



ISSN 2278 – 0211 (Online)

Awareness Assessment Study and Ways to Deepen the Knowledge and Practice of the Sustainable Development Goals

Anthony Wakwe Lawrence

Managing Consultant, Department of Management,
Community Inter-Relations and Conciliation Initiative, NGO, Port Harcourt, Nigeria

Dr. Mina Ogbanga

Associate Professor, Department of Sociology/Social Work,
Rivers State University, Port Harcourt, Nigeria

Dr. Damiete Onyema Lawrence

Business Development Officer, Department of Business Development,
CINFORES, Port Harcourt, Nigeria

Dr. Barasua Anthony Lawrence

Principal, Port Harcourt City LG Education Authority,
Rivers State Universal Basic Education Board, Nigeria

Abstract:

Sustainable Development Goals (SDGs) were formed to continually improve the quality of life enjoyed by humanity, stabilize progress made in sustainable development advancements and prevent the continued deterioration of natural life support systems. The study looked at the level of awareness/understanding, knowledge acquired by the generality of people, and perceived importance attached to the various SDGs by stakeholder groups sampled in Port Harcourt metropolis. We administered a questionnaire to a total of three-hundred persons, and our findings show gaps between what they have heard about SDGs and what SDGs entail. Based on this evident gap, we proposed nine recommendations that can deepen the knowledge and practice of SDGs, some of which are: the establishment of sustainable development and climate change clubs in secondary schools, enhancing awareness/knowledge and practices of SDGs and their targets through facilitative workshops, expanding the sustainability pillars to six by including performance as the sixth pillar and sub-dividing them into three functional groups. Also, expounding how interrelated and interlinked the SDGs are towards marrying the need for a holistic approach and focusing on the priority SDG needs of each locality, the enactment of enabling laws, enhancing the SDG Week concept, and the intensification of stakeholder education was mentioned.

Keywords: SDGs (Sustainable Development Goals), awareness, knowledge, deepen, facilitative-workshop, school-clubs, sustainability-pillars

1. Introduction

The United Nations and its affiliates agreed on the 17 Sustainable Development Goals (SDGs) after the expiration of the Millennium Development Goals (MDGs) implementation phase to continually improve the quality of life enjoyed by humanity and also to stabilize/prevent the continued deterioration of our natural life support systems. Some of the goals are directly targeted at key development issues like poverty reduction (SDG1), hunger reduction (SDG2), health improvement (SDG3), etc.

The list of the 17 SDGs was well crafted to address key developmental challenges humanity is facing. Lawrence and Lawrence (2019) grouped the 17 SDGs into five units, namely: Protect the environment (SDGs 13, 14, and 15), Encourage transformative capacities and continuous improvement (SDGs 4, 9, 11, 12, and 17). Evidence of economic growth (SDGs 1, 2, and 8), Encourage peace and justice (SDGs 5, 10, and 16), and Encourage healthy living (SDGs 3, 6, and 7).

This was done as a basis of giving a strategic focus to the whole goal but still appreciating that the associated targets in each goal equally addressed the need for integration and inter-linkages of the SDGs.

It is equally understandable that different climes and different sets of people may consider certain goals more important than others, forgetting that these goals are interrelated and a better achievement of the overall SDGs can only be achieved if they are holistically implemented as much as possible. The best implementation strategy will be to give some level of consideration to solving key local challenges while also ensuring that all the SDGs are taken on board in an

integrated way. Therefore, it was found necessary to assess if there are differences in the ranking of the SDGs in terms of importance by the various stakeholders and develop strategies to improve not only awareness but also their inter-relatedness.

The other aspect of this study looks at the level of penetration of the issue of Climate Change and the need to address the challenge that has taken root in the study area. Most of the Sustainable Development Goals (SDGs) and associated targets are aimed at ensuring the environment and life-sustaining systems do not deteriorate in ways that would put the continuous existence of humanity and other life forms on earth at risk. In this regard, SDGs like 13 "Take urgent action to combat climate change and its impacts," 14 "Conserve and sustainably use the oceans, seas and marine resources for sustainable development," 15 "Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss on land" were agreed upon and are being currently implemented within the SDG framework.

A summary of some of the consequences of poorly implemented SDG13 and its associated targets, as elucidated in the European Commission (2022), is shown in the diagram below:

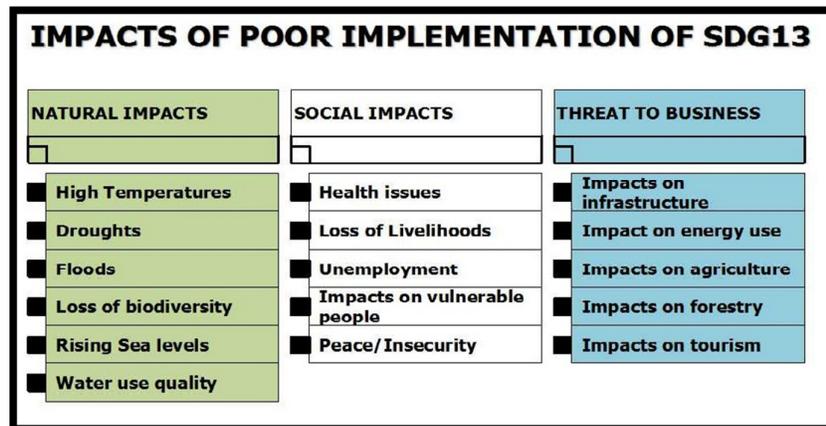


Figure 1: The Consequences of the Poor Implementation of SDG13
(The Diagram Is a Graphical Representation by the Authors)

The UN bodies and the various affiliated governments, as part of their routine assessments, do carry out some studies, which may include if the awareness level of the SDGs is improving among the generality of the people. There have been several works to quantify the level of awareness among the generality of people on the SDGs; however, the level of understanding and acquired knowledge by the common people and the perceived importance that is attached to the various SDGs has not been adequately evaluated. This work hopes to assess the generality of the stakeholders in Port Harcourt metropolis in a structured way to ascertain areas of weakness (if any) in this regard.

If people are not adequately aware of the SD goals, then there is little hope that they know the contents of the associated SDG targets, which are expected to be achieved if we can achieve the goals.

The result of the findings in terms of the above aim of the study in Port Harcourt will give a clear indication of the general awareness/understanding levels in the whole of Nigeria and probably most parts of the African continent that have similar developmental settings, and from our findings, policy recommendations will be made on how we can improve towards deepening the knowledge levels and how they can facilitate a learning process where people will use their guided perceptions to relate the goals and the associated targets using their local circumstances. They will also serve to take better actions to protect the environment.

2. Literature Review

This section critically reviews the existing literature on SDG assessments, pillars, and the impact of climate change. Following standard critical reviews, the literature (articles, reports, and studies) considered in these sections were selected through website searches starting with the most cited and recent publications.

2.1. Sustainable Development Goals (SDGs)

In 2015, United Nations launched 17 Sustainable Development Goals (SDGs). These SDGs were deemed worthy successors of 8 Millennium Development Goals (MDGs). They replaced and communicated the collective desires and need for sustainable development of the whole world that needed pursuing and achieving. One noticeable feature of the SDGs that distinguished them from the MDGs was that several of their goals were phrased into single-focus goals (Lawrence, Ihebuzor & Lawrence, 2020). The slogan of "leaving no one behind" expresses inclusion and universality. This slogan came from a huge lesson during the MDG, where some countries made progress, and others fell further behind (Weber, 2017). Maes, Jones, Toledano, and Milligan (2019) also expiated that the SDG agenda was well integrated, recognising the systematic nature of our world and its interconnectedness between various domains of society. This integration ensures policies are not randomly made but carefully thought out, as it relates to how they affect each other.

Sustainable development goals (SDG) are a universal call to action by the United Nations (UN) that unites 193 countries around the world. If fulfilled by 2030, life on earth should be better for everyone. The SDGs are 17 in number,

which ranges from ending poverty, and inclusive city to sustainable fisheries - it is an all-encompassing plan for the future of our world.

The agenda is made up of 17 goals, 169 targets, and over 230 indicators for measuring progress. It is referred to as a comprehensive action plan for people, planet, and prosperity, which relates directly to the three pillars of sustainable development (social, environment, and economy). One of the biggest criticisms of the agenda is that it is so far-reaching and makes it hard to prioritize to know what the most important is (UNESCO, 2012a). Regardless, UNESCO (2012b) buttressed the importance of collective actions and efforts, explaining that it enabled quicker results, which will significantly improve the well-being of people and the planet and the strong institutions to ensure peace and justice.

Brundtland (1987) affirms that the environment, society, and economy are the three pillars of sustainability. He opined that these pillars are seen interacting with each other at the same level, while sustainable development resides at their intersection, which agrees with Basiago (1999), Pope et al. (2004), Gibson (2006), Schoolman et al. (2012), and Boyer et al. (2016). Other researchers like Omamuyovwi, Keesstra, and Blancquaert (2021) refer to these pillars as people, profit, and the planet. They are also called the '3Ps of sustainability' (Lariviere & Smith, 2022). Furthermore, Fetanat, Tayebi, Shafipour & Moteraghi (2022) expatiated that these 3Ps had a hierarchy amongst them, explaining that the economy is contained in the society, and the society is contained inside the environment. Interestingly, the 2030 agenda also added the notion of peace and partnership to those traditional pillars of sustainability to create the 5Ps (people, planet, peace, partnership, and prosperity) (Tremblay, Fortier, Boucher, Riffon & Villeneuve, 2020). Priory, Nilsson, Griggs, and Visbeck (2016) highlighted that the SDG agenda was integrated with nature; it recognizes the systematic nature of the world and the interconnectedness between various domains of society. This integration ensures policies are not just randomly made but carefully thought out and how they affect each other (Stafford-Smoth, Griggs, Gaffney, Ullah, Reyers, Kanie Stigson, Shrivastava, Lead, & O'Connell, 2017). Secondly, the agenda is inclusive and universal, meaning it applies to developed and developing countries - which implies that no matter what situation and context the country you are in, the policies apply to all (Allen, Metternicht, & Wiedmann, 2017). Finally, the agenda carries everyone, especially the most vulnerable countries, "leaving no one behind" - this comes from a big lesson of the millennium development goals, where some countries made progress, others felt far behind (Weber, 2017).

Initially, SDGs were grouped according to their main intended results - this was largely inspired by Raworth's doughnut framework published in 2012 (Raworth, 2017). It was nicknamed 'the doughnut' for its distinctive visualization. Rockstrom, Steffen, Noone, Persson, Chapin, Lambin, Lenton, Folke, and Schellnhuber (2009) expatiated that the framework seeks to combine an environmental ceiling beyond which earth systems may become irreversibly unstable, based on the planetary boundaries approach. Subsequently, Niestroy (2016) proposed a people-centered framework model consisting of concentric circles, where the SDGs were grouped in different circles related to the production, distribution, and delivery of services. These, in turn, depended on the conditions of the natural environment and were hence embedded into an outer circle of SDGs that relate to natural resources and ecosystems, peace, justice, and strong institutions. Accordingly, the global research initiative proposed a model, *The World in 2050* (TWI2050, 2019), which represented the SDGs delineated by the planetary boundaries. Within these boundaries, a global partnership for sustainable development and governance provides the frame in which the remaining SD goals are represented as interlinked and grouped into five main categories: social and economic development (SDGs 8, 9, 11), universal values (SDGs 4, 5, 10), basic human needs (SDGs 1, 2, 3), and sustainable resource use (SDGs 6, 7, 12). Interestingly, Lawrence, Ihebuzor, and Lawrence (2020) corroborate this through their investigations on the direct and indirect relationships between SDG4 and the other 16 SDGs. They opined that SDGs are interdependent in many ways, stating there are 360 interlinks between SDG4 and the other 16 SDGs, out of which 38 are directly related and 322 indirect relationships. This implies, while resolving a challenge, you are inadvertently helping resolve other issues - which confirms Griggs, Stafford, Rockstrom, Ohman, Gaffney, Glaser, Kanie, Steffen, and Shyamsundar's (2014) position that SDGs are inter-related and interdependent.

The Environmental Pillar: This is concerned with regulations, laws, and other instruments used to deal with the environment and its issues, such as land management, forest, oceans, air, fresh water, natural resources, and wildlife (Ranjbari, Esfandabadi, Zanetti, Scagnelli, Siebers, Aghbashlo, Peng, Quatraro, & Tabatabaei, 2021). Corroborating on this (Purvis, Mao & Robinson, 2019) stated that this pillar entailed direct management of the environment with things like planting and preserving oxygen-producing trees and taking action on human consumption. This will require high-level management and allocation of resources (such as land, water, and emission) to achieve a sustainable future (Constanza, McGlade, Lovins, and Kubiszewski, 2014) with the help of environmental science and conservation biology, taking into cognizance, the ecosystems' resilience and ability to absorb disturbance caused by human activities. Then again, the other approach is to manage the demand side of resources coming from human activities, such as energy consumption, waste management, reducing CO2 emission, planning cities, promoting equality in populations, etc.

The Society Pillar: The second pillar, also known as the social pillar, refers to public policies, social initiatives, planning, and regulations which are supporting social issues (such as: fighting poverty, social justice, peace, access to healthcare, community development, promoting diversity, quality of living, etc. However, some researchers like Torkayesh, Ecer, Pamucar, and Karamaşa (2021) complained that this pillar is the least understood and defined amongst the sustainable pillars, but it is the most crucial because it is a foundation for peace, security, and human right, access to healthcare, poverty, and social justice, and influence of religion and culture - which in turn are needed to enable sustainability to thrive (Agbedahin, 2019). Peace, security, and human rights are integral components of social sustainability because wars, crime, and unethical practices waste valuable resources, and their destructive activities ruin the environment, making it unfit for living. Likewise, many health-related issues generally are interconnected with the environment and economy (Bartholy & Pongrácz, 2018). Access to healthcare is an integral aspect of the social principle.

Lastly, poverty and lack of social justice amplify chaos in any society, ultimately reducing human wellness while hurting the environment. (Keddie, 2020) The influence of religion and culture has a major role to play in curbing this ill. Without a doubt, it is a driver that can help enable sustainable development. The right culture begets the right mindset, which begets the right habits to improve social sustainability.

The Economic Pillar: The economic pillar of sustainability is essential for the business's existence: For a business to be sustainable, it needs to be profitable and economic (Purvis, Mao & Robinson, 2019). At the same time, a sustainable business must not look at profitability as just one component in its strategy but also sustainability. In doing this, it will encourage a more balanced organization and industry culture, where social and environmental factors are considered together with profitability, environmental, and economic sustainability - keeping in mind the planet's resource limitations (Child, Koskinen, Linnanen, & Breyer, 2018). The presence of an economic pillar centers on growth and equality. Recently, many businesses are focused on improving their brand perceptions by incorporating sustainability into their plans (Zameer, Wang, & Yasmeen, 2020). This trend is leading to new and more environmentally intentional leadership, which, by improving the efficiency of various processes, is often able to improve sustainability without necessarily increasing the cost of the final product (Ibn-Mohammed, Mustaph, Godsell, Adamu, Babatunde, Akintade, & Koh, 2021).

2.2. Education for Sustainable Development (ESD)

2.2.1. Implementing ESD in Schools and Universities

Ogunsola et al. (2018) also advocated for climate change implication issues in the curriculum of tertiary institutions and primary and secondary schools.

Agbedahin (2019) expatiated that education plays a major role in achieving sustainable development because universities educate individuals, and these individuals go on to take key roles in society after their studies. They can actively and decisively shape sustainable development. Lawrence (2018) explained the importance/role of good quality education from childhood to adulthood and that the government should be serious with the foundational primary and secondary education - this was further buttressed by Lawrence et al. (2020). Presently, the necessary integration of the SDGs in higher education is one of the most significant debates in the field of Sustainable Development (Alcántara-Rubio, Valderrama-Hernández, Solís-Espallargas, & Ruiz-Morales, 2022). In the process of truly integrating the SDGs in Higher Education, it is necessary to know and identify what is already being done and evaluate the effectiveness with which universities are carrying out studies and actions to integrate the SDGs (Fernández, & Castillo-Eguskitza, 2021).

The German advisory council on global change (WGBU) came up with a plan that allows social transformation, turning them into sustainable societies (Edenhofer, 2022). Marseille, Stadler, Korn, Irvine, and Bonn (2019) opined that this transformation involved significant technological improvements, new welfare concepts, multi-faceted social innovation, and an unprecedented level of international cooperation. This great transformation mustn't be imposed or administered from the top down, and the solution must be developed in a participatory and democratic way (Haipeter, 2020). A transformation on this scale can also be viewed as a search and learning process aimed at shaping alternative pathways and involving members of society (Zhang, Shaikh, Yumashev, & Chład, (2020)). In essence, the solution is found via learning from each other. In the process of truly integrating the SDGs in Higher Education, it is necessary to know and identify what is already being done and evaluate the efficacy or deficiency with which universities are carrying out studies and actions to integrate the SDGs (Alcántara-Rubio, Valderrama-Hernández, Solís-Espallargas, & Ruiz-Morales, 2022).

Universities can support sustainable development in various ways, for example, through research and teaching (Zamora-Polo & Sánchez-Martín, 2019). Consequently, many fields of study have made viable contributions to sustainable development (Agbedahin, 2019). Sustainable development is characterized by complex social environments or interdependencies (Laumann, von Kugelgen, Uehara, & Barahona, 2022). Therefore, if independence issues were only analyzed, researchers would miss many correlations and interactions. These (associations and interactions) can only be explored on interdisciplinary bases through the joined efforts of disciplines through the faculties. Moreover, sustainable solutions can be put to practice if they are co-developed by those who will subsequently implement them. Klemichen, Peters, and Stark (2022) suggested a trans-disciplinary approach for a science discipline, which will help them to discuss norms and values because they are integral parts of sustainable development - which will allow the universities to strengthen their visibility for society.

Hogan (2022) explained that lecturers can identify the knowledge from their discipline relevant to sustainable development. As well as differentiate the three forms of knowledge, which are systems knowledge, target knowledge, and transformative knowledge, to improve the impact of ESD through pedagogy. Secondly, a regular teacher/discipline review should be carried out. This will highlight their contributions to sustainable development to date and open up possible cross-references to other disciplines (Holmes, Moraes, Rickards, Steele, Hotker, & Richardson, 2022). Sharpley (2020) confirmed that sustainable development progress would not only come through intellectual discussion, but knowledge also does not necessarily result in skills. Maiwald (2023) also affirmed this and supported reflective measures and testing of new knowledge after discussion. Thus, graduates should be encouraged to implement their ideas, apply them effectively, and master methods with specific goals in mind. Finally, the students must be willing. It is difficult to assess the practice of new knowledge outside the classroom. Making willingness is an important aspect and is reflected in action outside of university or after university study (Mendoza, Yan, & King, 2023). It can be stimulated not only by knowledge but by motive and attitude. Mendoza, Yan, & King (2023) affirmed that teachers should research what motivates people to sustainable development and promote it (Ma, Shi, & Hou, (2023).

2.3. Climatic Change Impacts the Environment and People

Climate change has impacted different environments and people across different regions and areas of life differently, such as socially, economically, and mentally (Thomas, Hardy, Mendez, Orlove, Rivera-Collazo & Winthrop, 2019). Abbass, Qasim, Song, Murshed, Mahmood, and Younis (2022) confirms the impact of climate change, explaining that the effect is adverse and evident (E.g., in America and Europe). These impacts are mediated through natural and human systems, including economic and social conditions and disruptions. According to Riley, Wilhalme, Delp, and Eisenman (2018), extreme heat events have resulted in human mortality and morbidity. Secondly, the occurrence of climate-related food-borne and water-borne diseases has increased (Ghank, 2020). (Degórska, B. & Degórski) stated that in urban areas, climate change has intensified heat waves in cities (like Rio), where they have also aggravated air pollution events and limited the functioning of major infrastructure; resulting in marginalizing urban residents economically and socially (for instance: transportation, water, sanitation, and energy systems) (Santos, Ribeiro, & Abreu)

Prevalent adverse economic impacts attributable to climate change include slow-onset and extreme weather events. Conversely, Chardeedine & Kahia (2019) discovered that areas with lower energy demand have benefited positively from climate change and comparative advantages in agricultural markets and tourism D'Amato, Chong-Neto, Ortega, Vitale, Ansotegui, Rosario & Annesi-Maesano, I. (2020). Nevertheless, some economic damages from climate change have been detected in climate-exposed sectors, with regional effects on agriculture, forestry, fishery, etc. (Islam & Zhang, 2018). For instance, tropical cyclones have reduced economic growth in the short term due to extreme weather conditions. Also, (Barclay, Wilkinson, Shelton, Forster, Few, & Honychurch, 2019) discovered that the patterns of settlement and setting of infrastructure have helped exposed assets and people to extreme climate hazards - which has increased the impacts on human health and food security, destruction of homes and infrastructure, etc. Climate change contributes to humanitarian crises where climate hazards interact with high vulnerability. Climate and weather extremes are increasingly driving displacement in all regions, with small Island states disproportionately affected (Carlarne & Hirokawa, 2022). Flood and drought-related acute food insecurity and malnutrition have increased in Africa and Central and South America (Anderson, Taylor, McDermid, Ilboudo-Nébié, Seager, Schlenker & Markey, 2021; Munaweera, Jayawardana, Rajaratnam, & Dissanayake, 2022). While non-climatic factors are dominant drivers of existing intrastate violent conflicts, in some assessed regions, extreme weather, and climate events have had a small, adverse impact on their length, frequency, and severity.

3. Methodology

We administered a questionnaire to a total of 300 persons to gather the data presented. Our respondents were sampled randomly in the designated locations. Thirty (30) persons were sampled from each group, as shown in table 1.

3.1. We Approached the Study from Five Perspectives

- Have the stakeholders heard about the 17 Sustainable Development Goals and specifically SDG13?
- How many of the SDGs can the stakeholders easily recall?
- What is the level of general stakeholders' awareness of SDG13?
- What role can Social workers and Civil Societies play in enhancing SD awareness among the people?
- How can the stakeholders rank the 17 SDGs in terms of their perception of which one is more important than the other?

3.2. Questionnaire Drafting and Administration

The instrument for Data collection for this study is mainly a well-structured and developed questionnaire. Most questionnaires were collected on the spot, while some got their questionnaires online by email, and they equally sent back the responses the same way. 40 persons (20 university lecturers and 20 postgraduates) were directly interviewed face to face so that additional questions were asked to them. The data collected from the respondents was done personally by the research team members.

3.2.1. Questions to be Addressed

We administered questionnaires to elicit people's responses to the following:

- Have the stakeholders heard about the 17 Sustainable Development Goals?
- Have the stakeholders heard of SDG13, which is about Climate change?
- How many of the SDGs can the stakeholders easily recall?
- What is the knowledge level/rating of some SD Concepts like Biodiversity loss, global warming, ozone layer loss, greenhouse gas, etc.?
- Do the stakeholders agree that poor implementation of SDG13 can cause major climatic and environmental problems for everyone?
- Are there roles for Social Workers and Civil Societies in the implementation of SDG awareness?
- How can the stakeholders rank the 17 SDGs in terms of their perception of which one is more important than the other?
- Suggest ways that can help government improve the implementation of the SDGs.

3.2.2. Sampling Populations

The questionnaires were administered to the following groups:

Proposed Stakeholder Options / Respondents	Number
STUDENTS	
Junior Secondary students	30
Senior Secondary students	30
Undergraduate students	30
Post Graduate students	30
GENERAL PUBLIC	
Junior and Senior School Teachers	30
University Lecturers	30
Market Place (Sellers and Buyers)	30
Civil Servants	30
Private Sector Workers	30
Motor Park Places (Transporters and Travellers)	30
TOTAL	300

Table 1: The Distribution Pattern of How the Questionnaire Was Administered

The rationale for choosing these stakeholders is to ensure that most of the representative sections of the metropolis are covered in the sampling choices. The locations also allowed the field officers to see many people in each location. Among the students, we sampled from the junior secondary level to the people doing their Post Graduate education. Also, the general public covered people that are not too educated to those who are university lecturers.

3.3. Data Analysis

Data analysis approach used in this study included descriptive and inferential statistical analyses using a computer-based programme. Some questions required only 'Yes,' 'No,' and 'Don't Know' response options. For those, we added together the totals of each response option per stakeholder group per question and then got the means. We also looked at the mean of the means for each question to enhance inference. The data were represented in percentages. For the other questions that required scoring evaluations, we equally totalled the figures derived from each stakeholder's option and finally derived the mean of means to enhance inferences.

For the ranking of the 17 SDGs, we totalled the ranking scores of all the individuals for each SDG in each stakeholder group to derive the means and then further derived the mean of the means for each SD goal before they were sorted as our basis of the overall ranking of the various SDGs.

All the datasets were then analysed using computer statistical programmes to ascertain their level of statistical significance.

4. Results/Discussion

4.1. Have You Heard of the 17 SDGs?

Have You Heard of the 17 SDGs?						
SN	STAKEHOLDERS	YES TOTAL	NO TOTAL	DON'T KNOW TOTAL	GRAND TOTAL	% YES
1	Marketers and Buyers	24	6	0	30	80
2	Transporters and Travellers	28	1	1	30	93
3	JS Students	15	9	6	30	50
4	SS Students	9	20	1	30	30
5	Undergraduates	16	14	0	30	53
6	Postgraduate Students	17	13	0	30	57
7	Secondary School Teachers	9	6	15	30	30
8	University Lecturers	20	10	0	30	67
9	Civil Servants	11	9	1	21	52
10	Private Sector Workers	19	8	3	30	63
	TOTAL	168	96	27	291	58
	PERCENTAGE (%)	58	33	9		

Table 2: The Responses Given to the Question: Have You Heard about the 17 SDGs?

All the differences in the dataset were not statistically significance using the Kruskal-Wallis test. The mean rank of the marketers-travellers was 9.50, whereas that of the secondary school students was 2.25, while the tertiary education students had 5.50, teachers-lecturers had 4.75, and civil servants had 5.50. The Chi-square value was 5.95, with a degree of freedom of 4 and a p-value of .203. The result showed that the stakeholders do not differ significantly in their response regarding their awareness of the 17 SDGs. The overall average of 58% of all the people sampled showed that they have heard of the 17 SDGs. This is a promising result and may be from the mass and social media news broadcasts. However, below 60% Yes-responses implied that effort should be made to improve the situation, especially for the students, through curriculum enhancement and other methods enumerated in our recommendations.

4.2. Have You Heard of SDG13, Which Is about Climate Change?

Have You Heard of SDG13, Which Is about Climate Change?						
SN	STAKEHOLDERS	YES TOTAL	NO TOTAL	DON'T KNOW TOTAL	GRAND TOTAL	% Y
1	Marketers and Buyers	18	4	8	30	60.00
2	Transporters and Travellers	28	1	1	30	93.33
3	JS Students	15	9	6	30	50.00
4	SS Students	4	19	7	30	13.33
5	Undergraduates	17	13	0	30	56.67
6	Post Graduate Students	14	16	0	30	46.67
7	Secondary School Teachers	12	14	1	27	44.44
8	University Lecturers	19	11	0	30	63.33
9	Civil Servants	11	6	6	23	47.83
10	Private Sector Workers	11	11	8	30	36.67
	TOTAL	149	104	37	290	
	PERCENTAGE %	51.3	36	13		

Table 3: The Responses Given to the Question: Have You Heard about the SDG13?

On the computation of the statistical significance of the dataset on the percentage YES-responses using the Kruskal-Wallis test, the mean rank of the marketers-travellers was 9.00, whereas that of the secondary school students was 3.50, while the tertiary education students had 5.50, teachers-lecturers had 6.00, and civil servants-private workers had 3.50. The Chi-square value was 4.47 with a degree of freedom of 4 and a p-value of .35. The result showed that the stakeholders do not differ significantly in response regarding their awareness of SDG-13. Just like the case of the 17 SDGs (Table-2), on average, only 51% of the people sampled have heard of SDG13.

4.3. How Many of the SDGs Can You Easily Recall?

How Many of the SDGs Can You Easily Recall?				
SN	STAKEHOLDERS	CUMULATIVE	NO. OF OBSERVATIONS	MEAN
1	Marketers and Buyers	26	30	0.87
2	Transporters and Travellers	40	30	1.33
3	JS Students	9	30	0.30
4	SS Students	42	30	1.4
5	Undergraduates	88	30	2.93
6	Post Graduate Students	65	30	2.17
7	Secondary School Teachers	34	27	1.26
8	University Lecturers	127	30	4.23
9	Civil Servants	41	21	1.95
10	Private Sector Workers	93	30	3.10
	F=1.37	CUMULATIVE MEAN TOTAL		19.54
	p=0.37	OVERALL MEAN		1.95

Table 4: The Responses Given to the Question: How Many of the SDGs Can the Individuals Recall?

The overall average showed that people can only recall less than 2 of the 17 SDGs, and only the university lecturers can recall more than 4 of the SDGs. Even the Transporters/Travellers, who have been reporting that 93% of them have heard of the 17 SDGs and also that of SDG13, were able to recall only a mean that is little more than 1 SDG per individual. The implication is that hearing about the SDGs is different from knowing what the SDGs entail. One cannot know about a concept well if you have heard about the SDGs but does not know what the 17 SDGS are. On the computation of the statistical significance of the dataset on the responses using the One-way ANOVA test, the mean score of the marketers-travellers was 1.00, whereas that of the secondary school students was 0.80, while the tertiary education students had 2.55, teachers-lecturers had 2.75, and civil servants-private workers had 2.52. The F-value was 1.37, and a p-value of .37. Despite the differences reported above, the result showed that the stakeholders do not differ significantly in response regarding the number of SDGs they can easily recall.

4.4. Do You Agree That Poor Implementation of SDG13 Can Cause Major Climatic and Environmental Problems for Everyone?

Do You Agree That Poor Implementation of SDG13 Can Cause Major Climatic and Environmental Problems for Everyone?						
SN	STAKEHOLDERS	YES TOTAL	NO TOTAL	DON'T KNOW TOTAL	GRAND TOTAL	% YES
1	Marketers and Buyers	2	25	3	30	7
2	Transporters and Travellers	9	1	20	30	30
3	JS Students	10	14	6	30	33
4	SS Students	19	3	8	30	63
5	Undergraduates	24	3	3	30	80
6	Post Graduate Students	23	6	1	30	77
7	Secondary School Teachers	21	1	5	27	78
8	University Lecturers	22	6	2	30	73
9	Civil Servants	15	4	2	21	71
10	Private Sector Workers	23	2	5	30	77
	TOTAL	168	65	55	288	
	PERCENTAGE (%)	58	23	19		

Table 5: The Percentage of Those Who Agreed That Poor Implementation of SDG13 Would Have Major Climatic and Environmental Problems

Table 5 shows that, on average, 58% of all the people sampled agreed that SDG13 is important and should be well-implemented. However, the market people, the motor park people, and the junior school students, whose level of education cannot be ascertained, were less agreeable to that position. Those who are well-educated: teachers (80%), Postgraduate students (77%), secondary school teachers (78%), university lecturers (73%), civil servants (71%), and private sector workers (77%), all recognized the importance of a well-implemented SDG13. However, on the computation of the statistical significance of the dataset on the percentage YES-responses using the Kruskal-Wallis test, the mean rank of the marketers-travellers was 1.50, whereas that of the secondary school students was 3.50, while the tertiary education students had 8.75, teachers-lecturers had 7.50, and civil servants-private workers had 6.25. The Chi-square value was 7.71 with a degree of freedom of 4 and a p-value of .10. The result showed that the stakeholders do not differ significantly in response regarding their agreement on the fact that poor implementation of SDG13 can cause major climatic and environmental problems for everyone.

4.5. Rate Your Level of Knowledge of SD Concepts like Biodiversity, Global Warming, Ozone Layer Depletion, and Greenhouse Gas Effects

Rate Your Level of Knowledge of SD Concepts like Biodiversity, Global Warming, Ozone Layer Depletion, and Greenhouse Gas Effects				
SN	STAKEHOLDERS	CUMULATIVE	NO. OF OBSERVATIONS	MEAN SCORE
1	Marketers and Buyers	53	13	4.1
2	Transporters and Travellers	57	12	4.8
3	JS Students	22	4	5.5
4	SS Students	95	27	3.5
5	Undergraduates	144	30	4.8
6	Post Graduate Students	124	30	4.1
7	Secondary School Teachers	116	27	4.3
8	University Lecturers	132	29	4.6
9	Civil Servants	72	21	3.4
10	Private Sector Workers	113	30	3.8
		CUMULATIVE MEAN TOTAL		42.8
		OVERALL MEAN		4.3

Table 6: How the Respondents Rated Their Level of Knowledge on Some SD Concepts as Stated Above

All the respondents, collectively using their cumulative means (4.3) and separately using the means of the various stakeholder options, rated themselves below 5 on a scale of 10. This shows that there is ample room for improvement in raising awareness among the people. The rating of 5.5 by the junior secondary school student did not match the responses given to the other questions, and also, they performed poorly when we interviewed them face to face. On the computation of the statistical significance of the dataset on the responses using the One-way ANOVA test, the mean score of the marketers-travellers was 4.45, whereas that of the secondary school students was 4.50, while the tertiary education students had 4.45, teachers-lecturers had 4.45, and civil servants-private workers had 3.60. The F-value was .571, and the p-value of .697. The result showed that the stakeholders do not differ significantly in response regarding their level of knowledge of SD concepts like biodiversity, global warming, ozone layer depletion, and greenhouse gas effects.

4.6. Do Social Workers and Civil Societies Have a Role to Play in SDG Awareness Programme?

Do Social Workers Have a Role to Play in SDG Awareness Programme?						
SN	STAKEHOLDERS	YES TOTAL	NO TOTAL	DON'T KNOW TOTAL	GRAND TOTAL	% YES
1	Marketers and Buyers	8	2	20	30	26.67
2	Transporters and Travellers	10	19	1	30	33.33
3	JS Students	12	1	17	30	40.00
4	SS Students	18	2	10	30	60.00
5	Undergraduates	25	3	2	30	83.33
6	Post Graduate Students	27	1	2	30	90.00
7	Secondary School Teachers	20	1	6	27	74.07
8	University Lecturers	28	1	1	30	93.33
9	Civil Servants	12	2	7	21	57.14
10	Private Sector Workers	16	3	11	30	53.33
	TOTAL	176	35	77	288	
	PERCENTAGE (%)	61.11	12.15	26.74		

Table 7: The Responses to the Question: Do Social Workers and Civil Societies Have a Role to Play in SDG Awareness Programme?

Apart from the 3 groups whose level of education cannot be ascertained (Market group people - 27%, Motor park groups - 33%, and the junior secondary school students - 40%), the rest of the stakeholder options agreed on the need to have social workers or other related people to play a role in educating the populace. This will be even more important for community education in line with Education for Sustainable Development (ESD). On the computation of the statistical significance of the dataset on the percentage YES-responses using the Kruskal-Wallis test, the mean rank of the marketers-travellers was 1.50, whereas that of the secondary school students was 4.50, while the tertiary education students had 8.50, teachers-lecturers had 8.50, and civil servants-private workers had 4.50. The Chi-square value was 7.85, with a degree of freedom of 4 and a p-value of .097. The result showed that the stakeholders do not differ significantly in response regarding their agreement on the fact that social workers have a role to play in SDG awareness programme.

4.7. Perspective Ranking of the Importance of Each of the 17 SDGs

SN	SDGs	MB	TT	JS	SS	UL	UG	PG	PS	CS	ST	TOTAL	MEAN
1	End poverty in all its forms everywhere	1.7	3.2	5.2	3.6	1.5	3.3	3.4	1	4.7	4	31.6	3.16
2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	2.3	2	4	4.8	5	1.9	1.8	3.2	5.7	2.9	33.5	3.35
3	Ensure healthy lives and promote well-being for all at all ages	2	2.1	7.1	5.4	7.5	3.9	6	4.7	5.3	5.1	49.2	4.92
4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	3.7	3	6.9	7.6	5.5	4.1	5.6	6.5	7.3	7.9	58	5.8
5	Achieve gender equality and empower all women and girls	4	4.3	8.2	8.4	4.5	7.3	6.3	8.6	9	5.9	66.5	6.65
6	Ensure availability and sustainable management of water and sanitation for all	3.9	2.9	7.2	9.3	8	7.6	5.5	10.3	8.7	6	69.4	6.94
7	Ensure access to affordable, reliable, sustainable, and modern energy for all	5.6	5.5	9.2	8.3	4	9.3	8.3	10.3	7.3	7	74.8	7.48
8	Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all	5.3	5.1	8	7.2	10.5	8.5	8.3	11.2	8.7	7.6	80.4	8.04
13	Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy	3.7	5.1	9.3	10.8	5.7	13.7	10.8	11.5	8.7	7.1	86.4	8.64

SN	SDGs	MB	TT	JS	SS	UL	UG	PG	PS	CS	ST	TOTAL	MEAN
9	Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation	5.5	4.9	8	9.6	8.3	11	9.3	13.6	8.7	7.6	86.5	8.65
10	Reduce income inequality within and among countries	6.5	6.8	7.9	10.1	10	7.2	10.3	10.6	9.3	8.1	86.9	8.69
11	Make cities and human settlements inclusive, safe, resilient, and sustainable	3.3	2.7	8.6	8.2	12.5	12.7	9.3	12.1	11.3	8.7	89.3	8.93
12	Ensure sustainable consumption and production patterns	4.9	4	7.9	12.5	9	8.8	12.3	12.8	11.7	6.7	90.7	9.07
15	Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	5.4	6	7.2	9.8	13	13.5	13	12.6	10.3	6.3	97	9.7
17	Strengthen the means of implementation and revitalize the global partnership for sustainable development	2.5	3.8	6.1	12.9	11	12.8	16	10.5	16.3	9.1	101.2	10.12
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels	5.8	5	8.4	11.1	16	12.5	11	13.6	12	7.6	103	10.3
14	Conserve and sustainably use the oceans, seas, and marine resources for sustainable development	5.6	6	7.8	10.9	16	13.3	13.2	14.2	8.7	8.6	104.3	10.43
	TOTAL PER GROUP	71.7	72.4	127	150.5	148	151.4	150.4	167.3	153.7	116.2	1308.7	130.87
	MEAN RANKING	4.2	4.3	7.5	8.9	8.7	8.9	8.8	9.8	9.0	6.8	77.0	7.7

Table 8: Shows the Ranking of the 17 SDGs by the Various Stakeholders

Keys:

MB= Market sellers and buyers.

TT = Transporters and Travellers.

JS = Junior Secondary School Students

SS = Senior Secondary School Students

UL = University Lecturers

UG = Undergraduate Students

PG = Post Graduate Students

PS = Private Sector Workers

CS = Civil Servants

ST = Secondary School Teachers

Table 8 shows that the cumulative ranking scores of the first 5 SDGs by the various stakeholders reflected how they were numbered: SDG1 to SDG8. It was after SDG8 that the ranking changed a bit, but the trend again continued for a little more, and SDG 14 was ranked least by the people sampled within Port Harcourt metropolis. Equally, the Private sector workers and the Civil servants similarly ranked SDG 1 to SDG5 as priorities, as were observed for the overall ranking order. However, for the rest, the first 5 priority goals are as shown: Sellers and buyers (SDG1, SDG3, SDG2, SDG17, and SDG11), transporters and travellers (SDG2, SDG3, SDG11, SDG6, and SDG4), junior secondary students (SDG2, SDG1, SDG17, SDG4, and SDG3), senior secondary school students (SDG1, SDG2, SDG3, SDG8, and SDG4), university lecturers (SDG1, SDG7, SDG5, SDG2, and SDG4), undergraduate students (SDG2, SDG1, SDG3, SDG4, and SDG10), postgraduate students (SDG2, SDG1, SDG6, SDG4, and SDG3) and Secondary school teachers (SDG2, SDG1, SDG3, SDG5, and SDG6). The implication of the variability will be a subject of future research. However, the variability was further confirmed by the computation of the statistical significance of the dataset on the mean-responses using a one-sample t-test, and the overall mean score was 7.69, SD=2.27. $t=13.94$, $p=0.00$. The result showed that the stakeholders differ significantly in their perspective ranking of the importance of each of the 17 SDGs.

4.8. Suggestions on How Government Can Improve SDG Implementation

In addition to administering survey questionnaires, we had additional face-to-face key informant interviews with 20 each of the university lecturers and the postgraduate students. From that engagement, we asked them to proffer priority suggestions on how the Nigerian government can be encouraged to take the SDG implementation more seriously. Below are the choice areas made by the respondents:

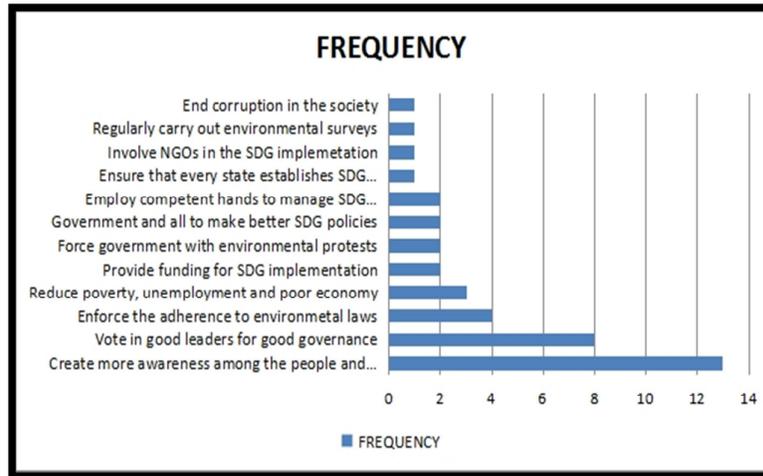


Figure 2: The Choices Made on How Government Can Improve on SDG Implementation

From the responses, it is evident that many believe it is not only the stakeholders whose awareness and knowledge capacities should be improved. People in government and policymakers need it even more. The importance of good leadership with the will to deliver results is equally important, and so too is the enforcement of laws and, in this case, environmental protection laws.

5. Implications of Findings and Recommendations to Deepen the Awareness, Knowledge, and Practice of the Sustainable Development Goals

From the survey results, there is a gap between what the respondents know about the SDGs and how such knowledge can help them achieve the set goals. While the respondents initially assumed that since they had heard about SDGs, they knew what they entail. The information they got about SDGs from the mass and social media was very hollow, and they essentially just made them hear the names and the projects the government has executed that are related to the SDGs. However, the people in such a situation would not know why and what SDGs mean. The information is coming from different departments in silos, and there is no holistic approach to providing information on the SDGs to the various stakeholders. Given these problems, some people even doubt if issues like global warming, biodiversity loss, flooding, etc., are real and not just buzzwords to justify large expenditures of funds earmarked to address the challenges, even among some in developed nations. The disjointed linkages mean implementations are in silos, and synergy is lost. Therefore people are not able to integrate the issues concerning the relevance of these SD challenges to the 17 SDGs and how we can achieve the aspirations of the SD goals.

We know that every location on earth has its own challenges that may be peculiar to it, so ranking the 17 SDGs in terms of identifying areas of funding concentration in a fund-limiting environment is not a bad strategy. For that reason, the ranking of the SDGs is a good instrument for planners to employ, along with the need for a holistic approach to employing strategy. However, since the SDGs are interlinked and interrelated, interventions with multiplier effects should be given more attention. A lot of literature exists that justifies the integration strategy of SDG intervention implementation. However, most implementers, for convenience, prefer the non-tedious way of implementing stand-alone projects that require less specialised planning efforts. Many governments and their agencies responsible for reporting on SDGs and even the mass media focus more on projects implemented to justify funds spent rather than linking these projects to inter-related SDGs, educating the masses on the importance of the SDGs and the need for cooperation/collaborations to enhance outcomes.

We, therefore, recommend the following nine broad areas for enhanced SDG implementation and awareness penetration:

5.1. Establishment of Sustainable Development Clubs in Secondary Schools

This involves targeting the younger generations in secondary schools to better understand them and appreciate them to become advocates of sustainable development practices through the establishment of SDG/Climate Change clubs. While many adults have already fixed ideas and are reluctant to change their attitudes, children are different. Therefore, we think there should be sustained effort targeted at the younger ones who have fertile minds that can learn and imbibe good practices/sustainable lifestyles as their way of life. Such young ones captured and properly trained early in life will grow up and become better citizens. The Bible says in Proverbs 22:6: "Train up a child in the way he should go and when he is old, he will not depart from it." Children have impressionable minds and are easily moulded to internalize any

desirable culture or way of life. If we want to make most of humanity appreciate, embed, and practice sustainable development lifestyle and attitudinal behaviour, we should educate them towards that character development from a young age.

The approach of bringing them together in groups (in this case, clubs) having the same vision and aspirational goals give them a purpose, a team working spirit, and that equally serves as motivation (something they look forward to doing happily).

- In Rivers state - Nigeria, there are sometimes school clubs for soft issues like Debates, Sanitation, Farming, etc. Only a few schools have something that is slightly related to sustainable development, and no school we know of has green or environment clubs.

Building the capacities of such young people means that in the future, the world will benefit from leaders that are more knowledgeable on sustainable development and work towards forestalling the continued deterioration of the world's climatic conditions and the attendant climate-related crises.

The Sustainable Development and Climate Change clubs will help students in the following areas:

- Dedicate time to study the SDGs and their targets
- A team encourages critical thinking, social critiquing, and analysis of local contexts, which will involve discussing, analysing, and application of values. They can use drama, music, etc., in their learning and dissemination of ideas.

We recommend that there should be an intentional decision that every organization/network working in line with Education for Sustainable Development (ESD) should establish at least one pilot Sustainable Development and Climate Club (SD&CC) in a secondary school within their mandate area in the first year of implementation and increase the number gradually over the years to cover all the schools in their mandate areas. When they have established a critical number of clubs per network or in geographical areas, they can form a sub-network for competitions like quizzes, drama, dancing, etc., where prizes for winners are awarded. Finally, teachers frequently review their contributions to SDG through teaching. Likewise, they should be able to intentionally provide their students with strategic knowledge on sustainable development, and then trigger empathy in the student for their environment, resulting in the student having a sense of responsibility to help maintain sustainability.

5.2. Expansion of SD Pillars from 5 to 6: That Is by Including Performance as a Pillar and Using the New Concept as a Capacity-Building Instrument

Instead of the currently held concept of five sustainability pillars, we are advocating for a new one comprising six pillars as follows: Platform core pillars of People and Planet, Product core pillars of Prosperity and Peace, and Process core pillars of Partnership and Performance. These functional sustainability pillars are to be used as a basis for developing facilitative workshops for capacity building to deepen the SD goals and their targets.

The expansion of the previously held ideas of 3 Sustainable Development (SD) Pillars (Social, Economic, and Environment) by Brundtland (1987), Boyer et al. (2016), and (Lariviere and Smith (2022) were later changed to 4 SD Pillars as Humans were added as a separate pillar (Simone, 2022). Another pillar of the Partnership was later added for a broader understanding of the Sustainable Development concept (Griggs & Visbeck, 2016).

The UN made a declaration in 2015 where it set an Agenda/plan of action for the people, planet, and prosperity. The Agenda equally highlighted the prominence of universal peace. The Agenda then talked about the need for a collaborative partnership in implementing the Agenda effectively. Therefore, these five components (People, Planet, Prosperity, Peace, and Partnership) can be recognized as veritable pillars in the smooth and successful implementation of Sustainable Development Goals. In a sense, all the SDGs are related to people, and in a larger sense sustainability of humanity and humanity can be sustained if only all the life-sustaining systems are in place (Lal, Bouma, Brevik, Dawson, Field, & Glaser, Zhang, 2021).

We are now advocating for the addition of another pillar of performance which is critical for the successful implementation of any SDG. Performance can be enhanced when the capacities of the operators and the beneficiaries are built to better understand, appreciate and practice their roles effectively in line with the tenets of the SD goals and targets. That is to say, apart from these 5 pillars of sustainability identified above, we have highlighted the need to recognize performance management through capacity building as a major sustainability pillar. Performance can be enhanced through effective communication, training schemes, and performance monitoring/evaluation methods, among others, to entice and sustain people's awareness and interest in the goals.

The inclusion of performance management as another sustainability pillar has helped to give the approach to managing the SDGs a well-rounded system. Training, monitoring, and evaluating the implementation and communicating them effectively will improve performance over time, which is why it is a critical pillar.

With regards to SDG13, we have made some impressions to help us explain how SDG13 is affected by the 6 sustainability pillars mentioned above.

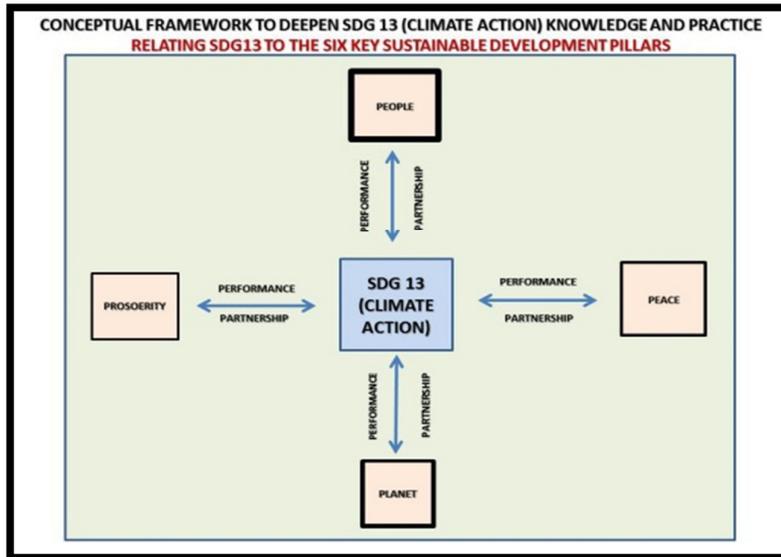


Figure 3: Explains How the 6 Sustainability Pillars Interact with SDG13

The vertical plane is about the benefiting bodies or platforms (People and Planet) which see a man not as an individual alone but also as part of the ecosystem. The sustainability of the ecosystem is critical for the continued survival of man.

The horizontal plane talks about the outcome pillars or products. They are the desired outcomes of all interventions, and the priority outcomes are peace and prosperity.

The catalyst pillars or Process core pillars show that good performance and partnership can enhance outcomes to desired levels.

The final comment here is that all the pillars are integrated and interrelated.

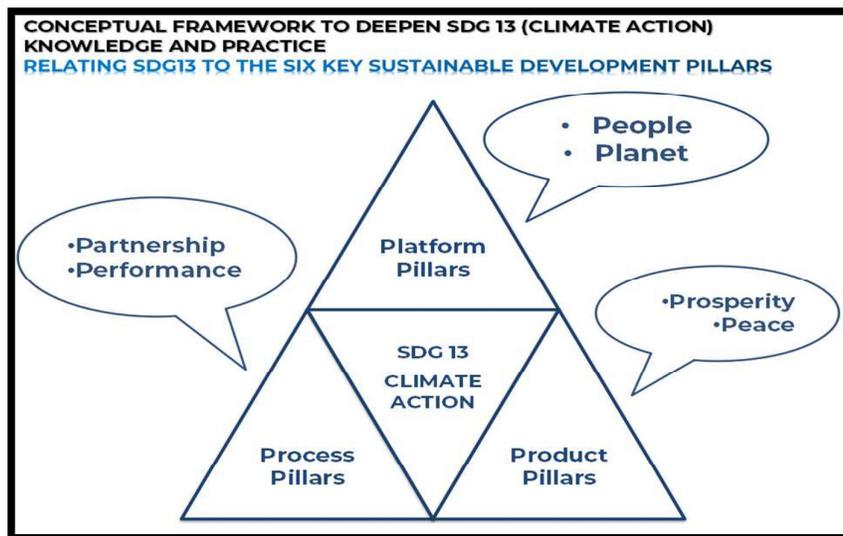


Figure 4: The Three Core Sustainability Pillars (Platform, Process, and Performance Core Pillars) Using another Dimensional Perspective

This diagram shows how closely integrated all the pillars are and what their key components are.

Figures 3 and 4 explain that SDG13 impacts the platform pillars (People and the Planet), and these pillars are the life forms that are negatively affected when there are deleterious changes to the climate. Every SDG is aimed at addressing the challenges impacting these Platform pillars.

The diagram also shows how the main desired outcome of any goal or intervention is the Product pillars, and the priority outcomes are those of Prosperity and Peace. Prosperity refers to several aspects of progress, it is about continuous improvement, and the other peace pillar entrenches the notion that no development can stand without peace. Wars and violent conflicts take many developmental strides backward. Developmental advances that took several decades to achieve can be lost in one day of the war. In terms of climate change, prosperity is hampered from what we saw in figure 1 on the impacts of poor management of SDG13, and peace can be hampered if environmental conditions precipitate scarcity and people begin to struggle for the scarce resource for sustenance.

The third leg refers to the set of pillars (Process pillars), which are those enabling processes that can facilitate and catalyse the desired outcomes. In this regard, two priority pillars identified are the well-known partnership pillar, resulting in a synergy of collaborations and team working towards effective delivery of results. It highlights the importance of specialization and the need to support poorer nations to achieve better global results. The other part is the new concept of performance (capacity building and training on one hand and performance management on the other) as a pillar.

In all these analyses and presentations, one thing that will often agitate the minds of a reader can include: Are the chosen 2 pillars for each core pillar the only ones? The answer is obviously no. It was explained by Lawrence and Lawrence (2019) using a three-factor drill-down approach in analysing a problem. They stated that several factors might impact any entity, but their degree of impact differs. They equally stated that about 20% of those factors are responsible for about 80% of the outcomes naturally. By concentrating on the key and critical components, you are achieving a high degree of success, using manageable resources at your disposal.

In this particular study, the authors have identified three core pillars, and the drill-down process identified two other sub-pillars for each core pillar. The implication is that a researcher depending on the circumstances and need, can do further drill-down using the same or different numbers of factors.

This approach will lead to the development of a template to facilitate a learning program for practitioners and other stakeholders using a syndicate workshop model.

A sample of how to carry out a facilitative workshop using the 3 core pillars and then further drill down using a two-factor system to get the 6 sustainability pillars is the next recommendation below, and a table showing the prototype questions is equally attached.

5.3. Carrying out Workshops/Training for Implementers and Other Stakeholders

This paper developed some templates that can be used to build the capacities of stakeholders through syndicate-type workshops (which can be physical or internet-based conferencing). The participants brainstorm and report to further challenge the outcomes of their syndicate sessions to larger groupings. The objectives of such workshops/training will include:

- Understand what the particular SDG and their targets are about, and in this case study - SDG 13
- Relate the SDG targets (in this case study – SDG13) to addressing the key SD Pillars, especially that of the Platform Core Pillar (People and Planet).

The benefits of the approach:

- Brainstorming and interacting are engaging activities, and the outcomes will be a knowledge/capacity improvement for the participants
- This approach is participatory since it encourages group discussions and teamwork.
- Most people only know the main SDGs without understanding the targets in detail. This approach will enable them to review the targets and relate them to the 6 key SD pillars (people, planet, prosperity, peace, partnership, and performance).
- The approach enables the participants to develop their responses based on their experiences, circumstances, etc., using their perceptions of what the SDG targets stand for, and then they will collectively challenge their responses as a group during the session and report out.
- By the end of the exercise, the participants will more clearly understand the SDG targets and the rationale for why they were set.
- This workshop will benefit government officials as well as policymakers.

5.3.1. Three Tables Showing the Prototype Questions That Can Be Used for the Facilitative Workshop

SD	DEEPENING SDG13 WITH SIX P(S)	KEY PLATFORM PILLARS	
	SDG13 TARGET EXPLANATION	PEOPLE	PLANET
13.1	Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.	How can communities and other stakeholders become strengthened to be more resilient and adaptive to climate-related hazards and disasters?	How can we advocate for/develop interventions to protect the environment and biodiversity from climatic hazards and disasters?
13.2	Integrate climate change measures into national policies, strategies, and planning.	How can we advocate and support the integration of climate change measures in planning and policy formulation processes? What role can the stakeholders play?	How can we plan and develop effective policies that will ensure the environment and biodiversity are protected?
13.3	Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning	How can we improve climate change education in schools, communities, mass/social media to be more effective in mitigating, reducing negative impacts, improving early warning, and protecting the people?	How can we use relevant examples in the ecosystem to teach biodiversity degradation and all other negative impacts of climate change on the environment?

SD	DEEPENING SDG13 WITH SIX P(S)	KEY PLATFORM PILLARS	
	SDG13 TARGET EXPLANATION	PEOPLE	PLANET
13.a	Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate fund.	How can stakeholders monitor and advocate for the smooth implementation/improvement of funding in the COP27 agreements made?	How can the utilization of these funds effectively address the goals and aspirations for which funds are given? How can we clearly show the linkage between funding and results?
		How can Green climate funding be transparently utilized as motivation for upgrade?	
13.b	Promote mechanisms for raising capacity for effective climate change-related planning and management in the least developed countries, including focusing on women, youth, and local and marginalized communities.	How can the capacities of stakeholders in least-developed countries be built to better plan and manage climate change intervention processes and include youths and women adequately?	How will the building of the capacities of developing countries, especially for youths and women, help in reducing the negative impacts of climate change?
		How will planning and effective management improve the quality of life of humans?	

Table 9: SDG13 and the Platform Pillars

SD	DEEPENING SDG 13 WITH SIX P(S)	KEY PRODUCT PILLARS	
	SDG13 TARGET EXPLANATION	PROSPERITY	PEACE
13.1	Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.	How can we protect natural and man-made assets by strengthening their resilience and adaptive capacities to climatic hazards and disasters? How can we ensure that climatic hazards and disasters do not affect specific sustainable growth items?	How can we build the capacity of people to understand the importance of peace-building and conflict management, especially while facing resource scarcity?
			How can we proactively monitor the climate and prepare stakeholders to better manage climatic changes and disasters?
13.2	Integrate climate change measures into national policies, strategies, and planning.	Are climate change measures adequately integrated into policies to effectively protect natural and man-made assets? Do policies protect livelihoods and ensure resources are not utilized in ways that will further deteriorate them? How can we effectively plan our utilization of resources?	How can we ensure that climate change policies and planning processes include peace-building capacities and law enforcement to reduce conflicts due to resource scarcity?
13.3	Improve education, awareness- raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning	How can we develop teaching strategies to make people understand the importance of the environment to livelihood sustainability, asset protection, and sustainable economic growth?	How can we show that wars and conflicts are inversely related to sustainable development?
			What education for sustainable development strategies can we use to educate all stakeholders to have enhanced capacities to mitigate and adapt to climate change and better understand early warning signs?

SD	DEEPENING SDG 13 WITH SIX P(S)	KEY PRODUCT PILLARS	
	SDG13 TARGET EXPLANATION	PROSPERITY	PEACE
13.a	Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate fund.	How can we demonstrate that collaborations between developed and developing countries will ensure long-term sustainable development?	How can funding of Green climate interventions be tied to demonstrable management capacities and reduced conflict as a result of resource scarcity?
		Would the funding help in ensuring the prosperity of both the donors and the beneficiaries in the long run?	
13.b	Promote mechanisms for raising capacity for effective climate change-related planning and management in the least developed countries, including focusing on women, youth, and local and marginalized communities.	How can the capacities of all the stakeholders of the communities prosper while exploiting the natural resources in a sustainable way?	Can capacity-building of all stakeholders help reduce gender discrimination?
			How can we build the capacities of stakeholders to prevent conflicts due to scarcity and ensure justice in resource use?

Table 10: SDG13 and the Product Pillars

SD	DEEPENING SDG 13 WITH SIX P(S)	KEY PROCESS PILLARS	
	SDG13 TARGET EXPLANATION	PARTNERSHIP	PERFORMANCE
13.1	Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.	What roles can collaboration and partnership play in strengthening resilience and adaptive capacities?	What types of capacity-building activities and regular performance monitoring can governments and communities apply to reduce exposure to climatic hazards and disasters?
13.2	Integrate climate change measures into national policies, strategies, and planning.	What are the current challenges in the partnership policies and how can we improve them? How can developed nations support least developed nations to better plan and manage climatic hazards?	How can the capacities of policymakers, policy implementers, and planners better understand the importance of integrating climatic issues into preventing conflicts and improving harmonious co-habitation?
13.3	Improve education, awareness- raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning	How can people's and institutional capacities be built to implement effective partnerships locally and internationally? What role can inclusion in the curriculum play?	How can the available knowledge and technologies be made available to people to enhance peaceful coexistence?
			How can further research improve mitigation measures against climatic hazards and conflicts?
13.a	Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate fund.	Are the current partnership policies fit for purpose? What policies and strategies can be implemented to improve the existing partnerships toward more effective outcomes?	What strategies can be used to make both the donors and the beneficiaries appreciate/understand and therefore improve on partnerships that will also improve peaceful coexistence?
13.b	Promote mechanisms for raising capacity for effective climate change-related planning and management in the least developed countries, including focusing on women, youth, and local and marginalized communities.	How can we improve partnerships between developing and developed nations in supporting the capacity enhancement of the various stakeholders in all nations?	How can we build the capacities of least developed countries towards effective management of funds and also involve all stakeholders including women and youths? How can existing resource-related conflicts be identified and better managed?

Table 11: SDG13 and the Process Pillars

5.4. Advocating Approaches That Convey SDGs from an Inter-Related and Integrated Manner

Lawrence and Lawrence (2019) showed in their study that the SDGs are interrelated. The study used a pairwise comparison to show direct and indirect Inter-Relationships among the SDGs.

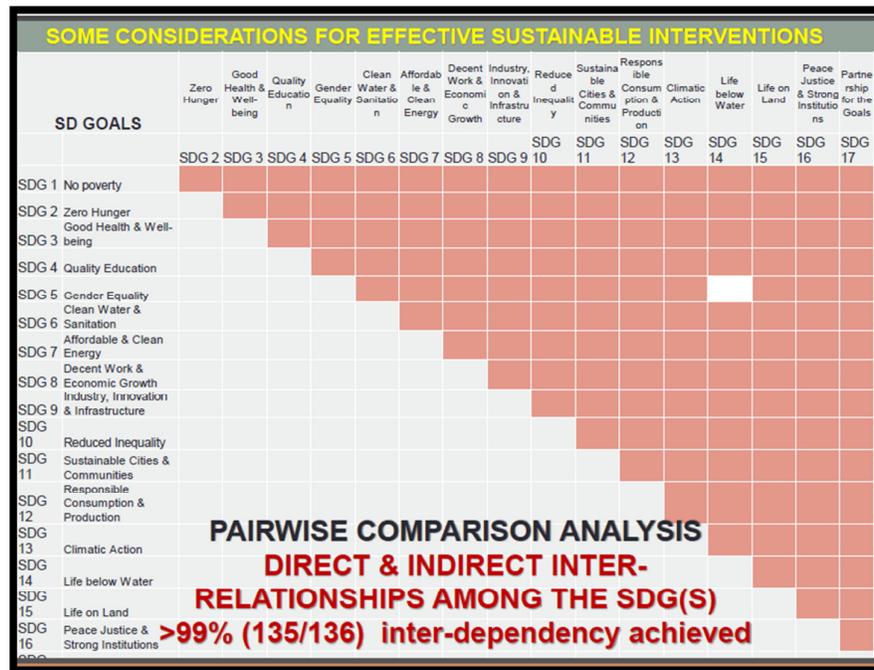


Figure 5: The Inter-Relationships between the SDGs

The figure is taken from Lawrence and Lawrence (2019).

From the above, we can see that the framers of the SDGs achieved a high degree of interdependence between the goals. The figure above has also shown intricately and graphically the interrelatedness of the SDGs.

Based on the above and the results of the survey, we can say that though there are tendencies for people to gravitate towards some goals as priorities (in fact, politicians in Nigeria, due to the short-term nature of their tenures, tend to abandon the principles of the SDGs to focus more on the activities that can show positive results within a short term of one or two years so that they can attract goodwill to deserve re-election. Therefore, these politicians concentrate most of their resources on implementing non-sustainable stand-alone infrastructure projects and prefer activities that enable them to give unsustainable cash or other donations to people likely to ensure their re-elections. All stakeholders must be educated to understand that the best developmental impacts will be obtained from well-planned and developed intervention programmes that consider key local challenges and ensure an integrated and holistic approach to solving developmental challenges.

5.5. Using Only One Major Pillar (People) as the Handle to Explain the Inter-Relatedness of the SDGs

Lawrence and Lawrence (2019) also grouped all 17 SDGs into 5 units as a basis to develop teaching and learning strategies to deepen all the SDGs, using the benefits of SDGs to people as the main goal for improving quality of life. This approach hopes to place people at the center of sustainable development as intervention approaches are aimed at solving the problems of man in our respective localities.

This strategy equally helps understand and explain the interrelatedness and interlinkages of SD goals and targets.

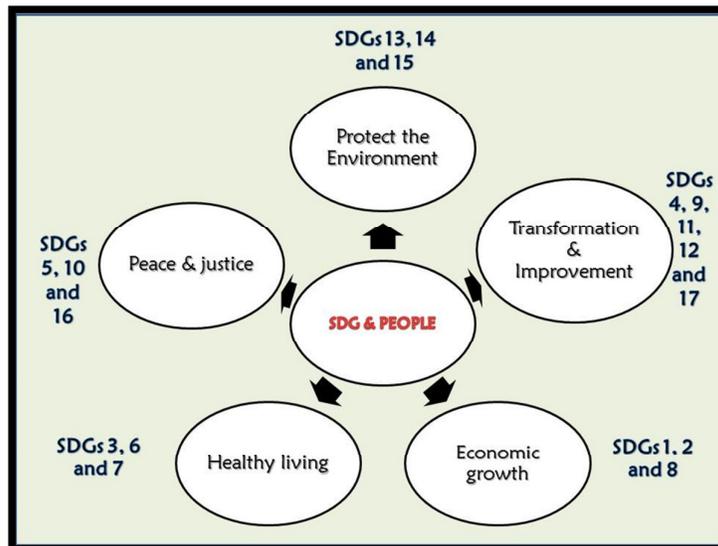


Figure 6: The SDGs and Their Functions and Relationships

The concept was developed by the authors (2023).

As was the case of 5.5, one of the essences of grouping is to show their inter-relatedness and interlinkages. That way, the learner understands that SDGs are not just standing in silos but that the framers had given the SDGs' strategic development serious thought towards addressing key global and local issues in sustainable ways.

The idea of the approach is equally to communicate and enhance people's capacities to appreciate, adopt and implement the SD activities that would help achieve the goals.

5.6. Enactment of Enabling Laws to Promote and Deepen the Practise of the SD Principles

This will ensure that politicians do not neglect a balancing of the budget lines so that key things like education, health, capacity building, performance management, and security of the nation are not neglected, and non-productive activities like publicity and commissioning to herald the start and completion of projects should not take more than 5% of the total cost of the project among other things.

Every subunit government in the nation (states and local governments) should be mandated to work in line with the SD principles and the Agenda 2030. One important organization/agency any sub-unit government should have is one with the responsibility to develop the state through the implementation of strategic developmental initiatives in line with the Sustainable Development Goals (SDGs). They do not necessarily have to implement all developmental projects since such are the responsibilities of the respective ministries/agencies, etc. However, they should be invited to make SDG compliance inputs into all such plans being made by these bodies. By implication, they should be in a position to advise the Government and review the plans of all ministries and other agencies to ensure that their annual plans address the aspirations of the SDGs and the Government. This is important to our ability to remarkably achieve the SDGs aspirations by the year 2030. Also, they are expected to carry out annual performance appraisals of plans versus actuals of all such ministries/governmental agencies. Another key responsibility of the body will be to build the capacities of civil/public servants and others through activities like training etc., towards understanding and supporting the principles of SDGs but also to perform their duties effectively and efficiently.

The body should equally carry out pilot initiatives where necessary to encourage mass adoption of high-impact initiatives, especially those with multiplier sustainably beneficial effects on the people.

The need for every Government to work in line with the aspirations of the SDGs cannot be overemphasized. As this body is monitoring all other ministries/agencies of compliance, the body, too, should be monitored and evaluated from time to time by relevant experts. Moreover, where lapses exist, recovery measures can be advised.

5.7. Inclusion of SDGs in All Primary and Secondary Education Curricula as Part of Education for Sustainable Development (ESD)

It is now overdue to have Agenda 2030 and SDGs to be taught in schools as part of General Studies. It should be included in the curriculum of all classes in primary and secondary schools.

This position is equally supported by Ogunola et. al (2018) who advocated for climate change implication issues in the curriculum of tertiary institutions and those of primary and secondary schools.

5.8. Popularising the SDGs through More Elaborate SDG Week Campaigns

It is observed that there is a variation in the SDG awareness celebration by the UN and individual groups. Some examples include: The Global Week to #Act4SDGs, which is aimed at mobilizing the generality of the people during the high-level week of the UN General Assembly. It is to show world leaders that people all around the world are committed, dedicated, and inspired to take action on the SDGs. Efforts should be made to make all affiliates use the week to promote

SDGs in their respective nations through the mass media, etc. Also, the Annual Sustainable Development Action and Awareness week by the University Global Coalition should embrace all civil societies and all others so that it is really global.

5.9. Intensifying Stakeholder Education

Conducting stakeholder education (campaigns/sensitization and other educational programmes, especially in communities, schools, organizations, and the mass media) is both time- and fund-consuming. Operators like Social workers, Civil Societies, members of Sustainable Development and Climate Change clubs, and other Non-Governmental Organizations will require funding to carry out campaigns and sensitization activities. Donors like national and international organizations and developed nations can sponsor these activities in developing nations, etc. They can also call for specialized and well-structured proposals for funding from organizations to carry out these key activities.

6. Conclusion

It is clear that hearing something or knowing the name of a concept or policy, as in the case of the SDGs, is not synonymous with knowing what the concept or policy entails. The result obtained from the study that many of the respondents cannot recall most of the 17 SDGs shows that they know little or nothing about the SDGs and the targets set in them to be achieved. They showed that there is a lot of room for improvement in sustainable development awareness among the people of Port Harcourt and, by extension, Nigeria. This paper made nine recommendations on how improvements can be achieved. We recommended the establishment of sustainable development and climate change clubs in secondary schools. We equally discussed ways to deepen the awareness and knowledge of SDGs and the targets through facilitative syndicate-type workshops. Ogunsola et al. (2018) also suggested the frequent organization of workshops/seminars on the impact of climate change to increase awareness of climate change. Some others listed include the following: there should be an effort to marry the need to identify key individual problems of every locality, and also, we should make an effort to approach SDG planning and implementations holistically. One possible way is to always identify and give priority considerations for interventions that have multiplier impacts, and that way, we use one intervention to address several challenges (that is, using one stone to kill several birds). Lawrence et al. (2020) gave the example of a school-feeding programme that addressed some SDG challenges, including school enrolment, poor nutrition, good academic performance, etc. This paper also mentioned the ideas that can make people appreciate how interrelated and interlinked the SDGs are and how we can expand the sustainability pillars from the current 5 to 6 by including performance as the sixth pillar. The enhancement of DG Week and stakeholders' education/campaigns using social workers and civil societies, among others, were also recommended.

Several natural disaster events have escalated in the last few years, and they are enabled by the changing climatic conditions of the world. The urgency of this clear threat to humanity has resulted in many efforts by the United Nations to devise means of quickly addressing the compounding situation we face. This paper is our contribution to this effort.

We support what UN is doing through the COP series (Conference of the Parties to the United Nations Framework Convention on Climate Change). With the recent conclusion of the COP27 event and the commitments made by the nation to contribute towards arresting this climate change problem, we believe that the situation would be better managed if the members are committed and cooperative (United Nations, 2022).

7. Acknowledgement

I thank Dame Dr. Mercy Oke-Chinda for finding time to look at the paper and also Dr. Wonu Nduka for analysing the obtained data statistically.

8. References

- i. Abdolvahhab, F., Mohsen, T., Gholamreza, S., & Mehran, M. (2022). A novel integrated method of fsQCA and digital design for sustainability monitoring and assessment in building energy management systems: a case study, *Journal of Building Performance Simulation*, 10.1080/19401493.2022.2112758, (1–24).
- ii. Abson, D.J., Fischer, J., Leventon, J., Newig, J., Schomerus, T., Vilsmaier, U., von Wehrden, H., Abernethy, P., Ives, C.D., & Jager, N.W. (2017). Leverage points for sustainability transformation. *Ambio* 2017, 46, 30–39.
- iii. Agbedahin, A.V. (2019). Sustainable development, Education for Sustainable Development, and the 2030 Agenda for Sustainable Development: Emergence, efficacy, eminence, and future. *Sustainable Development*, 27(4), 669–680.
- iv. Alcántara-Rubio, L., Valderrama-Hernández, R., Solís-Espallargas, C., & Ruiz-Morales, J. (2022). The implementation of the SDGs in universities: a systematic review. *Environmental Education Research*, 28(11), 1585–1615.
- v. Ali Ebadi, T., Fatih, E., Dragan, P., & Çağlar, K. (2021). Comparative assessment of social sustainability performance: Integrated data-driven weighting system and CoCoSo model, *Sustainable Cities and Society*, Volume 71, 2021, 102975, ISSN 2210–6707. <https://doi.org/10.1016/j.scs.2021.102975>.
- vi. Allen, C., Metternicht, G., & Wiedmann, T. (2017). An Iterative framework for national scenario modelling for the sustainable development goals (SDGs). *Sustain. Dev.* 25, 372–385.
- vii. Anderson, W., Taylor, C., McDermid, S., Ilboudo-Nébié, E., Seager, R., Schlenker, W., & Markey, K. (2021). Violent conflict exacerbated drought-related food insecurity between 2009 and 2019 in sub-Saharan Africa. *Nature Food*, 2(8), 603–615.

- viii. Archer, L., DeWitt, J., Freedman, E., & Thomas, K. (2022). Developing equitable practice with youth in makerspaces: ideas and case studies from the Making Spaces project-Main Report.
- ix. Assembly, G. (2015). Sustainable development goals. *SDGs Transform Our World*, 2030, 6–28.
- x. Barclay, J., Wilkinson, E., White, C. S., Shelton, C., Forster, J., Few, R., ... & Honychurch, L. (2019). Historical trajectories of disaster risk in Dominica. *International Journal of Disaster Risk Science*, 10, 149–165.
- xi. Bartholy, J., & Pongrácz, R. (2018). A brief review of health-related issues occurring in urban areas related to global warming of 1.5 C. *Current opinion in environmental sustainability*, 30, 123–132.
- xii. Bradley, P. (2019). Integrating sustainable development into economics curriculum: A case study analysis and sector-wide survey of barriers. *Journal of Cleaner Production*, 209, 333–352.
- xiii. Bibri, S. E. (2021). A novel model for data-driven smart, sustainable cities of the future: the institutional transformations required for balancing and advancing the three goals of sustainability. *Energy Informatics*, 4, 1–37.
- xiv. Carlarne, C. P., & Hirokawa, K. H. (2022). De-Centering Dominance for Climate Adaptation in a Worst-Case Climate World. *FACING THE WORST CLIMATE CASE: THE ROLE OF LAW (Katrina Fischer Kuh & Shannon M. Roesler eds, Forthcoming with ELI, 2023)*.
- xv. Charfeddine, L., & Kahia, M. (2019). Impact of renewable energy consumption and financial development on CO2 emissions and economic growth in the MENA region: a panel vector autoregressive (PVAR) analysis. *Renewable energy*, 139, 198–213.
- xvi. Child, M., Koskinen, O., Linnanen, L., & Breyer, C. (2018). Sustainability guardrails for energy scenarios of the global energy transition. *Renewable and Sustainable Energy Reviews*, 91, 321–334.
- xvii. Costanza, R., McGlade, J., Lovins, H., & Kubiszewski, I. (2014). An overarching goal for the UN sustainable development goals. *Solutions*, 5, 13–16.
- xviii. D'Amato, G., Chong-Neto, H. J., Monge Ortega, O. P., Vitale, C., Ansotegui, I., Rosario, N., & Annesi-Maesano, I. (2020). The effects of climate change on respiratory allergy and asthma induced by pollen and mold allergens. *Allergy*, 75(9), 2219–2228.
- xix. Degórska, B., & Degórski, M. (2018). Influence of climate change on environmental hazards and human well-being in the urban areas—Warsaw case study versus general problems. *Climate Change, Extreme Events and Disaster Risk Reduction: Towards Sustainable Development Goals*, 43–57.
- xx. Edenhofer, O. (2022). From climate economics to planetary boundaries and global commons—the next paradigm shift. In *Transboundary Cooperation and Global Governance for Inclusive Sustainable Development* (pp. 125-130). Nomos Verlagsgesellschaft mbH & Co. KG.
- xxi. Eikemo, T. A., & Øversveen, E. (2019). Social Inequalities in health: Challenges, knowledge gaps, key debates and the need for new data. *Scandinavian journal of public health*, 47(6), 593–597.
- xxii. European Commission. (2022) *Consequences of climate change, Climate Action*. Directorate-General for Climate Action. Available at: https://climate.ec.europa.eu/climate-change/consequences-climate-change_en (Accessed: January 28, 2023).
- xxiii. Fernández, I., & Castillo-Eguskitza, N. (2021). A holistic approach to integrate and evaluate sustainable development in higher education. The case study of the University of the Basque Country. *Sustainability*, 13(1), 392.
- xxiv. Folke, C., Polasky, S., Rockström, J., Galaz, V., Westley, F., Lamont, M., ... & Walker, B. H. (2021). Our future in the Anthropocene biosphere. *Ambio*, 50, 834–869
- xxv. Gbejewoh, O., Saskia, K., & Erna, B. (2021). "The 3Ps (Profit, Planet, and People) of Sustainability amidst Climate Change: A South African Grape and Wine Perspective" *Sustainability* 13, no. 5: 2910. <https://doi.org/10.3390/su13052910>
- xxvi. Gebauer, R., Schönheit, A. L., & Rink, D. (2023). Education for Sustainable Development in Germany: Governance and Inter-Organizational Perspectives—A Discussion on Qualitative Research Regarding the Municipal Level. *Sustainability*, 15(2), 1030.
- xxvii. Ghani, S. (2020). CLIMATE CHANGE: AN ANALYSIS OF PRESENT SCENARIO IN J&K. *Human Rights in 21st Century: Issues & Emerging Trends*, 206.
- xxviii. Griggs, D., Stafford Smith, M., Rockstrom, J., Ohman, M. C., Gaffney, O., Glaser, G., Kanie, N., Noble, I., Steffen, W., & Shyamsundar, P. (2014). An Integrated Framework for Sustainable Development Goals. *Ecology and Society*, 19, 49.
- xxix. Hägglund, S., & Samuelsson, I. P. (2009). Early childhood education and learning for sustainable development and citizenship. *International Journal of Early Childhood*, 41, 49–63.
- xxx. Haipeter, T. (2020). Digitalisation, unions, and participation: the German case of 'industry 4.0'. *Industrial Relations Journal*, 51(3), 242–260.
- xxxi. Heloise, W. (2017). Politics of 'Leaving No One Behind': Contesting the 2030 Sustainable Development Goals Agenda, *Globalizations*, 14:3, 399–414. DOI: 10.1080/14747731.2016.1275404
- xxxii. Hogan, D., & O'Flaherty, J. (2022). Exploring the nature and culture of science as an academic discipline: implications for the integration of education for sustainable development. *International Journal of Sustainability in Higher Education*.
- xxxiii. Holmberg, J., & Sandbrook, R. (2019). Sustainable development: what is to be done? In *Policies for a small planet* (pp. 19–38). Routledge.

- xxxiv. Holmes, J., Moraes, O. R., Rickards, L., Steele, W., Hotker, M., & Richardson, A. (2022). Online learning and teaching for the SDGs—exploring emerging university strategies. *International Journal of Sustainability in Higher Education*, 23(3), 503–521.
- xxxv. Ibn-Mohammed, T., Mustapha, K. B., Godsell, J., Adamu, Z., Babatunde, K. A., Akintade, D. D., ... & Koh, S. C. L. (2021). A critical analysis of the impacts of COVID-19 on the global economy and ecosystems and opportunities for circular economy strategies. *Resources, Conservation and Recycling*, 164, 105169.
- xxxvi. Islam, M. S., & Zhang, Y. (2018). The potential of strategic environmental assessment to reduce disaster risks through climate change adaptation in the coastal zone of Bangladesh. *International Journal of Climate Change Strategies and Management*, 11(1), 137–153.
- xxxvii. Keddie, A. (2020). Schooling and social justice through the lenses of Nancy Fraser. *Nancy Fraser, Social Justice, and Education*, 40–56.
- xxxviii. Ki-moon B. (2012). *Global Education First Initiative*. Retrieved 16 July 2016, from: <http://www.globaleducationfirst.org/289.htm>
- xxxix. Kioupi, V., & Voulvoulis, N. (2019). Education for sustainable development: A systemic framework for connecting the SDGs to educational outcomes. *Sustainability*, 11(21), 6104.
- xl. Klemichen, A., Peters, I., & Stark, R. (2022). Sustainable in action: from intention to environmentally friendly practices in makerspaces based on the theory of reasoned action. *Frontiers in Sustainability*, 2, 675333.
- xli. Lal, R., Bouma, J., Brevik, E., Dawson, L., Field, D. J., Glaser, B. & Zhang, J. (2021). Soils and sustainable development goals of the United Nations: An International Union of Soil Sciences perspective. *Geoderma Regional*, 25, e00398.
- xlii. Larivière, B. & Smit, E.G. (2022), "People–planet–profits for a sustainable world: integrating the triple-P idea in the marketing strategy, implementation, and evaluation of service firms," *Journal of Service Management*, Vol. 33 No. 4/5, pp. 507–519. <https://doi.org/10.1108/JOSM-01-2022-0033>
- xlili. Laumann, F., von Kügelgen, J., Uehara, T. H. K., & Barahona, M. (2022). Complex interlinkages, key objectives, and nexuses among the Sustainable Development Goals and climate change: A network analysis. *The Lancet Planetary Health*, 6(5), e422–e430.
- xliv. Lawrence, A. W. (2018). Towards better performance in achieving sustainable development goals in Nigeria. *International Journal of Developing and Economic Sustainability*, 6(3).
- xlv. Lawrence, A. W. (2018). *Some Governance and Peaceful Coexistence Issues for Sustainable Advancement: A Nigerian Perspective* (2nd ed.). T&D Press Ltd.
- xlvi. Lawrence, A., Ihebuzor, N. and Lawrence, D. (2020) Macro-Level Studies of Direct and Indirect Relationships between SDG 4 and the 16 SDGS. *Modern Economy*, 11, 1176–1194. doi: 10.4236/me.2020.116085.
- xlvii. Lawrence, A.W., Ihebuzor, N. & Lawrence, D. O. (2020). Comparative Analysis of Alignments between SDG16 and the Other Sustainable Development Goals. *International Business Research*, 13(10). DOI: <https://doi.org/10.5539/ibr.v13n10p13>
- xlviii. Lawrence, A.W., Ihebuzor, N. & Lawrence, D. O. (2020). Some challenges militating against developing countries achieving SDG 4 on targets: Nigeria as a case study. *Modern Economy* > Vol.11 No.7, July 2020. <https://www.scirp.org/journal/paperinformation.aspx?paperid=101621>
- xlx. Leicht, A., & Byun, W. J. (2021). UNESCO's Framework ESD for 2030: An Ambitious New Initiative for Massive Transformation. In *Curriculum and Learning for Climate Action* (pp. 89–103). Brill.
- l. Ma, G., Shi, W., & Hou, P. (2023). Exploring University Teacher Construction for Higher Education Sustainability in China: Perspective from Policy Instruments. *Sustainability*, 15(1), 362.
- li. Maes, M. J., Jones, K. E., Toledano, M. B., & Milligan, B. (2019). Mapping synergies and trade-offs between urban ecosystems and sustainable development goals. *Environmental science & policy*, 93, 181–188.
- lii. Maiwald, V. (2023). Frameworks of sustainability and sustainable development in a spaceflight context: A systematic review and critical analysis. *Acta Astronautica*.
- liii. Manasia, L., Ianos, M. G., & Chicioreanu, T. D. (2019). Pre-service teacher preparedness for fostering education for sustainable development: An empirical analysis of central dimensions of teaching readiness. *Sustainability*, 12(1), 166.
- liv. Manasia, Ianos, and Chicioreanu (2019): Pishghadam, Derakhshan, Zhaleh, and Al-Obaydi (2021) opined on knowledge, skills, and willingness as teaching dimensions.
- lv. Marselle, M. R., Stadler, J., Korn, H., Irvine, K. N., & Bonn, A. (2019). *Biodiversity and health in the face of climate change* (p. 481). Springer Nature.
- lvi. Martínez-Acosta, M., Membrillo-Hernández, J., & Cabañas-Izquierdo, M. R. (2022). Sustainable Development Goals through Challenge-Based Learning Implementation in Higher Education—Education for Sustainable Development (ESD). In *The Emerald Handbook of Challenge Based Learning* (pp. 281–299). Emerald Publishing Limited.
- lvii. Mawonde, A., & Togo, M. (2019). Implementation of SDGs at the University of South Africa. *International Journal of Sustainability in Higher Education*.
- lviii. Mendoza, N. B., Yan, Z., & King, R. B. (2023). Supporting students' intrinsic motivation for online learning tasks: The effect of need-supportive task instructions on motivation, self-assessment, and task performance. *Computers & Education*, 193, 104663.

- lix. Meisam, R., Zahra S. E, Maria, C. Z, Simone, D. S, Peer-Olaf, S., Mortaza, A., Wanxi, P., Francesco, Q., & Meisam, T. (2021). Three pillars of sustainability in the wake of COVID-19: A systematic review and future research agenda for sustainable development, *Journal of Cleaner Production*, Volume 297, 126660, ISSN 0959-6526. <https://doi.org/10.1016/j.jclepro.2021.126660>.
- lx. Munaweera, T. I. K., Jayawardana, N. U., Rajaratnam, R., & Dissanayake, N. (2022). Modern plant biotechnology as a strategy for addressing climate change and attaining food security. *Agriculture & Food Security*, 11(1), 1-28.
- lxi. Nilsson, M., Griggs, D., & Visbeck, M. (2016). Policy: Map the interactions between Sustainable Development Goals. *Nature*, 534, 320-322.
- lxii. Niestroy, I. (2019). The 2030 Agenda for Sustainable Development in the EU and Its Member States: Analysis and Action So Far; 2016. DIE Discussion Paper 2016/9. 2016. Available online: https://www.die-gdi.de/uploads/media/DP_9.2016.pdf (accessed on 20 February 2019).
- lxiii. Ogunsola, O.E, Araromi, O.I. and Adeshina, O.A. (2018) Studies on Students' Awareness of Climate Change Education in Nigeria: A Case Study of the University of Ibadan. *Journal of Emerging Trends in Educational Research and Policy Studies (JETERAPS)* 9(6): 251-257.
- lxiv. Pishghadam, R., Derakhshan, A., Zhaleh, K., & Al-Obaydi, L. H. (2021). Students' willingness to attend EFL classes with respect to teachers' credibility, stroke, and success: a cross-cultural study of Iranian and Iraqi students' perceptions. *Current Psychology*, 1-15.
- lxv. Pörtner, H. O., Roberts, D. C., Adams, H., Adler, C., Aldunce, P., Ali, E., & Ibrahim, Z. Z. (2022). *Climate change 2022: Impacts, adaptation, and vulnerability* (p. 3056). Geneva, Switzerland: IPCC.
- lxvi. Purvis, B., Mao, Y. & Robinson, D. Three pillars of sustainability: in search of conceptual origins. *Sustain Sci* 14, 681-695 (2019). <https://doi.org/10.1007/s11625-018-0627-5>
- lxvii. Raworth, K. *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist*; Chelsea Green Publishing: White River Junction, VT, USA, 2017.
- lxviii. Riley, K., Wilhalme, H., Delp, L., & Eisenman, D. P. (2018). Mortality and morbidity during extreme heat events and prevalence of outdoor work: an analysis of community-level data from Los Angeles County, California. *International journal of environmental research and public health*, 15(4), 580.
- lxix. Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F.S., III, Lambin, E., Lenton, T., Scheffer, M., Folke, C., & Schellnhuber, H.J. (2009). Planetary boundaries: Exploring the safe operating space for humanity. *Ecol. Soc.*, 14, 2.
- lxx. Santos, A. S., Ribeiro, S. K., & de Abreu, V. H. S. (2020). Addressing Climate Change in Brazil: Is Rio de Janeiro City acting on adaptation strategies? In *2020 International Conference and Utility Exhibition on Energy, Environment and Climate Change (ICUE)* (pp. 1-11). IEEE.
- lxxi. Scherak, L., & Rieckmann, M. (2020). Developing ESD competencies in higher education institutions—Staff training at the University of Vechta. *Sustainability*, 12(24), 10336.
- lxxii. Sharpley, R. (2020). Tourism, sustainable development, and the theoretical divide: 20 years. *Journal of sustainable tourism*, 28(11), 1932-1946.
- lxxiii. Simone (2022) The 4 Pillars of Sustainability Explained (Sustainability Success) <https://sustainability-success.com/four-pillars-of-sustainability/>
- lxxiv. Stafford-Smith, M., Griggs, D., Gaffney, O., Ullah, F., Meyers, B., Kanie, N., Stigson, B., Shrivastava, P., Leach, M., & O'Connell, D. (2017). Integration: The key to implementing sustainable development goals. *Sustain. Sci*, 12, 911-919.
- lxxv. The World in 2050 (TWI2050). A Global Research Initiative in Support of a Successful Implementation of the United Nations 2030 Agenda. Brochure, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria. Available online: http://www.iiasa.ac.at/web/home/research/twi/TWI2050_brochure.pdf (accessed on 20 February 2019).
- lxxvi. Thomas, K., Hardy, R. D., Lazrus, H., Mendez, M., Orlove, B., Rivera-Collazo, I. & Winthrop, R. (2019). Explaining differential vulnerability to climate change: A social science review. *Wiley Interdisciplinary Reviews: Climate Change*, 10(2), e565.
- lxxvii. Tremblay, D, Fortier, F, Boucher, J-F, Riffon, O, & Villeneuve, C. (2020). Sustainable development goal interactions: An analysis based on the five pillars of the 2030 agenda. *Sustainable Development*. 28: 15841596. <https://doi.org/10.1002/sd.2107>
- lxxviii. United Nations (UN). (2012). *Remarks on launch of Education First Initiative*. New York: UN. Retrieved 16 July 2016, from http://www.un.org/apps/news/infocus/sgspeeches/search_full.asp?statID=1676
- lxxix. United Nations Educational, Scientific and Cultural, Organization (UNESCO). (2000). *The Dakar Framework for Action*. Paris: UNESCO. Retrieved 16 July 2016, from: <http://unesdoc.unesco.org/images/0012/001211/121147e.pdf>
- lxxx. United Nations Educational, Scientific and Cultural, Organization (UNESCO). (2004). *The quality imperative: Education for all global monitoring report 2005*. Paris: UNESCO.
- lxxxi. United Nations Educational, Scientific and Cultural, Organization (UNESCO). (2005). *Contributing to a more sustainable future: Quality education, life skills, and education for sustainable development*. Paris: UNESCO. Retrieved 16 July 2016, from <http://unesdoc.unesco.org/images/0014/001410/141019e.pdf>

- lxxxii. United Nations Educational, Scientific and Cultural, Organization (UNESCO). (2012a). *The education for sustainable development sourcebook*. Education for Sustainable Development in Action, Learning and Training Tools No. 4. Paris: UNESCO. Retrieved 16 July 2016, from: <http://unesdoc.unesco.org/images/0021/002163/216383e.pdf>
- lxxxiii. United Nations Educational, Scientific and Cultural, Organization (UNESCO). (2012b). *Exploring sustainable development: A multiple perspective approach*. ESD in Action, Learning and Training Tools No. 3. Paris: UNESCO. Retrieved 16 July 2016, from: <http://unesdoc.unesco.org/images/0021/002154/215431e.pdf>
- lxxxiv. United Nations Educational, Scientific and Cultural, Organization (UNESCO). (2012c). *Shaping the education of tomorrow: 2012 report on the UN Decade of Education for Sustainable Development* (Abridged). Retrieved 16 July 2016, from: <http://unesdoc.unesco.org/images/0021/002166/216606e.pdf>
- lxxxv. United Nations Educational, Scientific and Cultural, Organization (UNESCO). (2014). *Roadmap for implementing the global action programme on education for sustainable development*. Paris: UNESCO. Retrieved 16 July 2016, from: <http://unesdoc.unesco.org/images/0023/002305/230514e.pdf>
- lxxxvi. United Nations. (2022) *Delivering for people and the planet, Climate Action*. Conference of the Parties. Available at: <https://www.un.org/en/climatechange/cop27> (Accessed: January 28, 2023).
- lxxxvii. United Nations (2022) Global Week to #ACT4SDGs <https://act4sdgs.org/>
- lxxxviii. University Global Coalition 2023, SDG Action and Awareness Week <https://universityglobalcoalition.org/sdgactionweek/>
- lxxxix. Weber, H. (2017). Politics of 'leaving no one behind': contesting the 2030 Sustainable Development Goals agenda. *Globalizations*, 14(3), 399–414.
- xc. Yang, J., Li, H., Campbell, D., & Jia, Y. (2015). Go-ICP: A globally optimal solution to 3D ICP point-set registration. *IEEE transactions on pattern analysis and machine intelligence*, 38(11), 2241–2254.
- xc. Zameer, H., Wang, Y., & Yasmeen, H. (2020). Reinforcing green competitive advantage through green production, creativity, and green brand image: implications for cleaner production in China. *Journal of cleaner production*, 247, 119119.
- xcii. Zhang, T., Shaikh, Z. A., Yumashev, A. V., & Chład, M. (2020). Applied model of E-learning in the framework of education for sustainable development. *Sustainability*, 12(16), 6420.
- xciii. Zamora-Polo, F., & Sánchez-Martín, J. (2019). Teaching for a better world. Sustainability and sustainable development goals in the construction of a change-maker university. *Sustainability*, 11(15), 4224.