Connecting the dots

Results-based financing in climate policy

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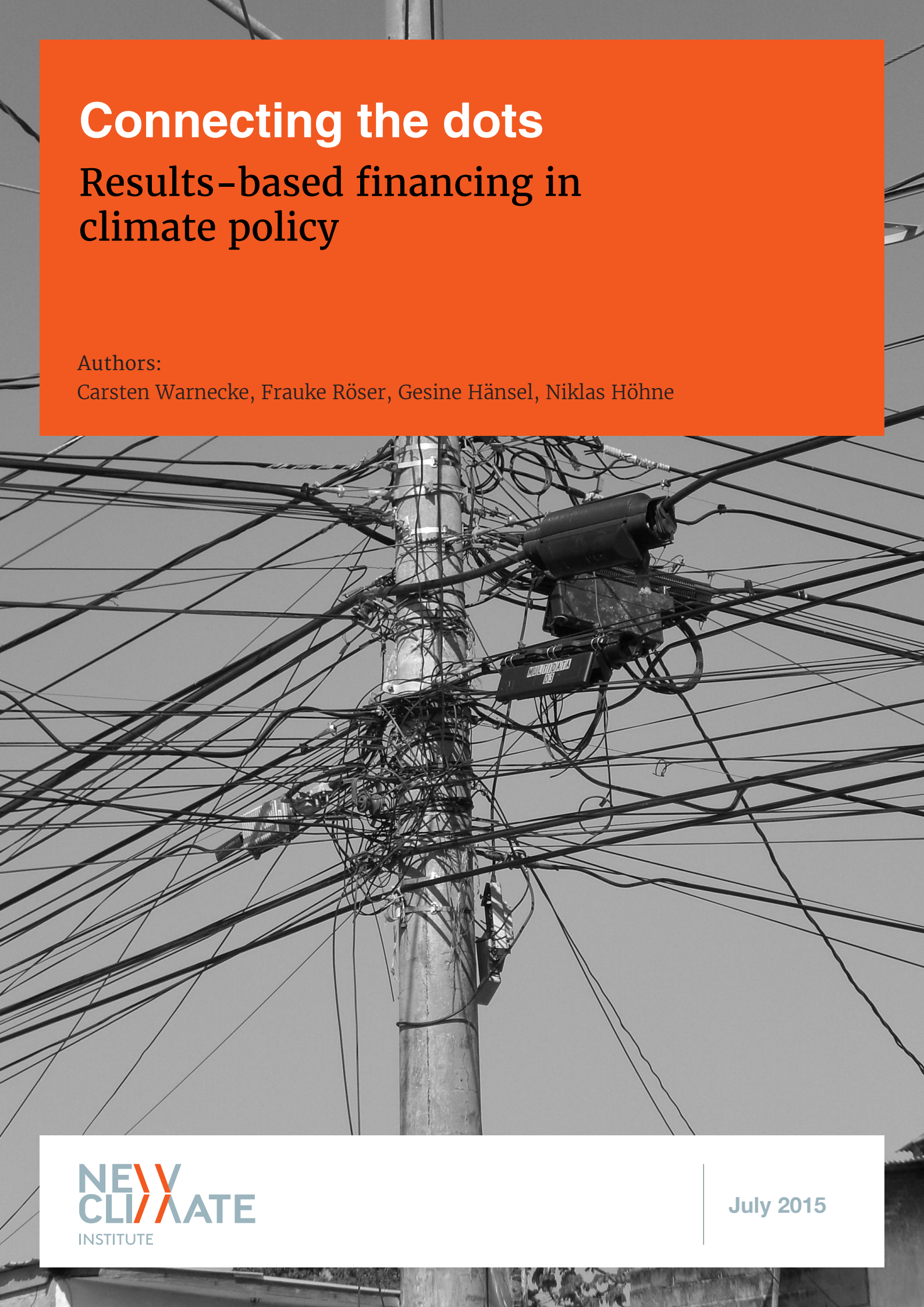

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Results-based financing in climate policy

Overview of results-based finance options and opportunities for linking market and non-market approaches

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Summary

Results-based financing (RBF) is a modality of dispersing finance for projects or interventions conditional to the verified achievement of predefined objectives. This financing modality is already applied in various areas of climate policy, including carbon and climate finance and is thus an integral part of various independent mechanisms, including the Clean Development Mechanism (CDM) and certain Nationally Appropriate Mitigation Actions (NAMAs). RBF approaches are also being considered as part of the funding activities under the Green Climate Fund (GCF).

This study aims to clarify the understanding of results-based finance and in particular its role in the context of climate policy. A common understanding of what RBF means and how it could be applied in climate policy will foster dialogue between different stakeholders of the carbon market and climate finance communities.

Results-based financing is a unifying element of climate finance and carbon markets (Figure 1). It is particularly interesting due to its potential benefits in catalysing effective climate action through jointly supporting climate and carbon finance approaches. Combining carbon market and non-market climate finance, rather than continuing their parallel existence, results in benefits from synergies from a methodological as well as financial perspective.

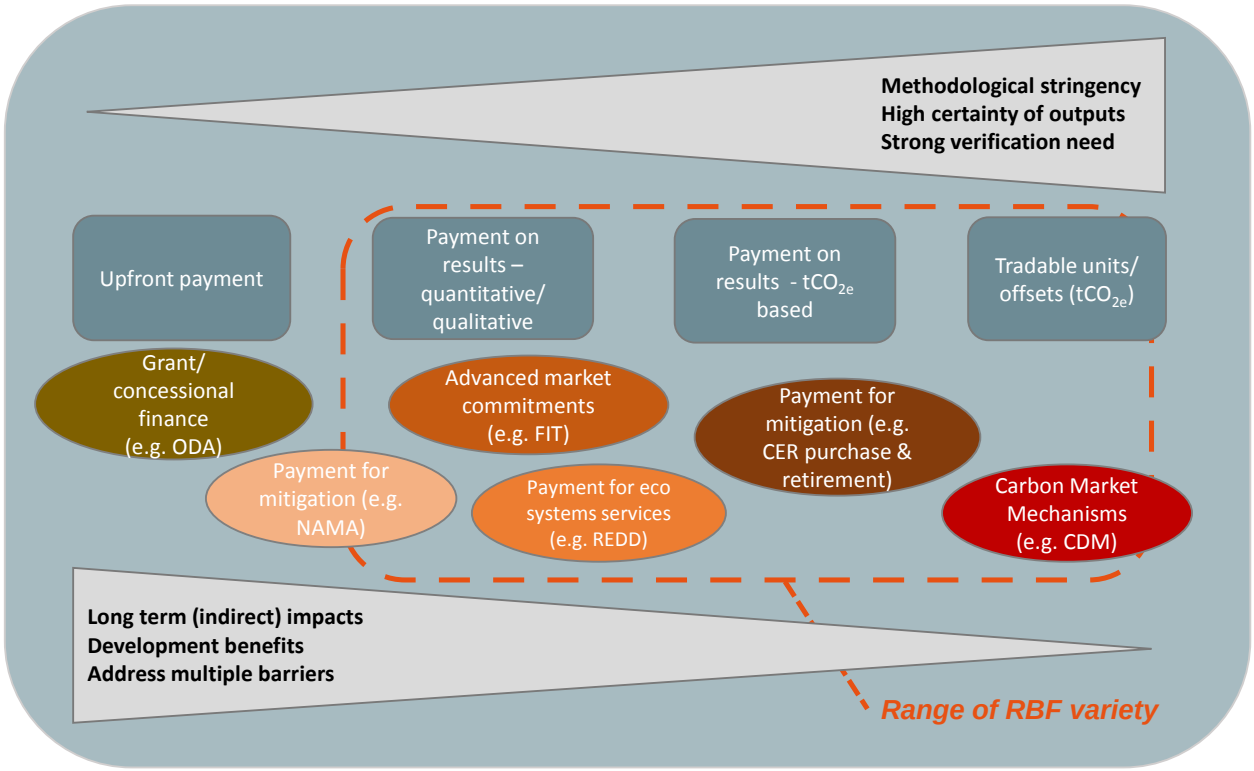

Figure 1: Upfront and ex post payment approaches in climate policy

ODA: official development assistance, NAMA: Nationally Appropriate Mitigation Actions, FIT: Feed in tariff, REDD: Reducing emissions from deforestation and forest degradation, CER: Certified Emission Reductions, CDM: Clean Development Mechanism

Based on RBF experiences in both areas, which are partly similar but also complementary, it is shown how climate finance and carbon markets could learn from each other in order to further improve and result in more effective mitigation impacts for the benefit of the climate.

Benefits for carbon markets and its mechanisms emerge by using RBF elements to facilitate links to climate finance. Climate finance has the potential to close the current carbon market finance gap, while RBF allows the further testing of new and innovative market approaches. Current limitations of market mechanisms, which are evident in their unequal sectoral and regional distribution, can be addressed by tailored RBF approaches.

Benefits for climate finance emerge when approaches are improved with RBF elements from market mechanism experiences. Acceptance and effectiveness of climate finance interventions can be increased through a stronger focus on results and their recurring independent verification. While the impact of transformational changes is often difficult to quantify, quantification methods for short term intervention elements might be available already through carbon market mechanisms and could be applied via the RBF vehicle. Additionally, the effective disbursement of climate finance might become a challenge in the near future. The significant amounts of climate finance that are expected to become available in the near future, need efficient tools for disbursal. In particular the RBF components of carbon markets and their proven tools can contribute to a solution here.

Success factors for results-based financing in climate policy are apparent:

- RBF creates strong incentives to deliver on intended programme objectives.
- RBF approaches can address further objectives beyond greenhouse gas mitigation.
- RBF approaches attract funders driven by mitigation certainty.
- RBF can foster enduring interventions.
- RBF frameworks are flexible to be locally appropriate.

Challenges for results-based financing in climate policy remain:

- RBF alone does not overcome initial investment barriers.
- Risks transferred to implementing agencies are substantial.
- Enabling measures are required to support RBF frameworks.
- RBF can entail high transaction costs.
- RBF output indicators can distort priorities.

Further elements are included in this study: This study first presents the key characteristics, the common terminology and the available literature of RBF approaches in general and with a specific focus on the application of the concept in the climate policy context. Based on this general understanding, the study highlights opportunities as well as potential limitations of RBF in different international climate finance mechanisms. Where possible, lessons are drawn from concrete examples of applying RBF in NAMAs, which are typically based on development finance approaches, REDD+ (reducing emissions from deforestation and forest degradation) as an example of an innovative finance mechanism based on RBF principles, and carbon market instruments which are by definition most closely related to RBF.

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Acronyms

CDM	Clean Development Mechanism
CER	Certified Emission Reduction
Ci-Dev	Carbon Initiative for Development
CO_2e	Carbon Dioxide Equivalents
ESMAP	Energy Sector Management Assistance Program
ERPA	Emission Reduction Purchase Agreement
GCF	Green Climate Fund
GHG	Greenhouse gas
NAMA	Nationally Appropriate Mitigation Action
MRV	Monitoring, Reporting and Verification
NorCaP	Norwegian Carbon Procurement Facility
OBA	Output-based aid
ODA	Official Development Aid
P4P	Payment for performance
PAF	Pilot Auction Facility for Methane and Climate Change Mitigation
PBC	Performance-based contracting
PBF	Performance-based financing
PBP	Performance-based payment
PoA	Programme of Activities
RBA	Results-based aid
RBF	Results-based financing
REDD	Reducing Emissions from Deforestation and Forest Degradation
UNFCCC	United Nations Framework Convention on Climate Change

1 Introduction

Results-based financing (RBF) approaches are receiving increasing attention in the climate finance[1] context. RBF approaches are characterised as a modality under which finance is dispersed upon achievement of predefined results. Although often considered as new and separate concept, RBF is already inherent in many existing climate finance mechanisms, including the Clean Development Mechanism (CDM). It is also now being discussed in the context of Nationally Appropriate Mitigation Actions (NAMAs) and the Green Climate Fund (GCF). RBF application in the context of current and future carbon and climate finance initiatives is particularly interesting due to its potential benefits of supporting climate and carbon finance approaches to catalyse effective climate action. Exchange on the potential of RBF approaches in climate policy is however hindered by a lack of a common understanding of the potential role of RBF in climate policy and manifold ambiguous definitions of the RBF terminology.

Against this background, this paper presents an overview of the current status of results-based financing approaches and their application in the context of current and future carbon and climate finance initiatives. The paper aims to clarify the understanding of results-based finance and in particular its role in the context of carbon markets. A common understanding of what RBF means and how it could be applied in climate finance will foster dialogue between different stakeholders of the carbon market and climate finance communities. It furthermore focuses on the potential role of RBF as a linking concept between carbon market and non-market-based climate finance activities. It is assumed that combining carbon market and non-market climate finance, rather than continuing their parallel existence, results in a number of benefits. Through RBF the available climate finance can close the current carbon market finance gap, tools and methods of market-based approaches (e.g. CDM) can be applied to ensure their continuity whilst at the same time driving implementation of supported mitigation activities.

Based on a review of existing literature and experiences with RBF approaches, the paper addresses the following questions:

- What is RBF and how can it be defined in the context of climate and carbon finance?
- Where are RBF approaches currently being applied in the climate policy context and how are they connected to the carbon market in practical terms?
- What are the pros and cons as well as opportunities of RBF for carbon markets and as a unifying element between non-market and carbon market climate finance?

Overall, the paper is meant as a starting point for a deeper exploration of the topic. Although the use of technical terms and specific language is unavoidable, the intention was to create a document that is understandable without expert knowledge on the topic. The document is structured as follows. Section 2 presents RBF characteristics, the terminology and the available literature in order to facilitate the development of a common understanding of the concept of RBF. Section 3 highlights the current application of RBF in climate policy with a focus on NAMAs, REDD (reducing emissions from deforestation and forest degradation) and carbon markets. This section is complemented by examples from practice and draws first conclusions from these different areas of application. Section 4 synthesises the findings from previous sections and emphasises various benefits for climate finance and carbon markets if RBF is used to link the two worlds. Section 5 provides overall conclusions and points to further research and to activities recommended to actually yield synergies between climate finance and carbon markets in practice.

[1] "Climate finance" in this report is considered as an overarching concept of which carbon markets as channeling instrument are part of. "Carbon finance" represents finance channeled through carbon market-based approaches and as such is part of climate finance. Both synonyms are used in this report.

2 Results-based financing in a nutshell

The concept of results-based finance mainly represents a modality under which finance is dispersed. Under this modality financing of projects or interventions is conditional to the verified achievement of predefined objectives. Specific goals are measured according to predefined indicators. This financing modality is applied in various areas including carbon and climate finance and is thus sometimes an integral part of various independent mechanisms.

RBF approaches emerged from development finance in the context of continuous efforts to improve aid effectiveness and, compared to conventional approaches, link funding more closely to measurable results. In particular, health related development aid has applied RBF for a number of years[2] but also in sectors such as education and infrastructure RBF approaches have been used for some time.

In the context of the negotiations under the United Nations Framework Convention on Climate Change (UNFCCC), RBF has been part of various mechanisms:

- RBF is a core element of the discussions on Reducing Emissions from Deforestation and Forest Degradation (REDD+). In 2013, the negotiations concluded in the Warsaw Framework for REDD+ which provides methodological guidance for the development of an ex-post RBF framework.
- A concrete application of a results-based instrument in international climate policy is the CDM where payments are directly linked to the verified reduction of CO_2e emissions.
- Beyond these concrete approaches, the concept of RBF is increasingly being discussed by a variety of stakeholders in a broader climate finance context. For example, RBF approaches are being considered by the GCF to incentivise mitigation actions (UNFCCC 2012).

Regardless of the specific objectives and circumstances in which RBF approaches are applied, their key characteristics are similar. These include the following:

- Payments are made ex-post on achievement of ex-ante agreed results, although the definition of results can take many different forms.
- Payments are usually used as rewards, linked to outputs or outcomes rather than inputs.
- The achievement of results is typically verified (by an independent third party).

These characteristic elements lead to fundamental differences compared to conventional ways of funding projects or interventions in different areas. The definition of measureable results prior to the start of an intervention prompts the need to quantify impacts and increases the accountability and thus the reliability of interventions. At the same time, financial risks of failed interventions which do not reach the intended objectives are shifted away from donors to the implementing parties. Implementing parties who made their investments in hope of donor payments might get into trouble if these do not materialise. In contrast, funds for conventionally pre-financed interventions will be paid but lost for donors in case of failure. RBF sets stronger incentives for implementing parties to deliver the intended results while they might shy away from risky engagements in reaction to increased risk profiles. Ex-post funding thus creates financing challenges which might evolve to substantial implementation barriers. Consequently, RBF is often applied in staggered approaches or in hybrid forms combining elements from both RBF and conventional funding modalities.

[2] For example, the Health Results Innovation Trust Fund (HRITF) was created in 2007 to support results-based financing (RBF) approaches in the health sector. Through RBF, the HRITF aims to improve maternal and child health around the world. The HRITF is supported by the Governments of Norway through Norad and the United Kingdom through the Department for International Development (DFID). It is administered by The World Bank. (www.rbfhealth.org)

The following parts of this section provide a brief overview of the terminology used in the context of RBF approaches and the available literature on RBF in general and in climate policy in particular.

2.1 Terminology

There is no universal definition of RBF and various terms are being used in the literature which relate to the same overall concept (cf. section 2.2). The existence and use of a range of different terms emphasises the need for clarification. In particular, a clearer definition of what RBF means in the context of climate finance and specifically carbon finance is helpful to support the design of RBF mechanisms to catalyse effective climate action. In order to reduce complexity, in the following only the most important terms and features of RBF are discussed.

Results-based financing (RBF) characterises any programme where payments are made available upon the achievement of certain results according to predefined methods and indicators. The performance parameters, indicators and methodologies are usually agreed between the funder and the recipient beforehand. In the pure form, payment is only released if the predefined results are achieved. Failure to achieve the results will have an immediate impact on funding which is often irrespective of the reasons for failure (Pearson 2011).

Different results-based finance approaches can be distinguished along several lines:

- **Type of funder and recipient**. Here one can distinguish between ***results-based aid (RBA)*** where payments go from funders to partner governments and ***results-based financing (RBF)*** where payments flow from funders to service providers or implementing agents (Grittner 2013). Depending on the design of the initiative, the funder may be a local or national government, a development partner, or an international financial institution, while the recipient could be a service provider, a private company, or other non-governmental organisations (Kreibich 2014).
- **Supply and demand side**. Payments may be directed to service providers (supply side), programme beneficiaries (demand side) or both. If RBF targets the supply side, it is also referred to as ***performance-based financing (PBF)*** and aims at setting incentives for service providers to deliver good performance. ***Conditional cash transfers*** on the other hand are demand-side programmes where the incentives apply exclusively or primarily to the programme beneficiaries rather than to the implementing agent(s) delivering services (Musgrove 2011)

Other terms are also used which describe similar or the same approaches with slightly different nuances. For example, ***output-based aid (OBA)*** is similar to results based aid (RBA); ***payment for performance (P4P), performance-based payment (PBP)*** are synonyms to performance-based financing (PBF); and ***performance-based contracting (PBC)*** is considered as a specific case of performance-based financing (PBF) which involves the elaboration of a more detailed contract (Grittner 2013).

In order to reduce the complexity for readers, this paper will not distinguish between these different terms. Instead RBF is synonymously used for all different nuances. Whenever differences in design and implementation are important, these are highlighted separately.

On another level RBF approaches in development may use different kinds of rewards. These can be either monetary (fee-based services, financial transfers) or made in other, non-monetary forms. This is also reflected in the type of indicators used to measure performance. For example, indicators can either be qualitative or quantitative and be based on direct outputs or on (long-term) impacts. The discussion on RBF approaches in the climate policy context is typically focused on the achievement of emission reductions and thus a quantitative greenhouse gas (GHG) related metric (Jung et al. 2012).

2.2 Literature on RBF

The availability of literature covering RBF is proportional to the experience with RBF in the different areas. The sooner RBF was piloted in the individual fields, the more experiences have already been made, evaluated and documented in literature. Various sources are available from development finance and in particular from health-related development aid. Many publications review RBF application for meeting its intended objectives such as efficiency and cost-effectiveness. Some findings are sector-related while other, more general findings provide lessons that could also be taken into account for RBF application in the climate policy context - although not drawn directly from this field. Literature sources discussing RBF in the climate policy context are limited, corroborating the need for this paper. The literature presented in this section does not intend to be exhaustive but aims to provide an overview and suggestions for further reading according to the needs of policy makers and practitioners.

RBF is generally perceived as an effective instrument to improve the impact of finance, although various studies suggest that RBF approaches in the health sector have not fared well against aid objectives such as increased ownership and accountability. RBF with quantitative performance indicators in the health sector was mainly tested for achieving the Millennium Development Goals in low and middle-income countries. Oxman & Fretheim (2009) synthesised the findings of 12 systematic reviews published between 1997 and 2008 and provide a thorough overview of research on the effects of results-based financing in the health sector. They find, inter alia, that there is almost no evidence of the cost-effectiveness of RBF and that RBF can have unintended effects. They conclude that stakeholders should be involved in the design of RBF and that for RBF to be effective, technical capacity or support must be available and it must be part of an appropriate package of interventions.

Pearson (2011) provides a short but concise overview on RBF with very general definitions and conclusions from the health sector. The publication is partly based on a review of major RBF schemes for the UK which concludes that RBF schemes need to be tailored to local circumstances, that they seem to work better for simple interventions where latent capacity exists already, and that they usually need complementary actions (Pearson et al. 2010). Pereira & Villota (2012) evaluated whether RBF delivers on its expectations in reality and conclude that the level of harmonisation of RBF approaches is low while much is still unknown about the strengths, weaknesses and impacts of RBF in the health area. They further conclude that RBF is not a solution to every situation, require careful tailor–made design and should be treated with some degree of caution. They recommend more work to identify and fill the still existing knowledge gaps with reliable and consistent data.

Complementing previous sources, Grittner (2013) observes in her evaluation of evidences from performance-based financing (PBF) in the health sector that "*When setting monetary incentives for good performance, PBF tends to focus on outputs rather than on health outcomes, and on quantity rather than on quality*." Grittner (2013) moreover provides a useful overview of definitions and characteristics supporting the understanding of terms related to RBF. For those interested and with limited time we recommend the short glossary of terms and conditions as provided by Musgrove (2011). A comprehensive overview on terms, design criteria and implementation aspects is provided with unique completeness by World Bank's performance-based financing toolkit for the implementation of RBF applied in finance health services in lower- and lower-middle-income countries (Fritsche et al. 2014).

A recent publication from the Energy Sector Management Assistance Program (ESMAP) which is not associated with health related development aid provides a comprehensive literature review on RBF approaches (ESMAP 2013). This literature review confirms good availability of sources only from the health sector, plus some sources covering education and infrastructure. The publication itself studies RBF approaches as an appropriate energy sector intervention in developing countries, especially to promote energy access and energy efficiency. It addresses challenges associated with the nomenclature around

RBF approaches, compares RBF with conventional financing approaches and discusses important questions for the design of RBF approaches. With its focus on the energy sector, findings have a greater relevance to the RBF application as discussed in this paper. ESMAP (2013) defines three fundamental preconditions for the use of RBF approaches:

1. Feasibility of monitoring and verifying intervention results,
2. Ability of the implementing party to pre-finance the intervention,
3. Availability of sufficient institutional capacity to respond to an RBF incentive.

Since all preconditions will not always be met, RBF is not applicable to all cases or requires tailor-made design that compensates for unmet preconditions. The ESMAP (2013) study concludes that, whilst data is still limited, RBF can potentially lead to improved outcomes but its success crucially depends on the design of the RBF scheme.

Literature on the application of RBF in international climate policy is still scarce probably due to the limited experience with the application of the concept in this area. Nevertheless, RBF approaches have been a central part of the REDD discussions (e.g. Angelsen et al. 2009; Angelsen 2013; May-Tobin 2011). Already in 2009, Angelsen et al. (2009) described a tiered approach where financing and implementation of REDD, including RBF approaches, is structured in different phases. In the actual design of the REDD+ mechanism at the international level, a phased approach (consisting of the three phases: 'readiness', 'implementation' and 'results-based payments') was regarded as a flexible and progressive way to allow countries to prepare for the challenge of implementing a national REDD+ strategy that delivers quantifiable forest emission reductions and removals that could be traded as offsets in carbon markets (cf. section 3.2.2). To date, only a few REDD+ countries have all elements in place that would enable them to receive RBF (for example Indonesia and Brazil). These elements include, for example, forest emission reference levels against which emission reductions can be measured to determine the amount of RBF needed or to identify institutions that are able to carry out monitoring, reporting and verification (MRV). The contribution from Neeff et al. (2014) describe the current situation of REDD+ as being caught between Official Development Aid (ODA) and CDM. When a REDD+ project transitions from its readiness phase to a results-based REDD+ phase it should avoid common pitfalls of the CDM and ODA. The study recommends to analyse experiences from both examples and combine their strengths and opportunities (Neeff et al. 2014).

RBF approaches in the broader climate financing context are discussed in various recent publications, however limited implementation experiences exist. Müller et al. (2013) address RBF approaches related to the question of how the GCF could operationalise enhanced direct finance access for mitigation. Jung et al. (2012) and Würtenberger (2012) discuss benefits of RBF approaches when applied to the financing of supported NAMAs. RBF has also been proposed and discussed as a potential instrument to disburse climate finance to support the CDM in its current gap period where insufficient demand for reduction units results in a lack of carbon finance (e.g. Ghosh et al. 2012; CDM Policy Dialogue 2012; Warnecke et al. 2013; Kreibich 2014). Besides conceptual considerations, Ghosh et al. (2012) provide an overview of early experiments with initiatives testing RBF approaches in this field. The study of Warnecke et al. (2013) proposes RBF as one of several measures to support the CDM in situations of insufficient market demand, while Kreibich (2014) presents existing RBF initiatives and focusses on the question of whether and how they built on elements from the CDM, concluding that the CDM influence is limited. When identifying overlaps and discussing benefits of carbon market mechanisms and RBF, the existing publications take different angles. From one perspective, the existing CDM is seen as the starting point which can be further developed into an RBF in order to be eligible as a climate finance instrument. From the other perspective the RBF initiatives are in the centre and can be improved by using CDM elements.

3 Application of RBF in climate policy

3.1 Definitions of RBF in the climate policy context

Beyond the general definitions of RBF stemming mainly from the development cooperation and aid context, this section looks at the different RBF approaches in the climate policy context. The diagram below attempts to show different forms of climate and carbon finance moving from upfront payment to tradable permits with increasing levels of stringency on the methodologies to measure the outputs. While upfront payments on the left side can be based on a whole range of different methodologies, indicators and monitoring systems, the choice of methodologies and indicators becomes more limited and monitoring requirements more stringent when moving towards the right. At the far right, payments based on tradable units of tCO_2e require very specific methodologies and verification processes with high certainty on the results to be achieved.

In the same sense, approaches located on the far left may provide less certainty on the exact outputs to be achieved; however, they offer more flexibility in terms of indicators and methodologies used. Thereby they can incentivise a broader set of goals which are not always be measurable in quantitative terms (e.g. developments objectives; long term transformational impacts), and address multiple barriers, including institutional, capacity and information barriers.

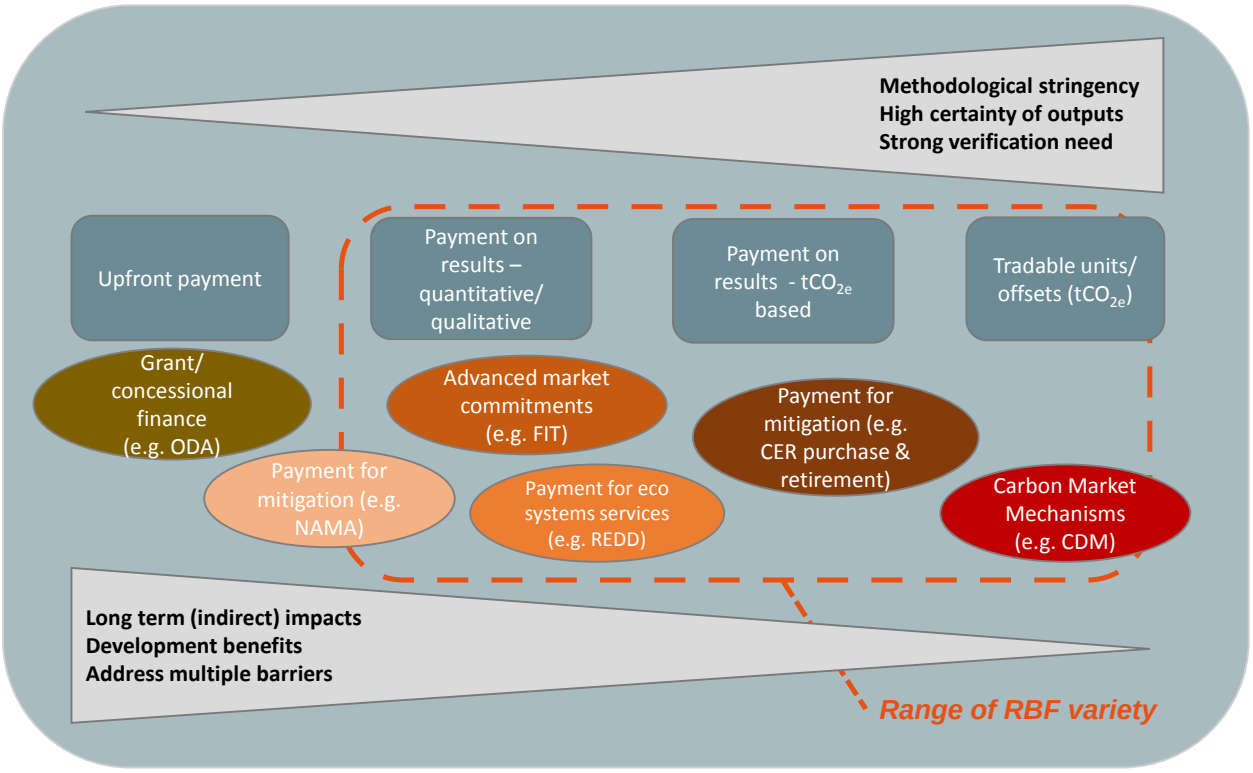

Figure 1: Upfront and ex post payment approaches in climate policy

For the purpose of this discussion, four types of finance approaches in climate policy can be distinguished which are characterised as follows (see grey boxes in Figure 1):

- ***Upfront payment*** – This constitutes the "traditional" development and climate finance approach. Payments – typically in the form of grants or loans – are made upfront and linked to specific inputs (e.g. activities) with the expectation that certain outputs, outcomes and impacts will be achieved. Approaches can be based on a variety of methodologies, indicators and monitoring systems. In its pure form, this type is not considered RBF, while all following categories can be subsumed under RBF.

- ***Payment on quantitative or qualitative results*** – This corresponds to a broad application of RBF in the climate policy context where payments are linked to the achievement of pre-defined results. In principle, these can be qualitative or quantitative in nature, for example related to the achievement of specific milestones (e.g. policy implemented and transposed into law) or quantitative targets (e.g. renewable energy capacity installed). Indicators may also be set for direct outputs but also longer term outcomes and impacts related to development objectives. Examples include payments for ecosystems services or advanced market commitments which provide a guaranteed price on pre-defined outputs, such as units of electricity.

- ***Payment on results based on tCO_2e*** – Payments can be linked to the achievement of emission reductions using a quantitative GHG related metric. Here, methodologies such as the CDM may be used, but also less strictly defined approaches where outputs or outcomes are defined in tCO_2e terms, including for example payments against the overachievement of a pre-defined national or sectoral GHG baseline (Jung et al. 2010). Recent activities linked to this financing approach are various publicly funded programmes and facilities that are currently purchasing GHG reduction units from stranded CDM projects, so called Certified Emission Reductions (CERs). Such projects have been started under the assumption that they would re-finance their investment and operating costs with revenues from CER sales. Due to current price levels they are not in a position anymore to either cover operating costs or re-finance their initial investments. Purchase facilities buy CERs at prices that are above current market price levels and allow projects to continue with their mitigation activity.

- ***Tradable units/ offsets*** – This last category includes carbon-market-based systems which apply strict methodologies and verification systems so that tradable units (tCO_2e) can be used as offsets in the international system. The CDM as an example of this financing approach is described by Neeff et al. (2014) as an extreme form of RBF. CDM project activities generate additional and verified amounts of GHG emission reductions which are transferred into tradable reduction units (CERs). These units can be considered as "results", while the sale of these units guarantees the results-based payments.

It is important to note that the categories described above and shown in Figure 1 are not rigid and differences in application are subtle and often fluid. Practical applications in climate policy may take the form of hybrids, including elements of different categories or follow a tiered approach where implementation is structured in different phases.

3.2 Practical examples

The current application of RBF in different international climate finance mechanisms include NAMAs which are typically based on development finance approaches, REDD+ as an example of an innovative finance mechanism based on RBF principles, and carbon market instruments which are by definition most closely related to RBF. To deepen the understanding of how RBF can be applied in climate policy this section will discuss in more detail potential and existing applications of RBF in these three climate finance instruments: NAMAs, REDD+ and carbon markets.

The purpose of this section is to discuss in more detail the existing and potential applications of RBF for each of the three mechanisms, in order to highlight opportunities as well as potential limitations. Where possible, experiences are drawn from concrete examples. The section concludes with a discussion of advantages and disadvantages which serves as a basis for the subsequent discussion of the potential practicability of RBF as a linking element between climate finance and carbon markets (section 4).

3.2.1 NAMAs

Nationally Appropriate Mitigation Actions (NAMAs) are mitigation actions undertaken by developing countries which can be either unilateral, for example financed entirely by the country itself, or supported, that is with international or bilateral financial, technological or capacity building support. Given the focus of this paper, the term NAMA here refers to supported NAMAs.

NAMAs represent climate finance mechanisms that are in many ways similar to development finance with a clear mitigation objective or impact. Accordingly, the term NAMA here refers more broadly to mitigation actions or supported activities which seek to reduce GHG emissions in a developing country. NAMAs put a strong emphasis on development co-benefits and transformational impacts, which is echoed by some of the NAMA funders (e.g. NAMA Facility, GCF). NAMAs started in 2007 with a very loose definition in the Bali Action Plan. Since then, the concept has developed through testing and practice on the ground. Today, the majority of NAMAs are policies or programmes that are closely aligned with national development goals and address an entire subsector or even sector – rather than individual projects. The mechanism is not yet mature, with a lot of support focussing on readiness activities. However, the first NAMAs already received international finance for implementation. It is expected – but yet to be seen – that the GCF becomes a key source of finance for NAMAs.

Some of the key characteristics of NAMAs that are relevant for the discussion on RBF are outlined in the following:

The question of additionality: For many NAMA funders and observers it is important to ensure that NAMAs lead to reductions beyond business as usual, and that only those additional reductions are actually supported. Moving beyond the business as usual baseline is also enshrined in the “official” NAMA definition as laid down in in the Cancun agreements (UNFCCC 2011). In a similar way, NAMA funding explicitly calls for support of “incremental costs” only, for example those beyond business as usual (UNFCCC 2014a). In reality, however, it might be difficult to draw the line between reductions along business as usual and those beyond, especially as NAMAs often build on, enhance, or scale up existing mitigation programmes.

Measurability of outcomes: There is a need to demonstrate the impact of a NAMA. Based on its definition in 2007, a NAMA should consider mitigation actions *“in a measurable, reportable and verifiable manner”* (UNFCCC 2008). It is furthermore a key priority for most NAMA supporters to measure GHG impacts. At the same time, NAMAs typically relate to policies and programmes which are driven by development objectives. They address multiple barriers and as such require a holistic approach combining a set of

interrelated interventions and measures. The impacts of many of these activities can be difficult to measure in quantitative terms (e.g. in tonnes of CO_2e reduced), as impacts are often indirect and long-term or can only be assessed qualitatively. Many countries also face significant institutional and capacity constraints related to the evaluation of outcomes.

National appropriateness: Closely related to the question of measurability and the need to demonstrate GHG impact is the question of how the concept of national appropriateness is interpreted. For many developing countries, national appropriateness is a key feature of NAMAs, substantially supporting their acceptance amongst stakeholders in the country. For developing countries, the starting point of NAMAs is not mitigation but development. NAMAs are defined in the context of national development needs as well as capacities. What is nationally appropriate to a country may not always be in line with the expectations of international funders.

Current status and potential role of RBF

RBF approaches are increasingly discussed in the NAMA community due to an increasing interest of NAMA funders to achieve "guaranteed" GHG impact and to incentivise measurable outcomes. Some initial RBF concepts are being developed in the context of specific NAMAs (see Box 1). In addition to that, RBF approaches are also considered as part of the GCF funding activities. Another concrete example of a RBF approach to finance mitigation activities in developing countries is Norway's Energy+ programme. This programme is not framed as a NAMA but rather as a hybrid between NAMA, REDD+, and RBF, and as such serves as a good example to understand the benefits and limitations of the concept (see Box 2).

Based on the (limited) experience of implemented RBF approaches and experiences with the development of NAMAs and their financial mechanisms, some initial findings on the applicability of RBF with regard to NAMAs can be drawn:

- RBF approaches have a high potential to attract NAMA funders that seek mitigation certainty and try to incentivise actions with measurable outcomes.
- The RBF framework may use a variety of mitigation indicators which can be applied flexibly according to the specific sector and country context. These may include outcome-based indicators, e.g. GHG reductions, percentage of energy access, or process related indicators (e.g. number of efficiency standards implemented).
- RBF as a finance mechanism can only remove certain (financial) barriers. Ideally, it is embedded in a wider programme of interventions and enabling activities to address all identified barriers in a given sector or sub-sector comprehensively.
- Many countries have significant upfront finance needs to implement mitigation actions. The ex-post payment of RBF can only partly and indirectly respond to these needs, using the expected income to receive upfront loans. To address this problem, a hybrid might be considered or RBF might be used as supplementary finance source within a wider finance framework.

RBF requires stringent monitoring processes and associated institutional capacities, especially where emission reductions are used as the primary indicator. Any RBF framework needs to reflect national capacity constraints and the appropriateness of specific indicators. Principally, RBF based on GHG emission reductions is only suitable for certain countries and sectors where capacities have been developed and/ or monitoring processes are relatively simple (e.g. energy supply).

Box 1: Case Study – NAMA in Ecuador

Using RBF in a waste sector NAMA in Ecuador

In April 2010, the Government of Ecuador created the National Programme for the Integral Management of Solid Waste (PNGIDS, for its acronym in Spanish). According to the Ministry of Environment (MAE) (2014a), the PNGIDS aims to reduce environmental pollution, to improve the quality of life of the citizens, and to promote the conservation of ecosystems. To that end, strategies, plans and capacity building activities are being promoted among the different stakeholders and municipalities (MAE 2014b). The objective of the programme is to avoid 500,000 tCO_2 by the end of 2021 (MAE 2014c).

The financial mechanism of the PNGIDS builds upon a performance-based climate finance approach. The programme has three fundamental parts. Part one focuses on the design of the mechanism and implementation-related capacity building activities which include *"additional studies, design of an MRV mechanism, and emissions monitoring and verification"* (MAE 2014c). The second part includes results-based economic incentives that initially will be given to a number of piloting projects which are expected to serve as a blueprint in a wider sense beyond the programme. Results are defined in terms of avoided GHG emissions. The incentives given are technology specific (MAE 2014c). The European Union, through the Latin American Investment Facility (LAIF), supports the economic incentives component with a 4 million Euros grant (CAF 2014). The last part of the programme consists of evaluating "*financing and re-financing opportunities*" by the CAF and the KfW. The NAMA Facility, the GCF, bilateral agreements and other sources are in consideration for acquiring future funding to continue the delivery of grants and subsidised loans for project development (CAF 2014).

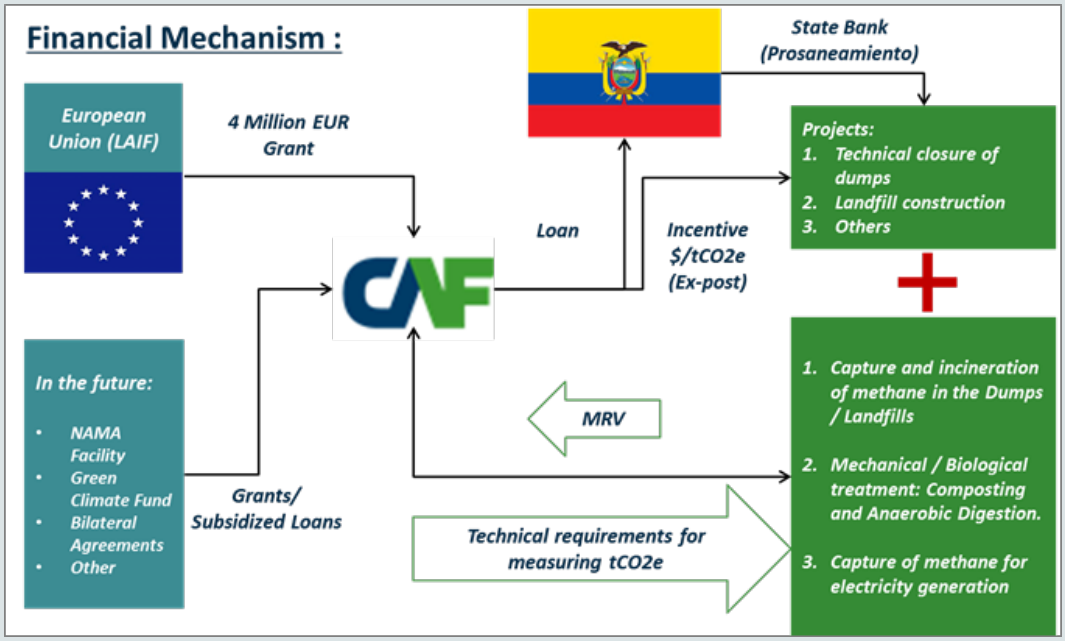

Figure 2: Financial mechanism of the Performance Based Climate Finance Facility for the municipal solid waste sector in Ecuador (CAF 2014).

Key issues

The solid waste management programme in Ecuador covers various activity types that have been successfully developed under the CDM already. Building on carbon market experiences and methods facilitates the setup of the programme and its activities. Reliable quantification of the mitigation impact (results) contributes to the acceptance by funders and to the success of the programme.

Box 2: Case Study – Energy+ initiative

Drawing lessons from the Energy + initiative

In 2011, the Norwegian Government launched the International Energy and Climate Initiative (Energy+) to support developing countries in their efforts to achieve universal access to sustainable energy as well as to reduce GHG emissions by increasing their share of renewable energy and by improving energy efficiency. Energy+ shares the goals of the UN-led Sustainable Energy for All initiative. According to the Norwegian Ministry of Foreign Affairs (2013), Energy+ promotes sectoral approaches towards low-carbon energy sectors in developing countries. Moreover, the initiative aims to contribute to the climate negotiations by accelerating the implementation of energy related NAMAs that are already under development in developing countries.

Energy+ builds on the conceptual framework of REDD+. The approach is implemented in three phases to facilitate the development of an enabling environment for innovative, energy-related initiatives that should receive financing through RBF. During the first phase, support is conventionally provided for the development of low-carbon energy sector strategies and policies as well as for the development of technical and institutional capacities. The second phase focusses on support for the implementation of policies and strategies and monitoring systems. The third phase provides RBF to developing country governments for increasing energy access and reducing GHG emissions in the energy sector, compared to a business as usual baseline. The Energy+ initiative seeks to use public funds to leverage private sector capital to cover the investment needs for increasing access to renewable energy. Public finance is also used to encourage investments in rural energy markets, which are often perceived as too risky by private sector investors.

To date, little information is available on the progress of the Energy+ initiative. Norway has signed a memorandum of understanding and/ or framework for cooperation with Kenya, Bhutan, Liberia and Ethiopia. In Bhutan, for example, the initiative supports the national government to increase the access to electricity and to modern energy sources for heating and cooking. According to the Energy+ framework agreement, the government receives upfront payment for the implementation of activities to be carried out in the first phase, while payments for the following phases are contingent on achievements in the previous phase. Bhutan is expected to enter the RBF phase in mid-2016 (Government of Norway 2012). Results, according to which RBF is disbursed, are defined as reduced GHG emissions plus further indicators for increased energy access (Norway Ministry of Foreign Affairs 2013).

Key issues

Although little implementation experience exists, it is obvious that RBF in its purest form does not always help to remove barriers to the implementation of renewable energy projects. National governments are responsible for providing a favourable policy environment and significant policy barriers must be removed in many developing countries before RBF incentives may fall on fertile ground. Pre-financed preparation phases prior to the RBF component are essential.

3.2.2 REDD+

The concept of "reducing emissions from deforestation and forest degradation (REDD)" in developing countries was introduced in the international climate negotiations in 2005. In the Cancun Agreement of 2010, the concept was broadened to REDD+ which additionally covers forest conservation, sustainable management of forests and enhancement of forest carbon stocks.

Initially, the idea was to pay developing countries and projects for reducing emissions and storing carbon in forests, with funding coming from REDD+ credits sold as offsets in a compliance carbon market (Angelsen 2013). Although conventionally financed preparation phases were planned from the beginning, over the years the development of REDD+ has deviated to some extent from the original objective to generate REDD+ carbon offsets to a phased approach with direct support without generation of offsets. The majority of international funding for REDD+ activities currently comes from bilateral and multilateral development aid budgets. Moreover, the focus of REDD+ has broadened progressively, from emission reductions to the inclusion of other objectives such as the improvements of livelihoods, biodiversity conservation, strengthening of indigenous rights and good governance, etc. (Angelsen 2013).

At COP 19 in 2013, the negotiations on REDD+ resulted in the Warsaw Framework for REDD+. Through this framework, REDD+ becomes an operational mechanism with formal rules for creating institutions, establishing reference levels, recognizing mitigation activities, ensuring safeguards, and implementing RBF mechanisms (UNFCCC 2014b).

Parties agreed on a phased approach for REDD+ to gradually build the capacities and infrastructure that are needed to implement results-based activities (UNFCCC 2011). Following this approach, countries would begin by building technical and institutional capacity (Phase 1 or 'readiness'); followed by policy reform and demonstration activities (Phase 2 or 'implementation'); ramping up to fully measured, reported and verified (MRV) implementation (Phase 3 or 'results-based payments'). These phases could be partly or fully overlapping.

The Warsaw Framework stresses that REDD+ finance channelled through RBF for developing countries should be "*new, additional and predictable*" and "*may come from a variety of sources, public and private, bilateral and multilateral, including alternative sources*". The framework "*further recognizes the key role that the Green Climate Fund will play in channelling financial resources to developing countries and catalysing climate finance*" (UNFCCC 2014b). In addition, the different existing and potential REDD+ funding agencies are asked to coordinate their support and ensure that it aligns with established UNFCCC rules. This last recommendation guarantees that after an international climate agreement has been finalized in 2015, developing countries will follow one streamlined set of rules to fulfil most donors' requirements.

To date, more than 88% of all REDD+ and forest related funding tracked has been pledged by the public sector through both bilateral and multilateral channels (Norman & Nakhooda 2014). Twenty-one countries collectively pledged more than US$4 billion through bilateral agreements between 2006 and 2013. In addition, developed countries and the private sector are channelling finance through dedicated multilateral funds targeting REDD+ and sustainable forest management. Approximately 40% of total bilateral and multilateral REDD+ finance has been pledged in form of RBF, with the largest share coming from Norway, followed by Germany. The bulk of finance has been channelled ex-ante in the form of grants for readiness activities of Phase 1, including capacity building, training workshops, strengthening in-county institutions and developing national REDD+ policies and strategies.

Box 3: From REDD+ readiness to RBF – the case of Brazil

Drawing lessons from Brazil

Being the country with the largest remaining tropical forest and one with the highest deforestation rates in the world, Brazil has been very active in introducing REDD+ in the climate change negotiations and in developing a national framework for REDD+. In 2007, Brazil submitted a REDD proposal to the UNFCCC, with RBF as a central element, that was based on voluntary arrangements between developing and developed countries and included "*positive incentives for the net reduction of emissions from deforestation in developing countries*" compared to historical deforestation rates (UNFCCC 2007). Payments shall be made ex-post per tonne of reduced GHG emissions and reductions shall not be used as carbon offsets. Brazil's proposal was followed by a voluntary GHG emission reduction target for 2020 that included reducing deforestation in the Amazon region by 80% compared to the average deforestation rate between 1996 and 2005. Since then Brazil made significant progress towards reducing deforestation and many Amazon states are in the process of developing their own legal and institutional REDD+ frameworks.

Brazil has developed strong institutional and technical capacities to monitor deforestation and therefore fulfills one of the fundamental requirements to demonstrate the achievement of results. In 2004, the Federal Environmental Protection Agency (IBAMA), in collaboration with the Brazilian Space Agency (INPE), set up a national deforestation tracking system based on satellite monitoring systems. The transparency and the availability of reliable and independently verifiable annual deforestation data were important to build trust among national and international funders of REDD+ activities (Evans 2013).

Brazil has established a solid financial infrastructure to cover different finance needs of the three REDD+ phases. Central part of this financial infrastructure is the Amazon Fund which was established in 2008. It is based on a payment-for-performance fundraising model supported by international climate finance and national contributions. Forstater et al. (2013), who analyzed the effectiveness of the Amazon Fund, describe the fund's principles as being based on credible forest monitoring, politically acceptable reference levels against which annual avoided deforestation is measured, and a fixed carbon price. Donors to the fund receive non-tradable certificates for avoided emissions that are valued at a fixed price of US$ 5/tCO_2.

A US$ 1 billion funding pledge of Norway was fundamental to establishing the Amazon Fund. The fund has received funding from other donors such as KfW and Petrobras but achieved emission reductions in 2011 were already about ten times higher than available funding. Forstater et al. (2013) state that this "overachievement" in reducing emissions challenges the fund's intention to assure additionality of results by demonstrating the linkage between donors' contributions and Brazil's performance in reducing deforestation. As a result, some donors return to assessing projects and activities of the Amazon Fund on a value-for-money basis when deciding if they should support the fund. Moreover, since RBF is contingent on falling deforestation rates, the fund would naturally come to an end if deforestation stabilizes at low rates of fall to zero.

Key issues:

Brazil is a successful example for the application of RBF in the field of deforestation. However, it needs to be noted that Brazil's effort in using RBF to reduce deforestation has started long before REDD+ was added to the international climate change agenda. Important elements that are to be developed in a REDD+ readiness phase to enable countries to receive RBF were already in place when Brazil started to engage in REDD+.

While hopes were high that REDD+ would attract investment from the private sector, their engagement and investments have been low. This can be explained in part by the weak status of the emissions compliance market. Furthermore, few existing compliance markets accept forest and REDD+ emissions reductions at all. Forest conservation is presently excluded from the CDM, and offset credits from forestry and land-use change are excluded from the EU emissions trading scheme, because of concerns over permanence, leakage, establishing baselines and accuracy of MRV (Norman & Nakhooda 2014). The forest carbon offset market is dominated by voluntary markets. Voluntary offset transactions for REDD+ projects, including sustainable forest management as well as afforestation and reforestation, are estimated to be worth US$0.9 billion over time (Peters-Stanley et al. 2013).

The experience with testing RBF approaches in the REDD+ framework leads to some initial findings on the applicability of RBF (see also Box 3):

- RBF is an attractive alternative approach in situations where carbon finance was anticipated as a financing source but lagged behind expectations.
- Attractiveness for private finance sources remains limited as long as no marketable commodity is produced as an output; thus leveraging of public finance through private finance remains limited.
- Substantial upfront payments, time and capacity are needed in order to create the framework for pure results-based activities. Institutional and technical challenges require endurance and long-term capacity investments. However, when convincing concepts and ambitious activities can be presented, funds are available and can lead to effective and efficient results.

3.2.3 Carbon markets

Carbon market-based approaches have become an important component of national and international climate policies and developed different forms of mechanisms which either generate and/ or trade emission reduction units. These units always represent a quantitative amount of GHG emissions. Project-based carbon market mechanisms, such as the Clean Development Mechanism (CDM), have been very successful in diffusing carbon price signals worldwide, stimulating major private investments in climate change mitigation projects, and supporting the development of mitigation action in developing countries. The CDM represents a more mature mechanism than NAMAs and REDD, with comprehensive and tested methods applicable to hundreds of mitigation options in a large variety of sectors. The institutional governance framework as well as comprehensive local and private capacities were developed during the last decade.

According to the definition for results-based approaches as presented in previous sections, the CDM represents an extreme form of a RBF instrument. In line with the CDM's objective and initial design, CDM project activities are initiated in order to assist Non-Annex I countries in achieving sustainable development and to generate additional and verified amounts of GHG emission reductions which are transferred into tradable reduction units, so called Certified Emission Reductions (CERs). These units can be considered as "results", while the sale of these units guarantees the results-based payments. Since the intended result to support sustainable development is not linked to any payments, the CDM's achievements on this aspect remained behind expectations (Olsen 2007).

Revenues from CER sale re-finance the investments made in mitigation activities. CERs generated through the CDM, which is a pure offsetting mechanism, allow to emit the same quantity of GHGs by the purchasing entity and thus require stringent quality control and quality assurance processes in order to ensure that the emission reductions are correctly quantified and not exaggerated. This is ensured by the CDM through

different testing and approval levels by the administration of the mechanism but also through independent third party verifiers. The CDM developed one of the most stringent MRV and issuance frameworks leading to high certainty on the validity of the achieved results, but also to a substantial procedural burden and to a high risk level for participants whether results will be met or not (Warnecke 2014). The fact that all key characteristics of results-based approaches are met, in combination with this stringent framework is the reason to classify the CDM as the most extreme form of RBF in Figure 1.

However, it needs be noted that the CDM might in at least in one aspect slightly deviate from common RBF approaches and the general RBF definition. In contrast to ODA and climate finance, the CDM is not driven by already available funds for which modalities are needed to most efficiently disburse the funds. CDM projects issuing CERs first of all generate a marketable commodity which needs to be attractive to buyers in order to attract funding from markets in a second step. If pre-existence of funding is seen as criterion for the definition of RBF approaches, the CDM deviates from RBF since results are available prior to the financing sources. However, in practice, many CDM activities have signed "Emission Reduction Purchase Agreements" before they made their investment decision.

With thousands of implemented projects, the CDM can look back at substantial implementation experience and is thus the most mature application example from which one can draw relevant lessons for RBF approaches in climate finance.

- **An incentive scheme solely providing ex-post finance requires that implementing agencies have the financial resources to pre-finance interventions.** CDM project proponents are either companies with a solid financial background or require support from local or international banks or other investors. In order to shorten the pre-financing periods, project proponents sold future CERs, which are expected to be generated from CDM projects, in different early development stages instead of waiting for the actual issuance of CERs. Buyers provided up-front payments or banks approved loans based on signed Emission Reduction Purchase Agreements (ERPAs) as guarantees. These financial options did however not exist for financially less attractive mitigation activities in the CDM and were not available in all regions of the world. Since April 2012, the UNFCCC finances the CDM Loan Scheme which supports projects in different development stages with a focus on countries where other forms of loans are insufficiently available (e.g. Africa).

- **Enabling measures are key.** Although the CDM was not implemented in different stages as opposed to REDD and other initiatives, it would not have reached its current regional spreading without substantial complementary actions such as capacity building measures carried out by international but also domestic institutions in various regions of the world.

- **Risks transferred to implementing agencies are substantial, and further increased due to the volatile market price.** Certain factors influence the CER generation performance of CDM projects (e.g. technical and administrative challenges). These non-delivery and underperformance risk factors came for many projects as a surprise and resulted in financial trouble or led to a renewed risk assessment which did not allow to further invest in similar mitigation opportunities. In times with low secondary CER price levels, many buyers additionally used any option to renegotiate the agreed prices in ERPAs. The implementing agencies but also banks which provide loans based on ERPAs, which are used as credit guarantee, had to adjust their assessments. In contrast to other RBF instruments, no flexibility for payments based on the agreed results exist in the CDM framework.

- **Stringent but reliable definition and verification of results is not feasible in all sectors and for all mitigation opportunities.** The CDM's stringent and inflexible requirements for the quantification of GHG emissions led to an unequal sectoral distribution. Sectors with substantial

mitigation potential remained largely untapped (for example buildings, transport, and agriculture). Instruments such as NAMAs allow more flexibility and reward long term transformational effects and are thus more suitable to support mitigation in these sectors.

- **Objectives that are not linked to payments might not be met.** Although assisting Non-Annex I countries in achieving sustainable development is defined as key objective of the CDM, the main focus of the CDM activities is on the generation of emission reduction units. Contributions to sustainable development occur as side-effect, are not measurable or might even have been neglected in practice.

- **Recurring results-based payments and recurring verification lead to continuity of interventions and long-term success.** In contrast to conventional up-front finance such as ODA, CDM projects, once implemented, show an outstandingly high continuity in the operation of the implemented mitigation equipment (Warnecke et al. 2015). Recurring payments based on continuing verification of results lead to ownership and sustained incentives for long-term operation.

Although the analysis of the CDM as an RBF scheme allows interesting insights in RBF approaches for dissemination of climate finance, the CDM itself has so far not emphasized its RBF nature or might not even be considered as RBF instrument. Just recently and since carbon markets become an instable and insufficient source of financing, the CDM was associated with RBF. Following the recent decline of the market, the situation of project activities, in addition to domestic and international capacities related to the CDM, has noticeably deteriorated. The longer lasting low demand and the resulting low price levels for international emission reduction units have forced project activities to search for alternative financing sources. Institutional stakeholders have attempted to find ways to secure the survival of resources and capacities which have been built through the CDM.

In this context and in order to guarantee the continuance of project-based carbon market activities, RBF is seen by many as the most promising alternative approach to disseminate finance to market-based mitigation activities, using climate finance which represents an alternative financing source. Financing sources can have different forms but contributions labelled as climate finance might be more attractive to governments. Climate finance used in the absence of markets demand and carbon finance, ensures that mitigation activities which have been started under carbon market mechanisms can continue to reduce emissions, and that the established resources and capacities can be maintained and potentially transferred into new schemes without significant time delays once needed. This alternative financing source and channel is considered a useful approach as an interim solution to overcome the current lack of demand in carbon markets at least until ambitious international mitigation ambition restores stable market demand.

Following this approach various publicly funded programmes and facilities are currently purchasing CERs from stranded CDM projects or those that are at risk of being stranded soon. Stranded projects are defined as projects that have been started under the assumption that they would re-finance their investment and operating costs with revenues from CER sales. Stranded projects are negatively affected by current price levels and are not in a position to either cover operating costs or re-finance their initial investments. Purchase facilities create non-market based demand for CERs, which are bought at prices that are above current market price levels, and allow projects to continue with their mitigation activity. Facilities follow different purchase policies and focus on different project types, and geographical regions, or have size or modality preferences (e.g. Programme of Activities (PoAs) bundling a large number of small but similar mitigation activities). Examples for purchase programmes include The World Bank Carbon Initiative for Development (Ci-Dev), the Norwegian Carbon Procurement Facility (NorCaP), the Pilot Auction Facility for Methane and Climate Change Mitigation (PAF) and the Swedish CDM and JI purchase programme. The key characteristics of these programmes are shown in Table 1.

Table 1: Overview of selected CER purchase programmes and facilities

Purchase programme	Goals	Funds	Managing Entity & Funders	Technical Purchase Approach	Selection Criteria	Targeted Project Types	Targeted Countries
Swedish CDM and JI programme (Launched 2002)	To achieve cost-effective GHG reductions and contribute to sustainable development, while promoting international cooperation	Unspecified but fixed CER volume: 10 million CERs generated within KP's second CP (2013-2020) through 2013/14 call for proposals	Managing Entity: SEA Donor: Sweden	Through an ERPA: Quantitatively in tons of CO_2e. Purchasing CERs of CDM registered projects	- Projects not yet commissioned - Projects at risk of being discontinued - Commissioned projects in LDCs or other countries with few CDM projects - Other criteria include cost-efficiency, contribution to sustainable development, leverage of private funding	- Renewable energies, - Energy efficiency, and - Waste management projects	Sub-Saharan Africa and South East Asia, underrepresent-ted developing countries and LDCs
The World Bank Carbon Initiative for Development (Ci-Dev) (Launched December 2011)	Demonstrate performance-based payments for CERs can lead to successful business models for rural electrification & energy efficiency.	USD 125 million; divided betw. Readiness fund (30 mio.) and Carbon fund (95 mio.)	Managing Entity: World Bank Donors: UK, Sweden and the Swiss Climate Cent Foundation	Quantitatively in tons of CO_2e. Buying the CERs, which are later cancelled and not sold to the market.	- Registered CDM projects with development benefits - Demonstrate welfare improvements at community or household level - Small to medium scale projects - Projects using methodologies that suit low-income countries	Energy access projects, especially PoAs	Low income countries; Least Developed Countries (LDCs)
NEFCO Norwegian Carbon Procurement Facility (NorCap) (Launched November 2013)	To prevent reversal of emission reduction activities by purchasing CERs from vulnerable CDM registered projects	USD 80,7 million	Managing Entity: NEFCO Donors: Norway, Sweden	Quantitatively in tons of CO_2e. Purchasing CERs of CDM registered projects	- Registered CDM projects facing risk of discontinuation due to low CER prices - Without an ERPA - Abandoned projects by other buyers that can be restarted rapidly	All project types except: - Hydro & wind projects in non-LDCs - Industrial gases (HFC-23, produced as a by-product of HCFC-22, N2O from adipic acid) - Coal based energy production without CCS	Developing countries (see project types for exceptions)
Pilot Auction Facility (PAF) for methane & climate change mitigation (Launched September 2014)	Piloting an innovative results based carbon finance delivery vehicle, which establishes a carbon price through auctions	USD 100 million target	Managing Entity: World Bank Donors: Germany, Sweden, Switzerland, USA	Resources allocated against verified emission reductions (e.g. CERs) by providing a minimum price guarantee that is assigned within a competitive auction. POs bid on a put option giving them the choice to sell future credits at the guaranteed price.	- Projects with issued CERs - No third-party purchase agreement - Follow eligible generation and issuance periods established by PAF - Having a passing EHS and integrity report	1st auction: Projects that cut methane emissions at landfill, animal waste, and wastewater sites; characteristics related to eligible project types, methodologies and targeted countries for further auctions might change and have not been published at this stage	Various developing countries (according to specific list of eligible countries; e.g. excl. China)

However, CER purchase programmes exist since the early days of the CDM. With such programmes, various Annex-I governments bought large amounts of CERs. The motivation during these days differs substantially from today's programmes. Former programmes intended to provide reduction units to governments in order to allow them to fulfil their own mitigation commitments in a cost-efficient way. Current purchase programmes are not anymore driven by real demand but aim to ensure existing mitigation activities continue to operate and resources and capacities to be maintained to the extent possible. Funds are either newly set up to reflect these new objectives or existing funds adapted their purchase strategies in order to fulfil the new aim or even meet both objectives. A good example for the latter is the Swedish CDM and JI programme that has been operating for over a decade and has opened a new call for CDM projects in 2013/2014 aiming to purchase a fixed CER volume of up to 10 million CERs generated within the Kyoto Protocol's second commitment period (2013-2020).

The changed nature of CER purchase programmes is reflected in the operating modalities and selection criteria of today's largest programmes, as shown in Table 1. All of the programmes listed in the table are targeting projects in least developing countries, or specifically underrepresented developing countries in the case of the Swedish CER Purchase Facility. This reflects both the growing risk for project discontinuation in these countries as well as the significant amount of untapped mitigation and project potential. The facilities provide high support for renewable energy generation and waste management projects. These are project types which, although particularly successful in the most active host countries, have been particularly unsuccessful in the most underrepresented least-developed countries due to the lack of enabling conditions and support. These are also project types where ex-post financing is likely to have the most lasting impact, since projects are less likely to be discontinued once the initial investment is reimbursed, even if recurring payments cease after this point. NorCap also targets industrial gas projects due to the large volume of ongoing emission reduction activity that is at risk of non-continuation under current conditions. The Ci-Dev programme is targeting PoAs, specifically energy access projects; these are projects with considerable sustainable development benefits and through targeting these projects, the Ci-Dev programme intends to demonstrate that performance-based payment frameworks can foster successful business models for projects which tackle both climate and development issues effectively.

Instruments and mechanisms applied under these conditions cannot be considered as market-based anymore since trading and price determination is independent from open markets. However, market-similar situations can still be created with innovative design of purchase facilities for example by using "reversed auctioning" for price determination which creates a market similar competitive situation without the existence of a real market. This is the case, for examples, with the World Bank's Pilot Auction facility, which allows project owners to bid on a put option giving them the choice to sell future credits at the guaranteed price. Furthermore it should be considered that the use of funds, which are marked and reported as climate finance by donor countries according their international funding pledge, should not result in the purchase and use of emission reduction units in order to avoid double counting of efforts. Immediate cancellation of reduction units instead of using them as offsets is required.

4 RBF as a link between climate finance and carbon markets

Climate finance mechanisms, such as NAMAs and REDD+, as well as carbon markets use results-based elements which could serve as a link between climate finance and carbon markets. The previous section highlighted experiences made in both areas which are partly similar but also complementary. Based on the previous findings, the following section shows how the mechanisms related to climate finance and carbon markets could learn from each other in order to further improve and result in more effective mitigation impacts for the benefit of the climate.

Some obvious but also partly hidden **benefits for carbon markets** and its mechanisms can be generated by linking to climate finance through RBF elements. As laid out in the previous section, the most recent example is the CDM which is already supported by purchase programmes using climate finance to provide demand for reduction units, replacing the missing demand from markets themselves. Gaps are filled until market demand is recreated and carbon finance is available again as a stable source of financing.

Besides the continuation of readily implemented mitigation activities, the use of RBF has further advantages since the rules and methods of market mechanisms can be further applied, tested and potentially improved. Continued project activities allow a minimum activity level and as such provide opportunities for capacities and resources, which support the mechanism, to survive until real markets are re-vitalised.

Purchase programmes or facilities can also be designed in a way to focus on specific regions or technologies. This can follow specific donor preferences and can address the unequal distribution of activities in the CDM. In this way, RBF approaches offer opportunities to test new and innovative market designs, either for a potential future new market-based mechanism or approaches tailored to the needs of underrepresented regions or sectors. RBF offers a kind of safe piloting environment where piloting of new approaches and instruments is conducted before these new instruments and approaches result in offsets and before they are connected to existing markets. As long as offsets are retired or not even issued, no direct negative effects from innovative pilots can emerge. Once a proven approach is developed and markets are recovered, climate finance can again be replaced by carbon finance. This piloting environment can also be used to test opportunities for the creation of additional (monetary) incentives beyond the often purely GHG mitigation related metric. This could for example support the CDM in finding a solution to its inability to prove whether it meets its sustainable development objective or not.

Although the kind and level of incentives for RBF and the CDM are very similar, RBF allows for approaches which are more tailored to the needs of different sectors. Trade-offs between stringency and feasibility might lead to finding pragmatic approaches that can tap the full potential of mitigation opportunities in all sectors. This, however, depends very much on the characteristics and the requirements in the respective sector. These sectoral differences should be considered when agreements for trade-offs are negotiated.

In order to illustrate this, Figure 3 shows some sectors but also technology groups where sub-sector classifications are more suitable. Figure 3 uses the dimensions which were introduced in Figure 1 to show the relation between different approaches in climate policy. Sector or technology types with characteristics suitable for carbon market mechanisms are located towards the right side of the figure while sectors with limited success in the CDM and currently better suited to climate finance sources are grouped on the left side. RBF approaches are concentrated in the middle of the figure but can be applied to both sectors and technologies on the extreme left as well as on the extreme right side of the figure. Here, RBF has the potential to link climate finance and carbon markets, although RBF should not be seen as a uniform standard and would need to be tailored to the specific sectors and technologies.

Sectors should continue to apply existing rules wherever the current CDM methods have proven themselves in practice and seem technically, financially and administratively feasible. For other sectors

where the CDM was unable to yield its full mitigation potential due to, for example, the practical feasibility of MRV approaches, pragmatic adjustments should be made. Conservative approaches can maintain the environmental integrity while a potential (re-)connection to the carbon markets can be decided on a sector-by-sector basis and upon practical experiences and international acceptance of approaches. By using potentially adjusted rules through the RBF, existing or former CDM activities move slightly to the left from the very right end in Figure 3.

It is important to note that the sectors and technology types shown in Figure 3 neither follow formal classifications nor are they exhaustive. Single applications and subtypes within these sectors and technology types might have to be classified outside of the given boxes.

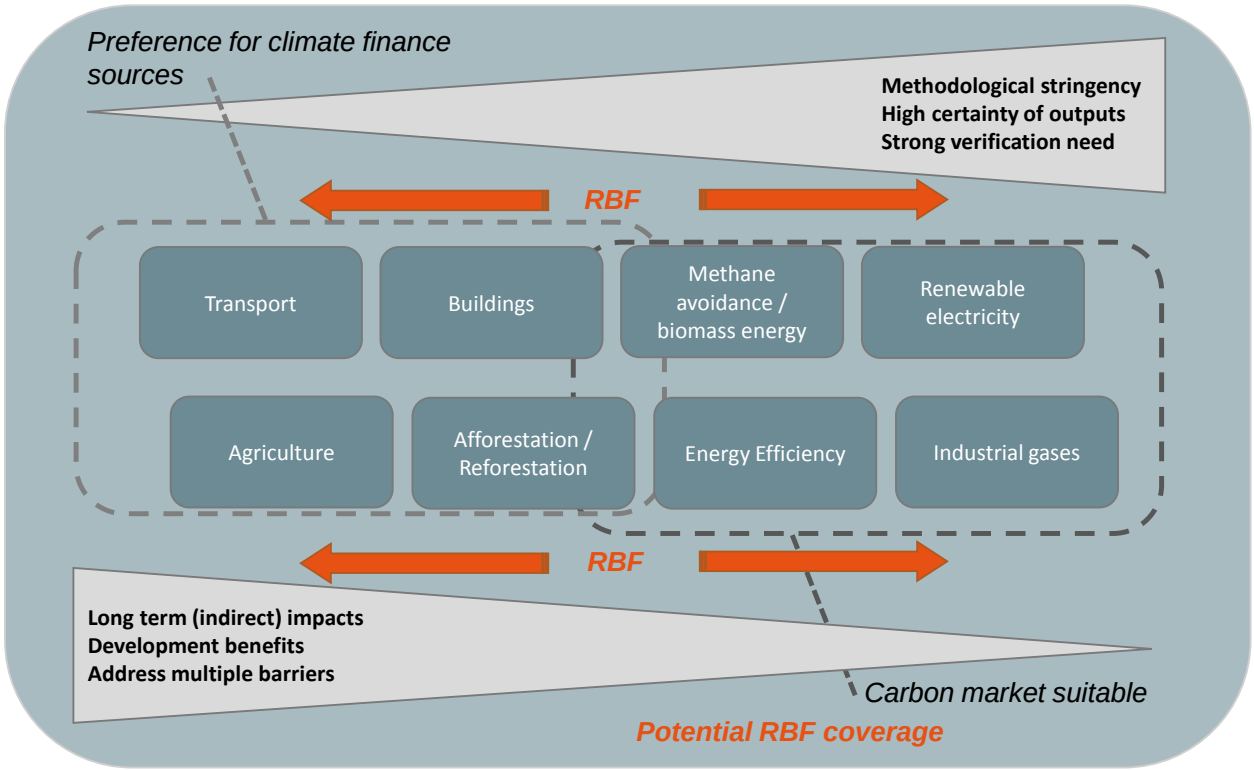

Figure 3: RBF as unifying element for climate policy approaches within the bandwidth of different sectors

On the other hand, **climate finance can benefit** from the experiences of market mechanisms. Climate finance activities, such as those implemented through NAMAs, often combine the implementation of long-term transformational change and short-term interventions. Since the impact of transformational change is difficult to quantify, they do not qualify for strict RBF approaches. However, the rules for short-term interventions might already be available through carbon market mechanisms and could be applied via the RBF vehicle. Stakeholders, also domestically, might even be familiar with these rules, a condition that substantially reduces the burden of up-front capacity building. Proven baselines and MRV approaches could increase the recognition of mitigation impacts achieved through climate finance and as such could increase the availability of funds for mitigation programmes. A good example to demonstrate this causal link is the Performance Based Climate Finance Facility for the municipal solid waste sector in Ecuador (cf. Box 1).

The effective disbursement of climate finance might become a challenge in the near future. The significant amounts of climate finance that are expected to become available, for example through pledges from Parties and the launch of the GCF, need efficient tools for disbursal. Carbon markets with their proven tools can contribute to a solution in different ways. The previously mentioned purchase facilities for reduction units, such as CERs, can turn climate finance into measureable GHG mitigation immediately and without any significant time lags. Moreover, the tool box and the capacities available through market mechanisms can be used to efficiently design and implement tailored approaches for channelling climate finance.

Furthermore, the results and effectiveness of climate finance can be improved through market mechanism experiences. A focus on actually achieved results and recurring independent verification is seen by many as a solution to improve the effectiveness of development aid evidenced by the piloting of results-based financing modalities. Compared to interventions financed through conventional development aid, the CDM has an impressive track record in this regard. It applied a strict form of RBF right from the start, although this terminology was rather unknown. Although a phased approach with preparation phases prior to the full implementation of RBF as an instrument is clearly recommended for new application areas, the need for such phases is significantly reduced when market mechanism approaches are applied or used as a basis for RBF approaches.

Joint efforts and synergies between the two spheres, climate finance and carbon markets, could be used to find solutions to currently unaddressed challenges such as the example of determining the additionality of interventions. Although the methodology of its assessment is met with objections from some stakeholders, additionality is addressed by the CDM as a serious consideration, while in climate finance efforts to address the issue remain rather vague if addressed at all. Stakeholders and decision makers from climate finance and carbon markets will need to consider the following questions: How can financing of the "business as usual" situation be avoided in climate finance interventions? What are the possible (minimum) criteria to prove additionality? Could NAMAs benefit via RBF approaches from market mechanism experiences? Through jointly answering these questions, acceptance can be reached from both sides.

Although the benefits from using results-based financing as a unifying element for climate finance and carbon markets are considerable, some general challenges for results-based financing in climate policy, as uncovered by previous sections, remain. Some publications also find evidence leading to doubts about the assumed effectiveness of RBF in specific situations. In order to maximise the potential benefits and deal with the remaining challenges, RBF approaches should be designed with caution and according to the specific situations in which they are applied. The key success factors a as well as the remaining challenges identified in this study and related to RBF approaches are highlighted and summarised in the following section.

5 Conclusions and outlook

Success factors for results-based financing in climate policy

Based on the discussion and analysis of the application of RBF for climate policy, it can be concluded that several success factors for RBF stand out:

RBF creates strong incentives to deliver on intended programme objectives. Due to the ex-post accrual of rewards for mitigation activities, RBF encourages project implementing entities to overcome implementation and operational barriers once the initial project investment is made. The incentive to overcome barriers and deliver on the programme objectives is stronger than in the case of upfront finance, where the implementing entity is less likely to incur a loss as a result of non-delivery.

RBF approaches can address further objectives beyond GHG mitigation. Depending on the indicators against which finance is released, or the criteria on which projects are selected for funding, RBF can also be used to incentivise other important objectives such as local sustainable development. In this way, RBF can create monetary incentives for sustainable development and exceeds the purely GHG mitigation related monetary incentives of the CDM.

RBF approaches attract funders driven by mitigation certainty. International governments, whose climate financing potential is vast and likely to increase substantially, are attracted by the certainty of climate change mitigation activities that they can fund through RBF. These funders have used RBF to incentivise actions with measurable outcomes.

RBF can foster enduring interventions. Recurring results-based payments and recurring verification lead to enhanced continuity of interventions and long-term success. Recurring payments based on continuing verification of results also develop activity *ownership,* and sustained incentives for long-term operation. RBF is also particularly effective as a transformative instrument for mitigation actions that are unlikely to discontinue if recurring payments cease once the initial investment is fully reimbursed.

RBF frameworks are flexible to be locally appropriate. RBF may use a variety of mitigation indicators which can be applied flexibly according to the specific sector and country context. These may include outcome based indicators (such as GHG reductions or energy access improvements), or process related indicators (such as the number of efficiency standards implemented). They can be differentiated across sectors and appropriate to the economic development of a country. In this way, RBF allows for the design of tailored approaches that harvest mitigation potential in all sectors and regions; its potential coverage could even serve to extend the scope of the CDM.

Remaining challenges for results-based financing in climate policy

Whilst the success factors for RBF discussed are considerable, this study has also uncovered some important challenges for RBF in climate policy, and has proposed their respective solutions:

RBF alone does not overcome initial investment barriers. Ideally, RBF is embedded in a wider programme of interventions and enabling activities to address all identified barriers in a given sector or sub sector comprehensively. This is in particular relevant for challenges related to upfront financing, where RBF alone cannot overcome the barriers and hybrid financing approaches may be appropriate.

Risks transferred to implementing agencies are substantial. Many of the potential “green entrepreneurs” who may be in a position to exploit the most cost-effective mitigation potential are unable to assume the high risks associated with reliance on ex-post financing, even if upfront investment costs can be covered. Many actors are unable to take risks, and for those with some risk taking capacity, the risk perception for such investments is particularly high due to experiences with the CDM and the currently poor

conditions of the CER market. The re-vitalisation of existing markets is essential for restoring trust and reducing the perceived investment risk.

RBF can increase attractiveness for private finance but remains significantly behind the CDM. The attractiveness of RBF for private finance sources remains limited as long as no marketable commodity is produced as an output. Although RBF will not be able to achieve leveraging factors in the magnitude of the as for the CDM, it can be slightly more attractive to private finance than conventionally financed interventions. The cost-effectiveness of RBF for the funder, due to the certainty of the objective achievement at the point of payment, makes RBF a particularly attractive option for private sector entities engaged in either voluntary mechanisms or domestic markets.

Enabling measures are required to support RBF frameworks. RBF requires a range of enabling measures to be an effective form of finance: monitoring processes and associated institutional capacities are needed, especially where emission reductions are the primary indicator. Any RBF framework needs to reflect national capacity constraints, and the appropriateness of specific indicators needs to be considered carefully. RBF based on GHG emissions directly may only be suitable for certain countries and sectors where capacities are developed and/-or monitoring processes are relatively simple. Institutional and technical challenges require endurance and long-term capacity investments. The use of a phased approach for some country/-sector combinations might be required, as in REDD+ where RBF only becomes fully effective in a third phase of support interventions, once capacity is developed and the sector has matured.

RBF can entail high transaction costs. Experiences from the CDM show that stringent measuring, reporting and verification cycles can result in very high transaction costs, particularly for activities with a low output volume: many of the high potential mitigation activities are in their nature fragmented into a large number of low-volume output activities. Sector-based approaches which employ especially conservative baselines and less stringent MRV requirements may reduce these costs in RBF instruments without jeopardizing the climate and environmental integrity.

RBF output indicators can distort priorities. As RBF is tied to a specific indicator that is measurable at the point of finance release, this may lead to a bias for achievement of the short-term measurable results, to the detriment of the long-term, broader objectives. A widely known example of this is the relative neglect of sustainable development objectives in the CDM, in favour of maximising the short-term emissions reduction indicator. RBF could address this by including multiple indicators, not only short-term results but also progress indicators towards long-term objectives.

Results-based financing can be a unifying element of climate finance and carbon markets

RBF can serve as a link between climate finance and carbon markets, due to its wide relevance and implementation potential. Previous sections demonstrated how RBF could be applied for NAMAs, REDD+ and carbon market mechanisms, and how it could link these traditionally separate mechanisms.

Stakeholders and decision makers from both worlds, climate finance and carbon markets, should enter into an interactive process to exchange views, experiences and opportunities in order to yield the synergies between the two spheres and maximise efforts and success for their joint objectives such as significant GHG mitigation. Through this process, solutions to currently unaddressed challenges could be jointly developed and thereby reach acceptance from both sides.

This paper has shown that a great number of challenges and questions remain, and that greater dialogue and cooperation between the parallel climate and carbon finance worlds is necessary to increase the feasibility of the wider application of RBF and hybrid approaches, for which the potential benefits are tangible and abundant.

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