# *Sustainability and Sustainable Development Research around the World*

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This paper reviews the existing research on sustainability and sustainable development around the world. It begins by defining the sustainability and sustainable development concepts. Thereafter, the paper highlights the dimensions of sustainable development and sustainability based on the literature. The paper also shows the relationship between sustainability and sustainable development. The paper used the literature review methodology. The paper finds that each region of the world has made some progress towards achieving high levels of sustainable development; however, each region also faces unique challenges that affect the attainment of the sustainable development goals in the region. These challenges have social, political, structural, institutional and economic dimensions. Also, while sustainable development is a widely acknowledged concept in academia its practicality in policy circles has been contested. 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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## Introduction

The objective of this article is to review the existing research on sustainability and sustainable development around the world. The paper achieves this goal by reviewing the existing research that identifies the progress made, issues, and research output in several regions in the sustainability and sustainable development literature.

There is growing interest in sustainability and sustainable development in the academic and policy literature. 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, the race to reduce fossil fuel emission, the transition to renewable energy, and the transi-

tion to a circular economy, have intensified the push towards sustainability and sustainable development (Aven 2020; Leal Filho et al. 2019; Ozili 2021; Wackernagel, Hanscom, and Lin 2017). In academia, academics and researchers have undertaken research to identify the factors that promote or hinder the attainment of sustainable development goals in the hope that the resulting research output can inform policy decisions aimed at attaining the sustainable development goals.

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. Firstly, 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 an all-embracing development goal because the aim of all other development goals is to achieve a level of development that is sustainable. Finally, 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 the determinants of sustainability and sustainable development (Vinuesa et al. 2020), promoting sustainable development through building infrastructure and innovations (Thacker et al. 2019; Silvestre and Ţîrcă 2019), the different approaches to sustainable development (Liu et al. 2018; Chindavijak, Phusavat, and Kess 2016; Chichilnisky 2011; Hassan, Wright, and Struthers 2013), country-specific sustainable development practices (Roy and Pramanick 2019; Wang, Shi, and Zhou 2020), financial inclusion for sustainable development (Ozili forthcoming.b), and sustainable development through environmental responsibility and economic growth (Worae, Ngwakwe, and Ambe 2018; Sharmin and Tareque 2018; Ganda, Ngwakwe, and Ambe 2017). While these themes address very important issues in the literature, there are very few studies that present an overview of the progress made and issues affecting sustainable development and sustainability in different regions of the world.

There is a need to identify the advances made in the sustainability and sustainable development literature, and the issues that are yet to be addressed, alongside some suggested areas for future research into sustainability and sustainable development practices. This paper is one of the

few papers that review the existing research in the sustainability and sustainable development literature. This paper presents a review of the existing research on sustainability and sustainable development across several regions of the world. It also identifies areas for future research in sustainability and sustainable development.

Regarding the methodology used in this review paper, the articles used must meet three criteria. One, the articles should be published as an empirical study, analytical study, policy discussion paper or a working paper. This means that unpublished dissertations and media information from websites and online blogs were excluded in this review. Two, the time range for the articles included in this review is from 2000 to 2021. This time frame was chosen because sustainable development and sustainability have received a lot more attention in the literature in the post-2000 period. Over 70 research articles were reviewed in this article, including more than 20 policy papers. Three, the articles included in the review are those that explore sustainability and sustainable development as a major theme in the study or explore the interlinkages between sustainable development, sustainability and other relevant topics. Finally, for ease of conversation, the terms 'sustainability' and 'sustainable development' have been used interchangeably to mean the same thing in every section of the paper except in the second section.

This paper contributes to the literature in the following way. First, it contributes to the literature that examines the role of sustainability and sustainable development for better development outcomes. Second, this review contributes to the ongoing debate about the sustainability of the planet. Third, for academics and researchers, the discussion in this review adds to the sustainable development and sustainability literature that attempts to proffer solutions to the challenges affecting the world such as climate change, greenhouse gas emission, and fossil fuel pollution. The rest of the paper is structured as follows. The second section presents the conceptual framework. The third section discusses the global research on sustainability and sustainable development. The fourth section reviews some empirical studies. The fifth section presents some areas for future research. The sixth section presents the conclusion of the study.

## Conceptual Framework

### DEFINING SUSTAINABLE DEVELOPMENT

The first definition of sustainable development surfaced in a 1987 United Nations report titled 'Our Common Future' which is now generally re-

ferred 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 (United Nations 1987). Also, the National Sustainable Development Strategy 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) preserves 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, Atkinson, and Dubourg (1994) define sustainable development in terms of a per capita consumption path that is constant or rising over time.

## DEFINING SUSTAINABILITY

Defining sustainability is not an easy task. The literature shows that sustainability is a philosophy, 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 (Greenland 1997; Grant 2010). 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 certain desired social, economic and environmental outcomes (Grant 2010). Many studies defined sustainability in relation to other contexts or disciplines such as business sustainability (Bansal and DesJardine 2014), career sustainability (Tordera et al. 2020), urban sustainability (James 2015), product sustainability (Dyllick and Rost 2017) and fiscal sustainability (Byrne, Fiess, and MacDonald 2011).

## A CRITIQUE OF THE SUSTAINABILITY AND SUSTAINABLE DEVELOPMENT CONCEPTS

Although the concepts of sustainable development and sustainability should be defined according to accepted standards of academic rigour, there is some critique of what the two concepts actually mean, and to whom. Regarding the question 'to whom?,' we know that over the years

the two concepts have influenced, and been influenced by, policy-makers, activists and academics. Academics view the two concepts broadly as the process of increasing average material wellbeing without irreversibly damaging the natural environment. Policymakers see the two concepts as a set of codes, standards, rules or laws that guide the use of resources in a sustainable manner. Activists view the two concepts as an agenda that favours protection of the environment at the expense of increased material well-being, especially when increased material well-being comes at the cost of degrading the environment (McNeill 2004). Another criticism is that the meaning of sustainability and sustainable development can be differentiated by disciplines. People in policy disciplines tend to define the two concepts in terms of laws, while those in the ecology, economics, anthropology, chemistry, physics and geology disciplines define the two concepts in terms of materials, development and the environment (McNeill 2004). These differences suggest that sustainability and sustainable development have to be broadly defined for it to be all-encompassing since almost all disciplines have something to contribute to the study of sustainability and sustainable development (McNeill 2004). The focus of sustainability and sustainable development is also problematic in some ways as it keeps the focus on the global South (e.g. developing countries) when in fact more radical changes are required in the developed countries in the form of de-development or de-growth (Lele 2013).

## CONCEPTUAL RELATIONSHIP BETWEEN SUSTAINABILITY AND SUSTAINABLE DEVELOPMENT

The two concepts are technically not the same. Sustainability is the driving force or agenda that guides a development process towards achieving a level of development that is sustainable (Hodge 1997; Jabareen 2008). Sustainability sets the tone, the approach or the guiding principles that coordinates all facets of development with the aim of achieving a sustainable level of development (Hodge 1997). In contrast, sustainable development is a goal or a target that is achieved by following a set of sustainability principles or guidelines (Diesendorf 2000). Figure presents 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 when sustainability is made a priority on the path to

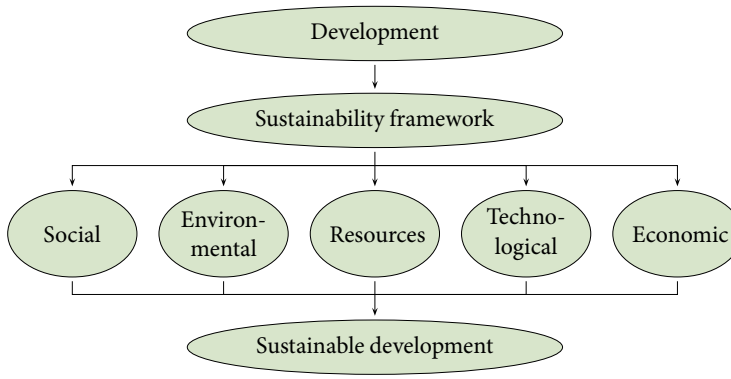


FIGURE 1 Conceptual Relationship between Sustainability and Sustainable Development

development. Any level of development that is achieved with a guiding sustainability framework is considered to be a development outcome that is sustainable. 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.

## DIMENSIONS OF SUSTAINABLE DEVELOPMENT AND SUSTAINABILITY

There is a consensus in the literature that sustainable development or sustainability consists primarily of three dimensions, namely, the social, economic, and environmental dimensions (see, for example, Ranjbari et al. 2021; Duić, Urbanies, and Huisingh 2015; Clune and Zehnder 2020; Kumar and Anbanandam 2019). Recent studies have suggested a fourth dimension of sustainable development which is the governance dimension (see van Zeijl-Rozema et al. 2008; Stojanović, Ateljević, and Stević 2016). The governance dimension reflects the political system through which power is exercised to implement policies and actions for sustainable development. 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, the environmental dimension and the governance dimension of sustainable development or sustainability (see, for example, Lehtonen 2004; Golusin and Ivanović 2009). Other studies have 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.

## Regional Overview of the Progress and Challenges of Sustainable Development

This section presents an overview of the progress and challenges of sustainable development in some regions: Europe, Asia, Africa, the Middle East, and Oceania. It summarizes some of the progress made towards sustainable development and the challenges of sustainable development in these regions. The summaries are based on a review of studies that document the regional developments in sustainable development. The terms 'sustainable development' and 'sustainability' are used interchangeably in this section.

### EUROPEAN STUDIES ON SUSTAINABLE DEVELOPMENT

Several European studies have offered some propositions regarding the state of sustainable development in the region as well as the progress made and issues affecting the attainment of sustainable development in Europe. For example, 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 in 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 (Rotmans et al. 2000), while other advocates of sustainable development often pressure policymakers to allow sustainable development goals to permeate every facet of economic life, such as: education for sustainable development (Adomßent et al. 2014; Jucker and Mathar 2015), public sector management for sustainable development (Steurer and Hametner 2013), sustainable development in the form of corporate social responsibility in European firms (Miralles-Quiros, Miralles-Quiros, and Arriano 2017), employment policy for sustainable development (Hinterberger, Omann, and Stocker 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 (Alfaro Navarro, Andrés Martínez, and Mondéjar Jiménez 2020), and climate change mitigation for sustainable development (Casado-Asensio and Steurer 2014).

Regarding progress in sustainable development, South Eastern European countries are in the early phases of sustainable development, and have only recently begun to develop plans to steer their economies towards sustainable growth and development although the process has been slow, particularly in the early 2000s (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 the change from traditional development to sustainable development and lack of a free market mechanism (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. Several studies have found evidence to support this claim. For example, Resce and Schiltz (2021), Škrinjarić (2020), and Lior, Radovanović, and Filipović (2018) show that 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. 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 of sustainable development, particularly the health sector, despite the importance of good health for the well-being of European citizens (Bickler, Morton, and Menne 2020).

### ASIAN STUDIES ON SUSTAINABLE DEVELOPMENT

Some studies identify the progress made and issues faced by Asian countries in achieving sustainable development goals in the region. For instance, Lee et al. (2018) show that much of the continent's efforts towards attaining sustainable development have been to engage the business community and solicit their support in resolving sustainable development issues in Asian countries, as well as prioritizing low-carbon-emission energy production and energy efficiency in order to attain the

United Nations' sustainable development goals (Zavyalova, Studenikin, and Starikova 2018). Savage (2006) examines the concept of sustainable development in Southeast Asia based on four themes: population growth and distribution, the capitalist 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 argues 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, Ndubisi, and Seles (2020) examine the factors affecting the environmental, social and financial performance of small and medium-sized enterprises (SMES) in the manufacturing sector in Asia. They find that innovation, 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 (Zoomers 2011), overdependence 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).

## AFRICAN STUDIES ON SUSTAINABLE DEVELOPMENT

The African environment is unique due to its many developmental challenges. Some studies identify the challenges faced by African countries in achieving sustainable development goals in the region while other studies have identified the areas that require attention for successful sustainable development in African countries.

Some of the identified challenges that undermine efforts towards sustainable development in the African continent include: poor infrastructural support to harness renewable resources (Bugaje 2006), high 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; Ozili forthcoming.a). Despite these challenges, there seems to be a consensus that sustainable development in Africa should begin at the

local level (Annan-Aggrey, Bandauko, and Arku 2021), and should be driven by the local governments (Atisa, Zemrani, and Weiss 2021). Also, there is a consensus that policy coherence and coordination between the local, state and federal governments is a prerequisite to promote sustainable development in African countries (Auriacombe and van der Walt 2021).

Some of the areas that require attention for successful sustainable development in African countries 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, Howells, and Baumert 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), incorporating 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, Musavengane, and Leonard 2020; Kimbu and Tichaawa 2018), promoting cooperation between the private and public sector in achieving the sustainable development goals (Jaiyesimi 2016), improved quality of institutional governance (Mc Lennan and Ngoma 2004), using technology to achieve the sustainable development goals (Omwoma et al. 2017), improving capacity to mobilize resources to increase water-sanitation-hygiene services (Nhamo, Nhemachena, and Nhamo 2019), and the role of African scientific research centres in promoting sustainable development (Dafaalla et al. 2021). Furthermore, some research findings identify additional areas that policy makers in African countries should pay attention to. For instance, Oke, Ibrahim, and Bokana (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. This indicates that higher levels of renewable energy have a positive influence on the economic, environmental,

social, and institutional dimensions of sustainable development. Aust, Morais, and Pinto (2020) investigate whether foreign direct investment contributes to the achievement of 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) examine 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.

### MIDDLE EAST STUDIES

Few studies discuss the progress made in sustainable development in the Middle East region. These studies have stated that some Middle Eastern countries such as the United Arab Emirates (UAE), Qatar, and Lebanon strive to become more environmental-friendly (Issa and Al Abbar 2015; Subeh and Al-Rawashdeh 2012; Bayomi and Fernandez 2019). The governments in these Middle Eastern countries have established sustainable development initiatives such as green building codes and regulations to promote environmental-friendly construction towards the attainment of sustainable development goals (Issa and Al Abbar 2015). Also, there is growing interest in urban sustainability in cities such as Dubai, Mascat, 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).

### OCEANIA STUDIES

Emerging studies in the Oceania region 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: the modernization of production and its practices, and the modernization of the political sector and its institutions. Gurran, Gilbert, and Phibbs (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. Meanwhile, Allen et al. (2020) assess national progress and priorities for 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. 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 programme into the curriculum of schools in New Zealand (Williams 2012), embedding education for sustainable development in the curriculum of New Zealand schools (Zguir, Dubis, and Koç 2021) and sustainability reporting by local governments in New Zealand (Bellringer, Ball, and Craig 2011).

### Some Empirical Studies

Many empirical studies in the literature investigate the effect of sustainability and sustainable development on firms, industries and material preservation. Some studies explore the association between energy, carbon reduction and sustainable development. For instance, Lin and Zhu (2019) examine 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 the eco-efficiency of Chinese cities. The implication is that the sustainability-fiscal policy improved the eco-efficiency of Chinese cities during the study period. Yu and Tsai (2018) examine the influence of firms' carbon reduction behaviour on the sustainable development of the firm and investigate the effect 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 privately owned enterprises and non-high-carbon-emission industries. They also find that carbon reduction positively influ-

TABLE 1 Some Empirical Studies According to Regions: Africa

| Author(s) | Purpose | Method | Finding |
|---|---|---|---|
| Odugbesan and Rjoub (2019) | Assessed the relationship between sustainable development and HIV/AIDS prevalence and controlling for good governance and human capital. | They analysed data from 26 sub-Saharan African countries from 1990 to 2016. They used the pooled mean group (PMG) estimator based on Pesaran, Shin, and Smith's (1999) methodology. | There is a significant relationship between HIV/AIDS prevalence and sustainable development, and between human capital and sustainable development. |
| Sarpong and Bein (2021) | Investigate the effect of sustainability on the quality of life in selected sub-Saharan African countries from 2000 to 2017. | The data was estimated using different panel estimation methods, e.g. fixed effect panel estimation and GMM dynamic panel estimation. | Sustainability improves human wellbeing in sub-Saharan Africa. |
| Bokpin (2017) | Investigates how governance and institutions may regulate the impact of foreign direct investment (FDI) on environmental sustainability. | The author used panel estimation methodology to analyse the 24-year panel data from 1990 to 2013. | An increase in FDI inflows significantly increases environmental degradation, hence causing a negative impact on environmental sustainability. |
| Asongu and Odhiambo (2019) | Investigate whether enhancing information and communication technology (ICT) reduces inequality in 48 countries in Africa from 2004 to 2014. | They used the generalised method of moments (GMM) estimation technique. Three inequality indicators were used, namely, the Gini coefficient, Atkinson index, and Palma ratio. The ICT indicators include mobile phone penetration, internet penetration, and fixed broadband subscriptions. | Enhancing internet penetration and fixed broadband subscriptions have a net effect on reducing the Gini coefficient and the Atkinson index, whereas increasing mobile phone penetration and internet penetration reduces the Palma ratio. |

ences corporate sustainable development. This suggests that carbon reduction is beneficial to both the ecological environment and corporate sustainable development. Pätäri et al. (2012) examine the relationship between a firm's sustainability efforts and its financial performance in the

TABLE 2 Some Empirical Studies According to Regions: Europe

| Author(s) | Purpose | Method | Finding |
|---|---|---|---|
| Ibănescu et al. (2018) | Investigate how tourism affects the sustainable development of rural localities in Romania from 2001 to 2016. | They used three composite indexes: demographic stability, public utilities, and socio-economic sustainability. The Mann-Whitney U test was used to determine the differences in each of the sustainability indexes. | There is a significant positive effect of tourism on all the composite indexes analysed, implying that tourism increased rural sustainable development in Romania. |
| Voica, Panait, and Haralambie (2015) | Investigate whether sustainable development is related to the flow and stock of foreign direct investment (FDI) in 28 EU member states from 2000 to 2012. | The study used cross-data panel regression to analyse the EU country data. | The environmental effect of FDI has the greatest effect on the sustainability indicators, followed by the social effect and then the economic effect of FDI. |
| Cioacă et al. (2020) | Assessed the relationship between the ICT sector development indicators and some measures of sustainable development for EU countries from 2008 to 2018. | They used panel regression data models based on data collected from the Eurostat database. | There is a positive relationship between ICT development and a change in GDP per capita. |
| Fotis and Polemis (2018) | Investigate the relationship between sustainable development, environmental policy and renewable energy use. | They utilized a dynamic GMM approach over a panel of 34 European Union countries from 2005 to 2013. | There is a positive relationship between development and pollution. Energy saving positively affects environmental degradation, while energy intensity increases air pollution. |

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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.

TABLE 2 *Continued from the previous page*

| Author(s) | Purpose | Method | Finding |
|---|---|---|---|
| Cavicchi and Vagnoni (2017) | Determine whether General Directors (GDS) of Italian hospitals were adopting formalized sustainable development strategies. | They used a survey of a sample of General Directors (GDS) of Italian hospitals. | The majority of GDS had adopted a formalized sustainability plan in which informal and/or occasional structures or collegial bodies dealt with sustainability. |
| Ayuso and Navarrete-Báez (2018) | Investigate the relationship between the entrepreneurial behaviour of small and medium-sized enterprises (SMES) and their commitment to sustainable development. | Used survey data from Spanish and Mexican SMES. | Entrepreneurial orientation is positively associated with sustainable development engagement. Also, SME internationalization has a positive impact on sustainable development engagement in Mexican but not in Spanish firms. |
| Méndez-Picazo, Galindo-Martín, and Castaño-Martínez (2021) | Analyse the impact of general entrepreneurship and social entrepreneurship on sustainable development in 15 OECD countries between 2015 and 2016. | They used structural equation models. | Both general and social entrepreneurial activity stimulate sustainable development, although the impact of general entrepreneurship is greater than that of social entrepreneurship. |
| Armeanu, Vintilă, and Gherghina (2018) | Investigate the drivers of sustainable economic growth in 28 EU countries. | They used panel data regression models, in the form of fixed and random effects models, alongside the system generalized method of moments. | Expenditure in higher education, and research and development expenditures, are positively linked with sustainable economic growth. |
| Vorontsova et al. (2020) | Analyse the relationship between state regulation of the education sector and the achievement of sustainable development goals using data from 14 countries of CEE from 2006 to 2016. | The method of principal components method and panel regression methods were used. | State financing of the education sector contributes to the achievement of sustainable development goals. |

TABLE 3 Some Empirical Studies According to Regions: Asia

| Author(s) | Purpose | Method | Finding |
|---|---|---|---|
| Chai et al. (2021) | Investigate the constraints created by economic growth targets' impacts on air pollution. | They used the spatial Durbin model. | The constraints created by economic growth targets were shown to increase air pollution. |
| Liu and Kong (2021) | Investigate whether and how business strategies affect firms' sustainable development from the viewpoint of green innovation. | Used regression methodology. | Firms following prospector strategies engage less in sustainable development behaviours than those following defender strategies. |
| Huang, Shen, and Miao (2021) | Assess the economic-environmental coupling coordination degree in order to measure sustainable development. | The system coupling model and the coordination degree model were used to measure sustainable development. | The better the socioeconomic development of a city, the better the effects of the emissions trading scheme (ETS) on sustainable development. |
| Sekarlangit and Wardhani (2021) | Analyse the board of directors' commitment to Sustainable Development Goals (SDGS) by looking at the influence of the characteristics and activities of the board of directors and the existence of Corporate Social Responsibility (CSR) committees on disclosures regarding the SDGS. | The study used an ordinary least square linear regression model to analyse data obtained from companies in five Southeast Asian countries (Indonesia, Malaysia, Singapore, Thailand, and the Philippines) from 2016 to 2017. | The percentage of attendance at board directors' meetings and the existence of CSR committees positively affected SDG disclosures. It also indicates that the presence of the board at the meeting can encourage more intensive SDG disclosures. |

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Other empirical studies examine the sustainability practices in firms. Nguyen and Nguyen (2020) investigate the determinants of the disclosure of sustainable development information by enterprises. They analysed 120 manufacturing companies listed on the Vietnam stock market in 2019. They use the ordinary least squares methodology and find that state ownership has a significant negative effect on the disclosure of sustainable development information of manufacturing companies listed on

TABLE 3 *Continued from the previous page*

| Author(s) | Purpose | Method | Finding |
|---|---|---|---|
| Koirala and Pradhan (2020) | Examine the factors that determine sustainable development, measured by adjusted net saving, using panel data for 12 Asian countries from 1990 to 2014. | The random-effect panel regression model was used. | There is a positive and significant effect of per capita income and financial development on sustainable development. |
| Singh, Issac, and Narayanan (2019) | Investigate the association between economic development, human development and environmental sustainability index for 22 selected Asian economies from 1990 to 2012. | Linear, log-linear and nonlinear regression models were used. | Economic development, human development and social development have a significant and complex association with the environmental sustainability index. |

TABLE 4 Some Empirical Studies According to Regions: North America

| Author(s) | Purpose | Method | Finding |
|---|---|---|---|
| Solarin and Bello (2019) | Examine the possibilities of substituting fossil fuels including natural gas, coal, and oil for biomass consumption in Brazil from 1980 to 2015. | The study used the ridge regression, a second-order Taylor Series approximation of log linear trans-log specification, and a constructed index of sustainable development. | The sustainable development model gives more robust output elasticity estimates as it detects the inherent negative effect of some of the fossil fuels on the economy. |
| Prud'homme and Raymond (2013) | Determine the antecedents of customer satisfaction in the hospitality industry including those related to the sustainable development practices adopted by hotels. | A survey of 473 customers in eleven hotels located in the province of Quebec, Canada. | Customer satisfaction is positively influenced by the hotel's adoption of sustainable development practices. Also, the level of customer satisfaction varies according to the hotel's size and type of ownership. |

the Vietnam stock market. 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

TABLE 5 Some Empirical Studies According to Regions: Australia

| Author(s) | Purpose | Method | Finding |
|---|---|---|---|
| Chen, Eweje, and Kennedy (2021) | Examine sustainability tensions among firms in business partnerships, and how managers make sense of them. | Used 33 in-depth individual interviews alongside one informal group discussion at 16 relatively large Chinese and New Zealand firms in business partnerships. | Found that managers in Chinese and New Zealand firms tend to apply three kinds of logic: paradoxical, dichotomous, and business logic. Paradoxical logic is the type most commonly adopted. |
| Bond and Perrett (2012) | Identify the barriers that need to be overcome so that progress can be made towards advancing the sustainable building agenda in New Zealand's commercial property sector sector that will help improve building energy performance and reduce greenhouse gas emissions. | Used an in-person structured interview with a representative of the New Zealand Green Building Council and an online survey of participants in the commercial property sector. | Found that there are key issues the property industry has to resolve, the most significant of which is the commercial property sectors' view of the cost premium for green buildings versus conventional buildings. |
| Reddy and Gordon (2010) | Investigate the effect of sustainability reporting on companies' financial performance. | Used the event study method to estimate abnormal returns for a 31-day event window for 68 listed companies, 17 listed in the New Zealand Stock Exchange and 51 listed in the Australian Stock exchange. | Sustainability reporting is statistically significant in explaining abnormal returns for the Australian companies. |
| Bebbington, Higgins, and Frame (2009) | Examine organizations' self-descriptions of why they initiated sustainable development reporting and explore these explanations using an institutional theory framework. | Used organizational narratives from semi-structured in-depth interviews with reporting champions who participated in a sustainable development reporting workshop series. | Found that sustainable development reporting is initiated because it has come to be an accepted part of pursuing a differentiation strategy. It offers some contribution to existing business challenges, and organizations value the rewards it offers. |

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 analysed 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, Garcia, and Rodriguez (2007) examine whether there are significant differences in performance indicators between European firms that have adopted 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. 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 increase top management's commitment to adopt sustainable practices. Collectively, these studies show that incorporating sustainability or sustainable development concerns into business or environmental management yields some positive benefits. Other empirical studies have conducted research in a regional context as shown in tables 1–5.

## Areas for Future Research

This section identifies several opportunities for further research. The suggested areas for future research in this section are limited to areas in the literature that I find to be particularly significant. These areas are mainly the politics and political economy of sustainable development, how sustainable development can help to solve local problems, and the uneven level of sustainable development.

### POLITICS AND THE POLITICAL ECONOMY OF SUSTAINABLE DEVELOPMENT

More research is needed on the politics of sustainable development. Although studies such as O'Riordan and Voisey (1997), Cadman et al. (2015),

Gale (2018), and Sabau (2020) have examined a number of issues regarding the political economy of sustainable development, there are many other political dimensions of sustainable development that have not been explored yet. For example, existing studies on sustainability and sustainable development have not analysed how a government's priorities and political ambitions can hinder efforts to achieve sustainable development. Introducing and enforcing 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 sustainable development 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 benefit their own constituency in order to win the votes of their constituent members in upcoming elections.

Future research is needed to explore these political dimensions and other political economy issues associated with the sustainable development and sustainability agenda. Understanding how political interests influence sustainable development and sustainability outcomes can provide some insights on how to satisfy competing political interests on the path to sustainable development.

### MUCH RESEARCH IS NEEDED ON HOW THE SUSTAINABILITY AND SUSTAINABLE DEVELOPMENT AGENDA CAN SOLVE LOCAL PROBLEMS

Few studies examine the link between sustainable development, local economy goals and the role of local governments. Cuthill (2002) shows that the sustainability initiatives in Australia can best be implemented through the collaborative effort of the local community which involves local citizens working in partnership with local government. Meanwhile, Ruhanen (2013) shows that while local governments can assume responsibility for achieving a relevant sustainable development agenda to build the local economy, the local economy still suffers due to power struggles,

tokenistic public participation and the strong influence of the local government authority in local governance structures, and this is a hindrance to achieving local economy goals.

In practice, there may be a divergence between the sustainable development goals and the local economy goals of a country for several reasons. Some policy makers may reject the sustainable development agenda because they think it is too ambitious in that the sustainable development and sustainability agenda seeks to solve the world's problems without first helping to solve the local problems faced by individual countries. Policy makers may be concerned that sustainable development goals do not offer immediate local solutions to uplift poor countries and equip them with more resources which they can use to achieve global sustainable development goals. Other policy makers may 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 local problems, much less the world's problems. Future research should find ways in which the sustainable development goals can fit into the current local 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.

### UNEVEN LEVEL OF SUSTAINABLE DEVELOPMENT

There is the expectation that global sustainable development will be achieved when individual countries attain high levels of sustainable development. Although this idea is logical, it might be unrealistic due to cross-country differences in resource endowment. Developing countries have fewer financial resources than richer countries. Other developing countries still operate a non-circular economy which encourages waste of resources and is a setback to the attainment of the sustainable development goals in such countries. This means that the transition to a sustainable economy could take a long time, and it could take a longer time for poor countries to attain a reasonable level of sustainable development. In fact, it is more probable to expect uneven levels of sustainable development because individual countries are at different levels of development and have unequal resource endowment. Future studies should explore the concept of uneven sustainable development and consider the possi-

bility of making 'uneven level of sustainable development' an attainable goal rather than a one-size-fits-all level of sustainable development.

## Conclusion

This paper reviewed post-2000 studies on sustainable development and sustainability. The key findings of the review are as follows. One, there has been abundant research into sustainable development and sustainability since the post-2000 period. Two, each region of the world has made some progress towards achieving high levels of sustainable development; however, each region faces unique challenges that affect the attainment of the sustainable development goals in the region and these challenges have social, political, structural, institutional and economic dimensions. The review also identified some areas for future research such as the need for more research on the politics and the political economy of sustainable development, the need for more research on how the sustainability and sustainable development agenda can solve local problems in a country, and finally, future studies should explore the concept of an uneven level of sustainable development.

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