REDD+ as Result-based Aid: General Lessons and Bilateral Agreements of Norway

Arild Angelsen*

Abstract

The initiative known as Reducing Emissions from Deforestation and Forest Degradation (REDD+) officially became part of the international climate agenda in 2007. At that time, REDD+ was an idea regarding payment to countries (and possibly also projects) for reducing emission from forests, with funding primarily from carbon markets. The initiative has since become multi-objective in nature; the policy focus has changed from a payments for environmental services (PES) approach to broader policies, and international funding primarily originates from development aid budgets. This "aidification" of REDD+ has made the program similar to previous efforts using conditional or results-based aid (RBA). However, the experience of RBA in other sectors has scarcely been addressed in the REDD+ debate. The alleged advantages of RBA are poorly backed by empirical research. This paper reviews the primary challenges in designing and implementing a system of RBA, namely, donor spending pressure, performance criteria, reference levels, risk sharing, and funding credibility. It then reviews the four partially performance-based, bilateral REDD+ agreements that Norway has entered with Tanzania, Brazil, Guyana, and Indonesia. These agreements and the aid experience provide valuable lessons for the design and implementation of future REDD+ mechanisms.

1. The Evolving REDD+

International support for the initiative Reducing Emissions from Deforestation and Forest Degradation (REDD+) has increasingly become a form of results-based aid (RBA). This paper examines five major challenges in designing and implementing an RBA system to stimulate developing countries to better conserve their forests. These challenges relate to donor spending pressure, performance criteria, reference levels, risk sharing and funding credibility. The paper then assesses how these challenges are handled in the four initial bilateral REDD+ agreements that Norway entered with Tanzania, Brazil, Guyana and Indonesia. The general RBA experiences have only to a limited extent been brought into the REDD+ debate, and I examine possible reasons for this phenomenon.

In 2007, the annual Conference of the Parties (COP) of the UN Framework Convention on Climate Change (UNFCCC) decided to fully integrate forests in developing countries into the negotiations on a new climate agreement. Under the heading of REDD or REDD+ (which includes carbon stock enhancements), conserving forests is considered to be critical to limiting global warming to 1.5–2 deg C. Donors have pledged approximately US$10 billion to fund the effort

(Norman and Nakhooda, 2014). The UN REDD+ program, along with the Forest Carbon Partnership Facility, supports readiness activities and the development of national REDD+ strategies in 64 countries.[1] In addition, non-governmental organizations (NGOs) and other proponents are engaged in hundreds of REDD-labeled projects at the local level.

REDD+ was originally an idea concerning payment to countries and projects for reduced emissions, with funding primarily from carbon markets. Since then, REDD+ has changed in several significant and interrelated ways (Angelsen and McNeill, 2012). First, the initiative has evolved from a carbon focus to become multi-objective, with livelihoods/poverty, biodiversity, adaptation, indigenous rights and good governance added as relevant objectives. Second, international funding now comes primarily from bilateral and multilateral development aid budgets, not carbon markets. Third, the domestic policy focus has shifted from payments for environmental services (PES) to broader policies. These changes have been driven by several factors, including the lack of an international climate agreement with binding national emission caps (making carbon market funding unavailable), the numerous challenges of establishing a PES system, and the political dynamics of REDD+, in which different interest groups have inserted their own agendas into the global and national REDD+ agendas.

Today, REDD+ at the international level appears similar to previous efforts concerning conditional and results-based aid. This "aidification" of REDD+ (Seymour and Angelsen, 2012) can be explained by several factors. First, large-scale market funding is unavailable because of the failure to establish a global carbon market that integrates REDD+ credits.[2] Second, many donors were involved in the REDD-relevant sectors (forest, conservation, rural development, institution building, etc.), and ongoing activities could, with light modifications, be relabeled as REDD+ and tap into new budget lines. Third, the aid sector already provided a mechanism and modality to transfer fresh money to REDD+ countries. Fourth, labeling REDD+ funding as aid helps donors to achieve international aid targets. In the case of Norway (and possibly other countries), tapping into aid budgets also has enabled significant funding for REDD+, because fresh and reallocated funding from the aid budget undergoes less scrutiny from the Ministry of Finance compared with other budgets.

The core idea of REDD+ as aid is to apply conditionality and make payments to countries (and projects) based on performance or results. Conditional aid was part of the Structural Adjustment Programs (SAPs) from the mid-1980s, led by the World Bank and the International Monetary Fund (IMF). Although the disbursement of aid money was supposed to be conditioned on deep policy reforms, the results of performance-based aid were mixed. "This is indeed the core of what conditionality is supposedly about—aid buys reform. Unfortunately, it does no such thing" (Collier, 1997, p. 56). SAPs were replaced by Poverty Reduction Strategy Papers (PRSPs) in the 1990s, with a softer approach to conditionality. More recently, this approach has branched off into two alternatives: RBA and a participatory approach, with "partnership" and "national ownership" as key words in the latter. Rather than problematize this approach further, I will quote a donor informant cited in Lie (2015, p. 724) "ownership exists when they do what we want them to do, but they do so voluntarily."

The Paris Declaration on Aid Effectiveness (Organisation for Economic Co-operation and Development (OECD), 2005) calls for more aid to be based on actual performance or results. RBA and results-based financing (RBF) has been

applied increasingly in other sectors, particularly in health (Eldridge and Palmer, 2009; Eichler et al., 2009; Grittner, 2013) and primary education (Birdsall et al., 2011). These experiences are rarely brought into the REDD+ debate. One reason could be the poor reputation of SAP and conditional aid in many circles. REDD+ is led by environmental (and climate) agencies with limited development aid experience. There is also a human faculty to think "this time it's different."

This paper is outlined as follows. In section 2, I briefly review the status of REDD+ and how the idea has evolved since 2007. Section 3 discusses RBA and the following five REDD+ relevant challenges: donor credibility owing to spending pressure, performance criteria, reference levels, risk sharing and credibility related to sufficient funds being lined up behind the mechanism. Norway is the single largest REDD+ donor with >40% of international funding (Norman and Nakhooda, 2014) and has entered into 2008–2010 bilateral agreements with four countries: Tanzania, Brazil, Guyana and Indonesia. Section 4 provides a review and preliminary assessment of these agreements, in light of the five challenges outlined in section 3. It also provides some hypotheses concerning why aid experiences are rarely brought into the REDD+ debate. The final section provides five lessons.

The paper focuses on the incentives and economic aspects of RBA. Another dimension only touched upon lightly is the political role of significant donor contributions, in terms of trust building, not only for bilateral relations and the management of tropical forest, but also for the general climate debate and the UNFCCC negotiations. Aid, it is argued, has a value beyond the actual use of the funds. A more complete analysis of this aspect is beyond the scope of this paper. There is also a broader political dimension of conditional aid related to historical donor–recipient relationships, the national sovereignty of using natural resources, and Northern paternalism that I do not address.

2. What is REDD+?

When REDD+ was placed on the agenda of the global climate negotiations (UNFCCC) in 2005, it was envisioned as a mechanism whereby developed (Annex I) countries would incentivize and compensate developing (non-Annex I) countries for verified/certified emission reductions. This results-based payment mechanism could be mirrored within countries to ensure that forest owners and users are incentivized and compensated for the carbon sequestered and stored in their forests. Other policies, such as the effective enforcement of protected forest areas, were also assumed to play a role in national and local implementation.

The primary source of funding was supposed to be from REDD+ credits sold in a compliance carbon market. The Bali Action Plan (COP 13) (UNFCCC, 2007) was, in the view of key actors, a plan to make REDD+ part of a global climate agreement in which REDD+ credits could be used as offsets in a global cap and trade (CAT) system. COP 15 in Copenhagen (2009) failed to deliver that agreement. COP 21 in Paris (2015) gave us a very different agreement, with a bottom-up approach based on each party's intended nationally determined contributions (INDCs). A global carbon market requires binding caps for countries (or sectors), and it therefore remains uncertain to what extent carbon markets ever will become a major source of international (or national) funding for REDD+.

UNFCCC has provided a global arena for REDD+ discussions and decisions, culminating in the Warsaw framework (COP 19, 2013), with several outstanding issues decided at COP 21. The majority of the actions have been among

multilateral and bilateral donors, national and state governments, NGOs and the corporate sector. In this process, the key ideas of REDD+ have changed in the following three significant ways (Angelsen and McNeill, 2012):

(1) *From single to multiple objectives*. The ultimate objective of the UNFCCC, as expressed in Article 2, is the "stabilisation of greenhouse gas concentrations in the atmosphere, at a level that would prevent dangerous anthropogenic interference with the climate system" (UNFCCC, 1992). Initially, this was also the principal objective of REDD+, but other objectives (referred to as "co-benefits" or "non-carbon benefits"—NCBs) have been added: protecting biodiversity, reducing poverty/enhancing local livelihoods, strengthening indigenous rights, improving governance, and increasing capacity for climate adaptation. These objectives are also linked to the discussion on safeguards, which can be interpreted as having a set of minimum standards for REDD+ implementation, whereas the discussion of NCBs can be interpreted as a more active promotion of non-carbon objectives. REDD+ is also increasingly linked to an agriculture–climate agenda.

(2) *From PES to broader policies*. Creating a market for forest climate services (PES) presupposes four critical elements: the existence of a quantifiable commodity or service, buyers, sellers and a marketplace with associated rules and regulations (Angelsen, 2014). These elements are not yet in place in the majority of REDD+ countries. Designing and implementing a system that directly rewards emission reductions (and removals) by individuals, households, or groups remains a formidable challenge. In addition to the numerous practical issues related to implementing a PES system, it also faces ideological opposition. REDD+ will therefore be pursued as a broader set of national forest conservation policies (Angelsen, 2009) including command and control (e.g. establish and better enforce protected areas) and addressing drivers (e.g. removing agricultural subsidies).

(3) *Funding: from carbon market to international public sources and national contributions*. In their submissions to the UNFCCC in 2007–2008, the majority of countries argued for a dual funding approach in which public sources would provide short-term funding for capacity building, while the long-term funding for results-based payments would come from carbon markets (Guizol and Atmadja, 2008). The latter has not materialized because of the lack of a global climate agreement that includes REDD+ credits, either as an offset mechanism in a compliance carbon market or indirectly through, for example, auctioning emission allowances to generate revenues for a global REDD+ fund. As a result, 90% of international funding has come from public sources, primarily official development aid (ODA) budgets (Norman and Nakhooda, 2014). In the future, funding might increasingly come from the Green Climate Fund, although REDD+ will have to compete with adaptation and other mitigation mechanisms. New and innovative global funding mechanisms are also conceivable (Center for Global Development, 2015).

Today, REDD+ should therefore be understood as a hybrid set of policies, programs and projects at all scales that aims to reduce emissions and increase removals (sequester carbon) from forests in developing countries. The results-based payment concept has survived and is still seen (in different versions) as a key

component of REDD+ policies and projects, but alongside other instruments (Sills et al., 2014).

The challenges of designing and implementing a pure PES system led to the introduction of the phased approach, i.e. three phases focusing on the following: (1) readiness and capacity building, (2) policy reforms and national REDD+ strategies, and (3) payments based on verified/certified emission reductions. The approach was developed through a consultative process, prepared by the Meridian Institute (Angelsen et al., 2009), and later adopted by the UNFCCC. However, the approach and the natural gradation implied have not been fully agreed upon. Certain representatives from the NGO community, in particular, question the idea of results-based funding and the desirability of a phase 3. Others are concerned that some countries might be "stuck" in phases 1 or 2 and will never employ the incentives that are considered the innovative feature of REDD+.

Leaving such controversies aside, the phased approach forms a useful framework for the discussion of different performance indicators in RBA. This approach was also used as an organizing principle in the agreement between Norway and Indonesia.

3. REDD+ as Results-based Aid (RBA)

The Coming of RBA

RBA appears under different names with new terms popping up regularly, partially reflecting "institutional branding." Normally, the terms are a combination of two sets of terms: conditional/output-based/performance-based/result-based, and aid/ funding/financing/lending/payment/incentives/contracting (or alternatively, a combination of cash/payment by/on/for delivery/results/performance). Combining these, 34 terms are on the menu (with additional terms still possible). Although the commonly used terms might differ slightly, the key element is "a contract between both parties that define incentives to produce measureable results" (Klingebiel, 2012, p. 3). The three critical elements are as follows: (i) payments based on results, (ii) recipient discretion (recipient decides on how to achieve results), and (iii) independent verification of results (Perrin, 2013). Perakis and Savedoff (2014) add two elements that also characterize RBA, while not being defining features: (iv) public dissemination of the contract and outcomes to ensure transparency, and (v) RBA funding that complements other sources.

There is a clear trend to move from "promise-based" to "result-based aid" (Öhler et al., 2012; Klingebiel and Janus, 2014), as already reflected in *The Paris Declaration on Aid Effectiveness* (OECD, 2005). The World Bank has supported results-based funding in the health sector for more than 20 years (Perrin, 2013), and the majority of the current experience is from that sector. Much of that funding is results-based finance (RBF), i.e. from the donor or government to the service providers (e.g. hospitals or schools, or health workers and teachers), rather than RBA, i.e. from the donor to the recipient government.

In a review of output-based aid (OBA) in the health sector, Eldridge and Palmer (2009) find that the majority of studies appear to be positive regarding OBA, in spite of a lack of firm evidence, including the use of proper controls. The evidence is more anecdotal than based on rigorous impact assessments. Certain studies find positive impacts, however. A well-executed study of the Millennium Development Challenge, which aims to reduce corruption and enhance good governance, suggests

that this conditional aid succeeded in achieving the targets (Öhler et al., 2012). Nevertheless, a review of payment by results (PBR) evaluations concludes that "the value of PBR is, at least as of yet, unproven" (Perrin, 2013, p. iii). Similarly, Klingebiel and Janus (2014) suggest that many of the assume benefits of RBA are yet to be confirmed empirically, particularly regarding long-term impacts.

The experiences of conditional lending during the period of SAPs are also relevant for phase 2 (policy reforms) REDD+. An analysis of conditional lending by the World Bank suggests that the degree of compliance with the conditions in the aid agreement had no impact on the actual disbursement (Svensson, 2003). Thus, many agree with Paul Collier's statement in the introduction; for example, Killick (1997, p. 493) notes: "Conditionality is not an effective means of improving economic policies in recipient countries."

The hopes for RBA are high and are aptly reflected in Tanzania's program, "Big Results Now!", launched in 2012 with a strong element of payment for results in the provision of public services (Janus and Keijzer, 2015). The momentum appears to reflect appealing theoretical properties and perhaps also a political fad, rather than solid empirical evidence of the stronger effectiveness of this approach. In a review of PBA, Paul (2015) notes: "Expectations from PBA are high, but, while its rationale may look appealing, it is based on a restrictive model and is flawed when taking account of the real-world context. … believing that PBA can have a mechanistic trickle-down incentive effect seems illusory."

In this paper, I select the following five challenges related to the design and implementation of REDD+ as RBA for further discussion: budget pressure, performance criteria, reference levels, risk sharing, and (in)sufficient funding. The choice is based on the literature cited above as well as the relevance to the current REDD+ debate. The list is, however, not exhaustive, and recent reviews present partly overlapping sets of challenges (Paul, 2015; Holzapfel and Janus, 2015; Clist and Verschoor, 2014).

Additional challenges not discussed further include balancing between multiple goals (i.e. carbon vs non-carbon benefits) and avoiding potentially adverse distributional implications. The latter concerns the fact that an emphasis on well-functioning systems for measurement and verification may exclude poorer individuals/communities/countries (see also Klingebiel and Janus, 2014). There is also a much broader debate on equity and benefit sharing in REDD+, which would require much more space to pay justice to (see, e.g. Luttrell et al., 2013).

The importance of the challenges also varies according to the REDD+ phases. Budget pressure (1) and performance criteria (2) are relevant to all phases, reference levels (3) are primarily relevant for phase 3, whereas risk sharing (4) and (in)sufficient funds (5) are relevant to all, but particularly for phase 3.

Challenge 1: Donors Eager to Spend and Recipients Unwilling to Reform

"You simply cannot imagine how hard it is to spend money on REDD+." (Development agency official, personal conversation, February 2011).

A useful theoretical basis for RBA is the principal–agent framework (e.g. Clist and Verschoor, 2014). The principal (donor) has an interest in achieving an outcome (e.g. a policy reform), which is costly to undertake for the agent (recipient). This framework does not imply that the REDD+ countries (agents)

have no interest in undertaking REDD+ policies, but rather that the donor would like to see more action. The reason is simple: reduced emissions produce a global public good (a benefit to both the principal and the agent), whereas the costs are borne by the agent alone. The asymmetry in interests may therefore be fully explained by the asymmetry in costs. The solution to the problem is a conditional contract; payments are made by the principal if and only if the reform is undertaken by the agent.

In practice, conditionality often fails because of the "budget-pressure system" (Svensson, 2003) of donors. Spending the budget has become a key goal of the donor, and under-spending is viewed by the public as poor planning and performance. Within organizations, bureaucrats are promoted based on disbursement and overall spending. Under-spending also carries a high risk of cuts in future budgets. Budget pressure can, however, also be explained from the Samaritan dilemma that donors face (Gibson et al., 2005) and "the inherent tension between a desire to reward performance and alleviate desperate situations" (Clist and Verschoor, 2014).

The following simple three-stage game inspired by Mosley et al. (1991) can explain this failure of conditionality.[3] The donor (D) and the recipient (R) have the following utility functions:

$$D = d(M, P); \quad d_M > 0, \quad d_P > 0, \tag{1}$$

$$R = r(M, P); \quad r_M > 0, \quad r_P < 0. \tag{2}$$

Although the donor seeks policy reforms (P) ($d_P > 0$), the recipient does not ($r_P < 0$) (otherwise, the reforms would have been implemented already). The recipient also receives a positive utility from receiving money (M) ($r_M > 0$); critically, however, the donor is also interested in spending ($d_M > 0$). Thus, the two agents share a common interest in the money transfer but possess conflicting interests in undertaking reforms. The game is played in three stages as follows:

Stage 1: Contract negotiation. The donor and the recipient agree on a set of reforms and a sum of money to be paid after the implementation of the reforms (M^1, P^1).

Stage 2: Implementation. The recipient chooses the level of policy reforms to implement (P^2).

Stage 3: Disbursement. The donor decides how much money to disburse (M^3).

The game is solved by backward induction. Beginning at the last stage, the players identify the optimal strategy for different outcomes of the previous stage. At stage 3, it will be optimal for the donor to disburse whatever the recipient did at stage 2. At stage 2, the recipient knows this and chooses not to implement the reforms. The sub-game perfect Nash equilibrium is therefore straightforward, although perhaps surprising: the recipient undertakes no policy reforms ($P = 0$), and the donor pays the agreed amount ($M^3 = M^1$). Conditionality does not work.

One might argue that a well-informed and rational donor would know this outcome and therefore not enter this game. With our assumptions, having a budget with no results is better than no budget (and no results): $d(M^1, 0) > d(0, 0)$. Donors with such preferences will thus want to enter a contract and play the commonly observed donor–recipient game or "mating ritual" (Svensson, 2003), even if they know the last stage outcome.

There are two principal ways for donors to address this dilemma: change their own preferences (d_M) or the preferences of the recipient (r_p). On the donor side, a range of reforms can be undertaken to make the conditionality more credible (move from $d_M > 0$ to $d_M < 0$). Within an organization, the performance criteria of staff members could change from disbursement to documented results, perhaps even with penalties for not being tough on performance-based disbursements. This approach should also be carried over to the public debate, where focus should shift from aid volumes to results.

Additional structural reforms are also needed. The key is to create a positive opportunity cost of spending. Disbursement should be delinked from the annual budget process, e.g. through multi-year funds. Annual budget processes can make the opportunity cost negative, i.e. not spending this year can lead to lower future budgets.

Generating a positive opportunity cost for disbursements can also be achieved by creating competition among recipients for scarce donor funds. One option is to commit an amount of REDD+ funding to a group of countries, define a set of performance criteria, and make disbursements dependent on relative performance, along the lines analyzed by Svensson (2003). When the Norwegian Kroner (NOK) 15 billion (*ca* US$2.5 billion) of REDD+ funding was announced in 2007, Norway could have, for example, established a set of criteria for such a REDD+ tournament (see Gibson et al. (2005) on aid tournaments). This mechanism might have undesirable distributional implications but could be complemented with support to strengthen the implementation capacity in poor countries.

Finally, donor credibility can be enhanced by making a third party responsible for assessing performance and deciding on disbursement (Gibson et al., 2005).[4]

A second route to change the outcome of the game is to increase the domestic willingness to undertake policy reforms. In donor circles this route is referred to as recipient country governments assuming "ownership" of the policy reforms (Gibson et al., 2005) or alignment of preferences. In my interactions with policymakers from REDD+ donor countries, this point is often stressed. The role of country ownership is seen as a key to success. REDD+ aid should, hopefully, provide financial arguments to proponents of policy reforms in the domestic political battles. While efforts to create country ownership (and align preferences) to REDD+ reforms may be implemented alongside RBA, the underlying rationale of RBA is that the external incentives will provide the necessary impetus for reforms. Indeed, if the recipient preferences are perfectly aligned with the donor, there is no need for a results-based contract. Clist and Verschoor (2014) observe that "the current emphasis in alignment …. is quite surprising; the oft-cited principal–agent model implies that an outcome-based wage contract is *more* attractive if the agent is *less* aligned" (p. 2).

There are nuanced views in the literature as to what degree (conditional) aid can influence domestic policy-making. Some researchers suggest that donor conditionality plays a minor role, compared with domestic politics, in determining the choice and implementation of policy reforms (Burnside and Dollar, 2000) According to Collier (2002, p. 7), "… the aid for reform approach takes a hopelessly naïve view of the reform process and of the game being played."

Others question the assumption of a monolithic government that does not allow for multiple actors with different agendas. One study on conditional lending in the forestry sector concludes: "The cases in this report demonstrate that under the right conditions, the World Bank has been able to catalyse key forest policy changes in

the context of adjustment lending, tipping the scales toward reformist elements and away from vested interests. Under the wrong conditions, the World Bank's efforts have been met with frustration for both it and the borrower and have led to a stalemate in the reform agenda" (Seymour and Dubash, 2000, p. 2). More recent studies of the REDD+ policy reforms stress key domestic factors, such as the autonomy of the state from key forest interests, national ownership over—and inclusive—policy processes, and coalitions for transformational change (Di Gregorio et al., 2012). When the REDD+ process is driven solely by international actors, it is unlikely to make a difference on the ground.

The above discussion refers to what is termed *ex post* conditionality, i.e. based on the recipient's fulfilments of conditions specified in a contract. An alternative approach is *ex ante* conditionality, i.e. payments based on past performance (Clist and Verschoor, 2014). This approach is advocated by Collier and Dollar (2002), who suggest that aid should be allocated so as to reward good policies and governance. In practice, such considerations play an insignificant role in aid allocations (Clist, 2011).

Can a system of *ex ante* conditionality provide the necessary incentives for REDD+? A credible system hinges on *ex ante* conditionality to be applied consistently across donor and recipients. In this way, recipients can realistically expect that they will be rewarded for actions that contribute to reducing forest-based emissions (in the case of REDD+), but more than a system of *ex post* conditionality, *ex ante* conditionality will rely on the establishment of a common practice among donors to create expectations that payment for reform will eventually come through. Its effectiveness hinges on such expectations being created. Moreover, a system of *ex ante* conditionality does not meet a basic requirement and commonly used definition of RBA, namely that "the relationship between payment and results is pre-defined" (Helland and Mæstad, 2015, p. 4). In the following I therefore mean *ex post* conditionality when referring to conditionality (or results-based system).

Challenge 2: Performance Criteria and Measurement

The logical framework approach (LFA) provides a useful lens for the discussion on the selection of performance criteria and their measurements (Table 1). The LFA can be linked directly to the phased approach of REDD+; moving through these phases implies that donors move from supporting inputs and activities (phase 1), to outputs (phase 2) and finally to outcomes and impacts (phase 3).

Strong theoretical arguments exist for selecting performance criteria as far to the right in the table as possible. Reduced emissions are the primary goal of REDD+ and performance should be measured as directly as possible. Input- or process-based measures are generally poor indicators of the final impact (Mumssen et al., 2010). A good policy approved by the parliament (an outcome) will have no or limited impact if not properly implemented. Impact-based performance indicators provide strong incentives for effective policy implementation. Yet, Helland and Mæstad (2015, p. 4) note that "along with the rising popularity of results-based payments there is an increasing inclination to also count incentives for the provision of inputs . . . as results."

Moving towards impact criteria is normally more demanding, including the measurement requirements. For example, verifying whether a forest has been legally designated as a protected area (an output) is easy. Measuring the area of

deforestation (output) over a specific time period is more demanding, but is doable with time series of satellite images (even if the accuracy is lower than commonly assumed). To measure emissions (impact) one also needs emissions factors for deforestation (emissions per ha following the change in land use/cover), which require field measurements from sample plots. In some cases, nevertheless, defining and measuring inputs or activities can be equally or more difficult. For example, an input such as "enforcement of community land rights" is harder to define, monitor and verify than an outcome such as "area of intact forest."

Another issue is the time lag between the (costs of) actions and the payments. The further along the result-chain one moves, the longer is the time lag (Wertz-Kanounnikoff and McNeill, 2012). This represents a challenge for credit constrained REDD+ governments, projects and forest users. It also presupposes high levels of trust that payments eventually will be made. Solutions may include making certain up-front payments that are not results-based, and then making regular (annual) payments based on interim progress. Although this approach will increase the overall costs, one might also argue that it is better to pay twice for a result than to pay once for no result.

Effective RBA implementation requires appropriate institutions, accounting and verification mechanisms. Introducing emission-based payments without these preconditions in place might enlarge the scope for the potential "gaming" of results, undermining the effectiveness and credibility of the system. Beginning with easier-to-measure policy outputs and processes might therefore be a better short-term option in weak institutional environments.

Relatedly, moving along the result-chain to the right enlarges the problems of defining benchmarks (reference levels) and sharing of risk, two challenges discussed further below.

Challenge 3: Reference Levels

"A reference level is a benchmark set so low that success is guaranteed." (Unknown)

Any performance-based payments require a benchmark (reference level), a yardstick against which performance is measured. Establishing that benchmark or counterfactual is the critical issue, in all forms of impact analysis and also for REDD+. This problem can also be viewed as an attribution problem, i.e. to determine whether an output/outcome/impact is a result of the intervention or other external factors. In general, such external factors play a larger role, as one moves to the right along the result-chain and setting benchmarks therefore becomes increasingly difficult. Reference levels are important both for phase 2 (policy reforms) and phase 3 (reduced emissions) of REDD+, although the majority of the following discussion examines phase 3. For phase 2, the typical assumption is a baseline of "no policy reforms."

The term reference level (RL) in the REDD+ debate has two fundamentally different meanings (Angelsen, 2008). First, the term can refer to the projected business as usual (BAU) or counterfactual scenario. The BAU baseline is the benchmark used to estimate the impact of the REDD+ measures implemented and to ensure additionality. Second, RL can refer to the crediting baseline (CB), which is comparable with an emission quota. The CB is also referred to as the "compensation baseline" or "financial incentive benchmark" in the debate. It is the benchmark for rewarding the country (or project) if emissions are below that level

Table 1. A Result-chain Illustrating the REDD+ Performance Criteria from Input to Impact

Level	Input	Activity or process	Output	Outcome	Impact
Focus	Quantities of various inputs, in values or time	Activities undertaken to produce specific outputs	Immediate/-technical results of intervention	Intermediate and mid-term effects, i.e. observable behavioral, inst. and societal changes	Broader and long-term effects, often captured in sectoral statistics
Terms	Input indicators	Process indicators & milestones	Output indicators	Results indicators; Outcome indicators	Impact indicators; Goal indicators
REDD+ examples	Resources spent (US$); Technical assistance (person days)	National REDD+ plan completed; Free prior informed consent (FPIC) consultations conducted	Policies adapted and enforced; No. of loggers adapted reduced impact logging practices	Reductions in deforestation; Reductions in unsustainable timber harvest	Certified/verified changes in GHG emissions

Source: Based on Wertz-Kanoumikoff and McNeill (2012), see also Klingebiel (2012).

or for not rewarding or possibly invoking debits if emissions are higher (depending on liability). I address the way in which to set the BAU and CB in turn.

There is a large body of literature examining the causes of deforestation, including economic and statistical models that attempt to identify and quantify factors that cause higher forest clearing (see reviews by Angelsen and Kaimowitz, 1999; Geist and Lambin, 2002; Rudel, 2007; Hosonuma et al., 2012). These models attempt to find causal patterns, whereas a predictive model is simply concerned about making a good prediction. In particular, past deforestation can be used to predict the future. The reference period is typically set to the average deforestation rate of the past 10 years and updated every 3 or 5 years (Santilli et al., 2005). This formula is used by the Amazon Fund and adopted in the Norway–Brazil agreement on REDD+ from 2008.

As part of the Warsaw framework for REDD+ (UNFCCC, 2013), countries are invited to submit their forest (emission) reference levels, which will serve as benchmarks for assessing each country's performance in implementing REDD+ activities. RLs are thus defined in the BAU sense; however, it remains uncertain whether the same RLs will also be used as a basis for any future payments. As of February 2016, 15 countries have submitted their RLs.[5]

The UNFCCC debate concerning how to set RLs has focused on two factors: historical rates of deforestation (and degradation), and national circumstances, with the latter remaining at least a "grey box." Deforestation can be highly variable from year to year, but can also display systematic trends over longer periods (5–10 years) that depart from past deforestation. The forest area change may follow a pattern suggested by the forest transition (FT) theory (Mather, 1992), whereby at early stages in the development, a country is characterized by high forest cover and low deforestation rates. Deforestation rates then accelerate and forest cover is reduced before the rates slow down, forest cover stabilizes and recovery eventually begins. A simple extrapolation of historical rates therefore tends to underestimate future BAU deforestation for counties at the early stages in the transition, whereas it tends to overestimate BAU deforestation for countries in the later stages.

Previous literature on cross-country deforestation regression models has included a number of variables, and some of these are potential candidates for inclusion in a formula for setting RLs (Angelsen and Kaimowitz, 1999). These factors include population density and growth, forest area, economic growth, commodity prices, governance variables and location. One key question is what "national circumstances" are robust across time and space and can be included in a RL formula.

The second main question under the heading of reference levels is how to set the crediting baselines (CB), which form the basis for rewarding successful REDD+ efforts. The simplest solution is to set CB equal to the BAU baseline. However, this solution might not be economically optimal. A basic principle of REDD+, as introduced in the UNFCCC negotiations, was voluntary participation and "positive incentives." This principle might be interpreted as "no-lose," i.e. REDD+ countries should have a non-negative net benefit (defined as the total international REDD+ transfers, less the net domestic costs of REDD+) from any REDD+ agreement entered. Consider the case in which the CB is set equal to the BAU baseline and the price per tCO_2 is set to US$5.00. A rational response of the country is to reduce emissions up to the level where marginal costs equal US$5.00. The costs of the initial reductions are lower, however, and the country will obtain a surplus or rent. A "no-lose" principle will permit setting the CB lower than the BAU

baseline; some of the cheap reductions can be covered by the rent from the compensated emissions reductions. Overcompensation is costly for the donor and for the global environment; scarce REDD+ funds could have been spent on emissions reductions elsewhere.

The discussion above takes the principal's perspective in the principal–agent framing, where the objective is to maximize emission reductions for a given budget. REDD+ has become multi-objective, as discussed in section 2, and the primary objective of development aid is poverty reduction. Some overcompensation can thus be defended if it contributes to other non-climate objectives, in particular to the poorest countries based on the long-standing UNFCCC principle of "common but differentiated responsibilities."

Challenge 4: Uncertainty and Risk Sharing

In general, the REDD+ country (the agent or service provider) has less control the further to the right in Table 1 the performance criteria are located. This implies that RBA is shifting the risk to the service providers (Mumssen et al., 2010), although mechanisms can be designed to manage and share risks.[6]

A performance-based REDD+ system entails a number of uncertainties and consequent risks for the parties. First, a BAU baseline has several inherent uncertainties: the future values of drivers of deforestation and degradation are not known, e.g. the prices of palm oil and soybeans, and the relationship between such drivers and the agricultural land expansion into forests is uncertain. Second, the costs of avoided deforestation and degradation are uncertain, e.g. the agricultural rent that could have been obtained from cleared land (output prices and technologies). Third, the effectiveness of the REDD+ policies implemented is uncertain, e.g. how farmers will respond to particular conservation incentives. Fourth, estimates of the change in forest carbon stocks are uncertain, both in terms of area change and the related emission factors (Wertz-Kanounnikoff et al., 2008). These uncertainties create problems for the donor and recipient. With a fixed CB, the REDD+ country risks undertaking costly REDD+ policies and not being paid in the end, because unforeseen external deforestation drivers trumped the REDD+ policies implemented. The donor risks paying for non-additional reductions if these drivers slowed in unforeseen ways.

Several options to deal with such uncertainties have been proposed, and these are briefly outlined in Table 2. One major proposal in the REDD+ debate is the suggestion of an *ex-post* adjustment of the RL, initially proposed as the "compensated successful efforts" (Combes Motel et al., 2009). For example, deforestation pressures in the Brazilian Amazon have historically been closely linked to the profitability of cattle and soybean production. Adjusting RLs based on the prices of agricultural commodities could better reflect the true BAU scenario and therefore better measure the real emission reductions.

Another way to deal with uncertainty is the corridor approach proposed by Schlamadinger et al. (2005). The approach recognizes that any point estimate of the RL is uncertain. A discount factor is therefore introduced, in which deeper emission reductions receive increasingly higher compensation. This approach defines an interval (corridor) around the point estimate of the RL, with the discount factor increasing from 0 to 1 (no to full compensation) within this interval. Thus, a REDD+ country will receive some compensation, even if it is unlucky and faces strong deforestation drivers, making the policies less successful in reducing

deforestation. Conversely, a donor country will not pay full compensation in the opposite case, i.e. deforestation is reduced for other reasons than successful REDD+ policies.

A third approach is a step-wise or tiered approach (Herold et al., 2012). The quality and scale of the data used to calculate the RL is grouped in three different categories, and an adjustment factor reflects the degree of uncertainty, such that countries with the poorest data receive a lower RL. This addresses one of the problems of uncertainty, namely, the risk of overcompensation and producing "fake" REDD+ credits and hot air in a market system. Other potential ways to deal with uncertainty are contract renegotiation or insurance, although these have not been explored in the context of REDD+ RLs.

Challenge 5: Putting Money Behind the Promise

In contrast to budget pressure (challenge 1), a final challenge is for the donor (principal) to put credible money behind the contract, such that the recipient country (agent) believes it will be rewarded fully for walking an extra mile. For recipients this represents a major uncertainty, a point frequently made by REDD+ countries in the UNFCCC debates.

Consider a situation in which the recipient successfully achieves emission reductions, based on the conditions specified in the contract, including the reference level. The recipient could therefore be able to claim more than the funds made available from the donor. If this situation was expected by the parties, the payment can be considered a lump-sum transfer from the donor to the recipient. The contract has not provided the marginal incentives for emission reductions, which is the key idea of results-based payments. Below, I suggest that this describes the Norway–Brazil REDD+ agreement well.

The accumulated international REDD+ pledges of approximately US$10 billion represent an unprecedented level of funding for a single environmental effort in developing countries (Norman and Nakhooda, 2014). However, this amount constitutes only a small fraction of the estimated funding needed if REDD+ countries are to be compensated for their emissions reductions. For example, paying for a 50% reduction in the current rate of deforestation (Baccini et al., 2012), valued at US$5.00 per tCO_2 and using historical-only reference levels, would cost approximately US$9–10 billion per year.[7]

With crediting baselines set below the BAU baselines, and invoking the principle of "common but differentiated responsibilities," the amount could be significantly lowered. Nevertheless, a credible system of international payments for reduced emissions will require billions of dollars per year. An illustration of the amounts potentially involved in the case of Brazil is presented in Table 4.

4. Norwegian REDD+ Aid

Norway's International Climate and Forest Initiative (NICFI), launched at COP 13 in December 2007 in Bali, is the single largest REDD+ initiative to date with more than 40% of the international REDD+ funding (Norman and Nakhooda, 2014). A succinct story of NICFI and the political process leasing up to the initiative is presented in Hermansen and Kasa (2014) and Hermansen (2015), while a broad evaluation is given in LTS International (2014).

Table 2. Options to Address Uncertainty in the Setting of Reference Level (Crediting Baseline)

Option	Elaboration	Pros	Cons
1. *Ex-post* adjustment of RL	RL formula agreed, final RL set when parameters (e.g. agriculture prices) are known	Predictable, and politically robust	Hard to establish the formula
2. Corridor approach	Gradually increasing compensation within a RL corridor	Flexible, compensation also mimics MC curve	Political acceptance
3. Tiered approach	Estimated RL multiplied by an uncertainty factor (<1), based on assessment of data quality	Reduced risk of overcompensation and hot air, incentives to produce better data	Make REDD less attractive for countries with poor data
4. Renegotiations	Renegotiate RL based an initial agreement	Flexible, can incorporate unforeseen factors	Political gaming
5. Insurance	Could design insurance contract based approaches in 1 and 2	Well-developed markets for insurance	Probably expensive, complex formula

Note: RL, reference level; MC, marginal cost.
Source: Author's construction.

The initial pledge was NOK3 billion (approx. US$500 million[8]) per year over 5 years (2008–2013). In 2013 the commitment period was extended until 2020 and at COP 21 (Paris) in 2015 it was extended until 2030. Major agreements were initially (2008–2010) signed with the following four countries: Tanzania, Brazil, Guyana and Indonesia. These agreements are reviewed below. Agreements were later signed with Mexico, Vietnam, Ethiopia, Myanmar and Liberia.

In addition to the bilateral agreements, a joint partnership with UK supports the Congo Basin Forest Fund (NOK500 million). Norway was the midwife of the UN REDD program and has remained by far its largest donor (NOK1.3 billion or *ca* US$217 million by the end of 2014). Substantial funding is also channeled through the World Bank's Forest Carbon Partnership Facility (FCPF) (NOK419 million or *ca* US$70 million), the Forest Investment Programme (FIP) (NOK855 million or *ca* US$143 million), and the Bio Carbon Fund (NOK690 million or *ca* US$115 million). NICFI also provides significant support to civil society, including large international NGOs active on the REDD+ arena (NOK1.25 billion or *ca* US$208 million).[9]

Country Agreements

The contracts between Norway and the four initial partner countries differ greatly, from a general agreement expressing broad objectives with non-committing formulations (Tanzania), an apparently results-based and otherwise hands-off contract (Brazil), a quite detailed performance-based contract in a data-scarce and

difficult policy environment (Guyana), to a "model contract" using the phased approach (Indonesia). The four contracts, placed within the phased approach, are presented in Table 3.

I will not attempt to assess the forest impact of the four agreements. For a preliminary assessment, see the real-time evaluation of NICFI.[10] I do offer arguments as to why the four countries were selected, noting that a full analysis of that would also include a study of countries not selected. Bilateral discussions were held early with Liberia and Papua New Guinea, among others, but both countries were found to entail excessively high risks and thus no agreement was reached. Liberia was eventually added as a partner in September 2014.

Tanzania   The Letter of Intent was signed on 21 April 2008 during a visit to Tanzania by the (then) Norwegian Prime Minister (Stoltenberg) and the Minister of Environment and Development Cooperation (Solheim).[11] The agreement was made before the NICFI secretariat was established within the Ministry of Environment in Norway and has since been treated as an orphan within NICFI. The letter is general in nature, with an emphasis on capacity building, policy development and preparatory activities (phase 1). The text included the following: "establishment of pilot activities for the promotion of a national REDD process," "a policy review process," "a comprehensive research and methodology development programme," "training and education programmes," and "promote investments from and partnership with the private sector, NGOs, and research institutions and facilitate the access for formal and informal carbon markets by Tanzanian entities." The total funding was to be NOK500 million (US$83 million) over a period of 5 years (NOK320 million or *ca* US$ 53 million spent by December 2014).

The Norwegian Embassy in Dar es Salaam has assumed a major role in the design and implementation of the agreement. The reason was partly (at that time) a case of corruption, within the relevant Tanzanian ministry, the Ministry of Natural Resources and Tourism (MNRT), which made a REDD+ contract directly with the ministry impossible. The embassy created contracts for a total of nine local REDD+ pilot projects (executed by NGOs), in total NOK190 million.[12] There has also been extensive funding for research collaboration, unlike what is included in the other agreements.

The agreement does not include any results-based mechanisms, although the nine REDD+ pilot projects contain elements of results-based incentives to local communities and/or households, based on verified emission reductions (VER).

Why Tanzania? Norway has a long history of aid collaboration with the country, and there has been extensive research collaboration on the primary sectors. Given the strong focus on Africa in Norwegian bilateral aid, it was natural for (at least) one African country to be chosen for an early bilateral agreement. Combined with the public and political pressure to put the huge pledge of NOK15 billion to work quickly, an active embassy and a long-planned high level visit, the alignment of the stars was right for Tanzania to become the first REDD+ partner country of Norway.[13]

Brazil   The memorandum of understanding (MoU) between Norway and Brazil was signed on 16 September 2008 for a 5-year period and total funding for reducing emissions from deforestation (only RED) of US$1 billion.[14] The agreement is distinctively different from the one with Tanzania. The money is transferred to the Amazon Fund and managed by the Brazilian Development Bank (BNDES) in a

Table 3. Types of REDD+ Agreements

	Phase 1: Unconditional aid	*Phase 2: Conditional aid*	*Phase 3: Payment for emission reductions (PES)*
Pay for what?	Build capacity, prepare REDD+ action	Policy reforms	Emission reductions
Pros	Often a necessary first step	Induce policy & structural changes	Direct incentives, 'no cure, no pay'
Cons	Limited incentives for reduced emission	Donor credibility of conditionality, measurements	MRV, reference levels
Norwegian agreements	Tanzania, Indonesia (P-1)	Guyana (P-2), Indonesia (P-1)	Brazil, Guyana (P-3), Indonesia (P-3)

Source: Author's construction, based on the four bilateral agreements.

results-based system, at least on paper. The MoU adopted the system established by the Amazon Fund; in fact, the fund was developed in parallel with the MoU negotiations.

The crediting rules of the Amazon Fund were heavily inspired by one of the first papers launching the REDD+ idea ("compensated reductions") by Brazilian researchers and NGOs (Santilli et al., 2005). The system is straightforward: reductions in deforestation in the Amazon Biome are calculated against a historical reference level, i.e. average deforestation over the past 10 years, and updated every 5 years. The emission factor (lost carbon per ha) is set to 100tC/ha, with a carbon price of US$ 5/tCO$_2$, resulting in a payment for avoided deforestation of US$1833/ha.

Compared with later agreements with Guyana and Indonesia, the MoU is quite simple. The key element is the results-based payment system just described, in addition to non-committing formulations regarding "policy dialogue," "cooperation" and "exchange information." One contentious issue in the negotiations leading up to the signing was the role of international third-party verification of emission reductions, a central principle in the UNFCCC negotiations. In the end, Brazil won the tug of war and there is no mention of the issue in the MoU. Interestingly, 4 years later (2012), the same issue resurfaced in the REDD+ negotiations during COP 18 in Doha, with the main clash between Norway and Brazil.

The agreement between Brazil and Norway is a mix between what might be termed "receipt-based" and "results-based" agreement. The donor agreement (dated 26 March 2009) states that disbursements are upon "written requests from BNDES based on the financial needs of the fund and on the amount of emissions reductions attested by the technical committee" (Article 5.1). This statement can be interpreted as disbursements being whichever is lower: the actual spending or the results.

Initial disbursements were small because the actual spending and contracts made by the Amazon Fund were limited for several reasons: the Amazon Fund was created only in 2008, the procedures within the BNDES were complicated and designed for larger projects, and contracts had to be negotiated with the project applicants. As of December 2014, the total payment to the Amazon Fund has been NOK5.45 billion, close to the initial US$1 billion promised.

Why Brazil? Because Brazil is the largest tropical forest country by far, receiving no support from NICFI was nearly unthinkable. Several factors also

contributed to the quick and large commitment of US$1 billion to Brazil. The country was well prepared to receive money, with the Amazon Fund just established (in a response to prospective funding from Norway) and likely the best forest monitoring (remote sensing) system in the developing world. With a radical president in Brazil (Lula) and a center-left government in Norway, the ideological connection was right. The Rainforest Foundation of Norway, one of the initial proposers of NICFI, also served as a matchmaker between the two countries.

Brazil also played the political game well; unlike Indonesia initially, Brazil confessed past sins and showed willingness to reform. The confession was also made credible by several policy reforms over the past few years and a reduction of deforestation since 2004 by more than 70%.

The Brazil–Norway agreement could be viewed as a reward for past performance, i.e. a form of *ex ante* conditionality, as discussed in section 3.2. As such, it is at odds with the commonly perceived RBA and PES system. *Ex ante* payments also make it harder to argue that the payments have generated emission reductions beyond what would happen without them (additionality).

Guyana   The MoU between Guyana and Norway was signed on 9 November 2009, with details spelled out in the regularly updated joint concept note (JCN).[15] The Guyana REDD+ Investment Fund (GRIF) was established with the World Bank as the trustee and a steering committee, composed of representatives from the government of the two countries, UNDP and IDB, as well as NGO observers. GRIF will receive up to US$250 million from Norway until 2015. By the end of 2014, NOK994 million (US$166 million) had been disbursed.

The agreement is designed as a performance-based contract, both for emissions' reductions and "for results on indicators of enabling activities." Guyana is a high-forest low-deforestation country; hence, a reference level based on historical deforestation only does not provide much scope of payments for reduced emissions. The government of Guyana stressed the risk of higher deforestation if no measures were taken, in an infamous report prepared by McKinsey (Republic of Guyana, 2008). The MoU uses a reference level as the simple mean of the national and the global historical rates of deforestation. This follows a proposal originally offered by Achard et al. (2005) and elaborated on by other researchers, who analyzed various reference levels based on different weights placed on the two deforestation rates (Strassburg et al., 2008; Cattaneo et al., 2010).[16] This approach has been criticized in the public debate because Guyana might be rewarded even if deforestation rates increase compared with their historical level (but not necessarily compared with a BAU scenario). The JCN contains modifications of the payment formula that accommodate some of this critique, including elements of the corridor approach discussed earlier.

The agreement further includes a set of "enabling activities," including safeguards to protect the rights of indigenous people. As noted by Wertz-Kanounnikoff and McNeill (2012), although these are described as indicators, they do not fulfil the standard requirements of being specific, measureable, attainable, relevant and time-bound (SMART). An evaluation report by the Rainforest Alliance in 2012 concluded that three out of ten verification indicators were met, four were partially met and three were not met (Rainforest Alliance, 2012). A number of other controversies have also surfaced in the debate, including Norwegian funding being channeled to the Amaila Falls hydropower development and the resulting damming

and deforestation from the project, defended by the opportunities it provides for a low-carbon energy development (Henders and Ostwald, 2013).

Why Guyana? The country was an unlikely candidate for REDD+ aid from Norway, given a nearly non-existent history of bilateral collaboration (in sharp contrast to Tanzania). It was "aid in a rush" (Bade, 2012). Two factors appear to be critical. First, Norway sought diversity in the country portfolio, and Guyana represented a number of high-forest low-deforestation countries. Mechanisms had to be created to avoid entering a stage of high deforestation. Second, through its active and well-informed former president (Jagdeo), Guyana demonstrated and convinced Minister Solheim of Norway about the political willingness to become such a showcase. Bade (2012) also identifies Prince Charles and his Rainforest Project as an important matchmaker for the engagement between the two countries.[17]

Indonesia   The fourth bilateral contract that Norway signed was with Indonesia on 26 May 2010 (the day before the REDD+ partnership was formed).[18] The agreement came nearly 2 years after the agreement with Brazil and was delayed for several reasons. Indonesia initially showed little willingness to reform and even to "talk the talk." After an extended period of consultations involving contentious issues, including indigenous rights and safeguards and the specifics of the moratorium on forest conversion, the *Letter of Intent* (*LoI*) was signed. The LoI had a cap of US$1 billion for an initial period of 5 years (obtaining the same amount as Brazil was considered important for Indonesia). By the end of 2014, only NOK370 million (US$62 million) had been disbursed, an indicator of the lack of progress.

In terms of structure and form, this contract is the most developed and logical, inspired by the phased approach. The first preparatory stage includes the following specific actions to be taken by Indonesia: "completing a national REDD+ strategy," "establishment of a special REDD+ agency reporting directly to the president," "creating an independent MRV [Monitoring, Reporting, Verification] institution," "designing and establishing . . . a funding instrument" and "selecting a province-wide REDD+ pilot." These conditions were met in 2013, including the establishment of a REDD+ agency, with the head at the ministerial level. Since then the REDD+ agency has become part of the merged Ministry of Environment and Forestry.[19]

Phase 2 continued phase 1 activities and additionally implemented "a two-year suspension on all new concessions for conversion of peat and natural forests." This 2-year moratorium, which took effect in June 2011, covered an area of 22.5 million ha. "Natural forest" was interpreted to mean "primary forest" and thus excluded an area of logged and secondary forests of approximately twice that size (Murdiyarso et al., 2011). The moratorium also made exceptions for activities vital to national development, such as food and energy, and could do little about previously granted concessions. Certain observers have expressed doubts regarding the impact of the moratorium on the ground, but these concerns remain to be seen and evaluated properly. The moratorium has been extended twice, until May 2017.

Why Indonesia? Given Indonesia's position as the leading emitter of greenhouse gas from deforestation and forest degradation (including peat lands), a bilateral agreement hardly must be further justified. For Norway, it was important to get both Brazil and Indonesia as direct partners, and Indonesia sought its share of the NICFI funding. An agreement was therefore important to both parties, and the question was only the form and conditions of the LoI.

A Preliminary Assessment Related to the Five Challenges

An assessment based on the five challenges is primarily relevant for Brazil and Guyana, and to some extent Indonesia, whereas the Tanzania contract was not designed to be RBA.

Donor credibility   Policy documents and statements by Norwegian government representatives have repeatedly stressed that payments are to be results-based. However, there is a strong pressure to spend, because a lack of spending is perceived to be a sign of low efficiency and lack of success. Further, reaching the self-declared aid target of 1% of GDP is important for Norway, to maintain its position as a leading donor and a "humanitarian superpower" (an argument for placing the REDD+ support in the aid budget line). In the domestic debate, proposals for reducing the NICFI budget (as was proposed by the government during the fall of 2015) is highly controversial, and a high level of spending is needed to justify high budgets.

According to Collier (2002, p. 8), "... donors are extremely badly structured to play hardball." Norway has no tradition for playing hardball and is traditionally considered to be a soft donor. However, repeated statements about results-based payments and slow disbursement to Guyana and Indonesia, based on slow REDD+ progress, may indicate a change. In the case of Guyana, Henders and Ostwald (2013) note a much more positive assessment by the government of Norway, compared with the independent evaluation report, which formed the basis of the disbursement of an additional US$45 million.

Two structural changes are encouraging. First, the multi-year fund established for Brazil provides a clearly positive opportunity cost of money. Second, the authority for disbursement has been handed over to third parties (Guyana: World Bank; Indonesia: UNDP/UN-REDD Programme), which should increase the credibility of conditionality.[20]

Performance criteria   The contracts with Brazil and Guyana have well-defined criteria for payments: a clearly set reference level for deforestation, an emission factor (100 tC/ha) and a fixed payment (US$5/tCO$_2$). A similar payment scheme is to be worked out for Indonesia for phase 3, although it remains uncertain when (or if) this phase will be launched.

The contracts with Guyana and Indonesia have numerous other performance indicators, some of which are too vague and insufficiently defined to meet the standard criteria of good indicators. This issue has led to both later negotiations on the exact meaning (e.g. the question regarding what are "natural forests," for the case of the moratorium in Indonesia), and different assessments on the performance (Guyana). The choice and definition of performance criteria and indicators therefore have some way to go, although two important constraints should be noted: the political limits, in terms of being prescriptive in what a REDD+ country should do, and the technical difficulties of defining SMART measures. Wertz-Kanounnikoff and McNeill (2012) suggest that, in the end, expert judgment will be required for governance indicators, for example.

Reference levels (RL)   Reference levels for reduced emissions were negotiated for Brazil and Guyana and will be established for Indonesia. Setting RL is challenging, and the calculated emission reductions and resulting payments can vary significantly

according to the particular formula used. Table 4 shows the amount of funding that Brazil should have been paid according to the formula used by the Amazon Fund, which forms the basis for the MoU between Brazil and Norway. The reference level for 2009 and 2010 is based on historical deforestation for 1996–2005 and then for the period 2001–2010. Because of the rapid decline in deforestation between 2004 and 2009, Brazil should have been paid approximately US$2 billion per year. Thus, over the initial 5-year period (2009–2013), Brazil has "earned" REDD+ credits of US$10.4 billion, more than 10 times the promised amount (US$1 billion).

As a hypothetical alternative, assume the RL is set as the average of the deforestation over the past 5 years and updated annually. For the period 2009–2013, this would imply payments of US$4.6 billion, less than half of the amount given the current formula, and a difference of more than US$1 billion per year. The question regarding the reference period again surfaces in the recent submission of forest emission reference levels (FRELs) to the UNFCCC.[21]

The Guyana case uses a different formula, which gives the country a reference level above its historical deforestation rate. This result can be defended using a forest transition approach, i.e. that BAU deforestation is likely to increase. However, potentially rewarding countries with increasing deforestation has been a difficult concept to sell. Establishing ways to reward high-forest, low-deforestation countries is challenging, the approach used in the Guyana case is one of several options.

Both the Brazil and Guyana cases illustrate the challenges of setting RLs. If the emission reductions produced are to be used as REDD+ credits and offsets in a carbon market, additional scrutiny is needed to ensure additionality and to avoid "hot air."

Uncertainty and risk sharing   Uncertainty is not dealt with explicitly in any of the agreements but is included indirectly in two different ways. First, in the Guyana case, there are elements of increasing payments for deeper emission reductions, which suggest an element of risk sharing. Second, general risks and external factors are likely to enter into the equation when assessing performance, which will occur in phase 2 agreements.

Sufficient funding to make agreements credible   In the case of Guyana, a careful calculation of the value of emission reductions has been made in the JCN, with payments made accordingly. In the Brazil case, Table 4 shows that the amount Brazil has earned or will earn given the formula adopted for the 5-year period 2009–2013 is 10 times the ceiling established in the MoU. The Brazil agreement is not credible

Table 4. *Result-based Funding for Brazil*

Year	1. Based on Actual RL (defor. past 10 years, updated every 5 years) (US$)	2. Alternative RL (defor. past 5 years, updated annually) (US$)
2009	2,213	1,707
2010	2,298	1,060
2011	1,814	733
2012	2,153	789
2013	1,920	301
Total	10,398	4,590

Source: Own calculations based on deforestation data from http://www.obt.inpe.br/.

from that perspective. It begs the question concerning whether the agreement is results-based in practice because the marginal incentives are not in place.

   RBA can have an impact in other ways than though the pecuniary incentives it is meant to provide. Perakis and Savedoff (2015) suggest three other possible channels of influence, or theories of change: more attention to results, higher civil society monitoring of performance, and increased government discretion (linked to the ownership argument discussed above). NICFI has been criticized in their own evaluation for not having well-developed theories of change (LTS International, 2014). In the case of Brazil, the Amazon Fund operates traditional aid projects for forest conservation and sustainable use, funded by indicators beyond their control, and therefore "making it unlikely that the PBR [payment by results] mechanism has any influence on its behaviour. What clearly matters for the Amazon Fund are the resources provided by Norway, but no PBR mechanism is needed for this purpose" (Helland and Mæstad, 2015, p. 18).

Learning from Aid Experiences

The experiences with RBA and related forms of conditional financial support are rarely brought into the REDD+ discussion, neither the academic literature nor the policy debates. Why have the RBA experiences not fertilized the REDD+ debate? I submit the following four hypotheses:

H1 The REDD+ community has been blinded by the apparent simplicity of RBA and the "we only pay for results" postulate. Erik Solheim, the former Norwegian minister of environment and development cooperation, new (2016) Executive Director of UNEP, and a key player behind NICFI states in his biography: "But with results-based payments I cannot see any large risk" (Solheim, 2013, p. 163—my translation).

H2 Aid cooperation often works independently from other policy arenas and represents a separate "epistemic community." In the case of Norway, the NICFI secretariat became located within the Ministry of Climate and Environment, and not the development aid agency NORAD, which is under the Ministry of Foreign Affairs. Their relationship in the early days of NICFI was one of rivalry rather than cooperation.

H3 REDD+ serves a political role in the domestic policy arena, which makes policy makers less interested in questioning the effectiveness of RBA. In the case of Norway, the NICFI initiative has served as a "political offset," i.e. the funding of REDD+ activities and their alleged effectiveness has been used to respond to critiques regarding the lack of domestic efforts to reduce emissions (in particular, the missing link between Norwegian petroleum activities and climate change).[22]

H4 REDD+ has also served an important political role in international climate negotiations (UNFCCC). It is considered to be perhaps the most successful area of the negotiations, and is, moreover, combined with a simple recipe for success (results-based payments). Questioning the prospects of that recipe is not in high demand among climate negotiators.[23]

5. Lessons to be Learned

An important aim of the Norwegian International Climate and Forest Initiative is to gain experience with results-based REDD+ mechanisms and to learn lessons for

subsequent international mechanisms (e.g. the Green Climate Fund). The future form and size of international REDD+ mechanisms is highly uncertain, e.g. whether REDD+ funding primarily will come from a new global carbon market and/or regional/national carbon markets, from the Green Climate Fund, or from bilateral and multilateral aid. Whatever mechanisms evolve, one of the criteria for the success of NICFI is whether the initiative can provide such lessons. As a start, I summarize the challenges of RBA and the preliminary Norwegian experience into five lessons as follows:

(1) *REDD+ is not unique and we can learn from other forms of RBA.* The problem with REDD+, SAP and other forms of RBA is essentially the same—a donor is using a contract backed with money to obtain policy reforms (phase 2) or measureable results (phase 3) in the recipient country. The challenges that arose in other sectors are highly relevant to REDD+, but the options and lessons provided are rarely brought into the REDD+ debate. They should.

(2) *RBA is simple in theory but the design and implementation face a number of tough challenges.* One important lesson is how difficult RBA is in practice. Policymakers must have a realistic picture of the challenges and what RBA can achieve. The trade-offs involved should be faced explicitly.

(3) *Do not make promises that you cannot keep.* A credible agreement must be backed with sufficient money. The Norway–Brazil agreement is results-based on paper but is in practice "receipt-based," because the spending of the Amazon Fund determines the level of the transfers. Results-based agreements can have positive spillover effects, such as a stronger focus on results by governments and agencies; however, the direct incentive effect will evaporate if the agreement is not backed with credible funding.

(4) *Create mechanisms to increase the opportunity cost of funds.* The spending pressure of donors is a major reason why conditional or performance-based payments have not been credible. Donors should create mechanisms to increase the opportunity costs of funds, that is, to make it costly for themselves to spend and thereby increase the credibility of conditionality. This can include creating multi-year funds, arranging competition ("aid tournaments"), or handing over disbursements to third parties with clear instructions.

(5) *Do not make all REDD+ aid performance-based.* The last lesson is a perhaps surprising but important lesson from the RBA literature. Certain types of support do not easily lend themselves to clear and easy performance indicators. A minimum of non-performance-based support will also create more accurate predictability for recipients, a critique of RBA raised by aid recipients (Wathne and Hedgher, 2009). This approach will also keep the door open for continued policy dialogue in situations of poor performance. Because donors are unlikely to cut aid completely, this would also increase the credibility of the performance-based portion of the agreement. Donors should start small, with a well-designed performance-based mechanism (clear performance criteria, a credible reference level, and sufficient funding), rather than putting all the eggs in the RBA basket.

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Notes

1. https://www.forestcarbonpartnership.org/redd-countries-1.

2. Furthermore, the two main existing international carbon markets, namely EU's Emission Trading System (ETS) and the Kyoto generated market for CDM (CER), do not accept REDD+ credits.

3. Mosley et al. (1991) and Svensson (2003) discuss several additional elaborate versions of this basic structure: the degree of reforms, repeated agreements, the negotiation process, and so on; however, the simple structure is sufficient to illustrate the main problem.

4. Another possibility that can modify the result is repeated games, but it is well known from game theory that repetition does not automatically lead to a better outcome, e.g. Gibson et al. (2005).

5. http://redd.unfccc.int/fact-sheets/forest-reference-emission-levels.html.

6. The principal still carries some risks, including "reputation risk."

7. Assuming current (2000–2010) emissions from tropical deforestation to be in the order of 1GtC/year, that REDD+ achieves a 50% reduction (with reference level = historical emissions) and that the price is US\$5/tCO$_2$, the annual international transfer to REDD+ countries is US\$9.2 billion (1*3.67*0.5*5 = 9.2).

8. The exchange rate in the period 2008 and 2014 varied between 5 and 7 NOK/US\$, with an average slightly below 6, cf. http://www.oanda.com/currency/historical-rates/. Since January 2015, the exchange rate has ranged between 7.4 and 8.9. I use US\$6 for most conversions, reflecting the rate at which time most of the funding was committed and spent.

9. The figures referred to in this paragraph and in the later discussion of the support to the four initial countries are disbursements until 31 December 2014, from the Norwegian government website: https://www.regjeringen.no/no/tema/klima-og-miljo/klima/klima-og-skogsatsingen/kos-innsikt/hvordan-brukes-midlene/id734170/.

10. http://www.norad.no/en/toolspublications/publications/2014/real-time-evaluation-of-norways-international-climate-and-forest-initiative.-synthesising-report-2007-2013/.

11. http://www.norway.go.tz/News_and_events/Climate-Change/Ecc/.

12. An overview of various projects is found here: http://www.norway.go.tz/News_and_events/agreements_and_contracts/.

13. See also an initial external review of the country collaboration: http://www.regjeringen.no/upload/MD/2011/vedlegg/klima/klima_skogprosjektet/Evalueringsrapportene/Report_17_2010_Tanzania.pdf.

14. https://www.regjeringen.no/en/topics/climate-and-environment/climate/climate-and-forest-initiative/kos-innsikt/brazil-and-the-amazon-fund/id734166/.

15. Details of the agreement are found here: http://www.regjeringen.no/en/dep/md/Selected-topics/climate/the-government-of-norways-international-/guyana-norwaypartnership.html?id=592318.

16. The underlying idea is that there is some convergence in national deforestation rates, a proposition at odds with the forest transition (FT) theory. Yet using forest cover as a factor in reference level setting seems more justified based on the FT theory, and would for high-forest countries yield a similar result, i.e. a reference level above the historical deforestation rate.

17. This role was also confirmed by former president Jagdeo (personal communication, April 2014).

18. http://www.regjeringen.no/upload/SMK/Vedlegg/2010/Indonesia_avtale.pdf.

19. http://www.thejakartapost.com/news/2015/01/31/merging-redd-ministry-should-be-more-effective.html.

20. Although in the subsection "Challenge 1″ in section 3 we noted the low enforcement of conditionality by the World Bank, it is reasonable to assume that the institution has a general reputation in recipient countries of being more strict than Norway.

21. For the submission of Brazil and other countries, see: http://unfccc.int/land_use_and_climate_change/redd/items/8414.php.

22. The government budget proposal for 2016 for the Ministry of Climate and Environment (Prop. 1 S (2015–2016)) states: "The government's domestic policy must be viewed together with Norway's international commitments and efforts" (my translation). See https://www.regjeringen.no/no/dokumenter/prop.-1-s-kld-20152016/id2455649/?q=&ch=2. At the same time, in public debates, in which some have questioned the real impact of REDD+ to Brazil, the government repeatedly claims that the support to Brazil has been effective and contributed to reducing emissions. See https://www.regjeringen.no/no/aktuelt/regnskogsatsingen-har-effekt/id2466007/.

23. The following conversation illustrates the role of REDD+. During one of the climate meetings (COP 17, Durban, 2011), I asked a key REDD+ negotiator how negotiations were progressing. The response was as follows: "It all depends on the progress in the other areas. If they fail, negotiators will turn to REDD+ and make progress, to ensure the success of the COP."