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Three Pillars of Sustainable Development: Challenges versus Achievements

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Abstract

This study provides an in-depth exploration of the challenges and achievements associated with the three pillars of sustainable development, namely economic growth, social equity, and environmental protection. Utilizing qualitative research designs, along with the utilization of secondary sources and data collection techniques, this study aims to offer a comprehensive and scholarly understanding of the intricate dynamics inherent in these pillars. Drawing upon an extensive array of scholarly articles, and reports from reliable secondary sources, this research identifies and critically analyzes the salient challenges prevailing within each pillar. This study delves into the nuanced experiences and perspectives of diverse stakeholders engaged in sustainable development initiatives globally. This encompasses a comprehensive assessment of key indicators pertaining to poverty reduction and social equity, ecological preservation, and the implementation of sustainable economic practices. This paper could contribute to an empirically grounded and academically rigorous analysis of the challenges encountered and the accomplishments realized in the domain of sustainable development.

Keywords: Sustainability, social development, economic growth, environmental protection, sustainable development

Introduction

Sustainable development is the systematic plan and process of achieving development goals for the present and future as in various dimensions, by considerable utilization of available resources in ecological system to address social well-being and economic growth. A long-term strategy with a particular structure that aims to maintain social cohesion, and economic growth with viable and responsible utilization of environmental resources is sustainability. In 1987, Brundtland Commission; in an effort to balance

economic development and environmental sustainability published its report '*Our Common Future'*. This report provided the definition which is often cited of sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Borowy, 2013).

The three pillars of sustainable development are popularly known as ecological, social and economic. These pillars are interconnected and mutually reinforcing. They recognize that environmental, social, and economic considerations are interconnected and essential for achieving sustainable development. First, environmental sustainability involves practices that aim to reduce the negative impact on the environment, conservation of available biodiversity, and maintain the natural environment. Second, social sustainability addresses the well-being of individuals and communities, encompassing efforts to create equitable and just societies that provide opportunities, protect human rights, and foster social cohesion. And, third, economic sustainability centers on responsible growth of an economy that supports long-term prosperity. It involves practices that promote economic growth while considering the social and environmental impacts.

Unfortunately, although there is near unanimity in its theorization, sustainability and sustainable development have proven especially difficult to define. If these terms are to escape becoming the empty "buzzwords" of the late 1980s, careful thought must be given to clarifying their exact meaning or alternate meanings; only in that way can they be useful as a touchstone for sound policymaking. Undoubtedly, we favor a socio-economic definition of sustainability one that revolves around social and economic well-being for the present generation and retention of future options for our children. Further debate may not settle the question of what sustainability is, but it certainly will help all who are involved to understand what is at issue (Dixon et al., 1989).

Methods and Materials

The major objective of the paper is to explore the interconnection of social, economic and environmental aspects of sustainability as well as to explore and analyze the challenges and achievement of sustainable development. The study employed mixed-method research to overview the challenges and achievement of sustainable development with three pillars of sustainability. The research methodology involved an extensive review and analysis of existing secondary sources. This approach allowed for a comprehensive synthesis of knowledge and insights from a wide range of studies conducted in the field.

The secondary sources were selected based on their relevance to the research topic and objectives. The data extraction process involved identifying key concepts, theories, empirical findings and arguments. The analysis of the secondary data encompassed a thematic synthesis approach. The accuracy and reliability of the information depend on the rigor and credibility of the studies reviewed.

Discussion and Analysis

In this section, a discussion and analysis of the literature through an in-depth review of scholarly articles and reports, exploring the interrelationships and challenges as well as their implications for achieving sustainable development is executed. The discussion below is about the sets of achievements and challenges associated with each pillar of sustainability, along with relevant data that highlight the magnitude and urgency of addressing these issues for obtaining sustainable development globally.

Theoretical Review

Several studies have investigated and conceptualized, theorized and criticized the concept and practice of three pillars of sustainability. However, many of the existing studies focus primarily on developed countries, leaving a gap in understanding the specific challenges,

opportunities and achievement of sustainable development in developing regions.

The Brundtland Report was drawn up as part of the UN World Commission on Environment and Development in 1987. This over 300-page document aimed to shape national policies and sets out the key measures to be integrated in order to protect the planet and human life. Although this report on the technological process of sustainable development is titled, "Our Common Future", it is often referred to as the "*Brundtland Report*" after Gro Harlem Brundtland, Prime Minister of Norway at the time and Chair of the commission. The concept of sustainable development was explained in depth in this report through the discussion of climate change, economic development, and global goals that should be implemented in order to achieve sustainable development (Safdie, 2023).

The 'social' perspective concerns itself with the continued satisfaction of basic human needs of individuals, the 'ecological' focuses on the continued productivity and functioning of ecosystems as well as the protection of genetic resources and the conservation of biological diversity, and the 'elusive economic' definition entails resolving the limitations that a sustainable society must place on economic growth (Brown et al., 1987).
Hancock (1993) approaches a three-pillar model in efforts to consider issues of 'health' alongside sustainable communities. Hancock argues for a shift in focus from economic development to a system of economic activity that enhances human development while being environmentally and socially sustainable. A 'Venn diagram' model is presented of health, or 'human development', being the confluence of three systems which meet several requirements: a 'community' which is 'convivial', an 'environment' which is 'viable', and 'livable' with respect to the community, and an economy which is 'adequately prosperous', 'equitable' with respect to the community, and 'sustainable' with respect to the environment. Superficially, this model is remarkably similar to contemporary models of the three pillars, but it presents the economy as

'subservient' to the community and environment, rather than as an entity with which trade-offs must be made (Purvis et al., 2018).

System Thinking

System thinking in practice encourages us to explore inter-relationships (context and connections), perspectives (each actor has their own unique perception of the situation) and boundaries (agreeing on scope, scale and what might constitute an improvement). System thinking is particularly useful in addressing complex or wicked problem situations. These problems cannot be solved by any one actor, any more than a complex system can be fully understood from only one perspective. Moreover, because complex adaptive systems are continually evolving, system thinking is oriented towards organizational and social learning – and adaptive management (Learning for Sustainability, n.d.).

Two inter-linked initiatives led by systems thinking practitioners in the field of sustainability science are reported; one is an action research inquiry exploring the praxis (theory-informed-action) challenges of applying systems thinking in practice in contemporary workplaces ranging from in-field development projects to government administrations and business ventures, and another which built on the findings from this inquiry—a proposal for developing an action-learning platform for SDG implementation. Experience suggests that implementing SDGs requires not only competence in systems thinking but a capability of putting systems thinking into practice in a dynamic way, as praxis. This platform aims to be co-designed with multi-agency practitioners from international development, government planning, business/social enterprise and NGOs. The proposed platform draws on open-source resources, and ideas of social learning, developmental evaluation and systems thinking in practice traditions (Reynolds et al., 2018).

The Three-Legged Stool

In fact, sustainable development, in some of its earlier iterations, was and in some cases is still depicted as a three-legged stool, i.e., with the environment, the economy, and society as the legs. This model treats each

of the three pillars as separate and equal entities. The underlying conceptualization of the stool is that if any leg is less important (shorter) or missing the stool will be unstable. However, if all three legs are of the same length or each pillar being given equal weight, then the result will be a balanced stool that will support sustainable development. This is sometimes referred to as the "Three E's balance rule": Environment, Equity, and Economy (SOGESID, n.d.)

Resilience theory

The term "resilience" originated in the 1970s in the field of ecology from the research of C.S. Holling, who defined resilience as "a measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables". Whilst analyzing the behavior of ecological systems, Holling suggested that this behavior could be best defined through two distinct properties: resilience and stability. "Resilience determines the persistence of relationships within a system and is a measure of the ability of these systems to absorb changes of state variables, driving variables, and parameters, and still persist.

In this definition, resilience is the property of the system and persistence or probability of extinction is the result. Stability, on the other hand, is the ability of a system to return to an equilibrium state after a temporary disturbance. The more rapidly it returns, and with the least fluctuation, the more stable it is. Similarly, stability is the property of the system and the degree of fluctuation around specific states the result (Pisano, 2012).

Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs) are a set of 17 interconnected goals adopted by the United Nations in 2015. They provide a comprehensive framework for global development that integrates the three pillars of sustainability: environmental, social, and economic. The goals are designed to be interrelated and mutually reinforcing, emphasizing the need to address environmental, social, and economic challenges together for a sustainable future (United Nations, n.d.).

Goal 7 Affordable and Clean Energy (Environmental) focuses on promoting access to affordable, reliable, sustainable, and modern energy for all. Similarly, Goal 12 Responsible Consumption and Production (Environmental and Economic) emphasizes sustainable consumption and production patterns. Goal 5 Gender Equality (Social) aims to achieve gender equality and empower all women and girls. While it primarily addresses social aspects, it recognizes the importance of gender equality in achieving sustainable development. Promoting gender equality is essential for social progress, economic development, and environmental sustainability. Goal 8 Decent Work and Economic Growth (Social and Economic) promotes sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all. Goal 13 Climate Action (Environmental) addresses the urgent need to combat climate change and its impacts. It focuses on taking actions to mitigate greenhouse gas emissions, build resilience to climate-related hazards, and promote sustainable practices that contribute to environmental sustainability. Goal 16 Peace, Justice, and Strong Institutions (Social) emphasizes the importance of peaceful and inclusive societies, access to justice, and effective institutions.

Global Achievements of three-pillar sustainability

Social Sustainability: According to the World Bank, the global extreme poverty rate fell to 9.2% in 2017, down from 36% in 1990. The Global Gender Gap Report 2020 by the World Economic Forum estimated that it will take 99.5 years to achieve gender parity globally based on current trends. The World Health Organization (WHO) reported that global life expectancy increased from 66.8 years in 2000 to 73.3 years in 2019.

Economic Sustainability: Renewable energy adoption: According to the International Renewable Energy Agency (IRENA), global renewable energy capacity increased by 261 GW in 2020, reaching a total of 2,799 GW. Circular economy practices: The Ellen MacArthur Foundation estimated that circular economy initiatives could generate $4.5 trillion in economic benefits by 2030. Economic diversification: Various countries have implemented policies to diversify their economies. For example as

World Bank's estimation, the UAE has focused on non-oil sectors, with non-oil GDP contribution increasing from 41.5% in 2001 to 70.6% in 2019.

Environmental Sustainability: Conservation and restoration of ecosystems: The United Nations Environment Program (UNEP) reported that 17 countries have committed to restoring over 1 billion hectares of degraded land under the Bonn Challenge, a global effort for forest landscape restoration. Climate action: According to the International Energy Agency (IEA), in 2020, renewable energy sources accounted for approximately 29% of global electricity generation, helping to reduce CO2 emissions by around 2.6 giga tonnes. The Food and Agriculture Organization (FAO) estimated that as of 2020, organic agricultural land covered over 72 million hectares globally, representing a 2.1% increase compared to the previous year.

Achievements of Goals of SDGs

According to the 2021 edition of Reporting Matters, published every year by the World Business Council for Sustainable Development (WBCSD), among 168 leading global companies (all members of the WBCSD), 90% of them acknowledged the SDGs in some way in their corporate sustainability reporting. 35% of them prioritize from 5 to 8 Goals to focus on, and 10% reference 12 or more goals (out of 17 goals). The most commonly referenced Goals are 13: Climate Action (85%), 12: Sustainable Cities and Communities (73%), and 8: Decent Work and Economic Growth (67%). Unfortunately, COVID-19 has led to the first rise in extreme poverty in a generation. An additional 119 to 124 million people were pushed back into extreme poverty in 2020 (Apiday, 2023).

In Nepal, the National Planning Commission, Ministry of Forests and Environment at the Federal Government, Central Bureau of Statistics, and 7 Provincial Governments are found to be working as key actors in making policies, and development practices and preparing statistical data regarding sustainability in development. Some other supporting organizations are the Federation of Nepalese Chamber of Commerce (FNCCI), Confederation of Nepalese Industries (CNI), Chamber of Commerce and Industry,

Federation of Nepal Cottage and Small Industries (FNCSI), Small and Medium Enterprises, National Cooperative Federation of Nepal, various Civil Society Organizations and also, Public Enterprises. Also, sustainable development is funded by different INGOs and other international organizations.

Global Challenges regarding three pillars of sustainability

Challenges regarding environmental sustainability :

There is the challenge of mitigating and adapting to climate change, reducing greenhouse gas emissions, and transitioning to a low-carbon economy. As reported in its 2021 report namely The Physical Science Basis by the Intergovernmental Panel on Climate Change (IPCC), global carbon dioxide (CO2) emissions from human activities reached 36.4 billion metric tons in 2019, contributing to a concentration of CO2 in the atmosphere that is unprecedented in at least the past 800,000 years (IPCC, 2019). Also, the challenge of preserving ecosystems, halting deforestation, and addressing the loss of biodiversity due to habitat destruction, pollution, and unsustainable resource extraction also exists. The Food and Agriculture Organization (FAO) estimates that the world's forest area decreased by 178 million hectares between 1990 and 2020, equivalent to the loss of approximately 420 million acres of forest. (FAO, 2020). Similarly, there is the challenge of managing finite resources sustainably, reducing waste generation, and promoting circular economy practices. The World Bank reports that global waste generation is expected to increase by 70% from 2016 to 2050, reaching 3.4 billion metric tons per year, placing pressure on landfills, natural resources, and ecosystems (World Bank, n.d.).

Challenges regarding social sustainability

The challenge of reducing poverty and addressing social inequalities to ensure inclusive and equitable development prevails. According to the World Bank, as of 2019, approximately 9.2% of the global population (around 689 million people) lived in extreme poverty, surviving on less than $1.90 per day (World Bank, 2019). The challenge of providing quality education and healthcare services to all, including marginalized

communities and remote areas dwells. UNESCO estimates that as of 2020, around 258 million children and youth were out of school, with significant disparities based on gender, income, and location. (UNESCO, 2020).
The challenge of promoting gender equality, empowering women, and ensuring the inclusion of marginalized groups in decision-making processes and development initiatives exists. The World Economic Forum's Global Gender Gap Report 2021 estimates that at the current pace, it will take approximately 135.6 years to close the global gender gap across various dimensions, including economic participation and political empowerment (WEF, 2021).

Challenges related to economic efficiency and sustainability

The challenge of achieving economic growth that is socially inclusive, environmentally sustainable, and resilient to external shocks, the International Monetary Fund (IMF) projects that the global economy contracted by 3.5% in 2020 due to the COVID-19 pandemic, highlighting the vulnerability of economies to unforeseen crises (IMF, 2020). The challenge of reducing income disparities and ensuring that economic benefits are shared equitably among different segments of society, Oxfam reports that the wealth of the world's billionaires increased by $3.9 trillion between March 2020 and December 2020, while millions of people experienced job losses and economic hardships during the pandemic (Oxfam, 2020). Moreover, the challenge of promoting responsible and sustainable business practices, including corporate social responsibility, ethical supply chains, and sustainable production and consumption patterns dwells. The Global Reporting Initiative (GRI) reports that as of 2020, around 73% of the world's largest companies disclose their sustainability performance, indicating an increasing awareness and integration of sustainability practices in the corporate sector (GRI, 2020).

Challenges of Sustainable Development Goals (SDGs) in Nepal:

As reported by the National Planning Commission (NPC) in its baseline report of 2017, the following are the major issues and challenges in SDGs Implementation in Nepal are discussed as follows. SDGs are comprehensive, ambitious and challenging goals and require huge

resources as well as capacity enhancement to achieve them in 15 years' time. As SDGs are not stand-alone goals, the achievement of one goal has implications for the achievement of several other goals. Once the SDGs are tailored in the periodic plans and annual budgets, there is a need for an annual budget audit from the SDG's perspectives. While developing a framework for such an audit is critical, a designated agency for the task has to be put in place. Although SDGs are equally important, indivisible, and common for all countries, their priorities are country-specific, depending upon the level, gaps and structure of development. Priority, being a relative and not an absolute term, implies that prioritization should be done in ranks such as priority one, priority two and priority three. There is no defined way to prioritize them by goals or sectors.

As the localization of SDGs at the Provincial and Local Government levels is critical for the universal, equitable and inclusive outcome of sustainable development efforts, it is equally important to have a political setup at those levels willing and capable of handling the development agenda in an effective manner. Containing inequality through market-based policy instruments would be a formidable task; and unless pro-poor growth policies and interventions along with strong distributive measures are put in place. As the SDGs encompass a diverse set of outputs and activities, they can be financed by multiple sources. The government can finance them through public investment program at all levels. Households, who can afford, can finance them in the form of out-of-pocket expenses. The non-government organizations, cooperatives and community sectors can finance some of the SDGs through resource mobilization at the community level. The private sector can mobilize equity and debt from the domestic market as well as through Foreign Direct Investment (FDI) for financing the SDGs which could be implemented in the business model. SDG 17 has clearly mentioned about enhancing international support for implementing effective and targeted capacity-building in developing countries, but international support must be led and reinforced

by the national government so that capacity constraints do not impede the achievement of SDGs despite commitments, resource availability and willingness to carry forward the agenda.

There is also a huge difference between government-recorded data and those compiled by non-government organizations. This is particularly the case with violence, crime, human trafficking, violation of human rights, etc. The data revolution taking place due to technological changes, the evolution of big data and the growing trend of open data systems is yet to evolve. Moreover, the socio-economic shock of COVID-19 has caused unprecedented disruption in transportation, the service sector, tourism, the hospitality industry, revenue, and remittances. The fallout will be in the areas of income, poverty, employment, and economic growth, while the existing financing gap widens. This is sure to have a bearing on Nepal's ambition for smooth and sustainable graduation from the LDC category. Other prominent challenges include localization of SDGs, lack of adequate data, and coordination and follow-up. Therefore, closer cooperation, coherence and coordination among governments, development partners, civil society, business community, volunteers, and people will be critical. Enhanced level of global partnership is equally important (UN, 2020).

With all these challenges, alongside world has been practicing the sustainable development context in most of the development policies and systems of change. However, the analysis of the achievement of sustainable development despite prevailing risk factors and the number of challenges are as discussed above.

Conclusion

The study demonstrates the urgent need to address environmental challenges and reveals alarming trends of resource depletion, habitat destruction, and climate change. These issues have far-reaching consequences for ecosystems, biodiversity, and human well-being. It showcases the positive impact of sustainable practices on the environment. Studies indicate that adopting renewable energy sources, reducing

greenhouse gas emissions, and implementing eco-friendly waste management systems can lead to significant environmental improvements. Sustainable investments, such as green technologies and responsible supply chains, have shown positive returns and contributed to economic growth. The data underscores the importance of creating an enabling policy environment that encourages sustainable practices and holds organizations accountable. Consumers are increasingly considering sustainability factors, such as environmental impact and ethical practices, in their purchasing decisions. This trend presents opportunities for businesses to align their offerings with consumer preferences and capture new markets. Partnerships between governments, businesses, civil society, and academia have proven effective in driving sustainability initiatives.

The paper reaffirms the critical importance of sustainability in addressing global economic, environmental, and social challenges. The need for sustainable practices, policy interventions, collaboration, and informed decision-making by integrating sustainability into all aspects of society, a more resilient, equitable, and prosperous future for generations can be created.

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