SPECIAL SECTION

Climate Change & Just Energy Transition: What the North Can Learn from the South?

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Abstract: The G20, a group of the world's largest economies, has the unique potential to catalyze change in climate actions and a just energy transition. It is essential to consider the importance of these topics for the G20 and what to look forward to in Brazil's Presidency. The upcoming Summit presents a pivotal moment for G20 nations to unite in their resolve to combat climate change and steer the world toward a future defined by environmental sustainability and energy justice.

Keywords: climate change; energy transition, Global South, G20, South-South cooperation.

The world is facing an unprecedented challenge: climate change. It impacts people everywhere and transcends national boundaries. Its effects go well beyond the environment; they affect economies, cultures, and the lives of millions of people, resulting in a crisis that must be addressed right away. The majority of the impact falls on vulnerable groups, underscoring the need for a fair and sustainable energy transition.

The need for energy transition is indisputable. This world is on the verge of collapse due to the dependency on fossil fuels, widespread deforestation, and unsustainable agriculture methods. Not only are rising sea levels, severe weather, and biodiversity loss indicators of a planetary imbalance that need immediate attention, but they also serve as warnings. The areas of Africa, Latin America, and Asia together known as the Global South, remain resilient in the face of this catastrophe. Despite frequently experiencing the worst environmental deterioration, some areas have led the way in creative solutions, demonstrating resilience in the face of difficulty. The Global South faces economic challenges, but many countries in the South have made significant strides in combating climate change and achieving a just energy transition. Their experiences highlight the power of resourcefulness, community-driven initiatives, and a strong sense of urgency in the face of environmental crises.

On the other hand, in contrast to the Global South's innovative approaches, the Global North, often wealthier and more technologically advanced, has faced challenges in combating climate change and progressing towards a sustainable energy future. Unexpectedly, the affluence of these nations has, in some cases, hindered progress. Economic dependence on fossil fuel industries and established infrastructures has made it difficult for these countries to swiftly transition to renewable energy sources. Additionally, political and economic interests often clash, leading to slow policy changes and a reluctance to abandon lucrative but environmentally damaging practices. Furthermore, the Global North has a tendency to underestimate the urgency of climate action because they believe their affluence will protect them from immediate impacts. This complacency has hampered the essential proactive effort required to successfully prevent climate change. While significant progress has been achieved in the adoption of renewable energy and the reduction of emissions, it frequently falls short of what is required to meet the severity of the challenge.

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This article will explore the vital issue of climate change and the pursuit of a fair energy transition through the lens of the Global South's experiences. By delving into their successful initiatives, policies, and community-driven approaches, this study aims to uncover invaluable lessons that the Global North can embrace. The Global South, often overlooked in climate change discussions, holds a treasure trove of wisdom. Despite facing marginalization, these nations offer valuable knowledge and practices that can shape our global path toward a sustainable future. Learning from the Global South's success while realizing the limitations and constraints that wealthier nations confront will pave the way for a more collaborative and inclusive global effort to tackle climate change and achieve an equitable energy transition. The 2024 G20 meeting in Brazil will be an excellent opportunity to analyze and review world procedures concerning climate change.

Despite facing marginalization, [Global South] nations offer valuable knowledge and practices that can shape our global path toward a sustainable future. Learning from the Global South's success while realizing the limitations and constraints that wealthier nations confront will pave the way for a more collaborative and inclusive global effort to tackle climate change and achieve an equitable energy transition. The 2024 G20 meeting in Brazil will be an excellent opportunity to analyze and review world procedures concerning climate change.

BACKGROUND AND SIGNIFICANCE

Climate change stands as one of the defining challenges of the 21st century, affecting every corner of the globe. Its consequences are not just environmental but extend into economic, social, and political realms. Rising sea levels, extreme weather events, and disruptions in agriculture are not hypothetical scenarios but the actual realities faced by communities worldwide. In this context, the imperative for a just energy transition, a shift from fossil fuels to sustainable and equitable energy sources, has never been more urgent.

Climatic changes have made the transition to renewable energy essential. However, energy transition in the globalized world is challenged by

socioeconomic and cultural factors. Therefore, energy transition in the Global North-South dimension implies different energy transition plans to maintain socioeconomic resilience (Jain 2019).

The Global South, encompassing countries in Africa, Latin America, and Asia, stands resilient despite being disproportionately impacted by climate change. These nations, despite contributing the least to greenhouse gas emissions, bear the brunt of environmental challenges like loss of land and water scarcity. Despite these difficulties, they have become hubs of innovative solutions. Many countries in the Global South have set ambitious climate goals, such as transitioning to renewable energy and reducing greenhouse gas emissions. For example, India has set a target of achieving 450 GW of renewable energy by 2030 (Suri 2023). Additionally, Bangladesh has implemented a comprehensive climate adaptation plan that includes early warning systems for natural disasters and the construction of flood shelters (Huq & Adow 2022). During the last few decades, research on climate change has increased tremendously mainly due to the increasing awareness of the buildup of greenhouse gases as well as rapid alarming environmental transformation. In this regard, it is imperative to understand the regional-level manifestations of climate change for the more densely populated and less-explored, fast-developing regions of the Global South.

This article (...) explores the invaluable lessons the Global North can learn from the Global South. Countries in the Global South are advocating for climate justice and demanding that the Global North take responsibility for the majority of emissions that cause climate change.

According to long-term climatic data, the bulk of the Global South is particularly susceptible and underprepared for the rising effects of climate change. Some of the specific implications include decreased precipitation patterns followed by rising temperatures and severe weather occurrences. Specifically, some areas, such as small low-lying islands in the Pacific, are more vulnerable to climate change and the impacts resulting from sea level rise. Furthermore, the concentration of population along the coast with limited access to resources and poor infrastructure makes this region more vulnerable (Sen Roy 2018). Despite all the obstacles and geographical disadvantages, Global South has significant progress and is very much aware of combating climate change. Moreover, Global South is also concerned about burning fossil fuels and is interested in investing in green energy transition.

This article is significant because it explores the invaluable lessons the Global North can learn from the Global South. Countries in the Global South are advocating for climate justice and demanding that the Global North take responsibility for the majority of emissions that cause climate change. They are also demanding climate compensation from the wealthier West in the shape of funds that would help the Global South meet greenhouse gas emission goals (Suri 2023). Often sidelined in global discussions, the Global South has pioneered sustainable practices, community initiatives, and policies promoting climate resilience. Understanding these strategies is crucial for shaping effective policies worldwide. By fostering cross-cultural dialogue and bridging the knowledge gap, this article focuses on creating a deeper understanding of achieving a just energy transition for a sustainable future.

LATEST DEVELOPMENTS

In 2023, significant strides in climate action have been observed. The UN Climate Change Conference (COP28) in the United Arab Emirates (UAE) occurred in November 2023. As of this writing, it promised to be a pivotal event, concluding the first Global Stocktake of the implementation of the Paris Agreement, fostering transparent and inclusive dialogues, and shaping the global response to climate change.

The Biden-Harris administration in the United States has taken notable steps to combat climate change. New actions include integrating climate change impacts into federal budgeting, procurement, and environmental reviews. These measures signify a growing global recognition of the urgency to address climate change impacts.

This introduction sets the stage for a detailed exploration of how the Global South's experiences can guide the Global North in climate change mitigation and energy transition. The subsequent sections will delve into specific case studies, policy analyses, and recent advancements in renewable energy and green technology, forming a comprehensive narrative on this critical issue.

THE URGENCY OF ENERGY TRANSITION AND GLOBAL SOUTH'S RESILIENCE

The global dependency on fossil fuels has precipitated an ecological crisis. Unprecedented changes in climate patterns, rising sea levels, and loss of biodiversity are not just theoretical projections but observable realities. These indica-

tors of planetary imbalance necessitate an urgent shift towards sustainable energy sources. In the face of environmental calamities, the Global South has shown remarkable resilience. Countries in this region have led by example in devising creative solutions to combat climate change. India's ambitious renewable energy goals and Bangladesh's comprehensive climate adaptation strategies illustrate the proactive measures taken by these nations.

The Global South has seen a surge in renewable energy investments. Solar, wind, and hydroelectric power are increasingly being harnessed, reducing reliance on fossil fuels. For instance, in 2020, renewable sources accounted for a significant portion of global energy consumption, with solar power emerging as the most cost-effective electricity generation source worldwide. Asia, particularly, has witnessed substantial growth in renewable energy. Countries like the UAE are setting ambitious targets to expand their renewable capacity, exemplifying the region's commitment to a clean energy future. Sub-Saharan Africa, too, possesses immense renewable potential, offering an opportunity to address the energy needs of millions without access to electricity.

Contrasting the Global South's innovative approaches, the Global North, often wealthier and technologically advanced, faces its own set of challenges. Economic dependencies on fossil fuel industries and established infrastructures have impeded a swift transition to renewable energy. Political and economic interests often conflict, slowing down policy changes and the abandonment of environmentally harmful practices. The recent reduction in greenhouse gas emissions from the power sector in the U.S. marks a significant milestone. For the first time, emissions are expected to fall, owing to the expansion of renewables like solar and wind power. These developments highlight the potential for the Global North to accelerate its transition to renewable energy sources.

SOUTH-SOUTH COOPERATION AND INVESTMENT IN RENEWABLE ENERGY

The concept of South-South cooperation has been pivotal in accelerating climate change practices and the transition to green energy. This form of cooperation entails sharing knowledge and experiences related to climate change and adaptation among developing countries. It fosters solidarity and helps in identifying common challenges and solutions. This collaborative model has been instrumental in promoting climate resilience and sustainable development in the Global South.

Significant investments in renewable energy sources such as solar, wind, and hydroelectric power are reshaping the energy landscape of the Global South. Gov-

ernments and corporate sectors have joined forces to fund renewable energy projects, thus diminishing reliance on fossil fuels and curbing carbon emissions. Developing countries are expected to play a central role in future energy demand, with rapid population and economic growth driving this trend.

While North America, Europe, and China are major destinations for renewable energy investment, developing countries like India and Brazil also attract a significant share. However, other developing nations receive a smaller portion of the total investment, highlighting the need for equitable investment distribution in renewable energy globally. The Global South has recognized the necessity of innovation and investment in low-carbon production for a sustainable future. Countries have developed policies and strategies for mitigating greenhouse gas emissions and adapting to climate change effects. For instance, the UAE's goal to triple its renewable capacity by 2030 exemplifies such ambitious policy-making.

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Engaging local communities in decision-making processes has been crucial in the Global South. Tailoring solutions to specific community needs ensures their effectiveness and sustainability. Initiatives like community gardens, tree planting, and participatory Nature-Based Solutions (NbS) in informal settlements have demonstrated the power of local involvement in combating climate change. The National Adaptation Program of Action (NAPAs) is an international effort focusing on building resilience in developing and least-developed countries, including those in the Global South. These programs involve community participation in designing and implementing climate adaptation initiatives, showcasing the importance of inclusive strategies.

PROGRESS OF GLOBAL SOUTH IN COMBATING CLIMATE CHANGE AND TRANSITION TO RENEWABLE ENERGY

Despite economic difficulties, the Global South has made significant progress in combating climate change. Here are some major areas where substantial progress has been made:

Renewable Energy Transition: Many countries in the Global South have rapidly increased their capacity for renewable energy. Solar, wind, and hydroelectric power investments have surged, lowering dependency on fossil fuels. Renewable energy is growing in the Global South. In 2020, renewable sources accounted for 19.1% of total final energy consumption globally, representing a 2.4-percentage-point increase from 2015 (UN 2023). Solar power is now the cheapest source of electricity generation across almost the entire world.

India's Solar Energy Leadership: India has become a global leader in solar energy generation, operating multiple solar farms integrated into the national grid. This has significantly decreased the country's dependence on traditional energy sources (IRENA 2023b).

Asia's Pioneering Efforts: Asia has witnessed remarkable growth in renewable energy, with nearly half of the world's new capacity added in 2022 (Sieber 2023). The region now boasts an impressive 1.63 Terawatt (TW) of renewable capacity (Sieber 2023).

UAE's Ambitious Targets: The UAE has set ambitious targets, aiming to triple its renewable capacity to over 11,000 gigawatts by 2030. This initiative positions the UAE as a frontrunner in the global clean energy movement.

Sub-Saharan Africa's Renewable Opportunities: Sub-Saharan Africa holds enormous renewable potential, with over 1,000 times more capacity than its current energy demand (O'Hanlon & Locke 2023). This presents a significant opportunity to provide electricity to the 600 million people in the region who lack access to it (O'Hanlon & Locke 2023).

Affordable and Innovative Solutions: Innovations in renewable energy technology have resulted in inexpensive solutions adapted to the demands of communities. Off-grid solar systems and micro-grid efforts bring electricity to rural locations, ensuring energy access even in places with inadequate infrastructure (Broom 2023). These programs benefit local communities while reducing their carbon impact.

POSITIVE INITIATIVES AND INNOVATIONS IN THE GLOBAL SOUTH

Botswana's Climate Policy and Emission Reduction: Botswana is proactively addressing climate change by developing a comprehensive climate policy and strategy. The nation is committed to reducing greenhouse emissions by 15% by 2030, showcasing its dedication to sustainable practices and environmental stewardship (Geneva 2022).

Brazil's Bold Commitment to Environmental Conservation: Brazil has set ambitious goals to combat climate change, pledging a 43% reduction in greenhouse gas emissions by 2030 compared to 2005 levels (Brasília 2022). The country's multifaceted approach includes increasing energy efficiency in the electricity sector, promoting clean technology, achieving zero illegal deforestation in the Brazilian Amazonia, and restoring 12 million hectares of forests (Brasília 2022). Brazil's proactive stance highlights its determination to preserve its natural heritage for future generations.

Innovative Solar-Powered Water Supply in Afghanistan: In drought-stricken Afghanistan, an innovative solar-powered water supply network, supported by World Vision, is transforming lives (WVI 2022). This initiative provides safe drinking water and irrigation for hundreds of families, offering hope and sustainability to communities grappling with water scarcity (WVI 2022).

Kenya's Sustainable Agriculture Through Natural Regeneration: Climate change-induced challenges in Kenya, such as crop failures and drying rivers, have been met with resilience (WVI 2022). The introduction of Farmer Managed Natural Regeneration has revitalized the land, creating an "underground forest" of established roots (WVI 2022). This regenerative approach ensures a sustainable future, allowing communities to thrive for generations to come.

Philippines' Plastic Recycling for Education: The Philippines, previously a major contributor to ocean plastic pollution, has taken a transformative step. Through a partnership between World Vision and Procter and Gamble, 3.2 million plastic sachets and 870,000 plastic bottles were repurposed into more than 1,000 plastic school chairs (WVI 2022). This initiative not only addresses

plastic waste but also supports education, demonstrating a commitment to environmental conservation and community welfare.

Community-Led Initiatives: Climate advocacy has been spearheaded by communities in the Global South. Local activities include garbage management programs, water conservation projects, and environmentally friendly transportation choices. Grassroots movements increase awareness about environmental issues, advocate sustainable activities, and hold governments accountable for their environmental policies.

Global South's Advocacy for Climate Justice: Countries in the Global South are championing climate justice by demanding that the Global North take responsibility for the majority of emissions causing climate change. They also seek climate compensation from wealthier Western nations in the form of funds to help them achieve their greenhouse gas emission reduction goals (Suri 2023).

Bangladesh's Successful Climate Adaptation Initiatives: Bangladesh has implemented locally led adaptation measures, including cyclone shelters, early warning systems, and climate-resilient agriculture (USAID 2021). These initiatives have received recognition from the World Bank. Additionally, Bangladesh's updated Nationally Determined Contribution (NDC) encompasses multiple sectors, offering opportunities for a transition to clean energy and low-emission development activities (USAID 2021). Prime Minister Hasina's leadership as the Chair of the Climate Vulnerable Forum strengthens the country's role as a global advocate for climate action and adaptation (USAID 2021).

India's Ambitious Climate Action Plan: India's national action plan for climate change prioritizes renewable energy, energy efficiency, sustainable agriculture, and water management (Kugelman 2020). The country is advocating for increased climate action from industrialized nations while committing to its own initiatives. Climate finance from developed nations is expected to play a significant role in funding India's climate plan (Kugelman 2020).

China's Carbon Neutrality Pledge: China has pledged to achieve carbon neutrality by 2060 and has initiated various policies to reduce greenhouse gas

emissions (Kugelman 2020). The promotion of renewable energy and comprehensive climate strategies underscore China's commitment to climate action and environmental sustainability (Kugelman 2020).

Brazil's National Strategy for Climate Migration: Brazil has established a National Strategy for Climate Migration to address the impact of climate change on migration, ensuring the welfare and security of affected populations. Brazil is actively engaged in locally-led adaptation initiatives, including the promotion of climate-resilient agriculture and the development of early warning systems (UNDP nd). Their comprehensive climate change plan covers adaptation measures based on regional climate models and emphasizes the restoration and reforestation of 12 million hectares of forests for reduced greenhouse gas emissions and sustainable land use (Kossoy 2018).

Financial Support for Climate Initiatives: Bangladesh, Pakistan, and the Philippines are among the first recipients of a finance package aimed at immediate implementation after COP27 (Take & Bartlett-Imadegawa 2022). Germany and other partners have contributed at least 210 million euros to support these critical initiatives (Take & Bartlett-Imadegawa 2022).

HOW THE GLOBAL SOUTH ACHIEVED PROGRESS IN CLIMATE CHANGE AND JUST ENERGY TRANSITION?

The mentioned progress led to the Global South through several factors and achievements. Of course, it was not easy to achieve as well, and the geographical and economic disadvantages have always been a core concern for the Global South in achieving or combating climate change. These advantages have also been the cause of transiting to green energy because of its cost and lack of equipment to achieve just energy transition. Beyond these obstacles, Global South still made a good amount of progress in combating climate change and transit to renewable energy. The progress achieved by the Global South in climate change and just energy transition can be attributed to several key factors and strategies:

Implementation of Cost-Effective Solution: The Global South has implemented cost-effective climate change mitigation projects while ensuring an equitable energy transition via inventive tactics, strategic planning, and international collaboration. One method is to use benefit-cost models for climate change

adaptation initiatives, such as the one used in Durban, South Africa (Cartwright et al. 2013). This model found cost-effective adaptation techniques in the face of uncertainty and resource restrictions, guaranteeing efficient resource allocation (Cartwright et al. 2013). Furthermore, by harnessing regional knowledge and promoting local innovation, communities have been able to develop low-cost, effective solutions adapted to their unique climatic issues. In Bangladesh, for example, local people created floating gardens to adapt to flood-prone areas, assuring food security by allowing agriculture to continue during floods (Sales 2019). Furthermore, collaboration between governments and private firms has promoted healthy competition, which has resulted in technological breakthroughs and cost reductions in renewable energy projects. For example, India's collaboration with private enterprises on solar power projects like the Rewa Ultra Mega Solar Park has drastically cut solar rates, making solar energy more inexpensive and accessible (Bhaskar 2020).

The reduction of prices per unit, which has enabled the wider use of renewable energy sources, has been largely attributed to large-scale production. Proálcool, Brazil's ethanol initiative, is a prime example. It greatly decreased greenhouse gas emissions, brought about economies of scale, and resulted in cost reductions by encouraging the mass manufacturing of ethanol from sugarcane (Ninô de Carvalho 2013). Furthermore, Mozambique was able to create its ethanol sector at a reasonable cost because of South-South cooperation between nations like Brazil and Mozambique, where Brazil contributed its experience in ethanol manufacturing (Hartley et al. 2019). These kinds of partnerships demonstrate how well-pooled resources and knowledge can propel sustainable energy projects. A mix of innovative thinking, global cooperation, and legislative frameworks that support equitable and sustainable energy transition have fueled the execution of these affordable projects in the Global South. The effective implementation of these projects has been largely attributed to collaborations, learning from local experience, and making the ideal use of the resources at hand.

Adaptation to the Paris Agreement: Many countries in the Global South have implemented robust climate policies and ratified international agreements such as the Paris Agreement. Countries like Bangladesh, Brazil, China, Ethiopia, India, Indonesia, Kenya, Morocco, Peru, and South Africa have granted the Paris Agreement on climate change which consists of keeping the global temperature below 2 degrees Celsius above pre-industrial levels and pursuing efforts to limit the temperature increase even further to 1.5 degrees Celsius (UNCC nd). These commitments provide a framework for action and encourage the adoption of renewable energy sources and sustainable practices.

Influence of the South-South Cooperation: The South-South cooperation has also helped to accelerate climate change practices and adapt green energy transition to combat climate change. South-South cooperation has been instrumental in promoting climate adaptation and sustainable development in the Global South. South-South cooperation through knowledge sharing experiences related to climate change and climate adaptation helped to build South-South solidarity and help developing countries identify common challenges (Geneva 2022).

Investment on Renewable Energy: Significant investments have been made in renewable energy sources such as solar, wind, low-carbon energy, and hydroelectric power throughout the Global South. Governments and the corporate sector have collaborated to fund and promote renewable energy projects, thereby lowering dependency on fossil fuels and carbon emissions. Developing countries will play a central role, as 70% of the future energy demand is expected to come from non-OECD countries in 2040, thanks to rapidly growing populations and economies (Goldthau, Eicke & Weko 2020). Northern America and Europe are the top destinations for global investment in renewable energy. Within the developing world, the majority of investment goes to three countries: China, India, and Brazil. Other developing countries received only a small portion, accounting for 12% of the total investment volumes of US$ 280 billion in 2017 (Goldthau, Eicke & Weko 2020). The Global South has recognized the importance of innovation, investment, and low-carbon modes of production in achieving a low-carbon future. This recognition has led to the development of policies and strategies for the mitigation of greenhouse gas emissions and adaptation to climate change effects.

Community Engagement and Local Solution: Involving local communities in decision-making processes and implementing locally-led initiatives has been crucial. By addressing the unique challenges faced at the community level, solutions have been tailored to specific needs, ensuring their effectiveness and sustainability. Global South has implemented several participatory Nature-Based Solutions (NbS) in informal settlements to combat climate change (Fuhr 2021). These initiatives involve community engagement in the design and implementation of NbS, such as community gardens and tree planting efforts (Fuhr 2021). Additionally, the National Adaptation Program of Action (NAPA) is an international effort to build resilience in developing and least-developed countries, including those in the Global South. NAPAs involve community engagement in the design and implementation of climate adaptation initiatives (Goldthau, Eicke & Weko 2020).

Furthermore, community-led renewable energy projects have been implemented in several countries in the Global South, including India and Brazil (Goldthau, Eicke & Weko 2020). These projects involve community engagement in the design and implementation of renewable energy projects, such as solar and wind power (Goldthau, Eicke & Weko 2020).

Global South has also implemented initiatives to promote sustainable energy access, including the development of off-grid renewable energy systems and the promotion of energy-efficient appliances (Goldthau, Eicke & Weko 2020). These initiatives involve community engagement in the design and implementation of sustainable energy access initiatives. Moreover, the Global South has undertaken various local initiatives and community engagement programs to adapt to just energy transition (Goldthau, Eicke & Weko 2020). These efforts include South-South cooperation, improvements in energy efficiency, community-led renewable energy projects, advocacy for just energy transition, and sustainable energy access (Goldthau, Eicke & Weko 2020). These initiatives collectively demonstrate the Global South's commitment to addressing climate change and promoting sustainable development.

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People from the Global South have been speaking up loudly, asking developed countries to take responsibility for their past emissions and their role in causing climate change. This advocacy has made more people around the world aware of the issue and has led to increased support for climate action in the Global South. These countries realize the urgent need to adapt to the effects of climate change, so they have come up with different strategies. They're creating early warning systems to protect their communities, building strong infrastructure that can withstand the changing climate, encouraging sustainable farming practices, and finding solutions to tackle water scarcity. These efforts are all part of their commitment to dealing with the challenges posed by climate change in a proactive and effective way.

LESSONS FROM GLOBAL SOUTH

As the Global South has its barriers to progress in combating climate change and adapting to renewable energy, there are notable lessons to learn from the progress the South made with their cost-effective solutions and innovative ideas. Let's explain the lessons to learn from the global South through three different case studies.

Case Study 1.1: Renewable Energy Transition to Sub-Saharan Africa

Sub-Saharan Africa is at a pivotal crossroads in its development, and its choice of energy for the future will be decisive in achieving its sustainable development goals. Universal access to clean and affordable energy is critical for economic development in Sub-Saharan Africa to improve livelihoods, overcome gender issues, provide public services, enable industry development, and ensure environmental sustainability.

Expansion of Clean Energy Access

Off-Grid Solar Systems in Benin: ENGIE Energy Access and the European Investment Bank installed 107,000 solar home systems, benefiting 643,000 people. This initiative significantly reduced energy poverty and increased electricity availability in the region (Nuno 2022).

Solar-Powered Communities in Kenya: Companies like BBOXX, Azuri Technologies, M-KOPA, and Greenlight Planet introduced solar panels and minigrids in Kenyan towns, improving energy reliability and reducing dependence on polluting energy sources (Koigi 2021).

Booming Utility-Scale Solar Projects: Several African countries, including Zimbabwe, Zambia, and Nigeria, invested in over 7,600 solar projects, with 1,000 operational. These initiatives increased renewable energy capacity, reducing reliance on fossil fuels (Rodríguez 2021).

Community-Centric Energy Initiatives

Mega Solar Initiative in Southern Africa: A collaborative effort focusing on large-scale solar projects, providing affordable electricity to rural communities. This program addresses energy disparities and serves as a model for regions facing similar challenges (Ambole et al. 2021).

Energy Communities in Sub-Saharan Africa: Decentralized renewable energy initiatives empower communities through off-grid and micro-grid technologies. Supportive policies and regulations are crucial for these projects to thrive, ensuring local engagement and sustainable development (Ramalope 2022).

Lessons to Learn From Progress in Sub-Saharan Africa

Policy Support and Enabling Environment: The success of renewable energy initiatives in Sub-Saharan Africa underscores the critical role of supportive policies and regulations. Governments and international organizations must collaborate to create an enabling environment that encourages the deployment of clean energy solutions. Clear, consistent policies can attract investments and drive the growth of renewable energy projects, ultimately benefiting local communities.

Community Engagement and Collaboration: Community-centric approaches, as demonstrated by various solar projects and energy communities, highlight the importance of engaging with local populations. Collaborative efforts involving governments, private sector entities, and local communities are essential. These partnerships ensure that energy solutions meet the specific needs of the people, enhance local participation, and create sustainable socioeconomic impacts. Engaging communities in the planning and implementation phases fosters a sense of ownership and promotes the long-term sustainability of clean energy initiatives.

Case Study 1.2: Sustainable Agriculture and Climate Resilience in Southeast Asia

Sustainable farming techniques encourage biodiversity, sustainable land management, and climate resilience, and have been successfully adopted for decades by farmers and networks throughout Southeast Asia, making it essential to the area. Sustainable agriculture is a method of producing clean, healthy, and nutritious food while protecting the environment, equitably distributing economic resources, and assuring the health and safety of not just the food produced but also the health and safety of agricultural communities.

Promotion of Sustainable Agricultural Practices

Integrated Rice-Fish Systems: Malaysia, Indonesia, Vietnam, the Philippines, Laos, and Thailand are among the Southeast Asian countries that have

implemented integrated rice-fish systems (Report 2023). Rice and fish are grown in the same fields under these systems, fostering biodiversity and sustainable land management (Report 2023). This strategy not only assures food security but also promotes sustainable agriculture and environmental protection.

Preservation of Traditional Rice Strands and Organic Farming: Farmer organizations and civil society networks in Thailand have actively protected and improved traditional rice varieties, boosting agrobiodiversity and climate resilience (Chiengkul 2022). Furthermore, groups such as MASIPAG in the Philippines have aided in the shift to organic farming and the promotion of traditional rice types (Chiengkul 2022). These projects increase agricultural diversity, assuring crop resilience in the face of climate change, and aiding small-scale farmers (Chiengkul 2022).

Implementation of ASEAN Guidelines on Sustainable Agriculture

ASEAN Guidelines Adoption: In October 2022, ASEAN members adopted guidelines on sustainable agriculture recognizing the challenges of undernourishment and inequitable food distribution (Bernabe 2015). The guidelines emphasize producing clean, healthy, and nutritious food while preserving the environment and ensuring the well-being of farming communities (Bernabe 2015). They focus on efficient resource use, including water, land, and energy, promoting sustainable agriculture practices across the region.

Supportive Policies and Economic Diversification: Southeast Asian countries have begun to embrace supporting policies that go beyond short-term initiatives (Chiengkul 2022). Weather index insurance plans, for example, lower production risks while boosting climate-resilient agriculture. Furthermore, the emergence of eco- and agritourism in nations such as Laos represents economic diversification (Chiengkul 2022). Farms invest tourism income in sustainable agriculture, educating farmers, and building local green markets (Chiengkul 2022).

Lessons to Learn From Progress in Southeast Asia

Promotion of Agrobiodiversity and Integrated Farming Systems: The success of integrated rice-fish systems, as well as the preservation of traditional rice strands, highlight the value of agrobiodiversity. Including a variety of crops and animals not only provides food security, but it also improves ecosystem resilience.

Southeast Asian countries may improve their agricultural sustainability by fostering integrated farming techniques and protecting local plant types.

Holistic Approach and Supportive Policies: The adoption of comprehensive guidelines by ASEAN underscores the need of a complete approach. Sustainable agriculture entails more than simply food production; it also includes environmental conservation, economic diversification, and community well-being. Southeast Asian governments should continue to develop and implement supportive policies, such as weather index insurance and eco-tourism projects, to promote climate-resilient agriculture. These regulations, which emphasize the significance of sustainable agricultural techniques and community interaction, might serve as examples for other regions experiencing similar difficulties.

Case study 1.3: Indigenous Knowledge and Climate Mitigation in Latin America

Innovative approaches to social inclusion, sustainable development, and climate change mitigation are reshaping the landscape of Latin America. This collaborative attitude has not only resulted in great accomplishments but has also taught the global society crucial lessons. In this context, we look at the extraordinary progress made in Latin America, throwing light on intercultural collaboration experiences and the lessons learnt from these revolutionary projects.

Intercultural Collaboration for Social Inclusion and Sustainable Development: The FAO's initiatives in Latin America emphasize collaborative efforts with indigenous and Afro-descendant communities, national governments, and local stakeholders. These programs focus on eradicating hunger, reducing inequalities, and promoting rural development. Ten scalable intercultural collaboration experiences have showcased the synergy between ancestral knowledge and scientific innovation, highlighting the efficiency and effectiveness of working together. This approach ensures the active participation of men, women, and youth from indigenous and Afro-descendant backgrounds, fostering social inclusion and sustainable development.

Harnessing Indigenous Knowledge in Climate Change Mitigation: Climate change has disproportionately affected the ancestral lands of over fifty million indigenous people in Latin America. Recognizing the imminent environmental

degradation, special measures are necessary to safeguard the rights of indigenous communities over their lands and resources. Integrating indigenous knowledge into climate solutions is crucial. Initiatives must involve the active engagement of indigenous and Afro-descendant communities. Co-development of climate mitigation and adaptation projects, coupled with early outreach to tribes, empowers these groups. Despite their vulnerability to natural disasters and climate-related agricultural challenges, their ancestral knowledge and territorial practices position them as invaluable allies in climate change mitigation efforts.

Lessons Learned From Progress in Latin America

Inclusivity and Collaboration for Sustainable Development: The success of intercultural collaboration initiatives emphasizes the importance of inclusivity in decision-making processes. Collaborative efforts involving indigenous and Afro-descendant communities, governments, and local stakeholders drive sustainable development. Embracing diverse perspectives and engaging with indigenous knowledge lead to more effective and culturally sensitive solutions. The active involvement of all stakeholders ensures the success and sustainability of social and environmental programs.

Preserving Indigenous Wisdom for Climate Resilience: Latin America's experience underscores the significance of preserving and integrating indigenous wisdom into climate change strategies. Acknowledging the unique challenges faced by indigenous and Afro-descendant communities, early and continuous involvement in climate-related initiatives is essential. This proactive approach not only empowers these communities but also enriches climate change mitigation efforts with valuable traditional knowledge. The global community can learn from Latin America's approach to climate action, emphasizing respect for indigenous rights, fostering collaboration, and leveraging ancestral wisdom for a sustainable future.

WHAT THE NORTH CAN LEARN FROM THE SOUTH

The global climate issue requires immediate and effective action from all nations, and the Global South's exceptional accomplishment in mitigating climate change and achieving an equitable energy transition provides essential lessons for the wealthier Global North. The North may acquire insights into new techniques and collaborative approaches required for solving the climate emergency by evaluating the South's successes, including cost-effective measures and legislative lobbying.

Cost Effective Measures

Local Innovation and Resourcefulness: One of the most important lessons the Global North can learn from the South is the value of local innovation and resourcefulness. For example, in Rio de Janeiro, Brazil, the city government has implemented a program to reduce the risk of flooding and landslides in informal settlements (Carmin, Angelovski & Roberts 2012). Communities in the Global South have invented innovative, cost-effective strategies to adapt to climate change. For example, Bangladesh, a country severely vulnerable to sea-level rise, has constructed floating gardens to preserve agricultural yield even during floods (Sunder 2020). These locally driven programs demonstrate the success of basic, low-cost solutions customized to unique geographical concerns (Sunder 2020).

Community-Led Renewable Energy Projects: The Global South has excelled in implementing community-led renewable energy initiatives. For example, India's rural communities have embraced decentralized solar power systems, enabling energy access in remote areas (Purkayastha, Nirmal & Gautam 2021). South Africa and Antigua and Barbuda are attempting to illustrate the benefits of a whole-of-society approach in which a diverse range of stakeholders participate in developing a common vision for, and paths to, equitable transition (UNDP Global 2022). Capacity-building efforts to strengthen national skills capacity, particularly for women and youth, are assisting the green employment revolution in India (UNDP Global 2022). These projects, often managed by local communities, not only provide clean energy but also create jobs and stimulate economic growth. The North can learn from these models, emphasizing community involvement in renewable energy initiatives for widespread adoption and success.

Low-Cost, High-Impact Interventions: Many Global South countries have implemented low-cost, high-impact interventions that yield substantial environmental benefits. Brazil's efforts to reduce deforestation in the Amazon through satellite monitoring and enforcement serve as a prime example (UCS 2011). Such measures, emphasizing monitoring and enforcement, can be instrumental for the North in preserving vital ecosystems and biodiversity.

Policy advocacy and Climate Justice

Climate Justice Advocacy: The Global South has been a strong advocate for climate justice, demanding that the Global North take responsibility for historical

emissions and provide financial and technological support. South-led initiatives like the Climate Vulnerable Forum highlight the urgency of climate action and underscore the need for collective responsibility. For example, the Pacific Islands Students Fighting Climate Change has been advocating for climate change in the Pacific Islands (Ituarte-Lima, Aryani & Paul 2022). Young people in the Global South are playing an increasing role in tackling the triple crises of climate change, biodiversity loss, and pollution, and securing their right to a healthy environment (Ituarte-Lima, Aryani & Paul 2022). The North can learn from this advocacy, recognizing the moral imperative of supporting vulnerable nations and communities disproportionately affected by climate change.

Policy Innovation and Implementation: Global South nations have showcased innovation in climate policies. For example, Costa Rica has implemented policies promoting reforestation and afforestation, leading to significant carbon sequestration (Subak 2000). Emphasizing policy innovation, particularly in areas like afforestation and sustainable land use, can guide the North in developing comprehensive climate strategies.

Investment in Climate Resilience: Climate resilience efforts, such as early warning systems and catastrophe preparedness, have been funded by countries in the Global South (WBG 2022). Bangladesh has excellent cyclone shelters and warning systems (Kazi & Urrutia 2022). These efforts can teach the North about the value of preparedness and resilience-building in reducing the impact of catastrophic weather occurrences.

Climate Finance and Green Investments: The Global South's emphasis on climate finance and green investments is pivotal. For instance, Ethiopia's Green Legacy Initiative aims to combat deforestation and promote afforestation (Gamtessa 2023). The Global North can draw inspiration from such initiatives, focusing on financial mechanisms that incentivize sustainable practices and green technologies.

Flexible and Adaptive Strategies

Adaptation to Local Contexts: The South's ability to adapt global climate strategies to local contexts demonstrates flexibility (Gamtessa 2023). The North can learn to tailor policies to regional and local needs, ensuring that solutions resonate with diverse communities and ecosystems.

Resilience in Agriculture: South's adoption of climate-resilient farming practices, such as drought-resistant crops, can inspire Northern farmers. Implementing similar techniques in regions susceptible to climate change effects can safeguard food security.

Effective Utilization of Renewable Resources

Harnessing Biomass Energy: Many South countries efficiently utilize biomass energy sources, converting agricultural waste into clean energy (Zafar 2022). Northern nations can explore similar biomass energy solutions to reduce dependence on fossil fuels.

Promotion of Small-Scale Renewable Projects: The South's success in implementing small-scale renewable energy projects, like micro-hydroelectric systems, can be replicated in the North (Zafar 2022). These projects often provide localized, sustainable energy solutions for remote areas.

Preservation of Biodiversity and Ecosystems

Conservation Efforts: South's conservation projects aimed at preserving biodiversity-rich regions serve as models. Wildlife Conservation Bond (WCB) is a project that supports the financing of activities to protect and grow critically endangered species, such as black rhinos, in South Africa (Pretoria 2022). Botswana has been ranked as the top country in the world for conservation, with a diverse range of wildlife, including one of the largest elephant populations on the continent. The country has implemented strict regulations and conservation measures to protect its wildlife and natural habitats (Foxe 2017). The North can invest in preserving its biodiversity and collaborate internationally to protect shared ecosystems.

Restoration Initiatives: South's initiatives in restoring degraded ecosystems, such as reforestation projects, provide essential lessons. The Global South has engaged in large-scale afforestation and reforestation projects to restore degraded lands and increase forest cover. These projects involve planting new trees or allowing natural regeneration to occur (Fagan et al. 2020). The North can initiate large-scale restoration efforts to mitigate the impacts of deforestation and habitat destruction.

Promotion of Green Innovation

Incentives for Green Technologies: South's provision of incentives for green innovations and startups fosters entrepreneurship. Bangladesh has been implementing green business initiatives to support green entrepreneurs. These initiatives include providing access to finance, technical assistance, and market opportunities for green startups. China has been implementing policies and programs to support green entrepreneurship. These include providing access to finance, technical assistance, and market opportunities for green startups. The North can create similar incentive structures to promote technological advancements in renewable energy, energy efficiency, and sustainable agriculture.

Technology Transfer and Capacity Building: The South's collaborations with international partners for technology transfer and skill development are vital. The United Nations Conference on Trade and Development (UNCTAD) has emphasized the importance of South-South technological collaboration for stimulating technological growth in the developing world (Geneva 2012). China's rise has challenged the North-South technology transfer paradigm for climate change mitigation and low carbon energy (Urban 2018). The North can engage in similar partnerships, facilitating the exchange of expertise and promoting innovation in climate-related sectors.

HOW G20 CAN ACCELERATE GLOBAL CLIMATE ACTIONS AND JUST ENERGY TRANSITION?

The G20, a group of the world's largest economies, has a crucial role to play in addressing climate change and promoting a just energy transition. It is essential to consider the importance of these topics for the G20 and what to look forward to in Brazil's Presidency. The G20 has already taken significant steps towards adopting renewable energy and combating climate change. For example, leaders have agreed to triple global renewable energy capacity by 2030, aligning with recommendations from the International Renewable Energy Agency (IRENA 2023a).

Additionally, the G20 has emphasized the need for a just, sustainable energy transition, with focus on technology sharing and low-cost financing for developing countries (UNEP 2023). However, there are still challenges and opportunities for the G20 to address. A key concern is the lack of consensus among G20 nations on key climate commitments, which threatens to hinder global efforts to limit warming to 1.5 °C (Tripathi & TRF 2023). Despite these challenges, the G20 has the poten-

tial to make a significant impact on climate change and clean energy transition by adopting a unified approach to cutting emissions and moving from fossil fuels to clean energy (Tripathi & TRF 2023).

Technology sharing emerges as a crucial facet of the G20's role in fostering a just energy transition. By facilitating the exchange of green technologies among member nations, the G20 can stimulate innovation and propel the development of sustainable energy solutions. Low-cost financing mechanisms, endorsed by the G20, can further catalyze the deployment of renewable energy infrastructure, particularly in regions facing economic constraints. This inclusive approach ensures that the transition to clean energy is not only rapid but also equitable, addressing the energy needs of diverse communities worldwide.

The G20 summit serves as a diplomatic forum where member nations can collaborate to overcome geopolitical challenges that may impede progress on climate and energy goals. Building trust and fostering international cooperation are essential components of the G20's role in mitigating climate change. By championing a unified and collective approach, the G20 can demonstrate the power of international collaboration in addressing shared challenges, reinforcing the interconnectedness of nations in the face of a global crisis.

The G20 has the unique potential to act as a catalyst for change in climate actions and energy transitions. By embracing ambitious commitments, facilitating technology transfer, providing financial aid, and fostering international cooperation, the G20 can spearhead a transition to a more sustainable and equitable global energy landscape. The upcoming Summit presents a pivotal moment for G20 nations to unite in their resolve to combat climate change and steer the world toward a future defined by environmental sustainability and energy justice.

CONCLUSION

In summary, mitigating climate change and ensuring a just energy transition involves a collaborative effort that transcends geographical boundaries and economic imbalances. The Global South's experiences and inventions provide significant lessons for the rest of the globe. The Global South illustrates that proactive initiatives anchored in community involvement and sustainable practices may have a huge impact, from pioneering renewable energy solutions to strengthening community resilience.

The Global North has a tremendous potential to learn from the triumphs of the Global South. The South's cost-effective policies, policy advocacy, commu-

nity-centered initiatives, and creative strategies serve as lights pointing the way to a more sustainable future. The North can bridge the gap between ambition and action in climate change mitigation and energy transition by embracing a collaborative culture, implementing flexible and adaptable policies, and empowering local communities. The article is about more than simply sharing knowledge; it is about a common commitment to safeguarding our world for future generations. Climate change concerns have no boundaries, and our remedies must be as linked as the issues themselves. The Global North may enrich its approach, stimulate global collaboration, and get closer to a society where environmental sustainability and social fairness coexist in harmony by learning from the Global South.

The story of climate change and just energy transition is ultimately one of resilience, inventiveness, and solidarity. It's a scenario in which the North and South, each with their own set of abilities, come together to rewrite the story of our planet's destiny. Together, we can build a world in which clean energy brightens every corner, communities live in harmony with nature, and the lessons of the Global South guide mankind toward a brighter, greener tomorrow.

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