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The rising challenges, measurement-related obstacles and technological gaps in achieving a continuous progress in sustainable development policies

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Abstract

Nearly a decade after their adoption, the Sustainable Development Goals (SDGs) stand at a critical crossroads due to the multi-crisis, i.e., various crises that have emerged concurrently such as COVID-19, inflation, energy-related challenges in global value chains, climate related issues, and war. This Editorial reflects on SDGs current trajectory, highlighting both achievements and growing challenges, including inequality, climate change, and geopolitical instability, which threaten the SDGs progress. Despite their universal appeal and interconnected design, implementation remains uneven and often symbolic. Therefore, the present Editorial explores key barriers such as weak governance, financial shortfalls, and institutional fragmentation, or social-related conundrums, arguing that transformative change requires systemic thinking, political courage, and inclusive action. Hence, as the 2030 deadline is approaching, the SDGs must be revitalized as a moral and practical imperative to secure a just and sustainable future for all.

Keywords ESG, CSR, global governance, poverty, inequality, climate change, financial barriers

1. Introduction

In September 2015, the world stood united under a bold and hopeful vision: a blueprint for a better and more sustainable future for all. This vision was encapsulated in the 17 Sustainable Development Goals (SDGs), adopted by all 193 United Nations Member States [1], designed as a global response to some of humanity's most urgent challenges, inter alia, poverty, inequality, climate change, environmental degradation, war, and injustice [2-6]. Therefore, the SDGs represented not just goals but a moral imperative for governments, businesses, and citizens alike based on the principles of the Brundtland report that established the notion of intergenerational equity [7].

Yet, nearly a decade later, the momentum that once surrounded the SDGs has begun to wane. While progress has been made in several areas, such as increasing access to clean energy and reducing child mortality, the world is not on track to meet many of the 2030 targets [8]. To exemplify, the current multi-crisis has deepened inequalities, the accelerating climate crisis, and geopolitical instability, showing that this phenomenon has not only stalled progress but, in some cases, reversed hard-won gains [9]. Characteristically,

the COVID-19 pandemic further exposed the fragility of our interconnected systems [10], pushing millions back into poverty and highlighting the stark disparities in access to healthcare, education, and technology [11-13].

In essence, today, the SDGs are at a critical crossroads. The urgency of action has never been greater, yet the path forward demands more than rhetoric and symbolic gestures. It calls for renewed political will, bold policy shifts, and a reimagining of development that places people and planet at the center [14]. As we approach the 2030 deadline, the world must confront an important question: will we allow the SDGs to become another set of unfulfilled promises, or will we collectively rise to meet the challenge? Therefore, the present editorial explores the current state of SDGs progress, the identification of key barriers to implementation, and will argue that achieving these global goals is not only possible, but necessary, for securing a just, resilient, and sustainable future for all.

2. Blueprinting the sustainable development agenda

The SDGs emerged as the successor to the *Millennium Development Goals* (MDGs) [15], expanding the global

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development agenda in both breadth and ambition. While the MDGs focused largely on *poverty, health,* and *education* in developing countries, the SDGs represent a universal framework that addresses the root causes of inequality and environmental degradation across all nations [16, 17]. Spanning 17 goals and 169 targets, the SDGs promote a holistic vision of progress – one that integrates economic growth, social inclusion, and environmental sustainability.

What makes the SDGs particularly significant is their interconnected nature [18, 19]. It is apparent that no single goal stands in isolation; for example, achieving SDG 4 (Quality Education) has direct impacts on SDG 5 (Gender Equality), SDG 8 (Decent Work and Economic Growth), and even SDG 13 (Climate Action), as education empowers individuals to make informed decisions and participate in sustainable practices. Similarly, progress on SDG 6 (Clean Water and Sanitation) directly influences health outcomes, economic productivity, and food security. Hence, it is high time to understand these interlinkages as key determinants to designing policies that avoid trade-offs and instead create synergistic impacts.

Moreover, the SDGs serve as a common ethical compass for governments, international organizations, businesses, and civil society [20, 21]. They offer a framework for aligning national development plans with global priorities and for measuring progress in a standardized, transparent way. The goals are also intentionally inclusive, emphasizing the principle of "leaving no one behind" [22]. This means prioritizing marginalized and vulnerable populations who are often excluded from the benefits of development – such as indigenous communities, people with disabilities, and those living in extreme poverty.

Importantly, the SDGs are not just inspirational, they are essential. With rising global temperatures, widening income gaps, and rapid biodiversity loss, the status quo is no longer viable on keeping stable the planetary boundaries [23, 24]. Thus, the SDGs provide a roadmap toward systemic change: transforming the way we produce and consume, how we design cities, manage natural resources, and ensure equitable access to education, healthcare, and opportunity [25, 26]. In an era marked by global uncertainty and overlapping crises, the importance of the SDGs cannot be overstated. They represent a rare moment of consensus in international politics, a shared commitment to a future that is just, inclusive, and sustainable. Nevertheless, the time is running out regarding their achievement in 2030 and in order to fulfill their promise, the world must act with urgency, coherence, and ambition.

3. The uneven and unequal progress of SDG achievement

Despite the widespread endorsement of the SDGs, their implementation has been far from uniform. Particularly, the SDG progress is marked by *deep disparities* across countries and within populations, reflecting

systemic and structural issues in governance, financing, and accountability as in environmental, social, and corporate governance (ESG) [27]. For example, while some nations have made commendable strides, particularly in expanding access to education, renewable energy, and basic healthcare, others lag behind due to conflict, corruption, economic instability, or lack of institutional capacity [28-30].

A core issue lies in the *disconnection* between global ambition and national execution. To give another example, many countries have incorporated the SDGs into policy discourse, but fewer have translated them into actionable strategies with measurable targets and long-term funding. Moreover, the interlinked nature of the goals, though conceptually powerful, presents practical challenges. Essentially, policies are often developed in (academic, policy, or other) *silos*, resulting in fragmented approaches that miss cross-cutting opportunities or, worse, create trade-offs. For instance, efforts to boost industrial growth (SDG 9) can conflict with environmental sustainability (SDG 13) if not carefully planned [31, 32].

What does really matter is the growing concern that the SDGs are being reduced to a *checkbox exercise*, a branding tool rather than a transformative agenda. The danger is that without stronger accountability mechanisms and meaningful public participation, the risk of superficial compliance grows. In order to meet the prerequisites of Agenda 2030, governments, businesses, and civil society must move beyond rhetorical support and toward integrated, inclusive, and datadriven action; especially in environmental standards under the scope of ESG framework [33-36]. This means aligning national budgets with SDG priorities, investing in cross-sectoral innovation, and ensuring that progress reaches those furthest behind.

4. Financial obstacles and institutional gaps in achieving SDGs

Bearing in mind that the Agenda 2030 approaches, it is clear that incremental adjustments will not suffice. Meeting the SDGs requires a *paradigm shift* in how we approach development – from short-term economic gain to long-term, people-centered sustainable development. The SDGs must not remain *abstract ideals* confined to international conferences and policy documents; they should become the foundation of every-day governance, corporate practice, and civic engagement.

First, *governments* must prioritize policy coherence across sectors, ensuring that progress in one area (e.g., economic progress) does not undermine another (e.g., environmental protection). Therefore, it is pivotal to embed SDG indicators into national development plans, budgeting processes, and public accountability mechanisms [37, 38]. For example, infrastructure projects must be evaluated not only for economic return but also for environmental impact and social inclusion. Furthermore, political leadership is essential, as global leaders must be willing to challenge entrenched inter-

ests and shift resources toward long-term investments, such as universal education, green infrastructure, and equitable health systems.

Second, the *private sector* must move beyond corporate social responsibility (CSR) toward genuine alignment with the SDGs. Businesses wield enormous influence over supply chains, employment, innovation, and environmental impact [39]. They must adopt sustainable practices not as add-ons, but as core strategies. This includes reducing carbon footprints, ensuring fair labor conditions, and contributing to circular economy transition [33, 40]. Governments should incentivize this through green taxation, procurement policies, and disclosure requirements.

Third, *citizen engagement* is crucial. The SDGs will not be achieved through top-down policy alone. Arguably, civil society, youth, indigenous communities, and marginalized groups must have a seat at the table in decision-making processes. To exemplify, public education campaigns, digital tools for local SDG tracking, and participatory budgeting are powerful mechanisms to democratize development and ensure *no one is left behind* [41-43].

Finally, the global community must address the structural inequalities in financing [14]. Undoubtedly, developing countries face an unfair burden in mobilizing the resources needed for SDG implementation. Therefore, wealthier nations must fulfill their commitments to climate finance and development aid, while also supporting debt relief and fair trade mechanisms [44, 45]. Fundamental, multilateral institutions need to be reformed to reflect today's realities, not yesterday's power structures.

To summarize, the policy gaps for transformative change are wide and it is difficult to say that there is time to close them. As mentioned before, what the SDGs need are political courage, systemic thinking, and inclusive action: only then can the SDGs become not just a set of goals, but a generational turning point toward a just and sustainable future.

5. Conclusions and future research

The SDGs represent one of humanity's most ambitious and unified attempts to confront the interconnected challenges of our time, as they reflect a shared aspiration: a world free from poverty and inequality, where people live in harmony with the planet and with each other. Yet as we pass the halfway mark to 2030, that vision remains alarmingly out of reach.

In practice, we are no longer in a position to ask whether the SDGs are achievable, we must ask what it will take to achieve them. Hence, the answer lies not in isolated projects or symbolic gestures, but in bold, coordinated action that addresses root causes and systemic injustices. It lies in the recognition that sustainable development is not a luxury or a side agenda; it is the only viable path forward.

Overall, the SDGs are not simply technical benchmarks; they are moral imperatives. SDGs compel us to rethink what progress means, who it serves, and at what cost. However, if we allow this agenda to falter, we risk deepening the very crises the SDGs were designed to overcome: climate instability, social unrest, and widening inequality. It is high time to make the right choices, adopt pro-environmental leadership, and solidarity, as we can still turn this decade into one of recovery and transformation. Let this moment be a call, not for complacency, but for renewed commitment. The promise of the SDGs remains within reach but what is needed now is the will to act decisively, and collectively, before time runs out.

Author Contributions

The author did all the research work for this study.

Competing Interests

No conflicts of interest exist.

References

- FAO. Sustainable Development Goals: 17 goals to transform our world [Internet]. Rome, Italy: FAO; 2015. Available from:
 - https://www.fao.org/publications/card/en/c/CA3121 EN/.
- Halkos G, Bampatsou C, Aslanidis P-S. Assessing energy poverty indicators towards club convergence in Europe. Energy Efficiency. 2025; 18(5): 38.
- 3. Bouzarovski S, Thomson H, Cornelis M. Confronting energy poverty in Europe: A research and policy agenda. Energies. 2021; 14(4): 858.
- 4. Sareen S, Thomson H, Herrero ST, Gouveia JP, Lippert I, Lis A. European energy poverty metrics: Scales, prospects and limits. Global Transitions. 2020; 2: 26-36.
- 5. Thomson H, Simcock N, Bouzarovski S, Petrova S. Energy poverty and indoor cooling: An overlooked issue in Europe. Energy and Buildings. 2019;196:21-29.
- 6. Halkos G, Zisiadou A. An overview of the technological environmental hazards over the last century. Economics of Disasters and Climate Change. 2020; 4(2): 411-428.
- WCED. Report of the World Commission on Environment and Development: Our Common Future [Internet]. United Nations; 1987. Available from: https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf.
- Halkos G, Gkampoura E-C. Where do we stand on the 17 Sustainable Development Goals? An overview on progress. Economic Analysis & Policy. 2021; 70: 94-122.
- Halkos GE, Aslanidis PSC. Sustainable energy development in an era of geopolitical multi-crisis. Applying productivity indices within institutional framework. Resources Policy. 2023; 85: 103854.
- 10. Kevin L. COVID-19 and sustainable energy development: agendas for future research. Journal of Asian Energy Studies. 2020; 4(1): 20-25.
- 11. Halkos GE, Aslanidis P-SC. Addressing multidimensional energy poverty implications on achieving sustainable development. Energies. 2023; 16(9): 3805.

- 12. Halkos GE, Aslanidis P-SC. Causes and measures of poverty, inequality, and social exclusion: A review. Economies. 2023; 11(4): 110.
- 13. Kopnina H. Education for the future? Critical evaluation of education for sustainable development goals. The Journal of Environmental Education. 2020; 51(4): 280-291.
- Sachs JD LG, Fuller G, Iablonovski G. Financing Sustainable Development to 2030 and Mid-Century. Sustainable Development Report 2025. Paris & Dublin; 2025.
- United Nations. The Millenium Development Goald and Beyond 2015 [Internet]. United Nations; 2000. Available from: https://www.un.org/millenniumgoals/.
- 16. Halkos GE. Environmental Kuznets Curve for sulfur: evidence using GMM estimation and random coefficient panel data models. Environment and development economics. 2003; 8(4): 581-601.
- 17. Halkos GE. Optimal abatement of sulphur emissions in Europe. Environmental and Resource Economics. 1994; 4(2): 127-150.
- 18. Halkos GE. Interconnectedness of Natural Capital, Social Capital, Produced Capital, and Cultural Heritage in Sustainable Development. EAERE 2023 28th Annual Conference; 2023; Limassol, Cyprus.
- Halkos GE, Sulphur abatement policy: implications of cost differentials. Energy Policy. 1993; 21 (10), 1035-1043
- 20. Aslanidis PS, Halkou P, Halkos GE. Towards an ethical consensus for sustainable development: the role of values, morals, and norms in shaping proenvironmental behaviour. MPRA Paper 124903, University Library of Munich, Germany; 2025.
- 21. Halkos GE, Nomikos S. Corporate social responsibility: Trends in global reporting initiative standards. Economic Analysis & Policy. 2021; 69, 106-117.
- 22. UNSDG. Operationalizing Leaving No One Behind [Internet]. United Nations Sustainable Development Group; 2022. Available from: https://unsdg.un.org/sites/default/files/2022-04/ Operationalizing%20LNOB%20-%20final%20with%20Annexes%20090422.pdf.
- 23. Richardson K, Steffen W, Lucht W, Bendtsen J, Cornell SE, Donges JF, et al. Earth beyond six of nine planetary boundaries. Science advances. 2023;9(37):eadh2458.
- 24. Rockström J, Steffen W, Noone K, Persson Å, Chapin FS, Lambin EF, et al. A safe operating space for humanity. Nature. 2009; 461(7263): 472-475.
- 25. Bruns B, Macdonald IH, Schneider BR. The politics of quality reforms and the challenges for SDGs in education. World Development. 2019; 118: 27-38.
- Managi S, Chen S, Kumar P, Dasgupta P. Sustainable matrix beyond GDP: investment for inclusive growth. Humanities and Social Sciences Communications. 2024; 11(1): 185.
- 27. De Franco C, Nicolle J, Tran L-A. Sustainable investing: ESG versus SDG. The Journal of Impact and ESG Investing. 2021; 1(4): 45-62.
- 28. Halkos G, Bampatsou C, Aslanidis PS. Global perspectives on club convergence: Unraveling the nexus

- of human and sustainable development in the face of corruption. Sustainable Development. 2025; 33(1): 534-553.
- 29. Ngcamu BS, Mantzaris E. Policy enforcement, corruption and stakeholder interference in South African universities. Journal of Transport and Supply Chain Management. 2023; 17: 814.
- Khan A, Krishnan S. Conceptualizing the impact of corruption in national institutions and national stakeholder service systems on e-government maturity. International Journal of Information Management. 2019; 46: 23-36.
- 31. Kynčlová P, Upadhyaya S, Nice T. Composite index as a measure on achieving Sustainable Development Goal 9 (SDG-9) industry-related targets: The SDG-9 index. Applied Energy. 2020; 265: 114755.
- 32. Aziz KMA, Daoud AO, Singh AK, Alhusban M. Integrating digital mapping technologies in urban development: Advancing sustainable and resilient infrastructure for SDG 9 achievement–a systematic review. Alexandria Engineering Journal. 2025; 116: 512-524.
- 33. Halkos GE, Aslanidis P-S. Reviewing environmental aspects under the scope of ESG. Munich Personal RePEc Archive; 2024.
- 34. Halkos GE, Aslanidis P-S. Integrating Environmental Economics into ESG Reporting in Europe: The environmental topic-specific cross-sector European Sustainability Reporting Standards (ESRS). MPRA Paper 124991, University Library of Munich, Germany; 2025.
- 35. P V. A literature review concerning the non-carbon-related environmental goals of the EU Taxonomy Regulation and the European Sustainability Reporting Standards (ESRS). Journal of Global Responsibility. 2025; 16: 542–568.
- 36. Fornasari T, Traversi M. The Impact of the CSRD and the ESRS on Non-Financial Disclosure. Symphonya. 2024 1:117-133.
- 37. UNIDO. Turning Challenges into Sustainable Solutions:
 The New Era of Industrial Policy. Industrial
 Development Report 2024 [Internet]. United Nations
 Industrial Development Organization; 2024. Available
 from:
 - https://www.unido.org/sites/default/files/unido-publications/2023-11/IDR24-OVERVIEW_1.pdf.
- 38. Sachs JD LG, Fuller G, Iablonovski G. The SDGs and the UN Summit of the Future. Sustainable Development Report 2024. Paris & Dublin: SDSN & Dublin Univ Press; 2024.
- 39. EFFAS & DVFA. KPIs for ESG: A Guideline for the Integration of ESG into Financial Analysis and Corporate Valuation. Version 3.0 [Internet]. EFFAS & DVFA; 2010. Available from: https://effas.com/wp-content/uploads/2021/09/KPIs for ESG 3_0 Final.pdf.
- 40. Halkos GE, Aslanidis P-SC. How waste crisis altered the common understanding: from fordism to circular economy and sustainable development. Circular Economy and Sustainability. 2024; 4(2): 1513-1537.
- 41. Gkargkavouzi A, Halkos GE, Matsiori S. Environmental behavior in a private-sphere context: Integrating theories of planned behavior and value belief norm,

- self-identity and habit. Resources, Conservation and Recycling. 2019; 148: 145-156.
- 42. Gkargkavouzi A, Halkos GE. The psychology of non-market environmental valuation: An integrative review of research evidence, theoretical insights, and policy considerations. Journal of Environmental Psychology. 2025; 101: 102510.
- 43. Barua S. Financing sustainable development goals: A review of challenges and mitigation strategies. Business Strategy & Development. 2020; 3(3): 277-293.
- 44. Halkos GE, Zisiadou A. Energy crisis risk mitigation through nuclear power and RES as alternative solutions towards self-sufficiency. Journal of Risk and Financial Management. 2023; 16(1): 45.
- 45. Nedopil Wang C, Lund Larsen M, Wang Y. Addressing the missing linkage in sustainable finance: the 'SDG Finance Taxonomy'. Journal of Sustainable Finance & Investment. 2022; 12(2): 630-637.