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Geographies of Sustainability Transitions in Developing Countries: An Integrative Review

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ABSTRACT

Sustainability transitions refer to long-term structural changes concerning less carbon, environmentally regenerative and socially inclusive systems. These transitions have received growing interest in both academic and policy discussions, especially in the Global South. However, the geographical aspects of these transitions remain underexplored. There is a limited integrative understanding of how context-specific socio-political, ecological, and institutional factors influence transition paths in developing countries. Based on 50 peer-reviewed articles, policy documents and institutional reports published between 2007 and 2024, this integrative review critically examines sustainability transitions in select regions of the Global South. Referring to a thematic synthesis method, this review traces four major directions of transitions, namely the development of renewable energy, water governance, adaptation to climate, and sustainable city and assesses the role of geography, governance models, and local capacities in shaping transition consequences. African, Asian, and Latin American case studies were rationally selected to capture geographical diversity and thematic relevance. The results show that resource endowments and institutional arrangement can be either the driver or the limitation, but the transition success is ultimately predetermined by multi-level governance integration, international cooperation, and integration of marginal actors. Also, this review shows considerable regional imbalances in research focus as the Middle East and other small island nations are underrepresented in the literature on transition. It concludes with a suggestion of the geography-sensitive framework of sustainability transition in developing context and provides a policy guideline towards alleviating structural asymmetries, local innovation system empowerment and balancing transition with the UN Sustainable Development Goals (SDGs). This review contributes to discourse on global sustainability by highlighting the spatial politics of the processes of transition and widening of transition research to a more regionally bound one.

1. Introduction

Sustainability transitions refer to long-term, profound, and multi-faceted transformation processes aimed at shifting production and consumption systems toward greater sustainability. These transitions have gained increasing prominence in international environmental governance and policy discussions as essential pathways for addressing pressing global challenges (Geels, 2011; Smith et al., 2010). Although the available literature has been largely produced in and focused on the Global North, it is necessary to have a more differentiated understanding of these phenomena in Global South due to existent differences in social, economic and ecological realities. In short, the geographical premise of sustainability transitions, such as place involved dynamics, resource endowment, governance regimes, and socio-political constructions, has not been given sufficient scholarly consideration (Coenen et al. 2012; Truffer and Coenen 2012).

The research in this paper adds value to the literature by carrying out an integrative review of the processes of sustainable transition in some developing countries in Africa, Asia, and Latin America. The analysis focuses attention on four critical areas of renewable energy, water governance, climate adaptation and urban development which form the Sustainable Development Goals (SDGs) and the wider agenda of national development in using the Global South. To acquire geographic variety and non-homogenous development patterns, case studies are considered in Kenya, Peru, India, Vietnam, South Africa, Brazil, Bangladesh, Egypt, and Sri Lanka.

Selection criteria of these countries are two folds. To begin with, both have launched their sustainability-related reforms and require long-term attention in recent policy and academic circles. Second, the cases render educative comparisons in terms of the geographic, institutional and political contexts shaping the pathways of transitions. There are countries of significant improvement and those posing lasting governance and equity issues.

Using a thematic analysis of 50 peer-reviewed articles, policy documents and institutional reports published between 2007 and 2024, the study answers two general research questions:(1) Which are the key topic areas and regional patterns of sustainability transitions in the Global South? and (2) How do geographical, socio-political, and institutional factors contribute to the character and the consequences of the transitions? These results provide some policy-relevant reflections concerning the principles of promoting equitable and geographically adequate sustainability transitions.

2. Materials and Methods

The integrative review examines the geographical aspects of the sustainability transitions in developing nations. The integrative review method was selected because it allows the combination of empirical research, theoretical contributions, and policy-oriented studies, offering a comprehensive and interdisciplinary understanding of spatially embedded sustainability transitions. A review of the literature was launched by searching several scholarly databases and institutional repositories, which included peer-reviewed reports and publications in the affairs of geography, environment, development policy and sustainability science.

To achieve inclusivity, Boolean operators were used in searches using the combination of keywords, such as, sustainability transitions and developing county, Global South, geography, regional, and spatial. The articles published between 2007 and 2024 in English that clearly focused on either spatial or regional processes of sustainability transitions were included. The first query had 200 records. Following the removal of

duplicates, irrelevant information, and works that were not original enough in analytical detail, there were 50 high-quality peer-reviewed articles, policy reports, and institutional reports to thoroughly read.

Inclusion criteria emphasized works which had an evident concentration on sustainability transitions in the segments of energy, agriculture, water or urban planning; provided an empirical or more conceptual concentration on spatial, geographical or place-based inquiries; and based itself on case studies in developing or emerging economies.

To address the geographical orientation of the paper, most case studies covering the different regions were included. These were from Kenya, Peru, India, Vietnam, South Africa, Brazil, Bangladesh, Egypt, and Sri Lanka, and covered large ecology zones, institutional formation, and development. Kenya and Peru were chosen because of their applicability in transitions to clean energy sources, but they too differ, with Kenya focusing on geothermal and decentralized energy initiatives and Peru on creating hydropower and massively located solar power plants. Sri Lanka is characterized by their rooftop solar program (Soorya Bala Sangramaya) which represents a small island developing state context with community-level implementation.

These examples show that national contexts and geographies define the sustainability pathways. The regional distribution was balanced across Africa, Asia, and Latin America, and fewer peer-reviewed studies of the Middle East and Central America were found, which constitutes a recognized limitation of the review.

The reviewable articles were deductively and inductively coded in terms of themes. The first step of the analysis relied on the key themes of sustainability transitions literature: governance mechanisms, technological change, environmental justice, and spatial inequality. Other themes emerged inductively, including local behavior toward infrastructure development, non-formal adaptation measures and regional differences in the execution of policy. This combination approach coded both systematically and in such a manner that it allowed flexibility to identify reoccurring themes and features in different geographical settings.

The case studies were also aligned against the Sustainable Development Goals (SDGs) like SDG 7 (Affordable and Clean Energy), SDG 6 (Clean Water and Sanitation), SDG 11 (Sustainable Cities and Communities) and SDG 13 (Climate Action) to place the findings within the context of the global sustainability agenda. This mapping shed light on both the role of the national and local sustainability initiatives in support of such wider goals and limits. The research presents a rich interpretation of the sustainability transition processes locally experienced in the Global South using the combination of these findings and a place-based approach.

3. Results and Discussion

This is an integrative review that provides a synthesis of the evidence that is based on 50 peer-reviewed articles, policy documents, and institutional reports and identifies four interconnected thematic areas that tend to frame sustainability transitions in the Global South simultaneously: (1) geographical and resource endowments; (2) governance and institutional dynamics; (3) socio-economic equity and transition justice; and (4) global sustainability frameworks and local realities integration. Collectively the domains capture the embedded regional, multi-layered and unevenly distributed nature of transition processes in Africa, Asia and Latin America.

3.1 Geographical and Resource Endowments as Determinants of Transition Pathways

Geographical context, mainly the spatial allocation of natural resources and the

ecological attributes are important factors in the determination of the energy transition courses. The high solar irradiance levels and strong geothermal potential in the area around Lake Turkana have enabled the realization of the Lake Turkana Wind Power project in Kenya, thus facilitating the clean energy diversification plan of this country. Similar processes can be observed in Peru, where intense solar radiation in the Moquegua region allows building one of the largest photovoltaic plants in South America (EVWind, 2024).

In South Asia, the tropical island topography in Sri Lanka provides solar radiation as well as coast wind potential to propel the renewable energy agenda in the form of decentralized solar projects like the Soorya Bala Sangramaya programs. As a developing country and a small island, Sri Lanka also faces noticeable geographic limitations such as limited land accessibility and climate vulnerability which necessitate innovative as well as space efficient energy solutions. In contrast, rural places in countries like Kenya and Brazil are faced with landscape and infrastructural problems that hinder the development of renewable energy resources and geographical distribution of renewable technologies. Such practices as deforestation, land-use conflict, and other degradation of the environment exacerbate transition efforts in forest-rich areas, such as the Amazon or Colombian Andes (Armenteras et al., 2018). Such geographical differences highlight the relevance of place-based approaches to the coordination of transition programs with the geographical and ecological conditions in the immediate environment.

3.2 Governance, Policy Frameworks, and Institutional Dynamics

Governance-related design and coordination have a determining effect on the rate and path of sustainability transitions. In this regard, South Africa and Vietnam have developed national programs specifically leading to the energy transition the REIPPPP and the Green Growth Strategy, respectively, which are effective in activating both the state and the private sector resources to invest in low-carbon development (Baker et al., 2014; Dinh & Chen, 2020). Another example would be the Smart Cities Mission in India, where local state governments should be involved in achieving sustainable cities via the means of comprehensive infrastructure construction (Ministry of Housing and Urban Affairs, 2023).

The solar transition in Sri Lanka in the meantime suggests the parameters and factors used in favor of the policy framework and the use of the public-private partnership to fuel the fast adoption. Soorya Bala Sangramaya is one such program along with the Ceylon Electricity Board and Asian Development Bank, which provides financial incentives/net-metering of prospective households, enabling them to contribute to the energy paradigm at the grassroot level. However, some obstacles also persist, which include disparities in the coordination of national energy agencies and restrictions on the decentralized systems in the forms of the regulation process.

Barriers also include inconsistent enforcement, institutional fragmentation and few stakeholders involved. To give an example, despite the good policy articulation on renewable energy in Peru, project implementation lags and there remains uncertainty in regulations (Campodonico & Carrera, 2022).

Transboundary collaboration in water governance like in the Nile Basin, shows the requirement of multi-level governance as well as regional coordination to address shared ecological challenges (GIZ, 2023; Swain, 2011).

These examples support the idea that the presence of policies is not enough, and institutional effectiveness, cross-sectoral coordination, and inclusive governance are critical to navigate and sustain transitions.

3.3 Socio-Economic Equity and Transition Justice

Unequal energy access, marginalization and financial exclusion can be identified as Socio-economic inequalities, and these are significant challenges to just sustainability transitions. This review emphasizes that low-income population and rural populations frequently face higher exposure to climate risks and lower entry to transition related benefits. At the national level, clean energy efforts in South Africa have improved significantly; however, many households do not have secure and affordable electricity therefore it makes risks in achieving social-equity goals (Hermanus and Montmasson-Clair, 2022). Similar results are observed in the city slums in India, where these communities are systematically deprived of using green infrastructure and adaptive urban planning (Roy et al., 2023).

On the other hand, Bangladesh floating agriculture model provides an example of a socially deliberate approach that combines climate adaptation with livelihoods resilience, which can be applied to ecologically delicate regions of the country (Chowdhury and Moore, 2017). The solar rooftop program in Sri Lanka (Soorya Bala Sangramaya) is a good example of highlighting the importance of financing mechanisms in the Macro-Micro level of accessibility and scalability in low-income scenarios (ADB, n.d.). The program is a demonstration of how energy justice can be implemented on a limited budget in industrially poor countries because it aims to provide household energy security through decentralized solar installations, by lightening energy poverty at the household level.

In Brazil, there can be identified considerable barriers to sustainable agriculture and land use improvements in dominance of the agribusiness sector. It often makes the marginalizing effect towards indigenous people and smallholders. This kind of power-related imbalances make an impact on continuous deforestation and environmental inequality in the Amazon area highlighting how socio-economic injustices form and constrain just sustainability transitions.

These findings justify equity-oriented policy making as well as participatory planning and support mechanisms with target in order to ensure that transitions never exacerbate current disparities and instead encourage inclusive development.

3.4 Integration of Global Sustainability Frameworks with Local Contexts

A major cross-cutting idea is the gap between the extent to which international agenda setting, specifically Sustainable Development Goals (SDGs), are adopted into concrete national and sub-national programs. Such targets are invoked in government policy statements by many governments, but there is an inconsistent quality to the extent to which they are operationalized. This can be identified as the case with Egypt, where National Water Resources Plan boldly presents SDG 6 (Clean Water and Sanitation), but in this regard, the gap between promised capabilities and actual implementation remains high due to geopolitical tensions, climate-related stresses and institutional limits (OECD, 2021; UNDP, 2021).

Conversely, the efforts of Vietnam to develop eco-industrial parks are indicative of a significant degree of compliance with the SDGs since they incorporate ecological, economic, and social goals into the industrial policy (Tran & Nguyen, 2023). Flood-resilient agriculture, which is categorized as a localized adaptation measure in Bangladesh achieved SDG 13 (Climate Action) and SDG 2 (Zero Hunger) through the use of traditional knowledge and its orientation within the modern environmental sustainability paradigm (Kamruzzaman & Shaw, 2018).

The national energy policy of Sri Lanka is consistent with both SDG 7 (Affordable and

Clean Energy) and SDG 13 (Climate Action) due to taking steps to develop renewable energy through distributed solar infrastructure. The relationship between household-level production and grid stability of entire nations falls in line with demonstrating a possible contextual balancing between local initiatives and worldwide sustainability benchmarks.

These examples emphasize the value of adaptive governance that contextualizes global sustainability norms within various social-ecological systems by ensuring ownership relevance and long-term effectiveness.

Figure 1 presents the conceptual framework that puts an emphasis on the geographically embedded nature of sustainability transitions in the Global South. Firstly, geographic endowments (natural resources, biodiversity, climate variability) provide the background context of transition processes. Some forms of contextual drivers are institutional governance structures, policy instruments and financing mechanisms. The socio-economic filters mediate access, equity and inclusion of the sustainability transition outcomes, such as the inclusion of renewable energy, adaptive capacity etc. Results are evaluated on the basis of their compatibility with important Sustainable Development Goals (SDGs), especially SDG 2, 6, 7, 9, 10, 11, 12, 13, and 15. Such feedback mechanisms are critical because they help translate results into more future policy and governance adjustments with proper strategies of transition which have to be context and equity sensitive.

Table 1. Summary of Case Study Insights

Country	Region	Focus Area	Geographic Endowment	Key Challenges	Relevant SDGs
Kenya	Africa	Renewable Energy Development	Solar, wind, geothermal	Infrastructure, energy poverty	SDG 7, SDG 13
Peru	Latin America	Solar, Hydropower Transitions	High solar irradiance, rivers	Regulatory delays, land conflicts	SDG 7, SDG 15
India	Asia	Urban Sustainability	Dense urban regions	Informality, pollution, governance gaps	SDG 11, SDG 7
Bangladesh	Asia	Climate Adaptation, Agriculture	Flood-prone delta regions	Food insecurity, climate vulnerability	SDG 2, SDG 13
South Africa	Africa	Clean Energy, Just Transitions	Wind and solar	Social equity, access disparities	SDG 7, SDG 10
Vietnam	Asia	Green Growth, Eco-Industrial	Coastal industrial zones	Policy coordination, investment gaps	SDG 9, SDG 13, SDG 12
Egypt	Africa (North)	Water Governance	Nile Basin dependency	Scarcity, climate risks,	SDG 6, SDG 13

				regional politics	
Brazil	Latin America	Agroecology, Sustainable Agriculture	Amazon basin, tropical climate	Agribusiness influence, weak enforcement, funding gaps	SDG 2, SDG 13, SDG 15
Sri Lanka	Asia	Rooftop Solar, Energy Access	High solar potential, island ecology	Grid capacity, financing, regulatory issues	SDG 7, SDG 13

Source: Compiled by the author based on literature, 2025

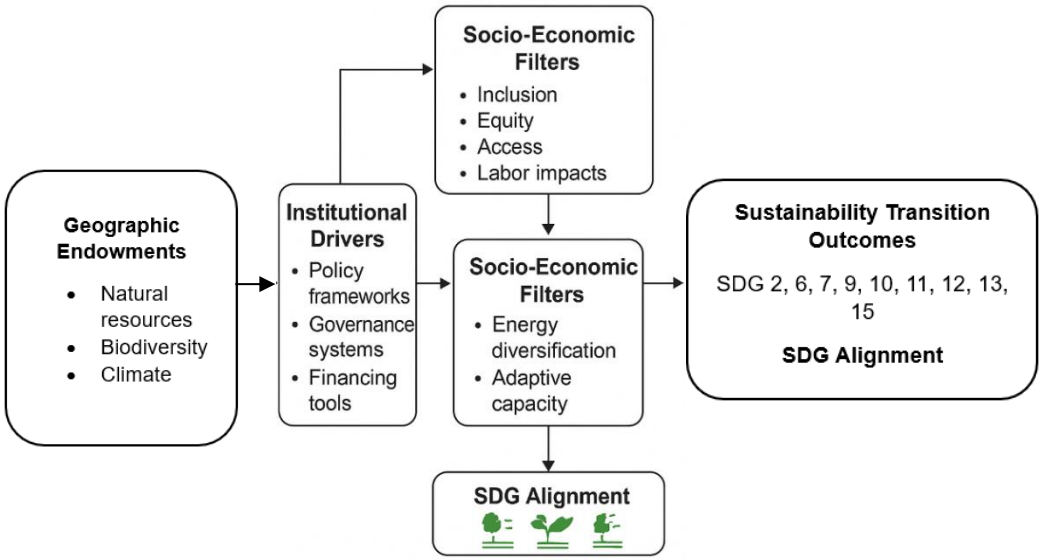

Figure 1. Conceptual Framework
Source: Compiled by the author based on literature, 2025

The review indicates the complex and geographically situated nature of sustainability transitions in the Global South. By using various case studies of Kenya, Peru, India, Bangladesh, South Africa, Sri Lanka, and other countries, the analysis proves that the transition trajectories are defined by the interconnections of natural resource endowment, social economic equity, governance capabilities, and localization of global sustainability frameworks.

The main contribution of the present review is the emphasis on geographic characteristic, which is inadequately expressed in the body of dominant literature on sustainability transitions, originating in the Global North. To take two examples, East Africa and South America boast abundant supplies of renewable energy, such as geothermal in Kenya or solar energy in Peru: these resources are necessary, but not enough in themselves to deliver successful transitions.

The story of Lake Turkana Wind Power Project in Kenya shows that even geophysical potential must be complemented by efficient governance, infrastructural preparedness, and involvement of the community to guarantee the fair and sustainable results (Eberhard & Naude, 2016; Baker et al., 2014). Similarly in Sri Lanka, the high availability of solar radiations has boosted the development of distributed rooftop solar schemes like Soorya Bala Sangramaya, but the stability of the grid and the capacity of institutions is one of the major bottlenecks to maximize its impact. Taken together, the offered cases argue in support of the claim that sustainability transitions are at least partly technological rather than simply geographical and political processes (Coenen et al., 2012; Truffer & Coenen, 2012).

The governance structures and institutionalist forces are critical features influencing either smooth facilitation or an slowing process of energy changes. As evinced by Vietnam and South Africa, this can be achieved through the directed policy tools, especially the green growth strategies and public-private procurements programs, realizing substantial and expanded investment flows and catalyzing innovation. Simultaneously, the Sri Lankan experience of public-private interaction of solar policy, triggered by the existence of financing mechanisms (e.g., by the Asian Development Bank (ADB) efforts) is important.

This exemplifies how the adoption of renewable energy (RE) in distributed form can be expedited in low-income contexts through creation of favorable governance environments. However, these barriers such as regulatory hold ups, intra-agency coordination, and grid-integration remain. These results are consistent with the past studies promoting multi-level, inclusive governance, which supports decentralization, transparency, and accountability, especially in situations where institutional weaknesses are known or controversial politics are evident (Sovacool & Hess, 2017).

The discourse is still based on socio-economic inclusion and transition justice. There is evidence that showed inequalities in access to clean energy, capital, and decision-making processes continue to be over-represented in rural areas and informal settlements. The climate-adaptive agriculture initiated in Bangladesh and the rooftop solar program in Sri Lanka are examples of how reconciliation of environmental goals toward poverty alleviation, gender equity, and energy justice could be achieved. Subsidy mechanisms and net-metering plans in Sri Lanka have allowed households in medium and low-income groups to implement solar technology, but technical assistance, financing, and the lack of awareness of the general population have limited the extension of such schemes. The fact that there are no sufficient financial tools and policy support also restricts the scalability of such interventions. Brazil's power related imbalances in agribusiness sector make an impact on continuous deforestation and environmental inequality in the Amazon area highlighting how socio-economic injustices form and constrain just sustainability transitions. The results highlight the importance of putting a premium on social equity when planning the transition. These mechanisms need to be undertaken with efforts to acknowledge that the benefits should be shared, and the vulnerable community should not be isolated (Roy et al., 2023; Kamruzzaman & Shaw, 2018).

The discussion of sustainability transitions in the Global South shows that despite the Sustainable Development Goals (SDGs) providing an effective framework that assists in directing such transitions, their integration in regional settings has been disproportionate. Examples like the eco industrial parks of Vietnam and floating agriculture of Bangladesh- depicts the ability of locating compatibility between international aspirations and the culturally acclimated and environmentally pertinent business practices. Although SDGs 7 and 13 are mentioned in Sri Lanka's energy policy,

appropriate monitoring and evaluation, as well as institutional connection between national and local stakeholders. It is crucial to implement these things in proper and appropriate ways. Also, serious discrepancies between global goals and national implementations continue, such as the case of water governance in Egypt or the city sustainability projects in India (UNDP, 2021; Ministry of Housing and Urban Affairs, 2023). This fact highlights the need to adapt and be flexible so that international agendas can be mobilized to fit the knowledge, needs, and limitations that are localized in different areas.

Overall, the review makes clear that transitions towards sustainability in the Global South are highly non-linear and cannot be generalized because they are contextual processes influenced by geographic, institutional and social processes. Therefore, intersectoral research, intersectoral policy interrelation, and cross-cutting mechanisms of governance are vital to navigate through such complexities. The geographically sensitive and equity-oriented lens will allow future transitioning actions to serve the technological innovation, climate resilience, social justice, and sustainable development more perfectly.

4. Recommendations

The integrative review and thematic analysis have generated a series of recommendations regarding how to improve the design, implementation, and equity of the sustainability strategies. The recommendations highlight geographic sensitivity, social inclusion, institutional strength as well as global-local policy alignment.

1. Strengthen Context-Specific and Geography-Sensitive Policy Frameworks

To capture geographic, socio-economic, and institutional conditions, sustainability transitions need to be context specific. Generic solutions run the risk of bypassing local vulnerabilities and opportunities as well as dynamics in resources. Such decentralized energy systems as in Kenya must face the concentration of support to off-grid and mini-grid systems. Biodiversity-rich countries should maintain integrative approaches that would balance conservation and energy requirements, and the local livelihoods. As a result, there is a need to consider adaptive policy frameworks that are based on place-based knowledge, flexibility in designing, and context-specific responsiveness (Coenen et al., 2012; Geels et al., 2017).

2. Promote Inclusive and Participatory Governance

Widespread involvement is an essential ingredient of the legitimacy and success of a societal change. The planning, implementation, and benefit sharing are to be engaged with the securing of local societies with women, Indigenous people, and the rural population. Examples like the integration of local governance of authority into solar power programs show how decentralized governance can improve the acceptability of policies and better provision of services. The marginalization issue of Brazil's agribusiness sector illustrates the necessity of inclusive governance in sustainability transitions. All such mechanisms as co-design, community-based monitoring, and deliberative processes need to be institutionalized to enhance and boost transparency, build ownership, and suppress resistance (Sovacool & Hess, 2017; Roy et al., 2023).

3. Enhance Access to Finance and Strengthen Financial Mechanisms

The lack of sustainability accessibility remains one of the major barriers to the widespread shift in longevity. As such, it is possible that the government and developmental organizations prioritize such rich development opportunities as gradual

upliftment of the inclusive financial mechanisms. This is in the segment of blended finance structures and provision of concessional loans and results-based financing. Small businesses, cooperatives and entrepreneurs often ignored by traditional finance systems need targeted subsidies and microfinance schemes. The Sri Lankan project Soorya Bala Sangramaya and its concessional rooftop solar loans, show that financing can lead to prompt energy transition at the household level. It is important to replicate such models on a large scale throughout the Global South (ADB, 2021; OECD, 2021).

4. Facilitate Technology Transfer and Invest in Capacity Building

Technological diffusion in developing economies requires comparative investments with respect to human and institutional capacity-building. The international coordinating efforts should focus on fair and context-specific transfer of technologies, and the solutions must clearly draw on technological feasibility and social acceptability. Other areas of investment, which can enable local actors and minimize external reliance come in terms of research facility development, vocational education development as well as innovation hubs like the emerging solar and ICT training centers. Peers should also learn and adapt through increased South-South knowledge exchange (peer-learning platforms), regional technology alliances, and increased sharing of mutual learning (IRENA, 2018; Truffer & Coenen, 2012).

5. Align National and Local Strategies with the SDGs

Even though the Sustainable Development Goals (SDGs) form a worldwide accepted framework, the process of converting the global goals into suitable, locally relevant indicators and interruption strategies is uneven. National leaders need to translate SDG's goals into localized, measurable measures that capture local crises like water shortage in Egypt, access to energy in South Africa and resilience in urban neighborhoods in India. The municipal and provincial governments should be given the power to incorporate the SDG planning in their mandate. Solar and Agricultural related initiatives in Sri Lanka partly overlap with SDG 7 (Affordable and Clean Energy) and SDG 2 (Zero Hunger); however, how to achieve the latter should be better monitored and assessed to create accountability and enabling adaptive learning (UNDP, 2021; UNEP, 2020).

6. Address Governance and Institutional Weaknesses

A set of governance shortfalls like institutional divisions, limited enforcement resources, and corruption, have become powerful obstacles to effective transition processes in numerous contexts. Good sustainability governance is premised on enhanced institutional coherence, the rule of law regime, and the strengthening of administrative capacity. Here, decentralization of institutional arrangements, effective inter-ministerial coordination and legal certainty are essential, especially in the complex transition sectors like land-use and water management. Based on this, international actors can establish sustainable long-term governance reform by using regional capacity-building, technical assistance, and accountability mechanisms (Swain, 2011; GIZ, 2023).

7. Expand Regional Representation in Research and Policy Design

The prevailing academic and policy research has focused on limiting the sustainability transition discourse on a small group of developing economies and has thus edged out the voices of the underrepresented regions, such as Central America, Middle East, and small island developing states (SIDS). This unevenness restricts the inclusiveness and generalizability of global frameworks. Also, it

needs to allocate special research grants, as well as facilitate cross-regional cooperation to introduce these voices to the research, policy, and implementation domains.

Overall, the sustainable development of the Global South requires geographically sensitive policies, participatory governance models, well-developed institutions, equalized funding systems, and close connections between the international and local community. These suggestions attempt to assist governments, researchers, and development practitioners to develop transition strategies that are ecologically sustainable, technologically feasible, socially fair, and endogenous.

An integrative literature review of 50 peer reviewed articles, policy papers and institutional reports suggest that sustainability transformations in the Global South are greatly affected by the social political, institutional and geographical context within which they operate to an extent that surpasses technical or environmental factors alone. Examples of representative pathways, based on renewable energy in Kenya, climate-resilient agriculture in Bangladesh, and Eco industrial planning in Vietnam that focus on such transitions, demonstrate that geography is not a passive participant of such changes.

The different degrees of ecological vulnerabilities, resource endowments, cultural norms, and governance models show the significance of place-sensitive methodologies in a given region. Despite significant developments in clean energy, water management, and city planning, there are underlying constraints that still restrain equitable growth. This includes the problem of being institutionally fragmented, constraints on finance, as well as social and economic inequalities.

The use of qualitative case studies, a contextually rich method, requires methodological pluralism involving spatial analysis and longitudinal consideration. Moreover, there is a scarcity of representation of areas such as the Middle East, Central America, and small island states which limits the generality of the existing academic research. The review is therefore highlighting the need for interdisciplinary context sensitive approaches which integrate with global frameworks. Most prominently the Sustainable Development Goals should be embedded in locally inclusive frameworks of governance. Successful global South transitions to sustainable development will depend on eventually developing geographically sensible, socially progressive, and institutionally sensible projects supported by inter-sectoral cooperation and long-term capacity building.

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