

REDD+: Analysis of a Strategy for Slowing Global Climate Change

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Introduction

As students in an honors class on Conservation and People (ANT 103H) we use our new knowledge on conservation science to examine the potential contribution of the mechanism known as REDD+ towards slowing the rate of global climate change contingent on deforestation. Our professor was learning as fast as we were, preparing for a REDD+ workshop in Pemba (Zanzibar, Tanzania) funded by UC Davis Seed Grant Program (see Figure 1)



Figure 1. REDD+ Workshop in Pemba (5 April 2017), hosted by the Revolutionary Government of Zanzibar's Forestry Department, coordinated by Professors Tim Caro and Monique Borgerhoff Mulder, and funded by UC Davis Seed grant program

What is REDD and how did it start?

REDD+ is an acronym for “Reducing Emissions from Deforestation and Forest Degradation” (Angelsen 2008). The essential idea behind REDD+ is payment for ecological services (PES): communities are paid in the form of carbon credits which they can then sell on a global carbon market in exchange for reducing their rates of deforestation. As the 20th century came to a close, it became clear that carbon emissions from deforestation had become a major threat to global climate and biodiversity. The Kyoto Protocol of 1997 first suggested a program with these goals, planting the seed for REDD+. A slim RED was first formally proposed at the United Nations Framework Convention on Climate Change (UNFCCC) COP (Conference of the Parties) 11 meeting in Montreal in 2005 (Angelsen et al. 2012). The second “D” (for degradation) was annexed at COP13 in 2007; it was also during this meeting that REDD began to become integrated into the global climate agenda (Angelsen et al. 2012). During COP15 in 2009, the plus sign, representing “promoting conservation and sustainable forest management

that enhances forest carbon stocks” was included, broadening the remit to include poverty alleviation. Finally with the Copenhagen Accord, REDD+ was formally introduced, but with no mandatory carbon market (Burgess et al. 2010). Since 2005 REDD+ has evolved in several different ways: the number of objectives are diversifying from simple payments for avoided deforestation to broader social, economic and ecological “co-benefits”; the policy structure now calls for broader national reforms; and the funding sources are shifting towards a permanent reliance not a carbon market (either voluntary or compliant) but on international aid and national budgets (Angelsen and McNeill 2012). Indeed in many respects REDD+ is in flux (Angelsen 2016).

Why is REDD+ necessary and why is it directed to developing countries?

Deforestation is the second main source of carbon emissions behind the burning of fossil fuels, and therefore a significant contributor to CO₂ emissions, and accordingly global climate change (Sunderlin et al. 2015). For this reason REDD+ was designed to reduce the emissions caused by deforestation and forest degradation (Lund et al. 2016). While rates of deforestation in developed countries are dropping, this trend is not seen in developing countries (Andrews 2017). By focusing on the developing countries, REDD+ initiatives hope to reverse that trend.

Is REDD+ best implemented locally, nationally or internationally?

REDD+, by its very definition, requires the cooperation of numerous levels of governance. Building off a history of decentralized forest management (Burgess et al. 2010, Lund et al. 2016) its primary focus is on community forest management, support of livelihoods and economic development. Research shows that local forest governance is more effective in the long term than centralized state-based regimes (Borgerhoff Mulder and Coppolillo 2005, Sandbrook et al. 2010). Communities nevertheless need a supportive national context if they are to manage their forests sustainably. Furthermore, REDD+ relies heavily on the carbon market, an as yet ephemeral institution whose existence depends entirely international recognition of the value of carbon sequestration (Sunderlin et al. 2015). REDD+, then, can only be successful with input from subnational, national, and international parties. This however creates a paradox: REDD+ is by its very nature intended to be decentralized and community-based, but with an increase in the value of standing forests the program also triggers political incentives for national governments to re-centralize control of these forests, in order to benefit from the trade in carbon offsets (Burgess et al. 2010, Sandbrook et al. 2010). In sum, all levels of governance must cooperate not compete, and there must be clear definitions of user rights and responsibilities, willing participation of forest dependent communities, accountability at all levels, strong enforcement, and investment in local institutional capacities – a high bar. Additionally, an internationally-binding agreement to mitigate climate change is necessary, although not necessarily sufficient, to create the markets necessary to support REDD+ (Sunderlin et al. 2015), otherwise the initiative will continue to depend on good will, voluntary agreements, and aid budgets.

A clever design?

The REDD+ mechanism is a novel and somewhat beguiling idea – essentially an international institution that uses financial motivations to offset carbon emissions to provide

rewards at the local level. An attractive feature of this initiative is that these payments are, in principle, directly dependent on results; payments are only delivered when measurable differences in carbon sequestration are obtained (Angelsen, 2008). This appeals to people who like to see international aid delivered responsibly, and contingent on results. There are nevertheless some concerns. The aim is to target developing nations with payments that equate to the opportunity costs of preserving the forest. In an ideal world this would make carbon sequestration just as profitable as other forest uses, such as logging or charcoal production (Angelsen et al. 2012) – this is another high bar, as we shall see. Furthermore, central to the REDD+ initiative is the need to measure baseline carbon emissions against which future success (or failure) can be compared (Fletcher, 2016). Effectively a community can only earn and sell carbon credits if it achieves additionality – which means it is cutting down less trees than it would have cut had it not come into the REDD+ programme; providing evidence of such additionality is yet another high bar. Finally REDD+ also aims to reduce leakage. Leakage occurs when a community, or a nation, earns carbon credits for sustainably managing their own forest but causing deforestation in neighboring communities or nations; this has proved problematic to control. Finally REDD+ works through strengthening community forest management institutions, and through emphasizing local capacity building and community buy-in; this is because conservation scientists have learned that top-down dictates rarely work (Borgerhoff Mulder and Coppolillo 2005). Nevertheless as the case studies show, community buy-in is by no means assured.

Case Studies

Huge sums of money, estimated between 12.5 and 60 billion US\$ (Sunderlin et al 2015), have been directed to REDD+ projects. Here we look at just two case studies, one at a national level (Brazil) and one at a local level (Kilwa-Tanzania) to demonstrate some of the opportunities and challenges.

Brazil, with its 60% forest cover (The World Bank 2015) has one of the most advanced implementations of REDD+ in the world, largely because of a strong set of national policies. Additional to national laws are the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon and the Action Plan for the Prevention and Control of Deforestation and Forest Fires in the Cerrado, designed to protect the larger forests of the Legal Amazon and Cerrado respectively. Further, each of the nine states in the Legal Amazon has developed its own action plan. Funding for these various initiatives is provided by contributions to the Amazon Fund and the National Climate Change Fund from donors including Norway, Germany, and Petrobras (Brazilian Ministry of the Environment 2016). In other words, REDD+ is steaming ahead, but with support of international aid and trust funds (not the carbon market), and is buttressed by unique policies implemented at the state level. In Brazil subnational governments and communities have a large amount of power, largely due to the nation's democratic elections and long history of socially-inclusive movements (Sandbrook et al. 2010). Furthermore various co-benefit programs have been introduced, supporting education, health care services, investment opportunities, and female-headed households (Fabiano 2011). Problems have nevertheless arisen. Some local participants claim that their compensation is inadequate, that

benefits are not equally dispersed, and there are issues with communication and participation between the various government levels (Brockhaus and Peskett 2009). Nonetheless, Brazil's recent success in reducing deforestation has attracted international attention and rendered the Brazilian efforts a model for reducing greenhouse gas emissions from deforestation.

Our second case study captures a local initiative – also successful, but in a different way. The REDD+ project located in the Kilwa District of Tanzania began in 2008 is a prime example of nimble thinking and flexibility within project design (Ball and Malkala 2014). The Mpingo Conservation and Development Initiative (MCDI), an NGO that focuses on sustainable forest management, decided to target revenue from carbon offsets through the carbon market by launching a REDD+ program. To implement the project MCDI attempted to identify the largest source of deforestation – charcoal production (Ball & Makala 2014). By reducing charcoal production they aimed to reduce deforestation below baseline levels (additionality). However after investing 2 years in analyzing charcoal offtake, MCDI discovered that late dry season fires were the true leading cause of deforestation and carbon emissions. They decided to change course, seeking certification not directly for additionality (as described above) but for effective fire control. Furthermore, recognizing the fragility of the carbon market, they pursued a subsidiary strategy, locating a boutique market for the African Blackwood that is highly valued for crafting oboes and flutes. Despite considerable income the communities were initially somewhat resistant to the REDD+ project. Conflicts arose because REDD+ projects require a minimum of 30 years of community commitment and many members, who had had bad experiences as a result of dubious contracts with previous projects and organizations in the area, saw REDD+ as yet another land-grab (Andrews 2017; Ball & Makala 2014). Also, MCDI could not (understandably) provide accurate estimations of future revenue or fully explain the concept of a carbon market to the community, leading to confusion (Ball & Makala 2014). Women, in particular, felt particularly excluded from ongoing information about the project. In order to resolve these problems, MCDI decided (rather idiosyncratically) to provide only essential pieces of information as the project went along, ensuring that community members would not develop false expectations of potential revenue (Ball & Makala 2014). This generated better cooperation with the community, although it raises ethical issues we discuss below. As of now, the community and the project is maintained through sustainable harvesting of the African Blackwood for musical instruments, at least until MCDI can break into the carbon market through its control of burning (Ball and Makala 2014).

Challenges and Opportunities

We finish with our assessment of the challenges and opportunities that lie in implementation, the levels at which projects are designed, social justice, broader ethical issues, and finally the financial carbon market.

Implementation

Implementation is beset by three principal problems – the process of Free and Prior Informed Consent (FPIC), the need to nimbly adjust the program to local realities, and the

challenge of establishing secure land rights. First, regarding FPIC, it is essential that communities are not just consulted but offer their full consent, without any strings attached and in full transparency, prior to any intervention, in order to ensure social justice; this can be challenging in communities with little education. Second, there is no such thing as a “one size fits all” REDD+ project, and to assume that what has worked in other areas will work for the community in question is to risk taking useless action. Flexible modification is exemplified in Kilwa, as mentioned earlier. Finally land conflicts, often due to land-based subsistence and exacerbated by the new value of forests, can challenge the implementation of REDD+. Holmes and Potvin (2014: 1380) suggest integrating “conservation outcomes and alternative livelihoods into longer-term community development goals” as a way of reducing this tension by offering alternative, sustainable occupations for villagers that do not rely as heavily on land use. For those who still rely on forests, it is important to establish clear land tenure and institutions to encourage sound management (Nhantumbo and Camargo 2015). In short implementation must be respectful, effective in the local context, and avoid evicting people unwillingly from their land.

Polycentricism

As we discussed earlier, multiple levels of action, supervision and implementation are required to make REDD+ work, along the lines of Ostrom’s (2010) famous proposals for polycentricism (Sunderlin et al. 2015). Government supervision is key to providing legal support for REDD+ and limiting the amount leakage because of its control over the entire country, as opposed to the small section of land that single communities own (Burgess et al. 2014). Yet the tension over how much autonomy communities should have remains unresolved, and the balance between decentralization and centralization of power is still up for grabs, although the example from Brazil shows that in a strong policy environment it is possible to both decentralize REDD+ and achieve the programmatic goals (Fabiano 2011). Elsewhere, and to some extent even in Brazil, there is a persistent danger that community level management will be relegated to low-value forests, where there are no incentives for governments, particularly those that are weak and/or undemocratic, to manage the forest for carbon or indeed sell it to private companies for revenue (Phelps et al. 2010). Enhancing the value of forests only exacerbates this tension (Sandbrook et al. 2010), and promotes distrust in local communities of top-down national institutions out of fear of disenfranchisement or loss of access to forest resources (Burgess et al. 2014; Phelps et al. 2015).

Social Justice

Crucial to the success and validity of these programs is process of community consent. As noted above, FPIC requires that communities give permission voluntarily and without coercion, with full disclosure about the project prior to its implementation (Vatn et al. 2013). The REDD+ program aims to combine community development and reduce deforestation, but if the communities concerned do not consent to the project— or even understand the project— can the project really benefit them? An example of a problem in this area can be observed in a study of a single village in a REDD+ project in Zanzibar. Locals provided consent, expecting to play a role in the design and implementation of the project, but soon realized their influence was minimal (Benjaminsen 2014). In Benjaminsen’s account (2014) this lack of voice resulted in some locals withdrawing their support, although the actual numbers are unclear and there is

evidence in other parts of Zanzibar that the project is popular. Nhantumbo and Camargo (2015) and Vatn et al. (2013) wisely recommend a continuous reevaluation of consent, particularly as new information comes available, and Brown (2013) points to the importance of making sure the C stands for consent and not mere consultation. Additional ethical issues arise when REDD+ project implementers decide not to discuss details with the locals due to a fear of “raising unnecessary expectations” (Sunderlin et al. 2015) or confusing people (Ball and Makala 2014). If the projects fail to give the locals all of the information about the project, then the community members making the decisions are not fully informed and therefore cannot give informed consent to the project.

A second major issue at the heart of the debate over social justice within REDD+ is land rights. Recent studies find that land tenure issues pose one of the most significant threats to the success and functionality of the REDD+ program (Sunderlin et al. 2015). Tenure refers to the distribution of rights to the land incorporated into the REDD+ program at the individual, community, and national level; who gets to use the land, who doesn't, how, and why (Scheba and Rakotonarivo 2016). This is particularly problematic when land, and by extension the forests and the carbon they hold, belong to the state (as in the case of REDD+ projects in the Democratic Republic of the Congo, Nhantumbo and Camargo 2015), or where communities rely on customary rules regulating forest use, often treating forest areas as *de facto* open access or with very limited restrictions (as in the case of Lindi, in south-eastern Tanzania, Scheba and Rakotonarivo 2016). In fact conflict over poorly defined new formal land boundaries is mentioned as a problem in many cases all over the world (Brown 2013). As such REDD+ is additionally tasked with allocating tenure rights in a just and equitable manner, which is not an easy task given the centrality of land to livelihoods in so much of the developing land and the persistent threat of land conflicts within and between communities (Sunderlin et al. 2015; Scheba & Rakotonarivo 2016).

Financial Issues

In its inception, REDD+ was designed in such a way that initial funding for the program would come temporarily from international aid and large NGOs until a stable carbon market could be established (Angelsen et al. 2012). Once established, it was hoped that the carbon market would be capable of providing enough reparations to developing countries to adequately compensate for the opportunity costs incurred by protecting their forests. Out of the \$9.8 billion provided for REDD+ between 2006 and 2014 only 10% came through the carbon market (Sunderlin et al. 2015), and the price of carbon on this (still) voluntary market continues to drop. Research on 23 sub-national REDD+ initiatives has shown that the carbon market is saturated (Sunderlin et al. 2015, Fletcher et al. 2016). Demand is 13-39 times lower than supply, so only 4 of 23 initiatives are actually selling carbon (Sunderlin et al. 2015). REDD+ has yet to fully transition towards a long term funding solution driven by carbon market forces, and to this day funding continues to come from public and private institutions (Angelsen et al. 2012). Furthermore since the revenue does not equal the opportunity costs of reducing or eliminating deforestation, a change in funding is needed in order to reach sustainability (Fletcher et al. 2016). One solution includes moving away from markets altogether, and focusing on providing subsidies through taxation on extraction activities (Fletcher et al. 2016), which leads us to our

final consideration.

Who pays for the environment?

Currently, developed countries such as Norway (the largest donor) are the biggest monetary contributors to the REDD+ program (Benjaminsen 2014). This fact in itself is somewhat ironic, given that Norway's wealth comes largely from the oil industry, a major source of greenhouse gas emissions, and its payment may be seen as a form of national guilt. More generally rich nations make voluntary contributions through their aid budgets, again motivated by a mix of guilt, social and ethical responsibility. But what is a fair way of allocating the costs across nations? This has been a point of contention since the Kyoto Protocol was first launched (Borgerhoff Mulder and Coppolillo 2005). Do nations pay according to their overall rates of carbon pollution, their per capita levels, or some other metric? Recently Chancel and Piketty (2015) have calculated, on the basis of consumption data, that the top 10% of individual carbon polluters globally contribute 45% to the buildup of greenhouse gases, while the bottom 50% of individual polluters only contribute 13% of the global carbon emissions. Accordingly they propose that nations should pay a carbon tax proportional to the number of very rich individuals, or more generally their levels of inequality.

Even if the world sticks with carbon markets, there is a lack of national and international policies on carbon rights (Nhantumbo & Camargo 2015). The reason that this distribution of rights is so important is that these carbon rights have or will have monetary values attached to them. Who will benefit more from the carbon market – the buyers who can offset their own greenhouse gas emissions or the communities who will receive payments (Andrews 2017)? According to Nhantumbo and Camargo (2015), the consensus is that the rights to carbon credits and, in turn, the revenues generated should be determined by the roles played and contributions made by the private sector, NGOs, and communities (Nhantumbo & Camargo 2015). Rights and benefits should be shared across levels, depending on how much each actor contributes to both global climate change and deforestation and to the REDD+ project. Even this will be difficult to determine, but an international agreement providing an outline of how to distribute rights will be a step in the right direction.

The future

While the problems are huge, our case studies showed considerable success, both at the national level (in Brazil), and looking at smaller scale projects (Tanzania). While there are many hurdles to cross, the imperative to slow global climate change is so great that we need to combine the insights of as many disciplines as possible (conservation, economics, anthropology, political science, ecology, ethics, history and more) to explore new options, conduct detailed comparative research and instigate experiments.

To this day less than 10% of REDD+ projects are market funded, and that the market is glutted with more sellers of forest carbon credits than polluters willing to buy. This is attributable to the fact there is still no international agreement enforcing pollution limits. REDD+ projects still depend on NGOs, bilateral and multilateral aid programmes, and as such are not sustainable. Or are they? New ideas about "Results-Based Aid" are under discussion (Angelsen 2016).

Similarly there are suggestions for how an international carbon tax can help transform REDD+ into a more permanent instrument (Chancel and Piketty 2015). We have to stay positive.

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