REDD+ But Not Ready: Why Nationally Determined Contributions Are Currently Unprepared for REDD+ to be Adopted Under Article 6 of the Paris Agreement

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Abstract

The ratification of Article 6 of the Paris Agreement at COP26 will allow countries to use carbon markets as a device to help achieve their climate goals. Given this recent development, it bears considering whether the international system is prepared to adopt existing voluntary carbon markets into a compliance system. Accordingly, this paper examines the nationally determined contributions (NDCs) of countries that receive significant support from the voluntary offset market REDD+ to determine whether they are prepared to adopt this program should credits under REDD+ count towards their Paris targets. Given the well-documented risks of carbon offset markets to indirectly increase emissions (via non-additionality, leakage, or incentivizing weak governance), this paper argues that REDD+ host states need clearer guidelines concerning the role of internal decarbonization policy and what is additional contributions from

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carbon markets to mitigate these risks if REDD+ is adopted under article 6. This paper ultimately argues that REDD+ is ill-equipped to function under a compliance-based carbon market as the NDCs of host states appear to place a strong emphasis on it to achieve their respective mitigation targets.

Keywords: climate change, carbon markets, REDD+, global environmental politics, offsets, voluntary market, compliance market, Paris Agreement

Résumé

La ratification de l'article 6 de l'Accord de Paris lors de la COP26 permettra aux pays d'utiliser les marchés du carbone comme un dispositif pour les aider à atteindre leurs objectifs climatiques. Compte tenu de cette évolution récente, il convient de se demander si le système international est prêt à intégrer les marchés du carbone volontaires existants dans un système de conformité. En conséquence, ce document examine les contributions déterminées au niveau national (CDN) des pays qui bénéficient d'un soutien important du marché de compensation volontaire REDD+ afin de déterminer s'ils sont prêts à adopter ce programme si les crédits de REDD+ comptent pour leurs objectifs de Paris. Étant donné les risques bien documentés des marchés de compensation de carbone d'augmenter indirectement les émissions (par le biais de la non-additionnalité, de la fuite ou de l'incitation à une gouvernance faible), cet article soutient que les États hôtes de REDD+ ont besoin de directives plus claires concernant le rôle de la politique interne de décarbonisation et ce que sont les contributions supplémentaires des marchés de carbone pour atténuer ces risques si REDD+ est adopté en vertu de l'article 6. En fin de compte, cet article soutient que le mécanisme REDD+ est mal équipé pour fonctionner dans le cadre d'un marché du carbone basé sur la conformité, étant donné que les CDN des États hôtes semblent mettre fortement l'accent sur ce mécanisme pour atteindre leurs objectifs d'atténuation respectifs.

Mots clés : changements climatiques, marchés du carbone, REDD+, politique environnementales internationales, compensation, marché volontaire, marché de conformité, Accord de Paris

Introduction

Carbon offset markets have been lauded as a means to achieve cost-effective emissions reductions by allowing governments and firms in wealthier countries to offset their emissions by investing in sustainable development and environmental stewardship, particularly in developing states (Rogeli et al., 2022). The logic of carbon offsets is predicated on the notion that when the cost of cutting emissions at home is too high, actors can pay for cheaper emissions cuts elsewhere and claim the reduced emissions as their own, thus resulting in greater emissions reductions per dollar spent. Proponents for offset markets maintain that this provides an effective allocation for climate financing demand for them that might be underdeveloped.

However, despite the economic theory behind offsets, carbon markets have been criticized for a variety of reasons including poor accountability mechanisms that often lead to double-counting, and additionality concerns when emissions reductions calculations are based on counterfactual scenarios (Kreibech and Hermwille, 2021). Double-counting refers to a scenario where a credit of claimed GHG emissions reductions is counted multiple twice, either as a result of bureaucratic error, or by two countries claiming credit for the same tonne of greenhouse gases (GHGs) reduced. For example, say country A (the donor country) provides the finances necessary to reduce a tonne of carbon emissions in country B (the host country). Under a carbon offset market, country A could claim that its overall net emissions have decreased by one tonne. If at the same time country B claims that its emissions have also decreased as a result of this funding by one tonne, then together countries A and B are claiming that two tonnes of GHG emissions have been reduced while only one tonne of emissions was actually reduced from the atmosphere. This means that emissions reductions may not be as additional as policymakers think which reduces the effectiveness of offset markets and could result in higher net global emissions increasing despite states claiming emissions reductions. Evidence of this has already been observed under the Kyoto Protocol's now-defunct Clean Development Mechanism which lacked the checks and balances necessary to ensure carbon credits were additional (Zhang and Wang, 2011).

This issue is particularly salient given the recent ratification of Article 6 of the Paris Agreement, which outlines the rules for including carbon markets as a means for states to count emissions reductions

in their Nationally Determined Contributions (NDCs) (Di Leva and Vaughan, 2021). NDCs are non-legally binding pledges made by countries participating in the Paris Agreement detailing their individual goals to reduce GHG emissions and how they plan to achieve these targets. To reduce the risk of tracking 'hot air' emissions reductions (claimed emissions reductions that would have occurred with or without the existence of a carbon market), states' NDCs need to clearly define what they intend to achieve without assistance from carbon in order to distinguish what would be achieved before (carbon) market intervention and what is supplementary to the country's domestic goals (Michaelowa et al., 2019). Otherwise, there is a risk of double-claiming.

Of particular concern is the forest offset program, Reducing Emissions from Deforestation and Degradation plus Conservation (REDD+), which currently operates as a voluntary offset market. REDD+ could feasibly qualify as a compliance-based market under the new provisions set forth in Article 6, meaning donor countries could count REDD+ offsets towards the targets set out in their NDCs (Todd, 2021). As a well-established program, REDD+ currently plays a role in limiting deforestation in 65 countries (UNREDD, 2022). These countries have expressed an expectation that REDD+ will play a role in helping achieve the targets set out in their NDCs (Hein et al., 2018). However, many developed countries have also signalled their own expectations to be able to claim offset credits for emissions reductions financed by them through REDD+ (Bilderbeek, 2019). Accordingly, it bears examining whether the mitigation strategies of developing countries as outlined in their NDCs include clear guidelines for what the role of REDD+ is in their mitigation strategy and whether their NDCs are vulnerable to linking REDD+ with a compliance market.

I argue that the NDCs of many REDD+ member states fail to set clear boundaries for what aspects of REDD+ projects are additional to their internal goals. This creates a strong risk of double-counting if REDD+ is adopted under article 6.4 of the Paris Agreement before the next round of updates from NDCs. Without a clear distinction between the role of national commitments and REDD+ in NDCs, it is difficult to evaluate what aspects of forest protection are truly additional and which parts would be achieved without carbon markets. Accordingly, REDD+ host countries are currently ill-equipped to link REDD+ with a compliance offset market. This in turn indicates that the current framework of the Paris Agreement is not prepared to adopt REDD+ under Article 6.

This article proceeds in four sections. The first provides a background on REDD+ to provide context for the market's goals and critiques of its work so far. Following this, the paper examines the NDCs of seven REDD+ host countries to examine if and how REDD+ plays a role in their mitigation targets. The third section of the body of this paper discusses the impacts of these findings on host countries, while the fourth section discusses the impacts for donor states. Finally, the paper concludes by addressing the relevance of these findings for policymakers and the field of global environmental politics.

Development of REDD+

To achieve net-zero emissions and prevent global temperature increases from reaching 2-degree Celsius (2ºC), climate scientists have emphasized the role that carbon sinks will play in reducing total emissions (Griscom et al., 2017). Carbon sinks include anything that absorbs more carbon from the atmosphere than it emits. While decoupling economic growth from emissions increases is the most important step towards slowing the effects of climate change, nature-based solutions that reduce the amount of GHGs in the atmosphere are also expected to be a critical component of keeping below a 2ºC increase in global temperatures as forests and other ecosystems have been estimated to be able to provide 37% of the CO2 reductions needed to reach this target (Griscom et al., 2017).

To help achieve this goal, REDD+ was originally launched under the United Nations Framework Convention on Climate Change (UNFCCC) in 2005 as a voluntary carbon market to provide incentives and formal mechanisms to finance deforestation prevention efforts in developing countries (Angelsen and McNeil 2012). REDD+ projects are made up of a variety of intergovernmental and national practices, wherein one party pays for forest conversation in exchange for receiving emissions reduction credits (Palmuioki & Virtanen, 2016). Currently, REDD+ operates as a voluntary market, meaning that states and firms[1] financing REDD+ are doing so for internal reasons (i.e, pledges to provide international aid). REDD+ credits are currently ineligible in compliance markets, meaning states have not been able to count REDD+ credits towards their own NDCs.

[1] While both public (states) and private (firms) organizations can be REDD+ donors, under a compliance market the credits could be counted under the host country of the firm's NDC. For simplicity, I omit references to firms in the following sections under the assumption that their offsets would be captured by their home states in a compliance market.

While initially launched earlier, the modern guidelines for REDD+ were in 2013 created at the Conference of Parties (COP) 19 under what is known as the 'Warsaw Framework'. While REDD+ operates under a voluntary system, the Warsaw Framework maintained that REDD+ could eventually be linked to compliance-based carbon offset markets (Streck, 2020). Due to the recent finalization in 2021 of Article 6 of the Paris Agreement, which stipulates the rules for states to use carbon markets to achieve their NDCs, experts suggest that there is now a strong likelihood that REDD+ could be used to help donor states offset their emissions (Todd, 2021). REDD+'s current lack of linkage to compliance-based carbon markets has been found to be one of the primary limitations of the program. Without links to a compliance-based system, REDD+ is unable to attract the large-scale market funding necessary to expand its operations as there is no direct economic benefit for donors (Angelsen, 2016). Accordingly, if linked to a compliance-based carbon market, then it is expected that REDD+ funding and operations will expand exponentially (Streck and Parker, 2012).

While REDD+ may appear like an effective mechanism to reallocate finance to protect carbon sinks in developing countries, the program faces a range of criticisms. First, the additionality of REDD+ projects has often been called into question. REDD+ baselines have been set to lower than business-as-usual (BAU) baselines would suggest, despite the Warsaw Pact stressing that REDD+ projects must prove additionality (Hook & Laing, 2022). Second, REDD+ projects often struggled against leakage. There have been many cases where protecting forests through REDD+ has simply led to equivalent deforestation in neighbouring regions (Bilderbeek, 2019). In these cases, the net benefit of REDD+ protection to the environment becomes questionable if it simply shifts the source of deforestation from one location to another. Accordingly, strong state-enforced policies are often considered to be preferable to REDD+, as they provide more comprehensive policy coverage that prevents leakages and ensures stronger BAU baselines (Kissinger, Brockhaus, and Bush, 2021).

Compliance-based carbon markets require stringent control over the allocation of carbon credits. NDCs that do not clearly distinguish between mandatory pledges and additional emissions reductions that can only be gained through REDD+ financing risk allocating carbon credits to donor countries for emissions that would have happened regardless of REDD+ participation. This would lead to

a specific form of double counting referred to as "double claiming" (Schneider et al., 2015, p. 476). Schneider et al. (2015) are careful to note that double claiming may occur when an emissions reduction credit is counted towards a country's mitigation target who funds the transfer while also being included in the host country's mitigation pledges. Before the finalization of Article 6.4 of the Paris Agreement, this would not pose a problem as REDD+ financing has thus far been purely voluntary, meaning emissions reductions are only counted towards the host country's Paris pledges. The issue arises with the growing consideration that REDD+ will be linked to the Paris Agreement's compliance-based carbon market. If NDCs do not distinguish the gains from REDD+ from the country's mandated mitigation pledges, there is a risk of double emissions counting through double claiming.

Methodology

The following sections of this paper draw on primary data collected from and based on the NDCs of REDD+ recipient countries (countries that receive REDD+ funding to preserve forests internal to their borders). While REDD+ provides funding designed to reduce deforestation and in turn promote carbon sinks in over 65 developing countries, a small handful of these countries represent the vast majority of REDD+ projects and finance (Shin et al., 2022). Accordingly, I narrow focus to the top five countries in terms of each the amount of finance received for REDD+ projects and in terms of quantity of individual REDD+ projects. Accordingly, the resulting sample only includes countries that experience a significant economic impact from REDD+. This serves to focus the study on countries where domestic policymaking could be heavily influenced by a REDD+ carbon market while omitting states where REDD+ plays a more negligible role in achieving national climate goals (Figueres, 2006). This ultimately leaves seven countries in the sample: Brazil, China, Colombia, Peru, Mexico, Indonesia, and India (Shin et al., 2022).

I engaged in a two-step data analysis process. First, I conducted a close reading of the first and updated NDCs of each country in the sample to determine whether there was any mention of reliance on REDD+ to achieve climate targets in the NDC itself. First, I scanned each document for any explicit mention of REDD+ in the NDC to see if the country considers REDD+ in its domestic climate mitigation policies. This process included conducting a keyword search of the whole document (including terms like forest, REDD+,

carbon sinks) and reading the sections of each NDC to see if there were any keyword methods of these terms. If a mention of REDD+ was found, then I did a second close reading of the context of statement to determine whether the NDC classifies REDD+ as included in emissions reduction measures or additional to the country's internal mitigation targets. In other words, does each country use REDD+ to achieve the goals it has mandated through its NDC, or is REDD+ calculated as additional reduction above pledged emissions reductions?

Second, I analyzed each sample country's rating on the Climate Action Tracker (CAT) (CAT, 2022a). The CAT is a non-governmental research organization that provides independent analysis of NDCs and climate policies of countries to measure commitments compared to the goals of the Paris Agreement. By providing an analysis of each country's commitments, policies, and actions, the CAT is a resource that provides comprehensive analyses of the state of individual country's climate progress. CAT provides additional information related to the effectiveness and credibility of the NDCs of individual states, while also highlighting variables that are omitted from NDCs that could impact the legitimacy and effectiveness of the targets. Through a review of CAT profiles of each of the sampled countries, I consider whether these states have credible targets and policies to preserve forests as carbon sinks, as well as whether achieving these targets is dependent on financial support through REDD+.

Considering that the carbon emission reductions achieved through REDD+ are meant to serve as offset credits in a voluntary (and potentially compliance in the future) market, then host countries should not base their internal climate goals on contributions from the program. A country including the benefits from REDD+ in its own NDC defeats the purpose of the offsets success as it is being double counted for both the host and financing country's climate commitments, which would result in net emission increases. This is not to say that host countries should not be involved with REDD+ at all, but if offsets form a core part of a countries NDCs, then it is not clear whether contributions from REDD+ can truly be counted as additional.

Results

The key finding from this analysis is that the majority of countries studied (71%) emphasize the role of REDD+ in their internal

decarbonization strategies and NDCs. Four of the seven countries in the sample (Mexico, Indonesia, Peru, and Colombia) are dependent on the implementation of REDD+ to achieve their own climate goals and explicitly mention the importance of the REDD+ for their NDCs.

While Mexico's NDC pledges to reduce CO2 emission from forestry practices by 144% from a BAU baseline, the CAT notes that unlike the commitments on other sectors made in Mexico's NDC, this has not been committed to law (CAT, 2022d). Mexico's NDC highlights the importance of REDD+ for achieving its conservation stating that the country "maintains and strengthens the strategy towards a zero-net deforestation rate which will be achieved under [REDD+]" (Government of Mexico, 2020, p. 27). The NDC does not address to what extent it is able to achieve its climate targets without REDD+.

Similar to Mexico, Colombia's NDC states that to fulfill its mitigation goals, the country is relying on REDD+ for emissions reductions in land use and identifies REDD+ is part of its internal forestry strategy alongside other programs (Government of Colombia, 2018). Peru's NDC also highlights that REDD+ "will be an important tool for the country to achieve its mitigation commitments" (Government of Peru, 2020, p. 12). Finally, Indonesia's NDC also highlights the importance of REDD+ as an "important component of the NDC target from land-use" that "should be able to support the achievement of Indonesia's emission reduction target in forestry" (Government of Indonesia, 2016, pp. 6-12).

Brazil is a less clear-cut case, as its first NDC mentions importance of REDD+ (Government of Brazil, 2016, p. 4) while its first updated NDC omits any mention of REDD+ (Government of Brazil, 2020). This can be explained through Brazil's domestic politics. Upon the drafting of Brazil's first NDC, REDD+ was included as the government of the day emphasized financing from REDD+ was imperative for Brazil to achieve its climate objective. However, the Bolsonaro administration which took power in 2019, has walked back from many of Brazil's environmental commitments (Serhan, 2021). As a result, while the most recent NDC does not mention REDD+, it also makes no mention of forestry at all (CAT, 2022b).

There were two outlier cases to this finding: India and China. I found that neither country reports significantly relying on REDD+ to achieve its climate goals. For China, this is unsurprising. While China ranks in the top five for the number of REDD+ partnerships and

financing received, only 13% of the REDD+ projects in China rely on foreign funding (Shin et al., 2022). This is in stark contrast to other countries that rely primarily on foreign partnerships to implement REDD+. This is consistent with China's history of environmental policymaking. China has a significant state capacity to enact environmental protection, and the government has made sustainability a key part of its mandate (Teng & Wang, 2021). Furthermore, the Chinese government has often emphasized that emissions reductions should be prioritized in developed countries rather than through development programs (von der Goltz, 2009). Accordingly, with a strong state capacity and political opposition to a reliance on international offset markets, China's ranking as one of the largest participants of REDD+ is more the result of the country's large size and functioning domestic market than it is a reliance on foreign investment, thus making it somewhat an outlier in REDD+.

While India does mention the importance of REDD+ for forest conservation in its NDC, it does so by explicitly mentioning that REDD+ is meant to serve as an additional conservation tool to India's domestic target of 5 million hectares of protected forests (Government of India 2016, p. 16). While there has been some criticism of India's history with deforestation policy, the government is in the process of updating its forest protection policy which will shed more light on the future of carbon sinks in the country (CAT, 2022c). The transparency in distinguishing India's internal policy from the role of voluntary carbon offset markets including REDD+ is noteworthy. By clearly noting that projects such as REDD+ are meant to augment India's own internal commitment, it is easy to distinguish which parts of its global climate goals will be achieved through international collaboration and which ones will be achieved solely due to India's own ambitions and targets. Accordingly, emissions reductions through REDD+ are not mixed in with India's NDC pledges, reducing the likelihood of double-counting between countries. While it is still possible REDD+ activities could be double counted, India's NDC offers more clarity on the role of REDD+ than the NDCs of the other countries studied in this sample.

REDD+ plays a demonstrable role in how developing countries intend on meeting their NDCs. However, the policy framing is not uniform. Some countries (Mexico and Indonesia) have strong forest conservation targets and REDD+ targets, but it is unclear to what degree the former is dependent on the latter. Others (Colombia, Brazil and Peru) clearly outline that the success of their NDCs will depend on international support from REDD+, without clearly

specificizing the original, unconditional baseline. Only two countries (India and China) clearly commit to their own domestic forestry targets independent of REDD+. These findings are indicative of a wide-speed issue surrounding the interplay of REDD+ and NDCs. Few countries have been clear about the role REDD+ will play in their domestic mitigation strategies, despite most of the countries within the tropical belt including REDD+ in their NDCs (Hein at al., 2018).

Discussion

Implications for Host Countries

These findings have several implications worth discussing for REDD+ host countries. First, aside from China, all countries sampled in this paper refer to the role of REDD+ in their emissions reduction strategies. All countries in this sample, with the exception of China, received REDD+ financing from abroad (Shin et al., 2022). This poses a problem if REDD+ becomes a compliance market under Article 6. If forests under REDD+ protection are funded by foreign entities yet exist in states whose NDCs claim REDD+ initiatives towards their climate objectives, the result of linking REDD+ to a carbon market may result in double-counting. This is particularly problematic given that forestry and land use are often not counted in terms carbon emissions. Instead, the NDCs of developing countries often measure deforestation goals amount of land protected (Schneider et al., 2019). This could result in double-counting as forests covered achieve the host country's land target while the emissions reductions from the same forests are counted by the donor country (Schneider et al., 2019).

To ensure the integrity and effectiveness of Article 6 under the Paris Agreement, it is "essential to ensure that [emissions reductions] are only accounted for under one NDC" (Streck, 2020, p. 5). A grey area between national environmental commitments in developing countries and the role of foreign carbon investment can have negative consequences for both developing countries and global climate politics. This is especially important as carbon offset programs are frequently plagued with issues of double-counting or non-additionality. As offset markets only consider additional emissions, "every offset project creates a direct financial incentive to oppose" the expansion of government coverage (Cullenward & Victor, 2021, p. 100). While it is beyond the scope of this article to determine the causal relationship between REDD+ and the subsequent curbing of forestry policy in developing countries, my analysis should prompt additional

inquiry into this relationship. Historically, market-based programs have caused this effect. For example, the UN's Clean Development Mechanism (CDM) incentivized governments in Ecuador, Mexico, and Colombia to "[delay] the introduction of proactive policies, in order to prevent those policies from being targeted into the baseline and thus disqualifying projects from the CDM" (Figueres, 2006, p. 12). Similar criticism has been applied to the Paris framework, with scholars recognizing that Article 6 may create incentives for host countries to set narrow NDCs and weak regulations to avoid losing potential revenue (Aschneider & La Hoz Theuer, 2018).

Excluding India and China, the countries sampled in this paper do not have NDCs that set clear guidance for what their governments must achieve irrespective of REDD+. Micaelowa et al. (2019) note that to ensure additionality in carbon offset markets, offsets must be covered under a countries NDC and prove that they would eventually be covered under a BAU baseline, while factoring in that the Paris Agreement calls for states to increase ambition upon each updated NDC. Given the vagueness and inconsistencies across NDCs, it is difficult to concretely determine where a country's internal commitments ends and where additionality begins. Most of the NDCs examined in this study lack clear measures to separate state commitments from REDD+ projects. If REDD+ were to be linked to Article 6 today, then the market would fail to meet Micaelowa et al. (2019)'s standards for preventing 'hot air' emissions credits.

It is especially telling that China's NDC is the only one that does not include any mention of REDD+. Given that funding for REDD+ projects primarily come from domestic sources in China, the influence of foreign investment is unlikely to be a cause for curbed REDD+ baselines. While I do not study the motivations in policymaking related to these NDCs in this article, the fact that China is the only country sampled with no mention of REDD+ suggests that China's deforestation targets are less dependent on foreign aid than other developing countries. Additionally, this may indicate that China is less likely to provide 'hot air' offset credits. Similarly, India's clearly defined forest protection commitments sets BAU baselines clearly in its NDC. However, these two examples do not appear to be the norm, particularly as they are far larger economies than the majority of REDD+ host countries. Previous research has already shown that low-capacity countries struggle to build up the institutional capacity to manage complex carbon markets, while states with stronger economies are more likely to have the institutional capacity to organize

such a complex endeavour (Steinebach & Limberg, 2022). This research corroborates this finding by showing that developing states with relatively strong economies appear capable of separating domestic climate goals from REDD+ while smaller economies are more likely to be influenced toward a reliance on REDD+.

Implications for Donor Countries

There is a wide discrepancy between how wealthy countries and developing countries perceive the future of REDD+. While donor countries do not mention REDD+ by name in their NDCs, many have still indicated that offsets will play a role in their net-zero strategies (Fransen, 2021). For wealthy countries, REDD+ participation is seen as a low-hanging fruit as it has far lower opportunity costs than deeper decarbonization strategies, such as reducing domestic emissions from fossil fuel combustion (Houghton, Byers & Nassikas, 2015). For example, Norway, by far the largest contributor of finances towards REDD+, has used the program to achieve "cuddly" environmental targets that prove environmental leadership from the government without challenging more complex issues of carbon lock in (Lovera-Bilderbeek, 2019, p. 54). While Norway initially opposed deforestation projects from being included in the CDM, the country has since indicated a clear support and even expectation that forest-based offsets, particularly REDD+, will be a policy tool for achieving its net-zero targets (Lovera Bilderbeek, 2019). Following the ratification of Paris in 2015, Norway lowered its goal for achieving net-zero emissions from 2050 to 2030 due to the expectation that offsetting schemes as outlined in Article 6 could play a major role in its emissions reduction strategy (Lovera-Bilderbeek, 2019).

However, Norway's REDD+ projects have been criticized for having based emissions levels set at unrealistically high levels, meaning that it is claiming credit for emissions reductions that are unlikely to have been a part of REDD+ operations. For example, deforestation in Guyana increased under Norwegian funded REDD+ projects from 2010 to 2019. However, the Norwegian government was still able to claim it had achieved significant emissions reductions as REDD+ deforestation baseline for the region was set to 2.75%, which is far higher than Guyana's actual historic deforestation rate of 0.02% (Hook & Laing, 2022). In other words, while overall emissions increased, Norway still received the social licence to claim it had made impactful emissions reductions despite evidence to the contrary.

Cases such as this prove the danger of inaccurate baselines under REDD+. When carbon offsets are not additional, they essentially give donors a free licence to pollute while resulting in net positive emissions overall. Even under the voluntary market, REDD+ projects can evidently struggle to prove additionality. Linking REDD+ to a compliance market would only increase the pressure on cash-strapped countries to narrow the scope of their actions in a race to the bottom to cheapen their offsets (Michaelowa et al., 2019). Given that BAU baselines for REDD+ are not clearly set out in the NDCs of host countries, linking REDD+ to international compliance offset markets appears premature, as it still has significant potential to result in net emissions increases if robust protection mechanisms are not in place.

Conclusion

The finalization of Article 6 was considered one of the most important takeaways from COP 26. While the more technocratic policies and processes remain to be sorted, its ratification indicates that the role of carbon markets will now play a major role in global decarbonization strategies as 85% of countries have expressed interest in using international carbon markets to help achieve their NDCs (Todd, 2021). While it remains to be formally adopted under the umbrella of Article 6, there are indications that REDD+ could switch from a voluntary to a compliance offset market. Despite the promise of carbon markets as means to reward environmental stewardship, the potential for REDD+ to achieve this goal it appears unlikely given the circumstances. This paper highlights the fact that the NDCs of REDD+ host countries are ill-equipped to work in a compliance-based market. To be truly effective, carbon markets need clear divisions of ownership for carbon rights to prevent double-counting, strong accountability mechanisms to ensure emissions reductions are accurate, and credible counterfactual baselines based on BAU scenarios to ensure additionality. REDD+ falls short on all three fronts.

Given the outcome of COP 26, it is imperative that the roles of donor and host countries be clearly defined before REDD+'s adoption under Article 6. If REDD+ does become a recognized carbon market under Paris, then the current state of NDCs from developing countries appears likely to facilitate even greater accountability and double-counting issues in the future. Given that the next round of NDC updates is not expected until 2025, it is crucial that parties create greater clarification and rule setting for the role of REDD+. If REDD+ is to have any hope of success as a mechanism under the Paris

framework, developing states will need to provide clear distinctions on which of their forestry commitments can be achieved without foreign REDD+ funding. Even if REDD+ is never attached to Article 6, proving additionality is already a topic of concern for REDD+ projects and deserves to be addressed.

Carbon offset markets are notoriously unreliable tools for reducing global emissions (Temple & Strong, 2021). However, international collaboration is necessary to limit the effects of anthropomorphic climate change. Carbon markets will likely become an increasingly key piece of this interdependency, so it is important to consider how to improve them. The findings of this paper present two key lessons for policymakers. First, REDD+ is not currently well-equipped for Article 6 of the Paris Agreement. It should not become adopted until it can do so without threatening the integrity of the program. Second, to make REDD+ suitable for participation in Article 6, participating countries will need to make the distinctions between national baselines and additional achievements from REDD+ clearer to avoid 'hot air' offset credits that result in net increases of global emissions.

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