al (1994) define sustainable development in terms of a per capita consumption path that is constant or rising over time.

2.2. Defining the sustainability concept

Defining sustainability is not an easy task. Nonetheless I offer some definitions.

Sustainability is a philosophy, an approach or practice that guides the use of today's resources in an efficient manner to ensure that resources are available and sufficient to meet today's needs and the needs of future generations. Sustainability is also defined as the ability to make responsible decisions in using and allocating resources to economic and non-economic activities in an effort to achieve some desired social, economic and environmental outcomes.

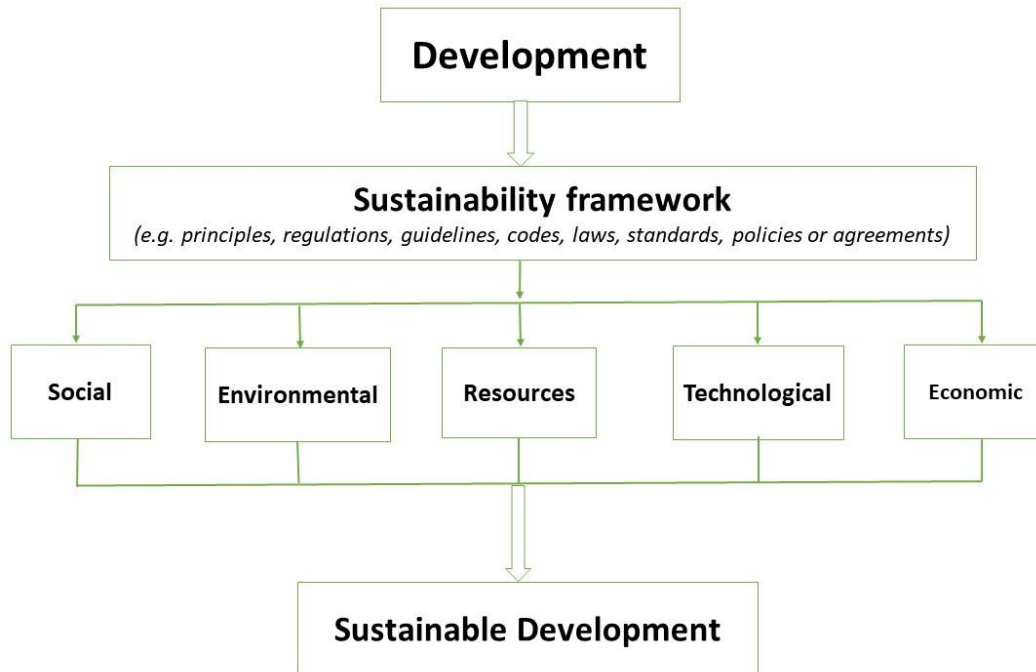
¹ <https://sustainabledevelopment.un.org/topics/nationalsustainabledevelopmentstrategies>

Currently, there are no clear-cut definitions of sustainability in the policy or academic literatures. Many studies did not define the sustainability concept itself; rather, they defined sustainability in terms of other contexts or disciplines such as business sustainability (Bansal and DesJardine, 2014), career sustainability (Tordera et al, 2020), urban sustainability (James, 2014), product sustainability (Dyllick and Rost, 2017) and fiscal sustainability (Byrne et al, 2011).

2.3. Conceptual relationship between sustainability and sustainable development

Sustainability is the driving force or agenda that guides a development process towards achieving a level of development that is sustainable. Sustainability sets the tone, the approach or the guiding framework that coordinates all facets of development towards achieving a sustainable level of development. Figure 1 below is a simple illustration of how development that is guided by a relevant sustainability framework can lead to sustainable development. The illustration in figure 1 infers a positive relationship between sustainability and sustainable development, and the positive relationship may be linear or non-linear. The implication of the framework in figure 1 is that sustainable development is achieved only when sustainability is made a priority on the path to development. Any level of development that is achieved with a guiding sustainability framework is considered to be a development outcome that is sustainable, or simply, sustainable development. In contrast, any level of development that is achieved without a guiding sustainability framework is considered to be a development outcome that is not sustainable, or simply, unsustainable development.

Figure 1: Conceptual relationship between sustainability and sustainable development



Source: *Author*

2.4. Dimensions of sustainable development and sustainability

There is a consensus in the literature that sustainable development or sustainability consists majorly of three dimensions, namely, the social, economic and environmental dimensions (see, for example, Ranjbari et al, 2021; Duić et al 2015; Clune and Zehnder, 2020; Kumar and Anbanandam, 2019). There is also a consensus that sustainable development and sustainability are multi-dimensional and are achieved through mutual interaction between the social dimension, the economic dimension and the environmental dimension of sustainable development or sustainability (see, for example, Lehtonen, 2004; Golusin and Ivanović, 2009). Other studies introduced additional dimensions of sustainable development or sustainability, such as the technological or technical dimension (Penzenstadler and Femmer, 2013; Finkbeiner et al, 2010), the cultural dimension (Brocchi, 2010), the knowledge dimension (Mebratu, 2001), etc.

3. Review of regional studies on sustainable development

3.1. European studies on sustainable development

A number of European studies have examined the prospects and issues surrounding sustainable development in Europe. Firstly, there are claims that the European Union played a leadership role at the 2002 World Summit on Sustainable Development (Lightfoot and Burchell, 2005). Since then, there has been a surge of national strategies for sustainable development in several parts of Europe (Steurer and Martinuzzi, 2005). Some European countries have used scenarios to determine whether there is sufficient rationale to pursue sustainable development as a national policy priority (Rotsman et al, 2000). Many advocates of sustainable development in Europe often pressure policymakers to allow sustainable development to permeate every facet of economic life such as: education for sustainable development (Adomßent et al, 2014; Jucker and Mathar, 2016); public sector management for sustainable development (Steurer and Hametner, 2013); sustainable development in the form of corporate social responsibility in European firms (Miralles-Quiros et al, 2017); employment policy for sustainable development (Hinterberger et al, 2002), improving environmental quality for sustainable development (Van den Brink et al, 2018), change in land-use for sustainable development (Mann et al, 2018; Gibas and Majorek, 2020), tourism for sustainable development or sustainable tourism (Navarro et al, 2019), and climate change mitigation for sustainable development (Casado-Asensio and Steurer, 2014).

Regarding progress in sustainable development, South Eastern European Countries are at the early phases of sustainable development and have only recently began to develop plans to steer their economies towards sustainable growth and development although the process has been slow in the last decade (Ivanovic et al, 2009). The slow pace in achieving sustainable development in South Eastern Europe is due to a rigid political structure, weak legal system, weak institutions, lack of political will to embrace change from traditional development to sustainable development and lack of market mechanisms (Láng, 2005). While South Eastern Europe lags behind in progress towards sustainable development, Western European countries such as Denmark, Germany, Finland and Norway, have made tremendous progress towards sustainable development (Golusin

and Ivanović, 2009), and are often considered to be the champions of sustainable development in Europe. In contrast, Central and Eastern European countries continue to face new challenges in the implementation of sustainable development.

Several empirical studies have used some indices to measure sustainable development performance among European countries (see, for example, Resce and Schiltz 2020; Škrinjarić, 2020; and Lior et al, 2018). These studies show that more developed European countries, such as Denmark, rank higher on sustainable development rankings while countries like Romania and Bulgaria lag behind. There is also evidence that European countries that are members of the European Union perform better than European countries outside the European Union in the sustainable development rankings.

This leads to the conclusion that the process of attaining collective sustainable development in continental Europe may be slower than anticipated due to existing institutional and political fault lines particularly in South Eastern European countries and Central and Eastern European countries. Also, there have been arguments that some European countries tend to focus more on the economic and environmental dimensions of sustainable development while ignoring the social dimension particularly the health sector in the social dimension of sustainable development (Bickler et al, 2020). The health sector tends to be ignored in discussions about sustainable development despite the importance of good health for the well-being of European citizens (Bickler et al, 2020).

3.2. Asian studies on sustainable development

There are relatively few studies on sustainable development in Asia. For instance, Lee et al (2018) show that much of the continent's efforts towards attaining sustainable development has been to engage the business community and solicit their support in resolving sustainable development issues in Asian countries (Lee et al, 2018), as well as prioritizing low-carbon-emission energy production and energy efficiency measures towards attaining the United Nations' Sustainable Development Goals (Zavyalova et al 2018). Savage (2006) examines the concept of sustainable development in Southeast Asia based on four themes: population growth and distribution, the capitalistic system, ecological systems and the nature of development. He emphasizes the need to contextualize sustainable development within an ecosystem paradigm, and that Asian

governments should focus on sustainable urban development because cities will play an important role in sustainable development in the future. He further argued that the long-term solutions to sustainable development in South Asia will lie in changing consumption habits, lifestyle goals and value systems. de Sousa Jabbour et al (2020), in a study of factors affecting the environmental, social and financial performance of small and medium-sized enterprises (SMEs) in the manufacturing sector in Asia, find that innovation and entrepreneurial orientation, governmental actions, and lean manufacturing systems are some of the prominent factors which drive Asian SMEs' financial, social and environmental performance towards sustainable development. Other studies document a number of factors affecting sustainable development in Asia, namely, the acquisition of land for growing biofuels, food crops and/or nature conservation (Zoomers, 2011), over-dependence on international tourists and foreign investment (Trupp and Dolezal, 2020), the marginalization of poor people in South Asia (Müller-Böker et al, 2004), and the weak institutional coordination between agencies charged with disaster response for sustainable development (Seidler, et al 2018).

3.3. African studies on sustainable development

Many African studies have identified areas that require attention for successful sustainable development in African countries. These areas include: reducing the excessive usage of fuel wood (Bugaje, 2006); preserving indigenous knowledge and local language literacy (Eyong, 2007; Trudell, 2009); investing in energy efficient strategies (Ouedraogo, 2017; Winkler et al, 2007); strengthening democratic institutions and improving agriculture (Ahenkan and Osei-Kojo, 2014); Mbow et al, 2014); developing better information and communication technology systems (Asongu and Odhiambo, 2019; Onyango and Ondiek, 2021); incorporate sustainable development into educational policies in Africa (Manteaw, 2012); better financing for education (Oketch, 2016); domestic mobilization of financial resources (Nhamo, 2017); the contribution of religion to sustainable development in Africa (Ogbonnaya, 2012); local economic development (Abrahams, 2018); effective leadership (Dartey-Baah, 2014); strengthening tourism governance (Siakwah et al, 2020; Kimbu and Tichaawa, 2018), promoting the cooperation between the private and public sector in the execution of the sustainable development

goals. (Jaiyesimi, 2016); improved quality of institutional governance (Mc Lennan and Ngoma, 2004); using technological to help achieve sustainable development (Omwoma et al, 2017); improving capacity to mobilise resources to increase water–sanitation–hygiene services (Nhamo et al, 2019); and the role of African scientific research centers in promoting sustainable development (Dafaalla et al, 2021).

Some African studies have identified challenges that undermine efforts towards sustainable development in Africa. The challenges include: poor infrastructural support to harness renewable resources (Bugaje, 2006); population growth and inadequate employment opportunities (Ahenkan and Osei-Kojo, 2014); low climate change adaptive capacity (Tumushabe, 2018; Bauer and Scholz, 2010); and the COVID-19 pandemic (Ekwebelem et al, 2021). Despite these challenges, there seem to be a consensus that sustainable development in Africa should begin at the local level (Annan-Aggrey et al, 2021), and should be driven by the local governments (Atisa et al, 2021). Also, there is a consensus that policy coherence and coordination between all local, state and federal governments is a prerequisite to promote sustainable development in African countries (Auriacombe and van der Walt, 2021).

There are few empirical studies on sustainable development in Africa. For instance, Oke et al (2021) find evidence of a significant positive relationship between renewable energy and the economic dimension of the sustainable development index. Tiba and Belaid (2021) investigate whether renewable energy is a determinant of sustainable development for 25 African countries over the period 1990 to 2014. They use simultaneous equation models, and find a positive relationship between renewable energy and sustainable development, indicating that higher levels of renewable energy have a positive influence on the economic, environmental, social, and institutional dimensions. Aust et al (2020) investigate whether foreign direct investment contributes to the achievement of the sustainable development goals (SDGs) using data from 44 African countries. They find that the presence of foreign investors positively influences SDG scores in African countries. Ojike et al (2021) examined whether government spending on education and health affects the level of sustainable development in Nigeria. They use the Autoregressive Distributed Lag Model (ARDL) bounds test technique and construct a

sustainable Society Index (SSI) as a measure of sustainable development. They find significant evidence that government spending on education and health improves the level of sustainable development in both the short- and long-run in Nigeria.

3.4. Oceania and Middle East Studies

The literature document that some Middle Eastern countries such as United Arab Emirates (UAE), Qatar, and Lebanon have strived to become more environmentally friendly (Issa and Al Abbar, 2015; Subeh and Al-Rawashdeh, 2012; Bayomi and Fernandez, 2019; Issa and Al Abbar, 2015). The government in these Middle Eastern countries have established sustainable development initiatives such as green building codes and regulations to promote environmentally friendly construction towards the attainment of the sustainable development goals (Issa and Al Abbar, 2015). Also, there is growing interest in urban sustainability in cities such as Dubai, Masqat, Beirut and Amman (Subeh and Al-Rawashdeh, 2012). But efforts towards sustainable development in the Middle East region are hindered by natural constraints and underlying political and social issues such as inefficient energy production and consumption (Bayomi and Fernandez, 2019); scarcity of water, lack of awareness about sustainability and environmental issues, wars and other operational challenges (Issa and Al Abbar, 2015).

Meanwhile, in the Oceania region, existing studies show that sustainable development has become a discursive device for advocating compact city policies and collaborative approaches to policymaking in Western Australia (Hopkins, 2013). This has been possible due to the availability of environmentally friendly (green) material, financial incentives to clients and contractors, government policy for implementation, and overall awareness about sustainable development within the industry (Khalfan et al, 2015). Curran (2015) proposes two key interrelated strategies for achieving sustainable development in Australia: (i) the modernization of production and its practices and (ii) the modernization of the political sector and its institutions. Allen et al (2020) assess national progress and priorities for the sustainable development goals (SDGs) in Australia, and find that there is strong progress in achieving goals relating to health and education while there is poor progress in achieving goals relating to climate action and reducing inequalities. Gurran et al (2015) show that Australia incorporates sustainability provisions in land use, and there

is a responsive relationship between sustainable development pressures and regulatory development control for land use.

In New Zealand, several studies suggest ways to promote sustainable development in New Zealand, such as, applying a capital-based framework to local government planning (Saunders and Dalziel, 2010), adopting the Cittaslow approach for local sustainable development (Semmens and Freeman, 2012), incorporating the Enviro-schools program into the curriculum of schools in New Zealand (Williams, 2012), embedding education for sustainable development in the curriculum of New Zealand schools (Zguir et al, 2021) and sustainability reporting by local governments in New Zealand (Bellringer et al, 2011)

4. Some empirical studies

Some empirical studies document the effects of sustainability and sustainable development. Lin and Zhu (2019) examined the impact of the energy saving and emission reduction (ESER) fiscal policy on urban sustainable development. They use a panel data of 114 Chinese cities, and find that the ESER policy had a positive and significant effect on eco-efficiency of Chinese cities. The implication is that the sustainability-fiscal policy improved the eco-efficiency of Chinese cities during the study period. Pätäri et al (2012) examine the relationship between a firm's sustainability efforts and its financial performance in the energy industry. The authors compared firms included in the Dow Jones sustainability indexes (DJSI) with the biggest firms in the global energy sector. They analysed the two groups using data from 2000, 2005, and 2009. They find evidence of a positive association between sustainable development and firms' financial performance, especially when performance is measured as the market capitalization value.

Yu and Tsai (2018) examined the influence of firms' carbon reduction behaviors on their sustainable development, and investigated the effects on sustainable development of carbon emission reduction by state-owned enterprises (SOEs) in high-carbon-emission industries in China. They find that SOEs and high-carbon-emission industries emphasize the need to achieve carbon reduction more than do privately owned enterprises and non-

high-carbon-emission industries. They also find that carbon reduction positively influences corporate sustainable development, which suggests that carbon reduction is beneficial to both the ecological environment and corporate sustainable development. Nguyen and Nguyen (2020) investigates the determinants of the disclosure of sustainable development information by enterprises. They analyzed 120 manufacturing companies listed on Vietnam stock market in 2019. Using the ordinary least squares methodology, they find that state ownership has a significant negative effect on the disclosure of sustainable development information of manufacturing companies listed on Vietnam stock market.

Kumar and Rahman (2016) investigate the factors affecting sustainability adoption in the Indian automobile supply chain, and the inter-relationships among them. They took a survey of 157 Indian automobile companies. They used the Partial least square (PLS) methodology, and find that external influence and expected sustainability benefits increases top management's commitment to adopt sustainable practices.

Xiao et al (2013) investigate whether there is a “world price” of corporate sustainability. They find that sustainability investments have no significant impact on global equity returns, which implies that large institutional investors are free to implement sustainability mandates without fear of breaching their fiduciary duties. Gupta and Benson (2011) examine whether sustainable companies are able to compete effectively in terms of financial performance and attractiveness to investors. They analyzed firms appearing in the Innovest ‘Global 100’ rankings, and find that sustainable companies do not significantly underperform the stock market as a whole, rather, they are highly competitive within their industries. López et al (2007) examine whether there are significant differences in performance indicators between European firms that have adopt corporate social responsibility (CSR) practices and others that have not. They compared a group of firms belonging to the Dow Jones Sustainability Index (DJSI) with another group comprised of firms quoted on the Dow Jones Global Index (DJGI) but not on the DJSI. They analysed the two groups of 55 firms from 1998 to 2004. They find that differences in performance exist between firms that belong to the DJSI and to the DJGI and that these differences are related to CSR practices.

Collectively, these studies show that incorporating sustainability or sustainable development concerns into business or environmental management yields some positive benefits.

5. Research Gaps and Areas for Future Research

This section identifies several opportunities for further research. The issues identified in this section are limited to the issues in the literature that I find to be particularly significant. The issues are mainly the political economy of sustainable development, solving local problems, and the uneven level of sustainable development.

5.1. Politics and the political economy of sustainable development

The sustainable development literature is silent on the political economy of sustainable development. Existing studies on sustainability and sustainable development have not analyzed how a government's priorities and political ambitions can hinder efforts to achieve sustainable development. Pursuing sustainable development policies may lead to the discontinuation of harmful economic activities whose stakeholders or owners are politically powerful. When this happens, powerful stakeholders and owners can resist and frustrate the sustainable development policies of the government and make such goals unattainable. There is also the issue of funding for sustainable development activities. There can be intense politics in deciding how much public funds should be allocated to sustainable development activities. There is also the question of whether sustainable development should be made a national policy priority to the detriment of other areas of life that are important to society. If sustainable development becomes a national priority, politicians can lobby the funding process to ensure that the national sustainable development programmes of the government benefits their own constituency in order to win the votes of their constituent members in upcoming elections. Future research is needed to explore the many political economy issues associated with the sustainable development and sustainability agenda. Understanding how political interest groups influence sustainable development outcomes can provide some insights on how to satisfy competing political interests on the path to achieving sustainable development.

5.2. Much research is needed on how the sustainability and sustainable development agenda can solve local problems

There are few studies that explore the perceived disconnect between the sustainable development goals and the local economic goals of a country. Some policy makers reject the sustainable development agenda because they think it is too ambitious in that the sustainable development and sustainability agenda seek to solve the world's problems without first helping to solve the local problems faced by individual countries. Policy makers are concerned that the sustainable development goals do not offer immediate local solutions to uplift poor countries and equip them with more resources which they can use to pursue global sustainable development goals. Other policy makers do not consider the sustainable development agenda to be an important national priority in their countries either because the sustainable development goals are too vague or too boring to provide meaningful guidance to solve the world's problems. Future research should find ways in which the sustainable development goals can fit into the current priorities of the government of a country so that it can offer local solutions to common problems faced by many countries. Future research should also explore how the sustainable development and sustainability agenda can improve the way of life of people and improve their economic wellbeing at the local level.

5.3. Uneven level of sustainable development

There are no studies on the uneven levels of sustainable development. The literature suggest that global sustainable development will be achieved when individual countries attain high levels of sustainable development. Although this idea is intuitive, it can be unrealistic because many developing countries have fewer resources than richer countries while other developing countries still operate a non-circular economy which leads to waste of resources and is a setback to the attainment of the sustainable development goals. This means that the transition to a sustainable economy could take a long time, and could take a longer time to attain a reasonable level of sustainable development for individual countries. In fact, it is more probable to expect uneven levels of sustainable development because individual countries are at different levels of development. Future studies should explore the concept of uneven sustainable

development as an attainable goal for the sustainability and sustainable development agenda.

6. Conclusion

In this article, I reviewed the academic and policy literatures on sustainable development and sustainability. The key findings in this review article indicate that sustainable development and sustainability lead to greater resource availability, and are influenced by country policies, political willingness to pursue the sustainable development goals, structural challenges, and institutional bottlenecks. Also, sustainable development is a widely acknowledged concept in academia while its practicality in policy circles has been contested due to country-specific challenges. The implication of the findings is that policymakers willing to pursue sustainable development goals should ensure that they can meet the most pressing local needs especially those needs that can be met using resources that are considered to be harmful to sustainable development. Finally, the review article identified a number of opportunities for future research on sustainable development and sustainability. Firstly, there is need for more research on the politics and the political economy of sustainable development. Secondly, additional research is needed on how the sustainability and sustainable development agenda can solve local problems in a country, and finally, future studies should explore the concept of uneven level of sustainable development.

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