

Advancing Sustainable Development Goals (SDGs) by 2036: Strengthening Policy, Driving Innovations, and Global Partnerships for a Sustainable Future

Zibele N. Nodangala¹, Bulelani Thukuse²

¹ Public Law Lecturer, Chairperson: Teaching and Learning, Faculty of Law, Humanities, and Social Sciences,
Walter Sisulu University, South Africa

² Faculty of Law, Humanities, and Social Sciences, Walter Sisulu University, South Africa

Article Info

Article history:

Received Sep, 2025

Revised Oct, 2025

Accepted Oct, 2025

Keywords:

Environmental Sustainability;
Global Cooperation;
Global Partnerships;
Innovation;
Renewable Energy;
Sustainable Development Goals

ABSTRACT

This paper examines the achievements and progress made in implementing sustainable development principles aimed at improving people's quality of life. It further highlights the pivotal roles of policy reform, innovation, and global partnerships in advancing a more environmentally sustainable and socially equitable future. Amid global challenges like climate change, inequality, and resource depletion, the SDGs provide a strategic framework for inclusive and transformative development. This study critically examines the progress made toward these global goals by evaluating the effectiveness of policy frameworks and technological innovations within selected institutions in South Africa, allowing for a comparative analysis of their roles in fostering sustainable economic, social, and environmental development. By analysing case studies from South Africa and Germany and drawing on international cooperation frameworks such as the UN SDG Partnerships Platform, this paper investigates how governments, businesses, and civil society can collaborate to accelerate the implementation of the Sustainable Development Goals (SDGs). This study places special emphasis on how renewable energy, sustainable agriculture, climate action, and social equity collectively contribute to fostering inclusive and equitable economic growth. Furthermore, the paper reviews emerging challenges such as the impacts of technological disruption, geopolitical conflicts, and rising inequalities, and proposes strategies for addressing these obstacles. Through a detailed review of global initiatives, regulatory mechanisms, and innovations driving sustainability, this study aims to contribute to the ongoing discourse on how to build a more resilient, equitable, and environmentally sustainable world by 2036.

This is an open access article under the [CC BY-SA](#) license.



Corresponding Author:

Name: Bulelani Thukuse

Institution: Faculty of Law, Humanities, and Social Sciences, Walter Sisulu University, South Africa

Email: 221380027@mywsu.ac.za

1. INTRODUCTION

The Sustainable Development Goals (SDGs), adopted by the United Nations in 2015, represent a universal call to action aimed at addressing the world's most pressing challenges.¹ As we approach the target date of 2036, the urgency of accelerating progress across all 17 goals has never been more pronounced. Liu et al discuss that while substantial strides have been made, the path to fully realising the SDGs remains fraught with complexities.² The intersection of climate change, rapid urbanisation, rising inequalities, and shifting global dynamics requires a multi-faceted approach that integrates policy reforms, technological innovations, and cross-border cooperation.³ Akpan argued that achieving a greener, more sustainable future by 2036 will require nations to adopt forward-thinking policies that prioritize both economic growth and environmental preservation.⁴

At the core of this vision lies the need for stronger global partnerships that bring together governments, businesses, civil society, and international organisations to address global challenges.⁵ These partnerships are essential not only for resource mobilisation but also for fostering knowledge sharing and technological innovation.⁶ The next decade offers a unique opportunity to rethink how we approach sustainability moving beyond isolated efforts

to more integrated, systemic solutions.⁷ From advancing renewable energy technologies to promoting inclusive education and reducing inequalities, there are numerous avenues for progress.⁸ Furthermore, Githui discusses that balancing these diverse goals will require political will, public engagement, and an unwavering commitment to equity and sustainability.⁹ This manuscript will attempt to examine the mechanisms and strategies needed to strengthen policy frameworks, drive innovation, and enhance global cooperation, providing a roadmap for realising the SDGs by 2036.

2. METHODOLOGY

This study adopted a qualitative research methodology to explore how policy, innovation, and global partnerships can be leveraged to advance the Sustainable Development Goals (SDGs) by 2036, with a particular focus on fostering a greener future. Qualitative research enables an in-depth, contextual analysis of complex socio-political and environmental issues, making it well-suited for examining the multifaceted nature of sustainable development. The primary methodological approach employed was desktop research, which involved the systematic review and analysis of secondary data sources. These included international and national policy documents, academic literature, sustainability reports, legal

¹ Hassani, Hossein, Xu Huang, Steve MacFeely, and Mohammad Reza Entezarian. "Big data and the United Nations sustainable development goals (UN SDGs) at a glance." *Big Data and Cognitive Computing* 5, no. 3 (2021): 28.

² Liu, Yali, Jianqing Du, Yanfen Wang, Xiaoyong Cui, Jichang Dong, Pan Gu, Yanbin Hao et al. "Overlooked uneven progress across sustainable development goals at the global scale: Challenges and opportunities." *The Innovation* 5, no. 2 (2024).

³ ESCAP, UN. "Inclusive subregional cooperation in East and North-East Asia for sustainable development." (2020).

⁴ Akpan, Joseph, and Oludolapo Olanrewaju. "Sustainable energy development: History and recent advances." *Energies* 16, no. 20 (2023): 7049.

⁵ The Global Goals-
<https://www.globalgoals.org/goals/17->

[partnerships-for-the-goals/](https://www.globalgoals.org/goals/17-partnerships-for-the-goals/)(Assessed 29 April 2025).

⁶The Global Goals-
<https://www.globalgoals.org/goals/17-partnerships-for-the-goals/>(Assessed 29 April 2025).

⁷ Sustainable Development
<https://sdgs.un.org/2030agenda>(Assessed 02 May 2025).

⁸ Sustainable Development
<https://sdgs.un.org/2030agenda>(Assessed 02 May 2025).

⁹Githui, Fredrick Kariithi, and Jane Wangari Njuru. "The role of public management in the achievement of sustainable development goals." *International Journal of Science and Business* 31, no. 1 (2024): 64-75.

frameworks, and case studies relevant to the SDGs. Key sources comprised United Nations publications, national development plans, climate policy frameworks, and innovation strategies.

3. DISCUSSION

3.1 Sustainable Development Vision 2036 and Global Policy Frameworks

As the world navigates through complex global challenges ranging from climate change to growing social inequalities the vision for sustainable development by 2036 becomes not just a policy goal but a moral imperative.¹⁰ The Sustainable Development Goals (SDGs), introduced by the United Nations in 2015, were envisioned as a blueprint for a better and more sustainable future.¹¹ By 2036, the global community must not only accelerate progress across all 17 goals but also recalibrate its strategies to account for rapid technological, demographic, and ecological changes.¹² A holistic vision emphasises inclusive growth, environmental stewardship, and resilient systems that can withstand future crises, ensuring that no one is left behind in the global pursuit of sustainability.¹³ Robust and cohesive global policy frameworks

are fundamental to the successful implementation of the SDGs.¹⁴ Multilateral agreements like the Paris Agreement on climate change and the Addis Ababa Action Agenda on financing for development provide structured pathways for countries to align their national priorities with global commitments.¹⁵ Regional partnerships and frameworks such as the African Union's Agenda 2063 and the European Green Deal further localise these goals, embedding sustainability within governance structures.¹⁶ Effective SDG implementation also depends on legal and regulatory reforms, integrated planning, and inter-sectoral coordination that align economic development with environmental protection and social well-being.¹⁷ In this context, national policies must be both adaptive and forward-looking, embracing innovation while maintaining regulatory rigor.

3.2 Climate Action and Environmental Conservation Strategies

Mitigating climate change and protecting ecosystems are central pillars of sustainable development.¹⁸ According to Ullah climate action strategies include reducing greenhouse gas emissions,

¹⁰ Phuthi, Brita. "From International Plans to National Practice: How are Issues of Inequality Addressed in Education for Sustainable Development in Teacher Training? A case study research on how issues of inequality are addressed through Education for Sustainable Development in teacher training in Botswana, Namibia, and Zimbabwe." Master's thesis, OsloMet-Storbyuniversitetet, 2021.

¹¹ Saxena, Anurag, Meghna Ramaswamy, Jon Beale, Darcy Marciniuk, and Preston Smith. "Striving for the United Nations (UN) sustainable development goals (SDGs): what will it take?." *Discover Sustainability* 2 (2021): 1-14.

¹² Li, Xiaoyan, Jia Liu, and Peijie Ni. "The impact of the digital economy on CO2 emissions: A theoretical and empirical analysis." *Sustainability* 13, no. 13 (2021): 7267.

¹³ Hariram, N. P., K. B. Mekha, Vipinraj Suganthan, and K. Sudhakar. "Sustainalism: An integrated socio-economic-environmental model to address sustainable development and

sustainability." *Sustainability* 15, no. 13 (2023): 10682.

¹⁴ Coscieme, Luca, Lars F. Mortensen, and Ian Donohue. "Enhance environmental policy coherence to meet the Sustainable Development Goals." *Journal of Cleaner Production* 296 (2021): 126502.

¹⁵ Bolton, Laura. "Comparing the Paris agenda with the 2030 and Addis Ababa action agenda." (2020).

¹⁶ Sarcina, Angela, Michal Miedzinski, Pierre Rialland, Mario Cervantes, Chux Daniels, Sirin Elci, Adrian Ely Et Al. "Advancing Sustainable Development In Africa." (2025).

¹⁷ Sarcina, Angela, Michal Miedzinski, Pierre Rialland, Mario Cervantes, Chux Daniels, Sirin Elci, Adrian Ely et al. "Advancing sustainable development in Africa." (2025).

¹⁸ Dulari, Pawitar, Brijender Bhushan, Vivek C. Chandel, and Ajay Bhushan. "Protecting the Environment through Sustainable Development Goals (SDG)." *World Journal of Environmental Biosciences* 9, no. 4-2020 (2020): 21-28.

investing in climate-resilient infrastructure, and transitioning to low-carbon economies.¹⁹ Reforestation, biodiversity conservation, and ecosystem restoration efforts help preserve natural resources and strengthen planetary boundaries.²⁰ In addition, Ogunmakinde et al asserted that nations must enforce environmental regulations, foster green technologies, and promote circular economies to minimise waste and pollution.²¹ Moreover, local communities, especially those most vulnerable to climate impacts, should be actively engaged in conservation efforts.²² Climate finance and international cooperation are crucial in supporting developing countries in adopting green technologies and implementing mitigation and adaptation strategies.

3.3 Renewable Energy Innovations for a Greener Future

Transitioning to renewable energy sources is vital for a sustainable future. Innovations in solar, wind,

hydroelectric, and geothermal energy are revolutionising global energy systems.²³ Smart grids, energy storage technologies, and decentralised renewable systems are increasing efficiency and access, especially in remote regions.²⁴ The author further asserted that the global energy sector stands at a crucial juncture, grappling with the dual challenges of escalating electricity demand and the imperative for sustainable development.²⁵ Governments and private sectors must collaborate to subsidise clean energy projects, reform energy markets, and create conducive environments for investment in green technologies.²⁶ By 2036, renewable energy is expected to dominate global energy supply, reducing dependence on fossil fuels and contributing significantly to climate goals.²⁷ According to Jayachandran et al, technological innovation, coupled with strong policy support, can accelerate the deployment and affordability of renewables.²⁸

¹⁹ Ullah, Atta, Chen Pinglu, Saba Khan, and Ningyu Qian. "Transition Towards Climate-Resilient Low-Carbon and Net-Zero Future Pathways: Investigating the Influence of Post-Paris Agreement and G-7 Climate Policies on Climate Actions in G-20 Using Quasi-Natural Experiments." *Sustainable Development* (2025).

²⁰ Monaco, Salvatore. "SDG 15. Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss." In *Identity, Territories, and Sustainability: Challenges and Opportunities for Achieving the UN Sustainable Development Goals*, pp. 145-155. Emerald Publishing Limited, 2024.

²¹ Ogunmakinde, Olabode Emmanuel, Temitope Egbelakin, and William Sher. "Contributions of the circular economy to the UN sustainable development goals through sustainable construction." *Resources, Conservation and Recycling* 178 (2022): 106023.

²² Franco, Isabel B., and James Tracey. "Community capacity-building for sustainable development: Effectively striving towards achieving local community sustainability targets." *International Journal of Sustainability in Higher Education* 20, no. 4 (2019): 691-725.

²³ Kyei, Sampson Kofi, Harriet Kwakye Boateng, and Alex Justice Frimpong. "Renewable energy innovations: fulfilling SDG targets." *Clean Energy* (2025): zkae109.

²⁴ Hassan, Qusay, Chou-Yi Hsu, Kamilia Mounich, Sameer Algburi, Marek Jaszczur, Ahmad A. Telba, Patrik Viktor et al. "Enhancing smart grid integrated renewable distributed generation capacities: Implications for sustainable energy transformation." *Sustainable Energy Technologies and Assessments* 66 (2024): 103793.

²⁵ Hassan, Qusay, Chou-Yi Hsu, Kamilia Mounich, Sameer Algburi, Marek Jaszczur, Ahmad A. Telba, Patrik Viktor et al. "Enhancing smart grid integrated renewable distributed generation capacities: Implications for sustainable energy transformation." *Sustainable Energy Technologies and Assessments* 66 (2024): 103793.

²⁶ Song, Tingting, Hongyue Li, and Ziyang Feng. "Policy and market mechanisms for promoting sustainable energy transition: role of government and private sector." *Economic Change and Restructuring* 57, no. 4 (2024): 153.

²⁷ Akpan, Joseph, and Oludolapo Olanrewaju. "Sustainable energy development: History and recent advances." *Energies* 16, no. 20 (2023): 7049.

²⁸ Jayachandran, M., Ranjith Kumar Gatla, K. Prasada Rao, Gundala Srinivasa Rao, Salisu

3.4 Economic Growth and Sustainable Business Practices

Achieving the SDGs requires redefining economic growth to prioritise sustainability over mere profitability.²⁹ Sustainable business practices involve integrating Environmental, Social, and Governance (ESG) criteria into corporate strategies, promoting ethical supply chains, and minimising environmental footprints. Green entrepreneurship, social enterprises, and circular business models are gaining prominence, aligning profit motives with sustainability goals.³⁰ Governments can drive this shift by offering tax incentives, implementing green procurement policies, and supporting small and medium-sized enterprises (SMEs) that adopt sustainable practices.³¹ By fostering inclusive and sustainable economic growth, businesses can play a pivotal role in creating jobs, driving innovation, and achieving long-term resilience.

3.5 Advancing Social Equity and Inclusive Education for Sustainable Development

Reducing inequality is critical to achieving sustainable development.³² Social inclusion policies must address

disparities in income, access to services, and representation. Marginalised groups including women, indigenous peoples, people with disabilities, and the LGBTQ+ community must be empowered through inclusive governance, equitable education and healthcare, and anti-discrimination laws.³³ Social protection systems, such as universal basic income and affordable housing programs, can cushion vulnerabilities and promote dignity.³⁴ Ensuring equity in opportunity and access can unlock the full potential of societies and foster social cohesion, ultimately driving sustainable development from the grassroots level.

Education is a powerful enabler of all SDGs.³⁵ It equips individuals with the knowledge, skills, and values needed to foster sustainable societies. Education for Sustainable Development (ESD) integrates principles of sustainability into curricula, emphasising critical thinking, problem-solving, and civic responsibility.³⁶ Schools and universities must partner with communities and industries to create learning environments that promote innovation and environmental stewardship. Digital

Mohammed, Ahmad H. Milyani, Abdullah Ahmed Azhari, C. Kalaiarasy, and S. Geetha. "Challenges in achieving sustainable development goal 7: Affordable and clean energy in light of nascent technologies." *Sustainable Energy Technologies and Assessments* 53 (2022): 102692.

²⁹ Rendtorff, Jacob D. "Sustainable development goals and progressive business models for economic transformation." *Local Economy* 34, no. 6 (2019): 510-524.

³⁰ Odeyemi, Olubusola, Favour Oluwadamilare Usman, Noluthando Zamanjomane Mhlongo, Oluwafunmi Adijat Elufioye, and Chinedu Ugochukwu Ike. "Sustainable entrepreneurship: A review of green business practices and environmental impact." *World Journal of Advanced Research and Reviews* 21, no. 2 (2024): 346-358.

³¹ Ullah, Rizwan, Habib Ahmad, Fazal Ur Rehman, and Arshad Fawad. "Green innovation and Sustainable Development Goals in SMEs: The moderating role of government incentives." *Journal of Economic and Administrative Sciences* 39, no. 4 (2023): 830-846.

³² Apel, Holger. "Inequality in development: The 2030 Agenda, SDG 10 and the role of redistribution." *Real-World Econ. Rev* 92 (2020): 228-237.

³³ The United Nations-
<https://www.un.org/esa/socdev/rwss/2016/chapter1.pdf> (Assessed 8 May 2025).

³⁴ Phillips, Ruth. "Welfare State, Poverty, and the SDGs: Supporting Sustainable Social Protection." In *No Poverty*, pp. 1157-1167. Cham: Springer International Publishing, 2021.

³⁵ Sharma, Prof, Seema Sharma, and Suman Dhankar. "The Significance Of Educators And Institutions In Attaining The Sustainable Development Goals: A Descriptive Study." *Annals of the Bhandarkar Oriental Research Institute ISSN* (2024): 0378-1143.

³⁶ Sharma, Prof, Seema Sharma, and Suman Dhankar. "The Significance Of Educators And Institutions In Attaining The Sustainable Development Goals: A Descriptive Study." *Annals of the Bhandarkar Oriental Research Institute ISSN* (2024): 0378-1143.

technologies can expand access to quality education, especially in underserved regions.³⁷ By 2036, a reimagined educational system that nurtures global citizens will be indispensable in driving inclusive, equitable, and sustainable progress.

3.6 Advancing Global Health and Sustainable Food Systems for a Resilient Future

Robust healthcare systems are fundamental to achieving sustainable development. Universal health coverage ensures that everyone, regardless of socio-economic status, has access to essential health services.³⁸ Investments in primary healthcare, health infrastructure, and digital health technologies can improve resilience against pandemics and chronic diseases.³⁹ Integrated health policies must address social determinants of health, such as nutrition, clean environments, and mental well-being. Health equity should guide interventions, ensuring that the most vulnerable populations receive the care they need.⁴⁰ Strengthened by global cooperation, healthcare systems can serve as pillars of

societal resilience and human development.⁴¹

According to Berry, food security and sustainable agriculture are inextricably linked to environmental sustainability and social equity.⁴² Modern agricultural practices must shift toward agroecology, organic farming, and climate-smart agriculture to ensure long-term food production without degrading ecosystems. Technology-driven solutions, such as precision farming, vertical agriculture, and genetic crop enhancement, can increase yield efficiency while reducing environmental impact.⁴³ Strengthening rural infrastructure, market access, and farmer education especially for women and smallholder farmers is vital to building resilient food systems. Policy coherence across trade, agriculture, and environmental sectors will be essential in achieving food security for all by 2036.⁴⁴

3.7 Innovative Urban Growth Pioneering Smart Cities for Sustainability and Clean Water Access

Urban areas are at the forefront of sustainability challenges and solutions.⁴⁵

³⁷ SM, Fathima Rumaiza. "Digital Innovations in Education Enhancing Sustainable Development Goals." In *Digital Innovations for Renewable Energy and Conservation*, pp. 75-98. IGI Global, 2025.

³⁸ Derakhshani, Naser, Leila Doshmangir, Ayat Ahmadi, Ali Fakhri, Homayoun Sadeghi-Bazargani, and Vladimir Sergeevich Gordeev. "Monitoring process barriers and enablers towards universal health coverage within the sustainable development goals: a systematic review and content analysis." *ClinicoEconomics and Outcomes Research* (2020): 459-472.

³⁹ Ugwu, Chinyere N., Okechukwu Paul-Chima Ugwu, Esther Ugo Alum, Val Hyginus Udoka Eze, Mariam Basajja, Jovita Nnenna Ugwu, Fabian C. Ogenyi et al. "Sustainable development goals (SDGs) and resilient healthcare systems: Addressing medicine and public health challenges in conflict zones." *Medicine* 104, no. 7 (2025): e41535.

⁴⁰ Dhaliwal, Livpreet Kaur. "Health equity and sustainable development goals: role and the complexity." *Good health and well-being* (2020): 316-324.

⁴¹ Putra, Nyphadear Tiara Scoorpy Ananda, Randhi Satria, Siti Hajar Sri Hidayati, and Ebrima Sarr. "Synthesizing The Sdg 3: International Cooperation On The Ethics Of Global Health Toward 5.0 Society." *Jurnal Al-Ijtima'iyyah* 10, no. 2 (2024): 226-242.

⁴² Berry, Elliot M. "Food insecurity, social inequity, and sustainability." *World Rev Nutr Diet* 121 (2020): 95-104.

⁴³ Tavanti, Marco. "Technology innovations for the SDGs." In *Developing Sustainability in Organizations: A Values-Based Approach*, pp. 389-404. Cham: Springer International Publishing, 2023.

⁴⁴ Jeary, Katy, Barbara Adolph, and Phil Franks. "Coherence and disconnects in agricultural and conservation policies in sub-Saharan Africa." *IIED: London, UK* (2022).

⁴⁵ Krellenberg, Kerstin, Hannah Bergsträßer, Daria Bykova, Nele Kress, and Katharine Tyndall. "Urban sustainability strategies guided by the SDGs—A tale of four cities." *Sustainability* 11, no. 4 (2019): 1116.

Rapid urbanisation demands innovative planning that integrates sustainability, inclusivity, and resilience. Smart cities leverage data, technology, and participatory governance to enhance quality of life while minimising environmental impact.⁴⁶ Sustainable urban development includes affordable housing, efficient public transportation, green spaces, and waste management systems.⁴⁷ Benda asserted that inclusive urban policies must ensure that marginalised populations benefit equally from urban growth.⁴⁸ Indeed, by 2036, the transformation of cities into sustainable, smart, and inclusive habitats will be crucial in addressing climate change, economic disparities, and resource pressures.

Water is a finite and essential resource that underpins every aspect of sustainable development. Ensuring universal access to clean water and sanitation requires investments in infrastructure, governance, and community engagement.⁴⁹ Integrated water resource management (IWRM), wastewater treatment, and the adoption of water-efficient technologies can enhance water security. Education and

behavioural change campaigns are equally important in promoting conservation practices.⁵⁰ Rural and peri-urban areas need targeted interventions to bridge access gaps. Clean water and sanitation are foundational to health, education, and economic development, making their universal provision a top priority by 2036.⁵¹

Technology is a catalyst for achieving the SDGs. Innovations in artificial intelligence, blockchain, biotechnology, and the Internet of Things (IoT) are transforming how we address sustainability challenges.⁵² These technologies enable data-driven decision-making, efficient resource management, and scalable solutions in health, education, and environmental protection.⁵³ However, ethical considerations, digital inclusion, and data governance must accompany technological progress to ensure equitable benefits. Collaborative platforms and open innovation ecosystems can accelerate the deployment of sustainable technologies across sectors.⁵⁴ By 2036, the convergence of technology and sustainability will be a defining feature of global progress.

⁴⁶ Daramola, Olaoluwa Joshua. "Building Sustainable and Inclusive Smart Cities." (2024).

⁴⁷ Hyder, Md Badrul, and Tareq Zahirul Haque. "Understanding the linkages and importance of urban greenspaces for achieving sustainable development goals 2030." *J. Sustain. Dev* 15 (2022): 144.

⁴⁸ Benda, Vivien. "Towards Sustainable and Inclusive Cities: Discrimination Against Vulnerable and Marginalized Groups—A Review of a Hidden Barrier to Sustainable Urbanization." In *International conference on Smart and Sustainable Planning for Cities and Regions*, pp. 469-478. Cham: Springer International Publishing, 2019.

⁴⁹ Jiang, Yong. "Financing water investment for global sustainable development: Challenges, innovation, and governance strategies." *Sustainable Development* 31, no. 2 (2023): 600-611.

⁵⁰ Rastogi, Mausmi, Shruti Mallikarjun Kolar, Anand Burud, Tejaswini Sadineni, M. Sekhar, Raj Kumar, and Aashu Rajput. "Advancing water conservation techniques in agriculture for

sustainable resource management: A review." *Journal of Geography, Environment and Earth Science International* 28, no. 3 (2024): 41-53.

⁵¹ ESCAP, UN. "Urban transformation in Asia and the Pacific: from growth to resilience." (2025).

⁵² Tavanti, M. (2023). Technology Innovations for the SDGs. In: *Developing Sustainability in Organizations*. Sustainable Development Goals Series. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-031-36907-0_13(Assessed 12 May 2025).

⁵³ Tavanti, M. (2023). Technology Innovations for the SDGs. In: *Developing Sustainability in Organizations*. Sustainable Development Goals Series. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-031-36907-0_13(Assessed 12 May 2025).

⁵⁴ Costa, Joana, and João CO Matias. "Open innovation 4.0 as an enhancer of sustainable innovation ecosystems." *Sustainability* 12, no. 19 (2020): 8112.

3.8 International Partnerships and Global Cooperation on SDGs Measuring Sustainable Development Progress

Global challenges require coordinated global responses. International partnerships and cooperation are vital for mobilising resources, sharing knowledge, and fostering solidarity.⁵⁵ Institutions like the United Nations, World Bank, and World Health Organisation play key roles in facilitating multilateral collaboration.⁵⁶ South-South cooperation, triangular partnerships, and global compacts can leverage diverse experiences and strengths.⁵⁷ Financial mechanisms such as green bonds, climate funds, and international aid must be aligned with sustainability objectives.⁵⁸ A renewed commitment to multilateralism, guided by mutual accountability and inclusivity, is essential to the global achievement of SDGs by 2036.⁵⁹

Tracking progress toward the SDGs requires robust data systems, transparent monitoring, and adaptive evaluation frameworks. Indicators must be disaggregated by gender, age, income, and geography to uncover disparities and guide targeted interventions.⁶⁰ National

statistical agencies need capacity building and digital tools to ensure timely and accurate reporting. Public dashboards and open data platforms can enhance accountability and citizen engagement.⁶¹ Evaluation mechanisms should go beyond outputs to assess long-term impacts and sustainability.⁶² In this regard, it is valid to say, effective measurement is not merely a technical task but a strategic enabler of informed decision-making and policy refinement.

3.9 Future Challenges and Opportunities for Achieving SDGs Beyond 2036

While 2036 represents a critical milestone, sustainable development is a continuous journey. Emerging challenges such as technological disruptions, geopolitical tensions, and ecological tipping points could complicate progress.⁶³ By 2050, space could become a major battlefield, although it could also remain a domain primarily for peaceful exploration, scientific discovery, and international collaboration. The space economy could grow beyond rockets and satellites, encompassing a broad ecosystem of space-based and terrestrial markets and activities, and space technologies could contribute to peace

⁵⁵ Ahmed, Shakeel, Nafees Ahmed Memon, Aftab Hameed Memon, Zulfiqar Jattak, and Syed Abdullah Shah. "Role of Global Partnerships for Sustainable Development for a Resilient Future." *Construction Technologies and Architecture* 13 (2024): 163-172.

⁵⁶ Haug, Sebastian. *Mainstreaming South-South and triangular cooperation: work in progress at the United Nations*. No. 15/2021. Discussion Paper, 2021.

⁵⁷ Haug, Sebastian. *Mainstreaming South-South and triangular cooperation: work in progress at the United Nations*. No. 15/2021. Discussion Paper, 2021.

⁵⁸ Chandel, Ajay, Mohit Yadav, and Phuong Mai Nguyen. "Climate Change and Sustainable Development: How Can Climate Change Be Addressed Within the Framework of Sustainable Development Goals?." In *Effects of Climate Change on Social and Economic Factors*, pp. 387-422. IGI Global, 2025.

⁵⁹ Chandel, Ajay, Mohit Yadav, and Phuong Mai Nguyen. "Climate Change and Sustainable Development: How Can Climate Change Be

Addressed Within the Framework of Sustainable Development Goals?." In *Effects of Climate Change on Social and Economic Factors*, pp. 387-422. IGI Global, 2025.

⁶⁰ Avatar, Ram, Ridhika Aggarwal, Ali Kharrazi, Pankaj Kumar, and Tonni Agustiono Kurniawan. "Utilizing geospatial information to implement SDGs and monitor their Progress." *Environmental monitoring and assessment* 192 (2020): 1-21.

⁶¹ Saner, Raymond, Lichia Yiu, and Melanie Nguyen. "Monitoring the SDGs: Digital and social technologies to ensure citizen participation, inclusiveness and transparency." *Development policy review* 38, no. 4 (2020): 483-500.

⁶² Liang, Hao, David Fernandez, and Mikkel Larsen. "Impact assessment and measurement with Sustainable Development Goals." In *Handbook on the Business of Sustainability*, pp. 424-438. Edward Elgar Publishing, 2022.

⁶³ Pataki, Zsolt G., And Policy Foresight Unit. "In-Depth Analysis," (2025).

and prosperity.⁶⁴ However, Lee insisted that this also presents opportunities for innovation, resilience building, and global solidarity.⁶⁵ Youth leadership, inclusive governance, and adaptive institutions will be key to navigating uncertainties.⁶⁶ Future strategies must emphasise systemic transformation, intergenerational equity, and planetary health.⁶⁷ Therefore, by embracing a long-term vision and cultivating global citizenship, humanity can sustain the momentum of the SDGs well beyond 2036.

3.10 Comparing SDG Implementation in South Africa and Germany

The implementation of the Sustainable Development Goals (SDGs) varies widely across nations, influenced by economic capacity, political will, and institutional readiness.⁶⁸ A comparative analysis of South Africa, a developing country facing deep socio-economic inequalities, and Germany, a developed economy with strong environmental policies and institutional support for sustainability, reveals contrasting yet instructive approaches to SDG implementation.⁶⁹ Both countries have committed to the 2030 Agenda, yet their approaches to renewable energy

transition, sustainable agriculture, and social inclusion differ significantly.⁷⁰ South Africa has made notable strides in policy frameworks such as the National Development Plan and Integrated Resource Plan; however, it struggles with execution due to infrastructural constraints and governance challenges.⁷¹

Germany, on the other hand, has embedded the SDGs into its national sustainability strategy, aligning economic and environmental agendas through strong multi-sector collaboration and public accountability mechanisms.⁷² Germany's *Energiewende* (energy transition) exemplifies how a long-term vision, policy coherence, and civil society engagement can drive progress in renewable energy and climate action.⁷³ Meanwhile, South Africa's Just Energy Transition Partnership reflects an emerging model of international cooperation and climate finance, but the pace of implementation remains slow due to bureaucratic inertia and economic instability.⁷⁴ In both countries, the role of civil society has proven essential in advocating for social equity and holding governments accountable, though their capacity and influence differ.⁷⁵

Summary Discussion

2023: The SDGs and the Polycrises—Pathways to 2030. Cambridge: Cambridge University Press, 2023.

⁶⁴ Pataki, Zsolt G., and Policy Foresight Unit. "IN-DEPTH ANALYSIS," (2025).

⁶⁵ Lee, S. "Role of social and solidarity economy in localizing the sustainable development goals." *International Journal of Sustainable Development & World Ecology* 27, no. 1 (2020): 65-71.

⁶⁶ Hujo, Katja, and Maggie Carter. "Transformative change for children and youth in the context of the 2030 agenda for sustainable development." (2019).

⁶⁷ Hujo, Katja, and Maggie Carter. "Transformative change for children and youth in the context of the 2030 agenda for sustainable development." (2019).

⁶⁸ United Nations, *Transforming Our World: The 2030 Agenda for Sustainable Development* (New York: UN, 2015).

⁶⁹ United Nations Development Programme, *South Africa SDG Country Report 2022* (Pretoria: UNDP, 2022).

⁷⁰ Sachs, Jeffrey D., Guillaume Lafortune, Christian Kroll, Grayson Fuller, Finn Woelm, and Amaia Artetxe. *The Sustainable Development Report*

⁷¹ Republic of South Africa, *National Development Plan 2030: Our Future – Make It Work* (Pretoria: The Presidency, 2012).

⁷² German Federal Government, *German Sustainable Development Strategy* (Berlin: Federal Chancellery, 2021).

⁷³ Ortwin Renn and Frank Ulrich Montgomery, "Energiewende: Germany's Energy Transition," *Energy Policy Journal* 140 (2020): 111423, <https://doi.org/10.1016/j.enpol.2019.111423>.

⁷⁴ Climate Investment Funds, *Just Energy Transition Partnership: South Africa Investment Plan* (Washington, DC: CIF, 2023).

⁷⁵ Kanie, Norichika, and François Gemenne, eds., *Global Governance and the SDGs* (London: Routledge, 2020).

This comprehensive exploration underscored the interdependence of policies, technologies, and partnerships in advancing the SDGs by 2036. Each thematic area, from climate action to inclusive education, contributed to a holistic framework for sustainable development. The integration of environmental, economic, and social dimensions ensured that progress is balanced and resilient. Achieving the SDGs will require unwavering political will, cross-sector collaboration, and grassroots mobilisation. The path forward must be informed by evidence, guided by ethics, and driven by shared humanity.

4. RECOMMENDATIONS

Based on the comprehensive analysis conducted throughout the above study, the following recommendations should be considered:

1. Strengthen national capacities for SDG integration and policy coherence.
2. Enhance investment in renewable energy, sustainable agriculture, and green infrastructure.
3. Promote inclusive education and healthcare access to empower marginalised communities.
4. Foster international cooperation and innovative financing mechanisms.
5. Develop robust data systems for transparent monitoring and accountability.
6. Encourage private sector engagement through sustainable business incentives.

7. Support youth leadership and intergenerational dialogue on sustainability.

5. CONCLUSION

The journey toward achieving the Sustainable Development Goals by 2036 is ambitious but achievable with concerted effort and transformative change. It calls for visionary leadership, inclusive policies, and innovative solutions that transcend borders. As we move forward, let us reaffirm our collective commitment to a greener, more equitable, and sustainable future one where prosperity is shared, the planet is protected, and humanity thrives in harmony with nature. The pursuit of the Sustainable Development Goals by 2036 is both an ambitious and attainable vision, contingent upon sustained commitment and profound systemic transformation. It is essential to strengthen visionary and accountable leadership that champions inclusive and adaptive policymaking, ensuring that social equity and environmental sustainability are embedded at the core of development agendas. Future efforts must prioritize investment in renewable energy, sustainable agriculture, and climate resilience, fostering innovation while simultaneously addressing socio-economic disparities that hinder progress. Moreover, enhanced international cooperation and multi-sectoral partnerships are critical to mobilise the necessary resources, knowledge, and technologies that transcend borders.

REFERENCES

Books

- Benda, Vivien. *Towards Sustainable and Inclusive Cities...* In *Smart and Sustainable Planning*, Springer, 2019.
- Chandel, Ajay, et al. *Climate Change and Sustainable Development...* In *Effects of Climate Change on Social and Economic Factors*, IGI Global, 2025.
- Fathima Rumaiza SM. *Digital Innovations in Education...* In *Digital Innovations for Renewable Energy*, IGI Global, 2025.
- Kanie, Norichika, and François Gemenne (eds.). *Global Governance and the SDGs*. London: Routledge, 2020.
- Liang, Hao, et al. *Impact assessment...* In *Handbook on the Business of Sustainability*, Edward Elgar, 2022.
- Monaco, Salvatore. *SDG 15...* In *Identity, Territories, and Sustainability...* Emerald Publishing, 2024.
- Phillips, Ruth. *Welfare State, Poverty, and the SDGs: Supporting Sustainable Social Protection*. In *No Poverty*, Cham: Springer, 2021.
- Tavanti, Marco. *Technology innovations for the SDGs*. In *Developing Sustainability in Organizations*, Springer, 2023.

Journal Articles

- Ahmed, Shakeel, et al. Global partnerships for SDGs. *Construction Technologies and Architecture* 13 (2024).
- Akpan, Joseph, and Oludolapo Olanrewaju. Sustainable energy development... *Energies* 16, no. 20 (2023).
- Apel, Holger. Inequality and SDG 10. *Real-World Econ. Rev* 92 (2020).
- Avtar, Ram, et al. Geospatial data for SDG monitoring. *Environmental Monitoring and Assessment* 192 (2020).
- Berry, Elliot. Food insecurity and sustainability. *World Rev Nutr Diet* 121 (2020).
- Coscieme, Luca, et al. Policy coherence for SDGs. *Journal of Cleaner Production* 296 (2021).
- Costa, Joana, and João Matias. Open innovation 4.0. *Sustainability* 12, no. 19 (2020).
- Derakhshani, Naser, et al. UHC and SDG barriers. *ClinicoEconomics and Outcomes Research* (2020).
- Dhaliwal, Livpreet. Health equity and SDGs. *Good health and well-being* (2020).
- Dulari, Pawitar, et al. Protecting the environment through SDGs. *World J of Environmental Biosciences* 9, no. 4 (2020).
- Franco, Isabel, and James Tracey. Community capacity-building... *International Journal of Sustainability in Higher Education* 20, no. 4 (2019).
- Githui, Fredrick, and Jane Njuru. Public management in SDGs. *Int J of Science and Business* 31, no. 1 (2024).
- Hariram, N. P., et al. Sustainalism model... *Sustainability* 15, no. 13 (2023).
- Hassan, Qusay, et al. Smart grid integration. *Sustainable Energy Technologies and Assessments* 66 (2024).
- Hassani, Hossein, et al. Big data and the UN SDGs. *Big Data and Cognitive Computing* 5, no. 3 (2021).
- Hyder, Md Badrul, and Tareq Haque. Urban greenspaces and SDGs. *J. Sustain. Dev* 15 (2022).
- Jayachandran, M., et al. SDG 7 and clean energy challenges. *Sustainable Energy Technologies and Assessments* 53 (2022).
- Jiang, Yong. Financing water investment. *Sustainable Development* 31, no. 2 (2023).
- Krellenberg, Kerstin, et al. Urban SDG strategies. *Sustainability* 11, no. 4 (2019).
- Kyei, Sampson, et al. Renewable energy innovations. *Clean Energy* (2025).
- Lee, S. Social and solidarity economy. *International Journal of Sustainable Development & World Ecology* 27, no. 1 (2020).
- Li, Xiaoyan, et al. Digital economy and CO₂ emissions. *Sustainability* 13, no. 13 (2021).
- Liu, Yali, et al. Overlooked uneven progress... *The Innovation* 5, no. 2 (2024).
- Odeyemi, Olubusola, et al. Sustainable entrepreneurship. *World J of Advanced Research and Reviews* 21, no. 2 (2024).
- Ogunmakinde, Olabode, et al. Circular economy and SDGs. *Resources, Conservation and Recycling* 178 (2022).
- Putra, Nyphadear, et al. SDG 3 and global health ethics. *Jurnal Al-Ijtima'iyah* 10, no. 2 (2024).
- Rastogi, Mausmi, et al. Water conservation in agriculture. *Journal of Geography...* 28, no. 3 (2024).
- Rendtorff, Jacob. SDGs and business models. *Local Economy* 34, no. 6 (2019).
- Saner, Raymond, et al. Digital tools for SDGs. *Development Policy Review* 38, no. 4 (2020).
- Saxena, Anurag, et al. Striving for the UN SDGs... *Discover Sustainability* 2 (2021).
- Sharma, Seema, and Suman Dhankar. Educators and SDGs. *Annals of the Bhandarkar Oriental Research Institute* (2024).
- Ugwu, Chinyere, et al. Resilient healthcare systems. *Medicine* 104, no. 7 (2025).
- Ullah, Atta, et al. Climate policies in G20. *Sustainable Development* (2025).
- Ullah, Rizwan, et al. Green innovation in SMEs. *Journal of Economic and Administrative Sciences* 39, no. 4 (2023).

Theses

- Phuthi, Brita. From International Plans to National Practice... Master's thesis, OsloMet, 2021.

Reports

- Bolton, Laura. Comparing the Paris agenda... (2020).
- Climate Investment Funds. Just Energy Transition Partnership: South Africa Investment Plan. Washington, DC: CIF, 2023.
- ESCAP, UN. Inclusive subregional cooperation in East and North-East Asia... (2020).
- ESCAP, UN. Urban transformation in Asia and the Pacific... (2025).
- German Federal Government. German Sustainable Development Strategy. Berlin: Federal Chancellery, 2021.
- Haug, Sebastian. Mainstreaming South-South and triangular cooperation... Discussion Paper No. 15/2021.
- Hujo, Katja, and Maggie Carter. Transformative change for children and youth... (2019).
- Pataki, Zsolt G., and Policy Foresight Unit. IN-DEPTH ANALYSIS, (2025).
- Sachs, Jeffrey D., et al. The Sustainable Development Report 2023. Cambridge University Press, 2023.
- SARCINA, Angela, et al. Advancing sustainable development in Africa. (2025).
- United Nations Development Programme. South Africa SDG Country Report 2022. Pretoria: UNDP, 2022.

Websites

- Ortwin Renn and Frank Ulrich Montgomery. Germany's Energy Transition. *Energy Policy Journal* 140 (2020): 111423. <https://doi.org/10.1016/j.enpol.2019.111423>. (Accessed 11 May 2025).
- Sustainable Development – <https://sdgs.un.org/2030agenda> (Accessed 02 May 2025).
- Tavanti, Marco. Technology Innovations for the SDGs. Springer (Accessed 12 May 2025).
- The Global Goals – <https://www.globalgoals.org/goals/17-partnerships-for-the-goals/> (Accessed 29 April 2025).
- United Nations – <https://www.un.org/esa/socdev/rwss/2016/chapter1.pdf> (Accessed 8 May 2025).

National Policy Documents

- Republic of South Africa. National Development Plan 2030: Our Future – Make It Work. Pretoria: The Presidency, 2012.
- United Nations. Transforming Our World: The 2030 Agenda for Sustainable Development. New York: UN, 2015.