

Preface to Transitioning to Climate Action

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1. Introduction

Sustainable development is one of the most essential avenues used by countries worldwide to address a multitude of problems such as poverty, hunger, food insecurity, poor education and healthcare outcomes, gender inequality, and limited access to clean water and an affordable source of energy (UNDP n.d.a). Through the concept of sustainable development, these problems have been addressed throughout the literature by scholars such as Strezov et al. (2016) by assessing the social, economic, and environmental dimensions of sustainable development using various tools, such as indices like the Human Development Index (HDI), to provide a holistic and innovative solution to these problems, while harmonizing these dimensions. Sustainable development would not only have significant environmental benefits such as supporting countries to preserve and manage their natural resources more efficiently but also foster the continued manifestation of economic benefits such as supporting vulnerable communities to build their local economic development, and domestic economies to become more innovative by investing (Abrahams 2005). These investments would not only stimulate economic growth and increase productivity, but also reduce operating costs while improving efficiency and profitability.

One of the global problems that threatens to disrupt the mission of sustainable development is that of climate change, where the latter has become one of the most defining issues of the 21st century, as the continuous shift in climate change patterns, demonstrated by rising temperatures and sea levels, as well as amplified storms, has led to the frequent prevalence of catastrophic natural disasters (NOAA-NCEI 2025). This, in turn, has exacerbated the existing vulnerabilities of communities, particularly those in Small Island Developing States (SIDSs) and resource-poor developing countries, pushing them into deeper levels of extreme poverty, as it has threatened to become the main cause of mass malnutrition, famine, social exclusion, and displacement, as well as socio-economic and political instability (WB 2023; Singh et al. 2024).

As the world continues to experience record-breaking changes in climate patterns and extreme natural disasters, countries must begin taking proactive steps towards addressing their role in these events by reducing their carbon footprint and taking responsibility for the negative implications of these events for the challenges

of sustainable development. As Anukwonke et al. (2022) argue, if climate change outcomes are not addressed, they can lead to economic hardship across generations, perpetuating cycles of intergenerational poverty and inequality.

2. Moving Towards Climate-Conscious Solutions

Considering the potential adverse effects of climate change on the lives and livelihoods of future generations, climate action is explicitly addressed in the United Nations' Sustainable Development Goal 13 (UN n.d.a). This goal is one of the 17 Sustainable Development Goals (SDGs) established during the United Nations' (UN's) Conference on Sustainable Development held in Rio de Janeiro, Brazil, in 2012 (UN n.d.a). These goals were later adopted by all UN member states in 2015 at the UN Summit in New York, United States, and enforced in 2016 as part of the 2030 Agenda for Sustainable Development, which aims to address a multitude of problems experienced by the most vulnerable in society such as poverty, food insecurity, the adverse effects of climate change, disparities in healthcare, political instability, and inequality (UNDP n.d.b; UN n.d.b).

Goal 13 of the Sustainable Development Goals (SDGs) calls on all UN member countries to act against climate change and its negative effects. This goal emphasizes the urgent need for global collaboration to mitigate climate change's effects, adapt to its impacts, and promote sustainable practices using targeted objectives, whose intention is to strengthen resilience to and adaptive capacity for climate-related hazards, integrate climate change-related measures into national policies and planning, and improve education and awareness, human and institutional capacity for climate change mitigation, and adaptation (The Global Goals n.d.)

This book provides an in-depth analysis of studies related to Sustainable Development Goal 13 (SDG 13), which focuses on climate action, and explores its vital connections to several other Sustainable Development Goals. Through comprehensive research, this book underscores the critical need for effective strategies to mitigate climate change and adapt to its impacts, by highlighting the urgency of addressing the adverse consequences of climate change, such as increasing food insecurity, economic disparities, and social inequalities, all of which threaten progress in the interconnected SDGs (UNEP 2023).

By illustrating these complex interdependencies, this book advocates for integrated approaches that recognize and tackle the multifaceted challenges posed by climate change for sustainable development, as countries around the world are significantly off track to achieve the 2030 deadline for the SDGs. These studies, which go on to focus on climate action and its connection to other Sustainable

Development Goals (SDGs), are crucial for member countries in achieving their Sustainable Development Agenda. This is because (1) climate change events tend to have a global impact, often exceeding national boundaries, (2) the negative effects of climate change can hinder progress in other SDGs, potentially leading to intergenerational poverty, and (3) research on SDG 13 and its relationships with other SDGs can inspire the development of innovative solutions that can be implemented globally (Fuso Nerini et al. 2019).

3. Highlights

The chapters within this book contain a wide range of information related directly to SDG 13, as well as its connection to other SDGs. For this book, climate action is discussed, concerning specific problems such as poverty (SDG 1—No Poverty), food production (SDG 2—Zero Hunger), gender-based violence (SDG 5—Gender Equality), and renewable energy (SDG 7—Affordable and Clean Energy), as well as focusing exclusively on climate action (SDG 13) by the advancement of climate change policy reforms, the development of a climate uncertainty index, encouraging climate financing, and creating climate change action plans based on the use of Information and Communications Technology (ICT) and Industry 4.0-based technologies.

Some of the captivating highlights from different chapters of this book are as follows:

- Climate Action and No Poverty (SDG 1): Oluwadamilola Oyadeyi and Olajide Oyadeyi's discussion on Climate Change and Poverty Nexus: Trade-offs and Synergies between Poverty and Climate Action highlights how many vulnerable and marginalized groups are severely impacted by climate change events. They examine the trade-offs associated with various climate change mitigation and adaptation strategies and review potential synergies between climate-based action and poverty reduction. They focus on instances where climate-based initiatives have successfully reduced poverty and increased resilience to climate change.
- Climate Action and Zero Hunger (SDG 2): Anjana Atapattu and his colleagues' discussion on Best Agronomic Practices to Mitigate Transition of Climate Action reveals that techniques such as conservation agriculture, agroforestry, and diversification in farming not only act as windbreakers but also assist in isolating carbon dioxide and reduce water and sediment runoff. These practices, in turn, are found to enhance resilience to climate change variability.

- Climate Action and Gender Equality (SDG 5): Roshnie A. Doon, through her discussion on Climate Change-Induced Male Gender Based Violence (GBV) in the Caribbean, explains that while the GBV literature traditionally portrays women and girls as being the main victims of such abuse, men may also experience such violence during climate-related events. Adverse climate change events, such as extreme weather conditions, rising sea levels, and prolonged droughts, can significantly impact the lives of individuals. These events often victimize men, particularly those from vulnerable groups such as low-income communities in the Caribbean. As a result of these changes, many men in the Caribbean may find themselves displaced from their homes and livelihoods, facing increased hardships and challenges in seeking safety and stability during and after the occurrence of natural disasters. The intersection of gender and vulnerability highlights the urgent need for targeted support and intervention for those affected.
- Climate Action and Affordable and Clean Energy (SDG 7): Pascaline Nyirabuhoro and Jean Claude Ndayishimiye, in their chapter on Innovating for a Climate-Resilient World: Renewable Energy and Sustainable Technologies, discuss the importance of innovation in renewable energy and the role that it plays in achieving the SDGs, while mitigating climate change events.
- Climate Action (SDG 13): In this section, the authors highlight some of the most important aspects of climate action, such as climate financing, the development of climate action plans, and the use of Industry 4.0 technologies and ICT. Jawala Ramberran, in his chapter on Financing the Transition to the World's First Climate Resilient Country: The Case of Dominica, speaks about the importance of climate-related financing solutions for SIDSs such as Dominica that are resource-poor and have heavy debt burdens. Negin Fickowski and colleagues, in their chapter on Community-Oriented Climate Action Plan in a Mid-Sized Shoreline Municipality: A Canadian Case Study, show how the design and implementation of such plans are not only effective at reducing greenhouse gas emissions but are critical to bringing awareness to and educating coastal communities on the risk of climate change events. Finally, Sharon Tshipa and Letetia Addison together with their colleagues in their respective chapters demonstrate how (1) ICT can be used to educate communities about climate change mitigation and adaptation plans in the Okavango Delta, Botswana, and (2) Industry 4.0 technologies such as machine learning can be used to better understand public perceptions of climate change mitigation and adaptation plans in the Caribbean region.

4. Conclusions

As the world confronts a climate crisis, collections of articles like those presented in this book are essential, particularly because catastrophic storms, intense droughts, and severe wildfires tend to have a widespread impact, resulting in the need for urgent action. Further, given that climate change is a global challenge that requires a coordinated response from countries worldwide, there is a need to first enhance the resilience and adaptive capacity of countries through effective policy development and integration and second develop both technological and smart solutions to combat climate change. What makes this book unusual and worth reading is its ability to address such a global challenge of climate change from a multidisciplinary perspective.

This book puts forward several studies, from several countries from the Global South, such as Trinidad and Tobago, Dominica, Bangladesh, Botswana, Pakistan, and India, as well as the Global North, such as Canada. This book covers a broad range of research topics, including poverty, agriculture, gender-based violence, renewable energy, climate policy, climate financing, and climate change technologies. These topics are directly related to Sustainable Development Goal (SDG) 13 and demonstrate its interconnectedness with other SDGs. As a result, this book is of great interest to policymakers, researchers, scientists, activists, international organizations, and other key stakeholders who are actively engaged in supporting climate action and sustainable development.

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