

How can global governance for climate change be made more equitable and inclusive considering the unique interests, perspectives, and experiences of developing countries in the Global South?

Abstract: This paper aims to investigate strategies that can make global governance for climate change more equitable and inclusive, considering the unique interests, perspectives, and experiences of developing countries in the Global South. Three key strategies were explored, including debt-for-nature swaps, increased representation of developing countries in international climate negotiations, and technology transfer to support their efforts to mitigate and adapt to climate change. The paper argues that achieving equitable and inclusive global governance for climate change is crucial and requires the inclusion of diverse international actors. Successful implementation examples, potential obstacles, and suggestions for overcoming them were discussed. The effectiveness of the mechanisms depends on case-by-case studies and considerations, such as involvement of NGOs, cross-sector partnerships, and careful technical planning.

Intro

Climate change is one of the most significant global challenges of our time, and it is imperative that the global governance for climate change becomes more equitable and inclusive. The perspectives and interests of marginalized groups and developing countries must be considered to ensure that global solutions are fair, effective, and sustainable. Therefore, this paper aims to investigate various strategies that can be implemented to make global governance for climate change more equitable and inclusive. The research question is: how can global governance for climate change be made more equitable and inclusive considering the unique interests, perspectives, and experiences of developing countries in the Global South?

To answer this question, this paper will explore three key strategies. The first strategy involves examining the concept of debt-for-nature swaps and their potential to reduce the financial burden of developing countries while promoting the conservation of their natural resources. The second strategy is to increase the representation of developing countries and marginalized groups in international climate negotiations to ensure that their voices are heard, and their needs are addressed. Lastly, the paper will investigate the importance of increasing funding and technology transfer to developing countries to support their efforts to mitigate and adapt to climate change. This paper argues that achieving more equitable and inclusive global governance for climate change is crucial to effectively address the complex and multifaceted challenges of climate change. The use of debt-for-nature swaps, increased representation of the global south, and technology transfers are promising examples of how this can be achieved. By examining the benefits, case studies, academic recommendations, and limitations of these mechanisms, we can gain a better understanding of their potential role in global governance for climate change. Furthermore, this paper contends that the inclusion of diverse international actors such as communities, NGOs,

IGOs, and the private sector is essential for effective climate change governance. Each section of this paper will examine the benefits and challenges of the strategy and provide examples of successful implementation. Additionally, potential obstacles and limitations to these strategies will be discussed, and suggestions for overcoming them will be provided.

Concept of global governance

Global governance is a concept that has gained significant attention in recent times, with scholars and experts exploring various aspects of it. To better understand the current global conditions and the challenges they present; the concept of global governance has been proposed as a useful framework. While it is sometimes used interchangeably with other terms such as international relations or global government, the authors we have studied in class have demonstrated its distinctiveness and utility. By considering the various actors involved in global governance, such as states, international organizations, and civil society groups, we can gain a more accurate understanding of the complexities of the global system of today and the future, and the ways in which they impact issues like climate change. Global Governance refers to the complex system of international institutions, norms, and regulations that govern the relationships between states, non-state actors, and individuals in the global community. The authors studied during the semester, recognize that there is in fact a lack of consensus when it comes to defining global governance. Different authors give different definitions. On one hand, Finkelstein, in his search for a meaning, explores global governance as “governing without sovereign authority, relationships that transcend national frontiers. Global governance is doing internationally what governments do at home” (Finkelstein,1995, p.369). On the other hand, Weiss and Wilkinson seem to understand that the concept of global governance can be very effective to appreciate better the sum of forces likely to

shape the world order in the future, therefore their understanding of global governance has a future-oriented conceptualization. According to Augusto Lopez-Claros, Global Governance encompasses the collective efforts of various actors to address global problems that transcend national borders. These problems include economic inequality, climate change, terrorism, and human rights abuses. Lopez-Claros continuously argues in his book that Global Governance is necessary to address these issues because no single state or actor has the power or authority to solve them alone. Instead, it requires a collaborative effort that involves various actors and institutions, including international organizations such as the United Nations, regional organizations, non-governmental organizations, and civil society. (Lopez-Claros, 2020).

Particularly, and more relevant to this paper, Lopez-Claros asserts that global governance faces a formidable challenge in the form of climate change, which can be classified as a “super-wicked problem”. Referring to a global issue that has long-term, irreversible consequences, requiring collaborative action from a range of actors such as governments, businesses, and individuals worldwide to address it effectively. According to Lopez-Claros, climate change does not merely impact the natural environment; it has substantial implications for human society. Specifically, climate change can result in changes in weather patterns, rising sea levels, more frequent and severe natural disasters, and alterations in ecosystems and biodiversity. These effects can have significant social, economic, and political implications, such as food and water scarcity, increased conflict, and mass migration (Lopez-Claros, 2020). Therefore, it is imperative to prioritize this discussion in the global governance agenda to effectively address this challenge in a timely manner.

Literature review

Debt-for-Nature Swaps

The first strategy to be evaluated to make global governance for climate change more equitable and inclusive, is the idea of debt-for-nature swaps (DFNS) which are financial transactions in which a portion of a country's debt is forgiven in exchange for commitments to protect the environment. The idea behind debt-for-nature swaps is to reduce the financial burden of developing countries and promote the conservation of their natural resources. (Georgieva et al, 2022)

DFNS have followed the global governance pattern of distancing from the traditional state-centric perspective of governing and therefore it is worth exploring the types of DFNS that exist. On one hand, bilateral debt-for-nature swaps refer to an arrangement between two governments, where, as I stated before, a creditor country agrees to forgive a portion of the public bilateral debt of a debtor nation, in exchange for environmental commitments from that country.

Similarly, multilateral debt-for-nature swaps involve international transactions among more than two national governments. An example of a bilateral swap is the case of Jamaica, where the US government forgave a portion of the country's official debt obligations and allowed the payments on the balance to be used for environmental conservation. Between 1987-2010, recorded bilateral and multilateral debt-for-nature swaps have generated nearly US\$900 million in total conservation funding (Sheikh,2010).

In contrast, commercial debt-for-nature swaps or three-party debt-for-nature swaps involve an NGO acting as the funder/donor and buying debt titles from commercial banks on the secondary market. “Since the late 1980s, prominent organizations such as Conservation International, The Nature Conservancy, and the World Wildlife Fund have engaged in international debt-for-nature

swaps” (Sheikh, 2010). The NGO transfers the debt title to the debtor country, and in exchange, the country commits to enacting specific environmental policies or establishing a government bond in the name of a conservation organization, aimed at supporting conservation programs. Overall, third-party debt-for-nature swaps have generated approximately US\$140 million in recorded conservation funding from 1987-2010. (Sheikh, 2010)

The Organization for Economic Co-operation and Development (OECD), in their publication “Lessons Learnt from Experience with Debt-for-Environment Swaps” (OECD,2007) identifies several key lessons learned from these strategies based on particular case studies, including:

DFNS can be an effective tool for promoting environmental conservation and restoration in economies in transition, particularly when combined with other financial mechanisms.

Strong coordination and communication between all parties involved, including debtor countries, creditor countries or institutions, and environmental organizations, is essential to ensure the success of DFNS.

Flexibility is necessary to ensure that DFNS can be adapted to the specific needs and circumstances of each country, as well as to changing environmental conditions.

DFES must be designed with the goal of achieving long-term, sustainable environmental outcomes, rather than simply providing short-term relief from debt.

The success of DFNS depends on the availability of funding and resources, both for the debt cancellation itself and for the environmental conservation or restoration measures that are required.

Monitoring and evaluation are critical to ensure that DFNS are achieving their intended environmental outcomes and that the benefits are being sustained over time.

Overall, the OECD report highlights the potential benefits of DFNS in promoting environmental conservation and restoration in economies in transition, while also emphasizing the importance of

careful planning, coordination, and monitoring to ensure their effectiveness. Additionally, the text also highlights some challenges and limitations of DFNS, such as limited funding sources, the potential for corruption, and the need for technical expertise in environmental project management (OECD,2007).

An additional scholarly article that is worthy of examination concerning debt-for-nature swaps is titled “IGSD Background Note on Debt-for-Climate Swaps” by Picolotti et al. This article discusses how debt-for-nature swaps can help countries in debt afford investment in climate resilience and biodiversity protection without burdening their budgets. By committing to decarbonizing the economy, investing in climate-resilient infrastructure, or protecting biodiverse forests, creditors can provide debt relief to countries. The authors of this paper claim that the Swaps can aid climate action or protect nature, allowing fiscal relief through budget savings. The article also suggests swaps could even create revenue for countries by protecting valuable biodiversity. (Picolotti et al,2020)

Similarly, the authors explain that it is important to note that swaps are not a substitute for debt restructuring and cannot restore solvency unless a significant portion of debt is forgiven. The authors recommend scaling up swaps by structuring deals around broad climate and environmental goals and using simple-to-monitor metrics. Additionally, the IMF can help countries integrate swaps into macroeconomic and budget frameworks and serve as a consultant for the country. (Picolotti et al,2020)

Picolotti emphasizes that It is essential to recognize that while swaps can complement other climate-finance instruments, they should not come at the expense of traditional debt relief or concessional finance (Picolotti, et al 2020). Overall, the most valuable lesson from this paper is

that while swaps can complement other climate-finance instruments, they should not come at the expense of traditional debt relief or concessional finance.

Increase Global South Representation

A second strategy that is broadly discussed by academics on this topic, is to increase representation by ensuring that developing countries and marginalized groups are well-represented in international climate negotiations. Currently, many developing countries and marginalized groups have limited opportunities to participate meaningfully in international climate negotiations, which can limit their ability to shape the policies and outcomes that affect their communities. The most recent international debate on this topic occurred on November 2022, when countries met in Egypt during the COP 27 with the main objective of continuing the discussions that took place during the Paris Agreement, particularly focusing this time on ways to help developing nations phase out fossil fuels and transition to renewable energy. According to Friedman, “Tensions between rich polluting countries and poor nations bearing the brunt of climate impacts over the question of who should pay the costs of global warming are expected to mark the conference, known as COP27” (Friedman, 2022).

One big takeaway of a paper named “Vulnerability and loss and damage following the COP27 of the UN Framework Convention on Climate Change”, is the creation of the Transnational Committee. The Transitional Committee was established by COP 27 and CMA 4 to make recommendations for the adoption of new funding arrangements and a fund to assist developing countries that are vulnerable to the effects of climate change in responding to loss and damage (Naylor and Ford, 2023). The focus of the fund is on addressing loss and damage, which refers to “all adverse impacts of climate change that are beyond the capacity of affected countries or

communities to adapt or cope with, resulting in economic and non-economic losses such as loss of life, livelihoods, and infrastructure, as well as environmental damage” (Bhandari, et al 2022).

The recommendations of the Transitional Committee will consider the establishment of institutional arrangements, modalities, structure, governance, and terms of reference for the fund, defining the elements of the new funding arrangements, identifying, and expanding sources of funding, and ensuring coordination and complementarity with existing funding arrangements. The Committee will also consider the current landscape of institutions that fund activities related to addressing loss and damage and ways to enhance coherence, coordination, and synergies among them.

Additionally, the Committee will identify gaps in the current landscape of institutions, the priority gaps for which solutions should be explored, and the most effective ways to address these gaps, especially for vulnerable populations and ecosystems. Finally, the Committee will explore potential sources of funding, recognizing the need for support from a wide variety of sources, including innovative sources. The work of the Transitional Committee and its recommendations will consider the landscape of institutions and solutions relevant to responding to loss and damage associated with climate change impacts in line with the vision that the new funding arrangements should complement and include sources, funds, processes, and initiatives under and outside the Convention and the Paris Agreement. (Naylor and Ford, 2023)

[Climate technology transfer](#)

Climate technology transfer refers to the process by which environmentally friendly technologies are made available to developing countries to help them mitigate and adapt to the effects of climate change (Global Environmental Facility,2023). This transfer of technology is of utmost importance in the global effort to combat climate change, as it allows for the widespread implementation of

sustainable practices in countries that may not have the resources or knowledge to develop these technologies on their own. As Brewer (2008) notes, "Technology transfer can be a key mechanism for achieving the objectives of the UNFCCC (United Nations Framework Convention on Climate Change) and its Kyoto Protocol, which are to stabilize greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous anthropogenic interference with the climate system" (Brewer,2008). By providing developing countries with access to clean technologies, they can not only reduce their carbon emissions but also improve their standard of living by increasing efficiency and reducing reliance on fossil fuels.

The transfer of climate technology from developed to developing countries is essential to mitigate the adverse effects of climate change. However, there are numerous challenges and barriers to this transfer process. According to Chen et al. (2020), one of the primary challenges is the lack of adequate financial resources in the recipient countries. This lack of financial resources makes it difficult for developing countries to invest in climate-friendly technologies, which are usually more expensive than traditional technologies. Additionally, there is a lack of technical expertise and knowledge in developing countries, which makes it difficult to implement and operate these technologies effectively. Moreover, the absence of an appropriate legal framework and intellectual property rights also poses a significant hurdle to technology transfer. The intellectual property rights of the developed countries in climate-friendly technologies can make it difficult for developing countries to access these technologies. Finally, political instability, corruption, and weak institutions in developing countries further exacerbate the challenges of climate technology transfer. These challenges and barriers need to be addressed comprehensively to facilitate the transfer of climate-friendly technologies to developing countries and mitigate the adverse effects of climate change.

Lastly, the text “Promoting the Development Dividend” of *Climate Technology Transfer: Can Cross-sector Partnerships Help* (Forsyth,2007), discusses the role of cross-sector partnerships (CSPs) in achieving successful climate technology transfer and the development dividend in developing countries, Forsyth argues that CSPs have the potential to offset investors’ costs and increase local deliberation about development benefits. However, studies in India, the Philippines, and Thailand also suggest that CSPs are fragile and need greater reliability in both contractual and deliberative functions. The most common threat to partnerships comes from seeking commercial, contractual arrangements between diverse actors, often in locations where potential partners have important differences in political power and resources. Additionally, local mistrust of technologies and investing companies can undermine partnerships in deliberative terms. The paper suggests that empowering local stakeholders to participate in defining the development dividend and providing contractual certainty for international investors willing to engage in CSPs may increase the development dividend and reduce the costs of climate technology transfer (Forsyth,2007). Overall, the paper argues that understanding how collaborations can achieve these objectives is an important complement to ongoing debates about the incentives or procedures of formal policy mechanisms such as the Clean Development Mechanism (CDM) under the Kyoto Protocol.

Empirical data

Debt-for-Nature Swaps

Debt-for-nature swaps have been emerging as a popular mechanism for financing conservation efforts in developing countries. It is easy to note that, one of the primary advantages of debt-for-nature swaps is that they provide a creative way to finance conservation efforts in developing countries, where government budgets are often limited. I argue that Debt-for-nature swaps can also help alleviate the burden of debt repayment for developing countries, which frees up resources for

other important priorities such as education and healthcare. Now, as OEDC emphasizes and as discussed previously, the success of this method, only depends on careful planning, coordination, and monitoring to ensure their effectiveness. There are other factors such as the legal framework, the economic benefits, and the involvement of local communities that are also important to carefully consider when implementing the mechanism.

Case Studies of Debt-for-Nature Swaps

The first DFNS took place in Bolivia in 1987, in which the Bolivian government agreed to protect 1.55 million acres of rainforest in exchange for the cancellation of \$650,000 in debt. Since then, over 20 DNS have been completed, resulting in the protection of nearly 70 million acres of land (Hansen, 1989)

A number of other Latin American countries participated in debt-for-nature schemes in the 1990s. Notable among them are Belize and Costa Rica, the two countries that, as of 2003, had generated the most conservation funds as a share of their total debt treated – 108% and 68%, respectively (OECD,2007). The Nature Conservancy and WWF, among other NGOs, have also been intermediaries in trilateral debt-for-nature swaps in Latin America and the Caribbean (Soutar, Koop,2021)

A study by Gockel and Gray (2011) analyzed six successful DFNS case studies, including Costa Rica, Madagascar, and Peru. The study found that successful DFNS relies on various factors, including a strong conservation agenda, a willingness of the government to engage, and a supportive international community. In the case of Costa Rica, the government was committed to protecting its biodiversity and had already implemented policies and regulations to support conservation efforts. The international community supported Costa Rica by providing funds for conservation projects, which made it easier to negotiate the DFNS. In Madagascar, the

implementation of DFNS required the involvement of multiple stakeholders, including NGOs and the government. The study revealed that the successful implementation of DFNS in Madagascar was due to the collaboration between the government and NGOs, and the involvement of local communities in conservation efforts. In Peru, DFNS was used to protect the country's natural resources from the mining industry. The study found that the success of DNS in Peru was due to the collaboration between the government, NGOs, and the mining industry. These case studies demonstrate that successful DFNS requires collaboration between multiple stakeholders, a strong conservation agenda, and a supportive international community. DFNS presents a unique opportunity to address both environmental and economic concerns and has the potential to unlock significant financial resources for conservation efforts.

Challenges of Debt for nature swaps/Disadvantages and Failures

A comprehensive assessment of the effectiveness of the DFNS mechanism can be conducted by examining the latest available data, which suggests that DFNS are not currently receiving top priority on the global agenda. Despite this, recent resurgence in their popularity warrants an examination of their limitations and failures.

Although debt-for-nature swaps are commonly viewed as effective mechanisms for achieving positive environmental policy outcomes, they have not been widely embraced. International organizations have expressed concerns about the perceived inefficiency and risks of swaps relative to other financial instruments. As discussed earlier, scholarly works like "Lessons Learnt from Experience with Debt-for-Environment Swaps" have demonstrated that poorly implemented swap deals can carry significant risks and inefficiencies.

One big challenge that I identified is that the process of negotiating DFNS can be lengthy and costly, with negotiations between debtor and creditor countries regarding the extent of

conservation measures being particularly time-consuming. Such delays can escalate the cost of operations, and even after an exhaustive process, negotiations may still not yield a satisfactory outcome. As Yue and Wang (2021) note in their paper on the challenges of implementing Debt-for-nature swaps, the preparation, negotiation, and implementation of such swaps involve multiple groups (debtor, creditors, donors, NGOs), making the process complex and prolonged, taking at least two to four years. (Yue, Wang,2021)

Similarly, despite advanced negotiations, some countries may opt not to participate in debt-for-nature swaps even when an agreement has been reached. For instance, Soutar and Koop cite the case of Brazil, which chose to exclude the Amazon from receiving direct financial aid from foreign governments, despite negotiations for up to US\$8 billion of its foreign debt to be forgiven simply because of internal political reasons. (Soutar and Koop, 2021)

Furthermore, disputes among stakeholders regarding specific details can raise transaction costs and reduce the efficiency of debt-for-nature swaps in comparison to other financial tools. For instance, Antigua and Barbuda arranged a swap deal with Brazil for US\$18 million in 2012, known as “debt for climate adaptation with coastal zone management swap”, but the agreement failed to materialize due to delays in the Brazilian Parliament, as noted by Yue and Wang. (Yue, Wang, 2021)

This case study leads me to an additional challenge of debt-for-nature swaps which is that DFNS only provide small reductions in a country's debt and generate less funding than the actual value of the debt that is bought in the secondary market. “The amount of public debt relieved by debt-for-nature swaps, even in the countries that participate in swaps regularly, accounts for less than 1% of total external debt” (Dida,2001).In other words, the amount of debt relief provided through

Debt-for-nature swaps is relatively small compared to the total external debt of a country, and the financial benefits are not as significant as they may initially appear.

Moreover, critics of DFNS also argue that they do not generate funds where the needs are greatest and may misdirect funds. Dida explains this by looking at how during the early stages of debt-for-nature swaps, a significant portion of the total funds generated were allocated to Costa Rica, while other countries with similar or greater environmental conservation needs did not receive any funding. Brazil, for instance, has undergone rapid deforestation but has had limited participation in debt-for-nature swaps. (Dida,2001)

Yue and Wang point out a significant change in the design and implementation of conservation projects within debt-for-nature swaps. While these swaps usually involve plans for the conservation of local resources and biodiversity, they may conflict with existing conservation programs, including resettlement of local communities or issues of land ownership. For example, in Bolivia's first debt-for-nature swap, the agreement to reserve land with development restrictions was opposed by local communities, as they believed that the country had ceded sovereignty to the international environmental group. In addition, conservation programs require operational support, including equipment, fuel, and trained personnel, and evaluating or supervising their effects can be challenging.

To conclude this section, this paper has proposed DFNS as one of the existing mechanisms to make global governance more inclusive when it comes to climate change. Looking at the global panorama, DFNS are re-gaining popularity in the global agenda, and they should be seriously considered to be used as a mechanism. However, it is essential to state that this is just an alternative

of the many mechanisms that have to take place, and in many cases may not be the most viable, case to case has to be studied and considered.

Increase Global South Representation

As we work to address climate change, it's important to listen to all stockholders and viewpoints, especially those from developing countries and groups that have been left out before. Ensuring that these groups are well-represented in international climate negotiations is crucial for achieving equitable and effective solutions to this pressing issue, making global governance more inclusive. Exclusionary practices in international climate negotiations continue to pose significant challenges in achieving meaningful global action on climate change. Developing countries and marginalized communities are often excluded from decision-making processes, despite being disproportionately affected by climate change. As Tschakert & Machado note, the exclusion of these groups can result in policies that are insufficiently responsive to their needs and rights (Tschakert & Machado ,2012). Furthermore, the participation of powerful actors, such as multinational corporations and wealthy nations, can further marginalize the voices of those who are already excluded. This was evident in the 2015 Paris Agreement negotiations, where the interests of developing countries were often overlooked in favor of the demands of wealthier nations (Cléménçon, 2016). The failure to include diverse perspectives and voices in climate negotiations can also undermine the legitimacy and effectiveness of resulting policies. To address this issue, there is a need for more inclusive and equitable decision-making processes that prioritize the participation of marginalized groups and not just the interests of the most powerful actors.

As stated earlier, progress can be seen in UN global conferences, such as the recent COP 27 summit. At this gathering, nations agreed to increase financial support for “loss and damage” caused by climate change in developing countries. Additionally, the COP 27 included the voices

of many marginalized groups, and provided a space for them to bring their concerns, many of these voices included indigenous communities, the LGBTQ + community, the disabled community, many women, and the youth (Zhu-Maguire, 2022)

Some solutions I see for the Global South Representation

International climate negotiations are an essential platform for global environmental governance, and it is imperative to increase representation in these negotiations. Several strategies can be employed to achieve this goal, including the participation of non-governmental organizations (NGOs), the inclusion of developing countries, and the formation of climate clubs. According to Lal Pandey , NGOs play a critical role in international climate negotiations as they provide a platform for civil society to interact with governments and other stakeholders. NGOs can also help mobilize public opinion and provide technical expertise, which can aid in the development of effective policies (Lal Pandey,2016).

Similarly, the formation of climate clubs can help facilitate negotiations by creating a subset of countries that are committed to climate action. Nordhaus explains that Climate clubs are groups of countries or regions that work together to reduce greenhouse gas emissions and combat climate change (Nordhaus,2020). They generally involve a group of countries committing to a set of climate goals and working together to achieve them. Climate clubs can operate at the international, regional, or even city level. The basic idea behind climate clubs is that countries can achieve greater emissions reductions and climate benefits by working together than by acting alone. By forming a club, countries can coordinate their climate policies, share information and resources, and provide mutual support to each other. They can also create a sense of competition among countries, motivating them to do more to reduce emissions than they might otherwise.

Lastly, they provide a platform for like-minded countries to work together and develop common policies, which can then be presented to the broader international community.

To conclude this section, my analysis suggests that global governance should prioritize the voices and perspectives of all stakeholders, particularly those from developing countries and marginalized groups. It is essential to acknowledge the voices and perspectives of those who are most affected by climate change and who have historically been excluded from decision-making processes. The Transitional Committee and the fund of the COP27, is a key step toward the goal of increasing the participation in international discussion of climate change as well as giving more tangible and monetary value to the cooperation efforts from the global north. Similarly, NGOs play a big role here by bringing the civil society's perspectives into the equation. Lastly, Climate Clubs are also another strategy to make global south countries more relevant and heard.

Technology transfers

Technology transfer is the final mechanism evaluated in this paper, which may initially appear as a straightforward solution to assist global south countries when compared to the other two mechanisms presented. However, as previously noted in the literature review by Chen et al., there are several challenges and barriers that warrant further examination before coming up with that conclusion.

Chen et al. (2020) highlight the first obstacle to technology transfer as being the lack of financial resources. A developing nation may have the desire to implement a novel and eco-friendly technology but may lack the funds required to do so. For instance, the country may not possess the necessary financial means to purchase solar panels or wind turbines, which are generally more costly than traditional energy sources reliant on fossil fuels. This financial challenge arises when the nation must invest in innovative technology. The only discussion to have in this case is to have

an incentive to make these technologies cheaper for the global south through some financial mechanisms or events to promote donations.

The second challenge identified by Chen is the lack of technical expertise. Even if developing countries have the financial resources to invest in new technology, they may lack the necessary knowledge and skills to effectively implement and operate it. For instance, a country may not have enough engineers or technicians with the requisite expertise to establish and maintain a wind farm. This is very important to be discussed in global governance for climate change since it shows how it is not just sending technology to the countries, but instead, there is a need for a well-structured plan that addresses potential technical assistance needs and personnel training.

An additional obstacle is the adequacy of the legal framework. The absence of a suitable legal framework can engender uncertainty concerning matters such as intellectual property rights and accountability, which can discourage firms from transferring technology to developing countries (Chen et al.,2020). For instance, a company may be reluctant to share its technology with a developing country if it has doubts about whether its intellectual property rights will be safeguarded. Conversely, a developing country may seek to adopt a technology that is patented by a company in a developed country but may not be able to do so without authorization or a licensing agreement. This matter is interconnected with the previous challenge in terms of the technical aspects of technology. Therefore, I believe that it is the job of all parties involved to ensure that the recipient countries have all the legal requirements to make this transfer happen.

Lastly, Chen et al also identified the challenge of political instability, corruption, and weak institutions in developing countries, which can the transfer of technology hard to occur. In such situations, companies may be reluctant to invest in developing countries due to concerns about the government's instability or corruption, and the lack of investment protection. Gutiérrez Torres

provides an example in his article “Venezuelan crisis: Government censors environmental and scientific data”, where Venezuela's focus on oil production has led to a neglect of renewable energy initiatives, making it difficult for the country to implement clean energy technologies. Furthermore, the dictatorship government's censorship of environmental and scientific data has created further barriers to technology transfers in Venezuela.

Cross-Sector-Partnerships

It is important to note that CSPs have the potential to enable successful climate technology transfer and promote development in developing countries. A key takeaway from this mechanism is the need to empower local communities and civil society, as well as to involve multiple actors such as the private sector in global governance efforts to address climate change.

There are numerous examples of CSPs taking place across the globe. One such example is the partnership between USAID and over 150 companies, as discussed by Mack-Heller (2023) in “Harnessing cross-sector collaboration to expand renewable and clean energy across sub-Saharan Africa” This CSP illustrates the potential for successful collaboration between public and private sectors in expanding renewable and clean energy, particularly in sub-Saharan Africa.

Mack-Heller explains that in Africa, a majority of the population lacks access to electricity, which has significant social, economic, and environmental implications. To address this, the US government's Power Africa initiative aims to bring online 30,000 megawatts of cleaner and renewable energy and connect 60 million new homes and businesses. To achieve this goal, USAID is collaborating with over 150 top global companies, political leaders, and financial institutions to overcome regulatory, legal, financial, and other obstacles that impede energy projects from moving forward in sub-Saharan Africa. The initiative supports small-scale or off-the-grid projects, as well

as those that promote gender equality and female empowerment through policies, programs, and projects. (Mack-Heller, 2021)

Similarly, The World Economic Forum has highlighted the partnership between Siemens and the Jordanian Ministry of Health, which has resulted in the creation of the Connected Solar Clinic in Al-Mafraq, Jordan. This clinic, which is the first of its kind, addresses the limited healthcare resources in the Mafraq region, where there is a substantial population of Syrian refugees. The clinic is entirely solar-powered and autonomous from the electric grid, with a range of medical devices and broadband connectivity linked to the Ministry of Health's digital platform. It can be quickly transported and set up in remote areas, raising awareness about the importance of energy, health, and connectivity during a humanitarian crisis caused by the global refugee movement (Kwan Kim, 2020)

In conclusion, technology transfer can play a crucial role in making climate change governance more equitable and inclusive of global south countries, but there are several challenges that need to be addressed. To overcome these obstacles, cross-sector partnerships (CSPs) can be utilized, involving multiple actors such as the public and private sectors, political leaders, and financial institutions to address regulatory, legal, financial, and other obstacles. CSPs can enable successful climate technology transfer and promote development in developing countries while empowering local communities and civil society.

Assessment

The paper suggests that each proposed mechanism has unique challenges, actors, and objectives. While the DFNS are a creative alternative for addressing two common issues faced by global south countries, namely foreign debt and climate change impacts, they have historically proven to require meticulous implementation that may not be suitable for every case. The paper notes that DFNS

have evolved from a state-to-state mechanism to include more actors such as NGOs and the private sector. It also emphasizes that DFNS cannot be the sole financial mechanism for debt relief. When properly implemented, DFNS can be an effective tool, and it is predicted that they will become more prevalent as the world combats climate change.

Secondly, the paper has attempted to demonstrate that until recently, there has been a lack of substantial global action toward recognizing the significance of the global south countries and marginalized communities in the context of climate change discussions. In this paper, the COP 27 outcomes were carefully analyzed, leading to the conclusion that the Transnational Committee and Loss and Damage Fund represent the initial recognition of what I believe should be a more aggressive initiative to support all countries in their fight against climate change. Additionally, this paper acknowledges that climate clubs are a more feasible approach for global south countries to participate in the global climate change discussion. However, the paper is limited in its evaluation of the inclusion of specific marginalized communities, such as women, indigenous people, LGBTQ+ individuals, and youth, in international climate change discussions like the COP27. As a result, a more comprehensive analysis of their role is necessary.

Lastly, with regard to technology transfers, this paper emphasizes the careful steps that need to be taken to provide effective assistance to global south countries. This paper noted that technical support and expertise must be involved when doing the technology transfer to guarantee a successful project. One prediction is that technology transfers will become more prevalent, especially as the cost of these technologies decreases. The global sector will play a critical role in facilitating technology transfers, and the involvement of major corporations in fulfilling their social responsibility to combat climate change, especially in the global south, should be encouraged. However, the paper acknowledges the importance of holding corporations

accountable for their role in causing climate change and recognizes the issue of "greenwashing" as a limitation of this paper. Thus, it is important to discuss and keep in mind the potential for companies and other international actors to use technology transfers for their own benefit rather than for the benefit of the global south and overall, the wellbeing of society.

Conclusion

This paper argues that achieving equitable and inclusive global governance for climate change is crucial. By examining three key mechanisms (debt-for-nature swaps, increased representation of the global south, and technology transfers), we can better understand their potential role in global governance. However, their effectiveness will depend on case-by-case studies and considerations. DFNS are a promising alternative, but they should come with other financial mechanisms to be effective as well as very good technical planning and communication among all actors. Despite the crucial role of the global south in the global governance of climate change, their representation has been limited. However, there are ways to promote more inclusion of the global south, such as through the COP 27, NGOs, and climate clubs. Lastly, technology transfer can promote development, but cross-sector partnerships and careful technical planning are necessary to overcome obstacles.

Citation

- Bhandari, P., Warszawski, N., Cogan, D., & Gerholdt, R. (2022, December 14). *What is "loss and damage" from climate change? 8 key questions, answered*. World Resources Institute. Retrieved May 5, 2023, from <https://www.wri.org/insights/loss-damage-climate-change>
- Brewer, T. L. (2008, June 5). *The trade and climate change, joint agenda*. SSRN. Retrieved May 5, 2023, from <https://deliverypdf.ssrn.com/delivery.php?ID=674066092020082066122004002084023101038046007020059034127067087110126101099074031028056033058006042055014026030106119112094102053082054001060121115071001099098075006061053066087027066092072021124011070029065027125080029030083097086066015101109072024104&EXT=pdf&INDEX=TRUE>
- Chen, M., Zhang, L., Teng, F., Dai, J., Wang, Z., & Li, Z. (2020, July 23). *Climate Technology Transfer in Bri Era: Needs, priorities, and barriers from receivers' perspective*. Taylor & Francis. Retrieved May 5, 2023, from <https://www.tandfonline.com/doi/full/10.1080/20964129.2020.1780948>
- Cléménçon, R. (2016, March). *Sage journals: Your gateway to world-class research journals*. Retrieved May 6, 2023, from <https://journals.sagepub.com/doi/epub/10.1177/1070496516631362>
- Didia, D. (2001). *Debt-for-Nature Swaps, Market Imperfections, and Policy Failures as Determinants of Sustainable Development and Environmental Quality*. Retrieved May 6, 2023, from <https://www.jstor.org/stable/pdf/4227680.pdf>
- Finkelstein, L. S. (1995). *What Is Global Governance?* Retrieved May 5, 2023, from <https://www.jstor.org/stable/27800120>
- Forsyth, T. (2007). *Promoting the "development dividend" of climate technology transfer ...* Retrieved April 28, 2023, from https://personal.lse.ac.uk/FORSYHT/Forsyth_climate_tech_partnerships_WD07.pdf
- Friedman, L. (2022, November 11). *What is COP27? and other questions about the big U.N. climate summit*. The New York Times. Retrieved May 5, 2023, from <https://www.nytimes.com/article/cop27-climate-change-summit.html>

- Georgieva, K., Chamon, M., & Thakoor, V. (2022, December 14). *Swapping debt for climate or nature pledges can help fund resilience*. IMF. Retrieved May 5, 2023, from <https://www.imf.org/en/Blogs/Articles/2022/12/14/swapping-debt-for-climate-or-nature-pledges-can-help-fund-resilience>
- Gockel, C., & Gray, L. (2011, August 29). *Debt-for-nature swaps in action: Two case studies in Peru*. Ecology and Society. Retrieved April 27, 2023, from <https://www.ecologyandsociety.org/vol16/iss3/art13/>
- Global Environmental facility . (2023). *Technology Transfer*. Global Environment Facility. Retrieved May 5, 2023, from <https://www.thegef.org/what-we-do/topics/technology-transfer>
- Hansen, S. (1989, February). *Debt for nature swaps - overview and discussion of key issues1*. Ecological Economics. Retrieved April 27, 2023, from <https://www.sciencedirect.com/science/article/abs/pii/0921800989900256>
- Lal Pandey, C. H. A. N. D. R. A. L. A. L. P. A. N. D. E. Y. (n.d.). *Managing Climate Change: Shifting Roles for NGOs in the Climate Negotiations*. Retrieved May 6, 2023, from https://www.jstor.org/stable/pdf/43695280.pdf?ab_segments=&initiator=
- Kwan Kim, D. (2020, January 13). *How collaboration is driving the global climate agenda*. World Economic Forum. Retrieved May 5, 2023, from <https://www.weforum.org/agenda/2020/01/how-cross-sector-collaboration-is-driving-the-global-climate-agenda/>
- Lopez-Claros, A., Groff, M., & Dahl, A. L. (2022). *Global governance and the emergence of global institutions for the 21st Century*. Cambridge University Press.
- Mack-Heller, C. (2021, April 22). *Harnessing cross-sector collaboration to expand renewable and clean energy across sub-Saharan Africa*. Resonance Global. Retrieved May 5, 2023, from <https://www.resonanceglobal.com/blog/5-cross-sector-collaboration-examples-for-conservation-and-climate-change-impact>

- Naylor, A. W., & Ford, J. (2023, February 10). *Vulnerability and loss and damage following the COP27 of the UN Framework Convention on Climate Change - Regional Environmental Change*. SpringerLink. Retrieved May 5, 2023, from <https://link.springer.com/article/10.1007/s10113-023-02033-2>
- Nordhaus, W. (2022). *The climate club*. Foreign Affairs. Retrieved May 5, 2023, from <https://www.foreignaffairs.com/articles/united-states/2020-04-10/climate-club#author-info>
- OECD. (2007). *Lessons learnt from Dfes-English-final-final - OECD*. Retrieved April 28, 2023, from <https://www.oecd.org/environment/outreach/39352290.pdf>
- Picolotti, R., Zaelke, D., Silverman-Roatl, K., & Tad' Ferris, R. (2020, October 6). *Debt-for-climate swaps - IGSD*. Retrieved May 6, 2023, from <http://www.igsd.org/wp-content/uploads/2020/08/Background-Note-on-Debt-Swaps-11Aug20.pdf>
- Sheikh, P. A. (2010). *Debt-for-nature initiatives and the Tropical Forest Conservation Act ...* Retrieved May 6, 2023, from <https://www.cbd.int/financial/debtnature/g-inventory2010.pdf>
- Soutar, R., & Koop, F. (2021, November 2). *Explainer: What are debt-for-nature swaps?* Dialogo Chino. Retrieved May 5, 2023, from <https://dialogochino.net/en/article/47862-explainer-what-is-debt-for-nature-swap/>
- Tschakert, P., & Machado, M. R. (2012). *Gender justice and rights in climate change adaptation: Opportunities ...* Retrieved May 6, 2023, from https://www.researchgate.net/publication/271757234_Gender_Justice_and_Rights_in_Climate_Change_Adaptation_Opportunities_and_Pitfalls
- Weiss, T. G., & Wilkinson, R. (2021). *Global Governance Futures -Making Sense of Global Governance Futures*. Retrieved May 5, 2023, from <https://foresternet.lakeforest.edu/academic-resources/information-technology-services/academic-technology/moodle>

Yue, M., & Wang, C. N. (2021, February 1). *Mengdi Yue*. Green Finance & Development Center. Retrieved May 5, 2023, from <https://greenfdc.org/debt-for-nature-swaps-in-the-belt-and-road-initiative-bri/#:~:text=High%20transaction%20cost.,least%20%20to%204%20years>.

Zhu-Maguire, I. (2022). *COP27: More action needed to elevate voices at the forefront of climate change*. Monash University . Retrieved May 6, 2023, from <https://lens.monash.edu/@climate-change-rising-to-the-real-urgent-and-globa>