WORKING PAPER

Building trust in forest carbon payments (REDD+): Learning from the world of financial accounting

By Roberta Iley and Christina Elvers

November 2017

About this Working Paper

Over a third of the carbon mitigation needed annually to keep global temperature rise below 2°C could be met by reforestation and reducing global deforestation. Expectations for the concept of REDD+, which aims to incentivise developing countries to keep forests standing, were initially very high. However, the mechanics of implementing REDD+ proved very difficult and its early problems were broadcast very publicly. This led to a lack of trust between many of the actors trying to design and scale REDD+ and its intended beneficiaries.

Given the recent and upcoming decisions from the Green Climate Fund and the International Civil Aviation Organization about REDD+ results-based payments, now is a crucial time to overcome this lack of trust to scale up REDD+ investment. This paper argues that REDD+ actors can learn from financial accounting, which has played a key role in maintaining investors' confidence in mainstream capital markets. It uses the key characteristics of financial accounting to make recommendations for how accounting of REDD+ impacts can evolve to build greater trust.

About the authors

Christina Elvers leads PwC UK's work on forestry and REDD+, bringing broad experience from across the private sector and international development.

Roberta Iley is a specialist in sustainable land use within PwC UK, bringing considerable experience from working with companies and investors on climate-smart and deforestation-free commodity supply chains.

Together Christina and Roberta chair the Land use and forestry forum of the Climate Markets Investment Association (CMIA) and represent the private sector on behalf of CMIA at the Forest Carbon Partnership Facility (FCPF).

Acknowledgements

The following reviewers kindly provided feedback on this paper: Javier Fernández, Adam Gibbon and Christopher Webb. Reviewers are not responsible for views expressed in this report.

Building trust in forest carbon payments (REDD+): Learning from the world of financial accounting

By Roberta Iley and Christina Elvers

Measuring the depth of a peat swamp forest, Aceh, Indonesia.

Contents

Key messages

The Paris Agreement on climate change saw 195 countries agree to keep the global temperature rise below 2°C in order to avert dangerous climate change. Over a third of the carbon mitigation needed annually to meet this challenge could be met by reforestation and reducing global deforestation.

Reducing Emissions from Deforestation and Degradation (REDD+), which aims to incentivise developing countries to keep their forests standing, is critical in this regard. The concept of REDD+ was first conceived in the 2000s, with many actors believing it would solve global deforestation. However, while expectations were very high, the mechanics of implementing REDD+ proved difficult and its early problems were broadcast very publicly. This led to a lack of trust between many of the actors trying to design and scale up a REDD+ mechanism and its intended beneficiaries. Stakeholders were left with the perception that REDD+ systems are extremely complex; that there are concerns around its environmental and social robustness; and that it is difficult to achieve results on the ground. These concerns led many external stakeholders, including many private sector actors, to take a step back.

Now is a crucial time to overcome this lack of trust, to open up the possibility of scaling up REDD+ investment and implementation to the levels originally envisioned – levels required to combat climate change. There are a number of upcoming opportunities to scale up results-based payments for REDD+, including the following:

- The Paris Agreement requests substantial cuts in greenhouse gas emissions by countries, and it specifically highlights REDD+ as a mechanism. It also sets out provisions for transferring emissions reductions between countries, but it has not yet been decided whether this will include REDD+ emissions reductions.
- The International Civil Aviation Organization is launching an offset mechanism for international aviation. It is looking to set eligibility criteria for its 'early action' phase and for the full programme, but it has not yet been decided to what extent it will accept emissions reductions from REDD+ as eligible offsets.
- The Green Climate Fund – the primary vehicle for climate finance under the United Nations Framework Convention on Climate Change (UNFCCC) – recently approved a US$500 m. pilot programme for REDD+ results-based payments. This is one step towards its larger ambition for a full-scale programme for REDD+ results-based payments.

These are very real opportunities for REDD+, but they will be realised only if trust is built in REDD+ approaches. This paper argues that REDD+ actors can learn from trust-building in financial markets. Financial accounting in particular has played a key role in maintaining investors' confidence in mainstream capital markets. The International Accounting Standards Board's *Conceptual framework for financial reporting* identifies six characteristics, or guiding principles, for financial accounting, including relevance, faithful representation and comparability.[1] These characteristics go beyond those generally used to assess REDD+ (the UNFCCC's transparency, accuracy, consistency, completeness and comparability – TACCC – reporting principles). This paper explains how these financial accounting characteristics can be applied to accounting for the impacts derived from REDD+ efforts, and how they can help build trust in the same way as they do in financial markets. It argues this can be achieved in the following ways:

- **Tailoring REDD+ impact reporting to end users of the information.** Tailored REDD+ accounting can be used to inform implementation and provide decision-relevant information and a clear picture of REDD+ impacts to engage important stakeholders, including private sector investors and agricultural producers.
- **Increasing the robustness and transparency of REDD+ approaches.** Working towards the provision of emissions data with good coverage; reporting uncertainty data using common methodologies; and a third party rating agency for REDD+ programmes and projects are among many interventions that will help to improve stakeholders' confidence that REDD+ is environmentally and socially robust.
- **Harmonising and standardising REDD+ accounting approaches.** A number of different REDD+ approaches and frameworks have evolved for results-based payments, but each has a different set of requirements. A roadmap towards a harmonised set of requirements for results-based payments (to provide another level of detail beyond that provided by the Warsaw Framework) is needed to reduce complexity.

Introduction

Forests and climate change

The Paris Agreement on Climate Change, which came into force in December 2016, saw 195 countries agree to keep global temperature rise below 2°C, and as close as possible to 1.5°C, in order to avert dangerous climate change. To achieve this goal, greenhouse gas emissions must be reduced drastically worldwide. Over a third of the carbon mitigation needed annually to meet this challenge could be met by reforestation and reducing global deforestation.[2] In addition, forests are thought to harbour at least 50% of all species,[3] as well as being critical for the climate resilience of the planet and for the achievement of the Sustainable Development Goals (Goal 15 – Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss).

Forest carbon and REDD+

Despite the globally acknowledged importance of forests, more than 120 million hectares of forest – an area almost the size of South Africa – have been lost since 1990.[4] And while the rate of deforestation has been decreasing, it remains a considerable problem in many tropical forested countries. One approach that has been endorsed by the UNFCCC and that aims to change the incentives for deforestation is Reducing Emissions from Deforestation and Degradation – REDD+. The idea behind REDD+ is to channel money from developed countries that rely on the global services derived from forests to developing countries with valuable forest assets.

REDD+ is the only global climate mitigation framework that is explicitly anchored in the Paris Agreement. REDD+ was first debated in an international setting more than 10 years ago. It was agreed in its current form at the international climate change conferences in Copenhagen in 2009 and Cancun in 2010. It was formally operationalised by the Warsaw Framework in 2013, and is specifically referenced in Article 5 of the Paris Agreement. However, in the intervening period, many different actors have begun to pilot REDD+, and there remain a plethora of different REDD+ approaches and standards.

REDD+ progress to date

After the success of REDD+ in Copenhagen, a number of players – both donor countries and the private sector – anticipated that REDD+ would become a major mechanism for reducing carbon emissions. Donor governments began, and continue, to work with governments in tropical forested countries to get them ready to receive results-based payments under REDD+. They also established a number of bilateral and multilateral vehicles to fund both REDD+ 'readiness'[5] and results-based payments; each of these vehicles utilises different standards and frameworks. Most prominently, Norway pledged more than US$2 bn to work bilaterally with Brazil, Guyana and Indonesia. A number of donors, including Germany, Norway, the UK and the USA, established the Forest Carbon Partnership Facility (FCPF), a US$700 m. outfit for results-based payments and REDD+ readiness. On the private sector side, a voluntary market for REDD+ emissions reduction credits was established in anticipation of a global deal on climate change and a surge in demand for carbon credits.

Although much progress has been made in the eight years since Copenhagen, payments for results on the ground have been virtually non-existent. The FCPF has not yet distributed money for results-based payments. Of Norway's commitments, payments for performance to Indonesia have yet to materialise at scale.[6] And the potential supply of REDD+ carbon credits in the voluntary market dramatically outstrips demand, putting pressure on price. But, even with decreasing prices, sales on the voluntary REDD+ market are declining.[7]

Overall, REDD+ has been slow to take off in the way that had been envisioned and hoped. REDD+ implementation needs to be scaled up and to attract new sources of finance. There are indications that now is a crucial moment when this could happen. The Paris Agreement locks global temperature increases to below 2°C and gives a preliminary outline of a potential carbon market. It also makes explicit mention in Article 5 of "activities relating to reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries".[8] The Green Climate Fund agreed on a US$500 m. pilot for results-based payments for REDD+ at its Board meeting in October 2017,[9] and it intends to develop a full programme after this pilot phase.[10] The International Civil Aviation Organization is looking to include REDD+ in its Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).[11]

These developments can provide the opportunity for REDD+ to be scaled up to the levels originally envisioned – but only if the barriers that have been preventing this are overcome.

This paper argues that a key barrier to scaling up REDD+ implementation and finance is a lack of trust. It shows that this lack of trust comes from the inherent complexity of the system as well as from stakeholders' concerns around environmental and social robustness. We suggest that a common framework on accounting for REDD+ impacts is needed to build trust; and we argue that using the financial accounting principles (of the *Conceptual framework for financial reporting*) provides a useful starting point, as financial markets are arguably a sector where trust is crucial.

Methodology

At the outset of this research, we conducted a number of scoping interviews to understand the perceived progress and future pathway for REDD+ approaches, including the barriers to success. Trust emerged as a key theme, and we identified accounting as a key element of building trust.

It was clear when designing the research methodology that there are few existing sources that explore the future of REDD+ through the lens of accounting. We therefore sought to interview some of the key stakeholders and experts in this field. Seventeen semi-structured interviews were conducted with a range of stakeholders, including REDD+ country governments, donors, non-governmental organisations (NGOs) and private investors.

The interviewees' responses were analysed qualitatively to identify the key themes. These themes were used to inform the analysis in relation to a number of the qualitative characteristics that are commonly recognised in financial accounting.

Trust: An essential building block for REDD+

Trust is key to the successful functioning of any market. "The foundation of capitalism is trust. Capitalism depends on investment, and investment requires some trust in the company one is investing in."[12] A key reason for the financial crisis of 2008 becoming such a major crisis was the fact that banks stopped trusting each other and their customers – which resulted in them not giving out loans and almost led to a total collapse of the global financial system.[13] The same holds for REDD+ markets – without trust, they won't function.

Barrier to REDD+ success

We need to see a greatly increased level of investment in REDD+ approaches from across private and public sector actors, in terms of both finance and action on the ground. An increase of investment would come primarily from increased demand for paying for emissions reductions (both in the form of aid and as part of transferring carbon credits between entities). With the Paris Agreement in place and the Green Climate Fund pilot programme agreed, this demand and momentum for emissions reductions might be on its way. However, we argue that mistrust between REDD+ actors, and lack of trust in the REDD+ approach by external stakeholders, remain barriers to investment. This is already evidenced in the current negotiations for a carbon-offsetting mechanism for international aviation, CORSIA. The International Civil Aviation Organization has not yet made a final decision on what carbon credits to include in the programme. Early on in the process, 80 NGOs publicly warned airlines against including REDD+ in the offset mechanism.[14] While recent signs point to certain types of REDD+ programme being included in CORSIA, trust in it has been undermined and it remains to be seen how many REDD+ credits will actually be purchased by airlines.

Underlying causes of mistrust

The above issues affect the trust of both public and private entities. Both sets of actors need certainty around what they invest in. While the motives for this might be different – governments want to invest taxpayers' money responsibly; private sector entities need to understand potential returns on investment – the underlying issue remains the same. Informed by the interviews, we have identified three key causes of mistrust related to REDD+.

Complexity: people don't understand REDD+ and hence don't trust it
REDD+ and its rules are extremely complex, even to technical experts, let alone those who aren't familiar with the ins and outs of the system. For example, setting reference levels (the baseline that is used to measure emissions reductions and which is the basis for payments for emissions reductions) requires accurate data as well as modelling capabilities. Monitoring change in forests requires data collection, usage of that data, quality assurance, institutional arrangements and archiving functions, to name a few.

In addition, as REDD+ is a relatively new concept, the rules governing it are evolving and changing. For example, concerns were raised early in the evolution of REDD+ with regard to permanence. Permanence refers to whether carbon removed from the atmosphere will indeed remain removed – whether trees that are protected now will be cut down in the future. In order to address this concern, 'buffers' were created by a number of REDD+ actors,[15] which essentially lock away some of the carbon saved, acting as an insurance against future loss. However, different actors created different buffer systems. So not only are the rules changing, they also differ depending on the actors.

Concerns about environmental and social robustness: people don't trust that REDD+ will create actual change
Concerns have repeatedly been raised about environmental and social robustness in the context of REDD+, in particular by NGOs and donor governments.[16] The two main concerns are as follows:

- Detrimental impacts on livelihoods: a strong focus on carbon when looking at tropical forests has the potential to cause the importance of forests for biodiversity and the livelihoods of local communities to be overlooked.

- Hot air: there are concerns that the emissions reductions from REDD+ may not be 'real' due to the potential to simply displace the drivers of deforestation, or for emissions reductions to be reversed after REDD+ interventions have finished.

Perceived lack of capacity for implementation: people don't trust that they will get a return on their investment
Even if a REDD+ project is considered robust by actors, they may not trust that it will achieve actual change. For example, actors may be worried about the implementing capacity of some REDD+ governments, or the capability of project developers to deliver lasting environmental benefits. So they might be reluctant to invest, not knowing if they will ever achieve a (carbon) return on their investment.

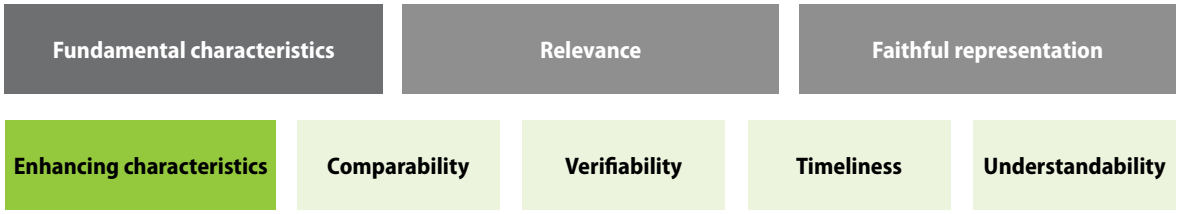
The above issues affect the trust of both private and public entities. The current complexity, and questions around robustness and lack of implementation, have often led to both sets of actors not trusting that there is certainty for their investments. This has led to them not investing at all, or not at the scale necessary.

The role of accounting in building trust

Mainstream financial markets are based on trust between players. The actors in this market use financial accounting as a primary tool to maintain this trust. To illustrate this, if the market can't trust individual companies' financial statements, it can't function because the players in the market can't rely on the information given to them. The main purpose of financial accounting (commonly defined as a systematic process for collecting, reporting and verifying financial information) is to provide transparency and trust for investors and other stakeholders. To this end, the International Accounting Standards Board's *Conceptual framework for financial reporting*[17] sets out stringent accounting characteristics that all companies must adhere to – relevance, faithful representation, comparability, verifiability, timeliness and understandability. These concepts are divided into 'fundamental qualitative characteristics' and 'enhancing qualitative characteristics', which are considered secondary (Figure 1).

This commonly accepted framework provides a useful lens for assessing how REDD+ impacts are currently accounted for, and how this can be improved to help build trust in REDD+ approaches. A number of these characteristics are complementary to the UNFCCC's transparency, accuracy, consistency,

Figure 1. Qualitative characteristics of useful financial information



completeness and comparability (TACCC) reporting principles, which are currently used for assessing REDD+ reporting to the UNFCCC. However, as Table 1 shows, financial accounting principles go further than the TACCC principles in some important ways.

Table 1. Characteristics of financial information compared with TACCC reporting principles

Accounting characteristics	Corresponding TACCC principle(s)[18]
Relevance: Information must be useful for the end user; in the case of a financial statement, information related to users' decisions.	None
Timeliness: Provision of information to users quickly enough for them to take action.	None
Understandability: Information is classified, characterised and presented in a clear and concise way.	None
Faithful representation: Information that faithfully represents economic phenomena has three characteristics: it is complete; neutral; and free from error.	**Accuracy:** Emission and removal estimates should be systematically neither over nor under true emissions or removals, as far as can be judged, and uncertainties reduced as far as practicable. **Completeness:** For greenhouse gas inventories, the annual inventory has to cover at least all sources and sinks, as well as all gases. For REDD+ specifically, provision of information that allows for the reconstruction of forest reference emission levels and/or forest reference levels.[19] **Transparency:** Data sources, assumptions and methodologies used for an inventory should be clearly explained to facilitate the replication and assessment of the inventory by users of the reported information.
Verifiability: Independent observers can reach a consensus on whether the information provided is a faithful representation.	None
Comparability:[20] Information prepared using the same measurement techniques and reported in a similar fashion, thus it can be judged alongside other, similar financial information. The entity should also be consistent in its use of accounting methodologies.	**Comparability:** Estimates of emissions and removals reported by Parties in their greenhouse gas inventories should be comparable. Parties should use the methodologies and formats agreed by the Conference of the Parties (COP) for making estimations and reporting their inventories. (This principle is not applied to REDD+ reporting as countries are allowed to follow a stepwise approach to REDD+, gradually improving their capabilities.) **Consistency:** A greenhouse gas inventory should be internally consistent for all reported years in all its elements across sectors, categories and gases. The same methodologies are used for the base and all subsequent years, and consistent datasets are used to estimate emissions or removals from sources or sinks. Under certain circumstances, an inventory using different methodologies for different years can be considered to be consistent if it has been recalculated in a transparent manner.

Although the TACCC principles align reasonably well with the accounting characteristics, some important differences mean that financial accounting characteristics are an important lens for assessing REDD+ accounting approaches:

- There is no corresponding TACCC principle for relevance, or for understandability, one of its enhancing characteristics. Timeliness (the other enhancing characteristic) is not mentioned by the TACCC principles, although the Warsaw Framework does mention that Parties need to report on their emissions in their biennial update reports to the UNFCCC; it is debatable whether this would be accepted as 'timely' reporting, however. The principle of relevance is interesting as it goes beyond mere reporting for reporting's sake, focusing on the usefulness of information for different stakeholders. Thinking about the usefulness of data can be an important step not only in building trust, but also in raising stakeholders' interest in an asset.

- Although many aspects of faithful representation are covered in the TACCC principles, the concept of verifiability is not, despite this being a key means for maintaining trust in financial markets.

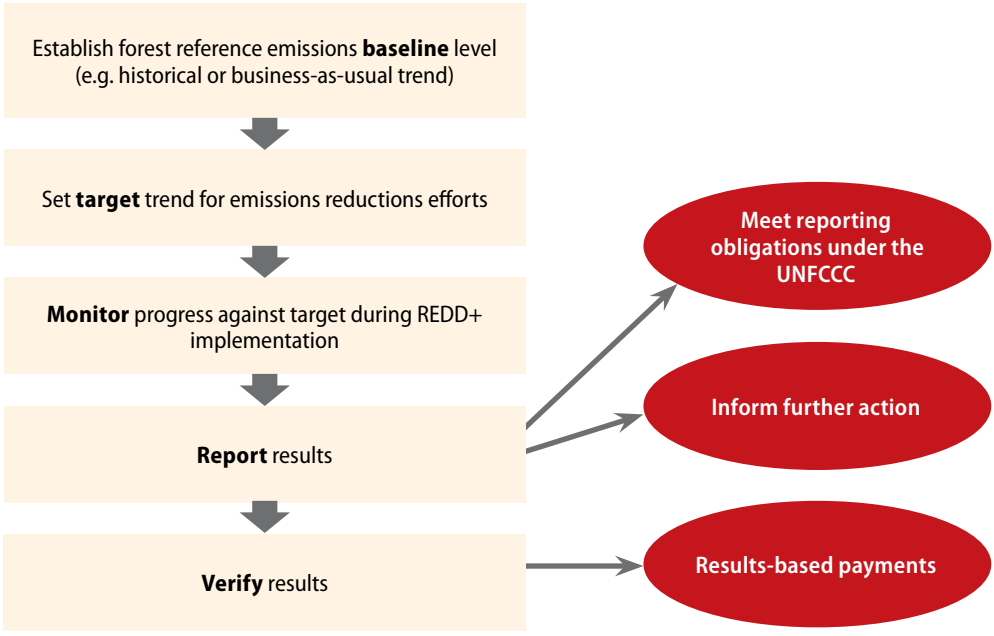
- Comparability isn't required for REDD+ reporting. As we discuss below, having data that are comparable is a crucial tool for trust-building in any market, whether financial or REDD+. The REDD+ market is still maturing, and many different REDD+ approaches and frameworks are being pursued. Hence, while comparability is listed as an enhancing characteristic for financial accounting, we believe it to be a key and timely concept for REDD+. However, it should be highlighted that while comparability is necessary, it isn't sufficient: information that is comparable, but not relevant or faithfully represented, adds no value to stakeholders.

- The private sector isn't familiar with the TACCC principles but is very familiar with financial accounting characteristics. Using a tool that is commonly understood by the private sector will set up REDD+ assets well to be traded in multiple markets and bought by a variety of actors, from both public and private sectors.

REDD+ accounting

Before we look at the accounting characteristics in detail and explore how they can help build trust in REDD+, it is important to understand the REDD+ accounting life cycle as well as the different accounting systems to which actors can currently report. As Figure 2 shows, accounting for REDD+ impacts starts with the setting of a baseline and continues with measurement, reporting and verification of results. For results-

Figure 2. The REDD+ accounting life cycle



based payments, the key metric from REDD+ accounting is the change in greenhouse gas emissions during the implementation of REDD+ efforts. Other impacts that may be accounted for include the reporting of 'non-carbon benefits', such as benefits to local communities. Accounting for REDD+ impacts is done at the level of individual projects right up to national-scale programmes, and has different end uses – from meeting reporting requirements under the UNFCCC to being eligible for results-based payments.

However, while the accounting life cycle is commonly understood and agreed, the specific requirements for REDD+ accounting can differ significantly, depending on which organisation actors are reporting to. In 2013 (COP 19) the UNFCCC agreed the Warsaw Framework for REDD+, which sets out principles for setting reference levels and conducting monitoring, reporting and verification (the TACCC principles underpin how adherence to the Framework is assessed).[21] The aim for the Warsaw Framework was to be the 'rulebook' for all REDD+ efforts. However, prior to the Warsaw Framework being established, many different pilots for results-based payments and REDD+ approaches had already emerged, notably the Verified Carbon Standard (VCS),[22] the standard most commonly used by private project developers; the Forest Carbon Partnership Facility (FCPF); and a number of bilateral partnerships (e.g. between Norway and Guyana). Each of these had already set their own requirements for REDD+ accounting, typically with more detailed and stringent requirements than those set out by the Warsaw Framework. More recently, the UNFCCC's Green Climate Fund established its own pilot for REDD+ results-based payments, which makes explicit mention of the principles set out by the Warsaw Framework. And the Green Climate Fund has established an assessment scorecard that goes beyond the Warsaw Framework, demonstrating the need for more detailed REDD+ accounting requirements than those set out by the UNFCCC for both donors and investors seeking results-based payments. Currently, each of the organisations/systems for REDD+ results-based payments sets out a different set of requirements, adding to the complexity of REDD+ (see Table 2).

REDD+ accounting has been prescribed in detail by different organisations, and thus varies depending on which organisation actors report to. This has implications on a number of levels, including the burden placed on actors who have to report to more than one system, and the perceived complexity of REDD+ to external stakeholders.

The following sections look at the REDD+ accounting approaches across each of these different organisations through the lens of three key financial accounting characteristics: relevance, faithful representation and comparability. For each of these characteristics, we discuss its definition in relation to REDD+; the current performance of REDD+ approaches in relation to the concept; recommendations for better adherence; and how this will help to build trust.

Relevance

In financial accounting, relevance refers to the fundamental qualitative characteristic that the information included in a statement or report must be useful for the end user to make decisions. This is important for focusing data collection and analysis on the needs of the end users and it can help to reduce the monitoring burden. There are also two enhancing qualitative characteristics that relate to relevance: timeliness (providing information to users quickly enough for them to take action) and understandability (presenting information in a way that is easy for the user to understand).

Although this principle is not embedded in the UNFCCC's TACCC principles, it is an interesting concept for REDD+. There are a number of end uses of REDD+ accounting data, notably for reporting progress against the Paris Agreement; as a basis for issuing results-based payments; and to inform further action. It is important to be clear on these objectives and to design a consolidated accounting system that allows the extraction of relevant information for different stakeholders.

How does current REDD+ accounting perform against this qualitative characteristic?

Firstly, the establishment of REDD+ accounting systems to date has largely been tailored in response to the expectations of certain stakeholders and can often lack relevance for other end users. This is often the case where there has been intensive donor-led interest in REDD+ programmes. An example cited by interviewees is the Mai-Ndombe region of the Democratic Republic of the Congo, where the monitoring system for reporting results to donor governments has been constructed in isolation from the national

Table 2. Requirements of each organisation/system for REDD+ results-based payments

UNFCCC (Warsaw Framework)	**Green Climate Fund**	**Verified Carbon Standard** (jurisdictional and nested REDD+ methodology)	**The Carbon Fund** (Forest Carbon Partnership Facility)	**Bilateral example: Norway–Guyana**
Reference level: General				
Wide range of reference levels from historical, to country-tailored, to business-as-usual scenarios that model future emissions based on assumptions; to be updated periodically.	Historical reference levels only, ideally over 10–15 years; no fewer than five or more than 20. Small adjustments permitted for high-forest, low-deforestation countries.	Historical and business-as-usual reference levels; the latter to be re-evaluated every 10 years.	Historical reference levels only, to cover 10 years with fixed end date. Small adjustments permitted for high-forest, low-deforestation countries. Update of reference levels not foreseen for contracting period.	Combines global percentage of forest carbon emissions and Guyana's historic average.
Reference level: Review				
Technical assessment looks at whether reference level is transparent, complete, consistent and accurate. Provides recommendations to countries but does not require these to be acted upon.	Concept notes assessed by Secretariat, relying heavily on UNFCCC's technical assessment. Full funding proposals assessed by Green Climate Fund Technical Advisory Panel using a scorecard.	Reference levels assessed and approved by an independent validation/verification body; also subject to public consultation and may go through peer review.	Reference levels reviewed and approved by county donors.	Reviewed by and agreed with Government of Norway.
Reference level: Uncertainties				
No specific mention of accounting for uncertainties, only of reducing uncertainties.	Scorecard requests that countries provide information on aggregate uncertainties. From 2019, REDD+ programmes will be required to keep uncertainty levels below 50% and to identify assumptions and sources of uncertainties, assessing each for their relative contribution.	Use a method that provides a 90% or 95% confidence interval; no specific methodology mentioned.	Specific guidance given on approaches to uncertainty; Monte Carlo methods to be used to estimate uncertainty.	>97% confidence; uses error propagation equation in chapter 5 of IPCC's Good practice guidance.[23]
Emissions factors				
IPCC Tiers 1–3 can be used.	Not yet specified.	IPCC Tier 2 or higher methods used. Allows use of Tier 1 for carbon pools representing <15% of total carbon stocks.	IPCC Tier 2 or higher methods used. IPCC Tier 1 methods may be considered in exceptional cases.	IPCC Tier 3 used.
Activities				
No significant REDD+ activities should be excluded, omissions must be justified. Countries can choose whether to include deforestation and degradation.	No significant REDD+ activities should be excluded, omissions must be justified. Countries should indicate a plan to include data in the future. Unclear whether deforestation and/or degradation have to be included.	Jurisdictions may choose from REDD; Improved Forest Management; or Afforestation, Reforestation and Revegetation.	At a minimum, emissions reduction programmes must account for emissions from deforestation; where significant (>10%), emissions from forest degradation should also be accounted for.	Deforestation included as well as one driver of degradation.

UNFCCC (Warsaw Framework)	**Green Climate Fund**	**Verified Carbon Standard** (jurisdictional and nested REDD+ methodology)	**The Carbon Fund** (Forest Carbon Partnership Facility)	**Bilateral example: Norway–Guyana**
Monitoring				
Every two years; no specific definitions of monitoring concepts. Combination of remote sensing and ground-based forest carbon inventory approaches. Encourages use of existing monitoring systems, particularly national forest monitoring systems (NFMS).	Monitoring and measurement consistent with UNFCCC methodological guidance.	Every five years, or before each verification event. To include activities and carbon pools selected in the baseline, using the same or demonstrably equivalent methods. Satellite imagery. No mention of NFMS or alignment with them.	At least twice during the Emission Reductions Payment Agreement (ERPA) term (typically around five years). Emissions factors and activity data, or the methods to determine them, are the same for reference level setting and monitoring, or demonstrably equivalent. Methods to be appropriate for emissions reduction programme circumstances, including community monitoring. Emissions reduction programmes should articulate how the forest monitoring system fits into the existing or emerging NFMS.	Annual monitoring; use of Landsat, RapidEye, wall-to-wall monitoring. NFMS used to collect REDD+ data.
Reporting				
Biennial update reports.	Consistent with UNFCCC methodological guidance; reporting period will extend through the period when the payments are re-invested in the country. Reporting regime yet to be established.	At least every five years.	Twice during ERPA term.	Annual.
Verification				
In accordance with guidelines adopted by the COP.	Consistent with UNFCCC methodological guidance.	Third-party, independent.	Third-party, independent.	Third-party, independent.

system for reporting to the UNFCCC. Work is now under way to retrofit a harmonised approach between the two systems.[24]

Secondly, REDD+ accounting often focuses on reporting to specific external stakeholders without considering how the system can work for the REDD+ programme itself by informing where and how to act. For example, sampling approaches to data collection are useful for constructing a trend in forest-based emissions. This is sufficient for reporting emissions reductions in order to receive results-based payments. However, these sampling approaches don't give any insight into how change is spatially distributed. Wall-to-wall monitoring for deforestation and degradation in key hotspot areas can help to attribute changes, inform incentives and target enforcement activities, while sampling approaches are maintained for the rest of the REDD+ programme area.

The concept of timeliness also has an important bearing on how to best use REDD+ accounting to inform implementation. Many of the existing REDD+ accounting systems are designed for reporting to donors and are often complex, for example including many different forest strata. This can increase the burden associated with REDD+ accounting and reduce the feasibility of updating the results on a regular basis. Combined with a lack of capacity, this can mean that knowledge on emissions reductions is gained only two to three years after data collection. This is a problem for informing action: for example, enforcement activities rely on near real-time information. REDD+ countries and programmes need to adapt their REDD+ accounting systems to meet both objectives. For example, Brazil has set up two monitoring systems: the Real-Time System for Detection of Deforestation (DETER) has a coarser resolution than the Project for Monitoring Deforestation in the Legal Amazon (PRODES) system for monitoring overall changes to deforestation trends, but it provides a year-round alert system for the enforcement of Brazil's Forest Code.[25] In the future, machine learning may be able use this type of data to help predict areas at risk of deforestation.[26]

Finally, REDD+ accounting systems at a subnational or national scale are set up by government actors (although there are custom systems set up by project developers at a smaller scale). It is increasingly recognised that REDD+ requires public–private partnerships to be implemented successfully. However, the existing systems are typically not designed with the private sector's needs in mind. For example, private sector actors are typically interested in a broader set of sustainable development goals beyond carbon outcomes. Commodities producers might be interested in increases in agricultural productivity and achieving their zero deforestation targets, and other private sector actors might look at better livelihoods for local communities and better environmental outcomes. REDD+ accounting systems are often not easy to understand for the private sector: reports and project documents often use complex language and numerous abbreviations around reference levels.

How can future REDD+ accounting perform better against this qualitative characteristic?
As a number of REDD+ countries begin to enter the REDD+ implementation phase in earnest and as smaller-scale REDD+ projects mature, each has the opportunity to consider how its REDD+ accounting mechanisms and reporting can effectively meet the needs of different stakeholders:

Key recommendations:

- REDD+ countries and programmes should seek to provide more relevant reporting to different information users.

- REDD+ countries and programmes should explore how best to meet the joint objectives of reporting to external stakeholders and informing REDD+ implementation through REDD+ accounting systems (these efforts could also be encouraged by donors). Examples of this include the following.

    - Undertaking wall-to-wall monitoring in key hotspot areas for deforestation and forest degradation to better inform REDD+ implementation, while maintaining a sampling approach for the rest of the REDD+ programme area. For example, Ghana's REDD+ programme (as presented to the World Bank) has specific Hotspot Intervention Areas, where monitoring – a combination of remote sensing with on-the-ground sampling – will be enhanced to help with enforcement.[27]

- Establishing complementary monitoring systems that meet the needs of donors and the REDD+ country or programme itself – one providing more detailed reporting of results to donors; and one providing less detailed but near real-time information for informing REDD+ implementation.

- Combining data sets with activity data and other non-carbon data such as land tenure information. This could reward different actors for their positive interventions, or target actors that are underperforming. For example, Costa Rica is going to combine remote sensing information with property registry information on pineapple farmers.[28] This will allow buyers to source preferentially from pineapple farmers with a zero deforestation record.

- Providing timely information on mitigation actions stemming from REDD+ activities. Reporting on these actions – for example, supporting local communities to find alternative livelihoods – is important for informing national forest policies, which in turn can help countries achieve their Nationally Determined Contributions.

- Working with the private sector. Encouraged by donors, REDD+ countries and programmes should consult private sector actors and work to establish joint or aligned REDD+ accounting systems, as well as tailored reporting that is understandable to private sector actors. For example, the system might include the monitoring of both carbon and non-carbon attributes. This approach also has the benefit of helping to reduce risk of double counting the same emissions reductions across different actors.

Role in building trust

Providing stakeholders with decision-relevant information can help cut across the complexity of REDD+ by presenting each actor with information that is both relevant and presented in familiar, understandable language.

Investing in accounting systems can also build capacity for implementation in the REDD+ country, rather than just providing value for external stakeholders. By establishing timely monitoring systems that inform action and engage relevant stakeholders, countries' abilities to deliver on REDD+ is likely to improve. In turn, this will build confidence among stakeholders that REDD+ implementation can produce results on the ground.

Faithful representation

In the world of financial accounting, faithful representation relates to whether the information provided is a good representation of reality and can be relied on by investors for decision-making. Specifically, it refers to the need for complete, neutral and error-free reporting (these align well with three of the UNFCCC's TACCC principles: accuracy, completeness and transparency). The enhancing qualitative characteristic of verifiability is also important to assure external users that the information provided is a faithful representation. Similarly, for REDD+ accounting it is important that end users, notably those paying for results, can rely on the information provided.

How does current REDD+ accounting perform against this qualitative characteristic?

On one hand, better technology at a cheaper cost has played a large role in improving the reliability of information available for estimations that faithfully represent the reality. New remote sensing tools with greater temporal and spatial resolution are entering the market rapidly, allowing for the measurement of remote, inaccessible areas to a greater degree of precision while overcoming barriers such as cloud cover and cost of data provision. For example, Guyana's REDD+ programme (funded by the Government of Norway) is undertaking wall-to-wall monitoring using Landsat RapidEye satellites, which were launched in 2008 and provide a pixel size of just 5 metres.[29] By 2019, light detection and ranging (LiDAR), a new remote sensing method using laser, will be installed on the International Space Station, and the release of archived Landsat data is also helping to fill gaps in historical data availability.[30]

However, while data availability for forest loss has improved, other related datasets, for example on forest degradation or land ownership (also key for understanding the dynamics of land-use emissions), have been slower to mature. A lack of focus on the objectives of REDD+ accounting systems by those shaping their design has also, in some instances, led to a tendency towards using and advocating for the

latest technologies, instead of the combination of technologies most suited to the context. For example, remote sensing is sometimes used on its own to assess the drivers of deforestation, but this does not always give a real understanding of what are the ultimate drivers of deforestation. Although the FCPF's methodological framework specifically embeds the principle of using methods that are appropriate for the country's circumstances, and the UNFCCC encourages the use of existing NFMS, these principles often aren't adhered to in practice.

One way to improve transparency regarding the reliability of different methods is the publication of uncertainty estimates. These describe the likely range of 'real' emissions – results that have a high uncertainty have a large range of likely values. There are a number of methods available to help estimate the degree of uncertainty associated with emissions and activity data, but currently their use is not standardised within REDD+. For example, the VCS requires the use of a 90% or 95% confidence interval, but neither the VCS nor the Green Climate Fund specifies what methods of uncertainty analysis to use. In contrast, the FCPF's Carbon Fund has specific requirements including the use of Monte Carlo methods. The lack of standardisation across the industry undermines any ability to compare the accuracy and precision (and therefore reliability) of the information provided. A robust method for uncertainty analysis should be agreed and consistently applied. Concurrently, there should be an investment in capacity-building to ensure that REDD+ countries can apply the method.

In addition to the enhancing characteristic of verifiability, the International Accounting Standards Board identifies three further characteristics of faithful representation: completeness, neutrality and error-free reporting. These characteristics also offer a useful lens through which to assess faithful representation.

Verifiability
Verifiability means the users of information can be assured that it faithfully represents reality. Verification is usually conducted after the emissions reductions have been generated. Currently there is no standard approach to verification among REDD+ efforts. The VCS has a requirement for independent, third-party verification, and the FCPF's Carbon Fund showed support for a similar approach at the Carbon Fund's Sixteenth Meeting in 2017.[31] However, there is no such requirement when reporting to the UNFCCC or the Green Climate Fund. The fact that there is no standard approach increases the burden on REDD+ countries, as verification requirements may differ from organisation to organisation or from donor to donor, and countries have to understand and respond to the different standards.

Completeness
In the context of REDD+ accounting, completeness is interpreted as working towards the coverage of all key forest emissions sources and sinks over time, such that reference levels can be reconstructed. Not all accounting systems belonging to REDD+ countries include all of the key sources of forest emissions. For example, the Republic of the Congo's monitoring system, which has been presented to the FCPF, does not include emissions from peatlands despite the Congo Basin housing the largest peatland reserve in the world (the Cuvette Centrale peatlands).[32] In some instances this can be considered a conservative approximation of the real emissions, which would be permissible under both FCPF and VCS rules. However, it opens the possibility of interventions having unintended (and unaccounted for) consequences.

Each of the REDD+ systems/organisations allows some flexibility in this regard. For example, the UNFCCC allows REDD+ countries to decide whether to include either deforestation or degradation, or both. Either can be omitted as long as they aren't deemed significant by the country (this will then be checked by the technical assessment). Similarly, the FCPF's Carbon Fund requires the inclusion of forest degradation only when it is significant.

Neutrality and freedom from error
Neutrality refers to the need for REDD+ reporting that does not have a bias towards a predetermined result. For REDD+ countries or project developers there is a natural preference to overestimate (rather than underestimate) REDD+ emissions reductions, as this could result in a greater volume of results-based payments. For example, it may favour a country or developer to pick a particular set of years for its baseline, often those in which deforestation rates were particularly high. Any subsequent reduction in forest emissions trends on paper will be seen as a success (and rewarded with results-based payments),

even if there has not been any real change in activities on the ground. There is therefore a risk of bias in REDD+ accounting resulting from political motivations.

Freedom from error refers to non-fraudulent discrepancies in the reporting of REDD+ emissions reductions, for example when a calculation is incorrect. Transparency of all the data sources, assumptions and methods used by REDD+ countries and programmes, and a process of critical review of these accounting systems, is an important means to mitigate potential discrepancies. Each of the different REDD+ systems has a process whereby REDD+ countries and programmes submit detailed programme design documents for technical review. For example, as the Democratic Republic of the Congo has gone through the process of submitting to the FCPF's Carbon Fund its emissions reductions programme document for the Mai-Ndombe region,[33] it has been required by the donors to undertake a number of changes to its reference level. This has resulted in a significant decrease in the anticipated emissions reductions during the period of the REDD+ programme. However, while the VCS and FCPF will not validate a project/programme (to enable it to verify and issue emissions reductions) until this programme documentation meets their technical criteria and responds to the technical review comments, there is no such provision for when countries report on REDD+ to the UNFCCC. Countries have to submit their reference levels for technical review but there is currently no obligation to act on the findings of the technical assessment. Importantly, the Green Climate Fund takes a more stringent approach in its October decision on REDD+.[34] While its scorecard by which countries are assessed is based on the UNFCCC's technical assessment, if certain conditions aren't met, countries may reduce their access to results-based payments or even be considered ineligible to receive any at all.

External, public scrutiny can also be an important means of maintaining neutrality in REDD+ accounting. For example, Global Forest Watch[35] is a public platform showing near real-time deforestation across the globe. This has increased the ability of public and advocacy organisations, such as Mighty Earth and Greenpeace, to scrutinise the progress of countries and companies on REDD+. For example, Mighty Earth made a submission to the Forest Stewardship Council (FSC), including evidence from Global Forest Watch, which claimed that Olam International had violated the FSC Policy for Association in Gabon.[36]

How can future REDD+ accounting perform better against this qualitative characteristic?

Key recommendations:

- REDD+ countries and donors should invest to improve the technology for monitoring non-carbon changes, such as changes in biodiversity, that are highly relevant for REDD+.

- REDD+ countries and programmes should focus on developing smart approaches to REDD+ monitoring that use an appropriate combination of different technologies and ground-truthing in order to meet the objectives concerned. For example, carbon measurements may be combined with ground-truthed information on REDD+ activities to better understand if efforts are genuinely transforming behaviour.

- Donors and other key REDD+ stakeholders need to agree a standardised, robust approach to undertaking and reporting uncertainty analyses so that the accuracy and precision of information can easily be compared.

- The REDD+ community should consider introducing a common rating system for REDD+ programmes and projects, specifically including comparisons on the REDD+ accounting methodologies to allow external stakeholders to assess the relative reliability of the information.

Verifiability
Those overseeing the different REDD+ systems should look to require independent, third-party verification of emissions reductions for all REDD+ efforts and jointly agree an acceptable minimum scope.

Completeness
REDD+ countries and programmes should work towards the reporting of all key emissions sources (and donors should tighten their requirements on this). If that information is not currently available, they

should report on why it is not available and the timeline for increasing the completeness of the data. An independent rating agency would also help to highlight where information is not complete.

Neutrality and freedom from error
The UNFCCC should increase the accountability of REDD+ countries for acting on the results of the technical assessment of their reference levels. This would not include re-opening the negotiations around the Warsaw Framework, but rather would add detailed guidance on the methodologies and approaches that are allowed to make the Framework's principles applicable in practice. The Green Climate Fund has taken a first step here, and has increased the accountability with regard to reference levels. This should be applied throughout UNFCCC systems.

Private sector actors and REDD+ countries should release forest and emissions data into the public domain, including crowd-sourced information. Such data should be overlaid with other relevant non-carbon information, such as land tenure information, to allow for public 'policing' and accountability, for example using platforms such as Global Forest Watch.

Role in building trust
Making sure REDD+ accounting is a faithful representation of reality is central to providing confidence in the robustness of REDD+ outcomes:

- verifiability provides assurance to external stakeholders that the information is faithfully represented
- completeness helps to make sure that unintended consequences are managed
- neutrality and freedom from error make sure that the reliability of information is improved.

Comparability

In financial accounting, comparability refers to the fact that financial statements need to be consistent with previous statements, and comparable to the financial statements of competitors, for investors to make informed decisions. To do this, a common set of principles or approach to financial reporting is required (even if the precise methods used within this differ). The same holds true for REDD+ accounting. Reference levels, monitoring, reporting and verification of results can be compared (or aggregated to understand progress under the Paris Agreement) only if the same approach is used. Comparability is important to make comparisons not only between the results produced by different countries, but also between different projects within a country, or even results by the same country but required for reporting to different actors (e.g. different donors). Alignment is also critical to avoid double counting or discrepancies between the different scales at which REDD+ actors operate (e.g. between a REDD+ project and the jurisdiction within which it operates).

In addition, in order to remain comparable, reporting has to be consistent over time. In essence, the consistency concept states that once an actor has chosen a set of rules or method to report, it cannot change it unless there are reasonable grounds (and it shouldn't then revert to the original methodology as this could indicate that the actor is manipulating the system to make its results appear more favourable). In the context of REDD+, consistency relates equally to methods and rules used. However, as REDD+ is a new and evolving space, it should refer not only to actors using methodologies, but also to actors creating methodologies and rules.

How does current REDD+ accounting perform against this qualitative characteristic?
Table 2 gives an overview of the REDD+ accounting requirements of the most prominent actors – the UNFCCC, the Green Climate Fund, the VCS and the FCPF – as well as one of the bilateral agreements. The overview makes clear that while there is overlap between the approaches, there are also important differences – both in some of the detail and in some of the fundamentals of accounting. For example, some systems require third-party verification and others don't. Reporting periods differ, and so do monitoring requirements. Probably most crucially, reference levels can be set in a variety of ways using different techniques. With a host of choices, it is unlikely that different countries (and actors within the countries) will choose exactly the same approach to set these baselines.

The fact that approaches currently aren't easy to compare has a number of implications:

- Comparing results (i.e. emissions reductions) or transferring emissions reductions across projects and countries becomes a challenge if baselines and monitoring methods don't align. This also creates concerns about the robustness of monitoring progress on climate change based on an aggregation of national accounts as reported to the UNFCCC.

- Many results-based payments are expected to flow through national or subnational governments. How these are then attributed or shared among the actors enacting change in those regions/countries relies on alignment between accounting at different scales.

- Looking forward, for private sector companies that operate across different regions/countries and that have committed to zero deforestation, this lack of alignment may make it difficult to assess their progress.

- Due to the number of different approaches, REDD+ countries, in particular those with limited capacity, might find it challenging to use different methods for different donors and organisations.

While current REDD+ accounting doesn't fare too well against the comparability characteristic, reporting is already relatively stringent with regard to consistency. Both the FCPF and the VCS require that once actors choose a methodology to establish their reference level, they then have to use the same methodology over the lifetime of their project. In addition, while updating reference levels (or the activity data used for reference levels) is allowed in certain circumstances, the reasoning for these changes has to be elaborated upon – again in line with the accounting principle of consistency.

At first glance, there is somewhat less consistency with regard to changes in the rules themselves. Both VCS methodologies and the FCPF Carbon Fund's methodological framework have been updated to reflect developments in REDD+, such as on permanence and buffers. However, as these changes were explained and have not been reversed, this is still in line with the accounting principle of consistency.

How can future REDD+ accounting perform better against this qualitative characteristic?
In line with the accounting principle of comparability, there are actions needed at both the global scale and in-country. Aligning methodologies on a global scale is particularly pertinent at the moment as a number of new actors are entering or about to enter the REDD+ market. The airline industry is currently discussing whether to include REDD+ in its CORSIA mechanism, and the Green Climate Fund is looking to include results-based payments from REDD+ programmes in its portfolio. Both are currently designing their systems – which will have to include how to set reference levels, and how to monitor and report on emissions.

The UNFCCC specifically does not apply the principle of comparability when assessing countries' submissions, to allow for a stepwise process of improvement. This is designed to limit the burden on REDD+ countries as they may have limited data availability and hence might feel that one approach is more suitable than another. However, we would argue that these two concepts are not mutually exclusive. At the global level, a consistent set of approaches for REDD+ accounting needs to be agreed, such as whether business-as-usual reference levels are valid. At the national level, however, while there should be agreement on which reference levels are and aren't valid, more leeway should be given to countries as to how accurate their reference level has to be. For example, if a country has limited data, it should be acceptable to have large uncertainties and conservative assumptions before more data and capacity become available.

Key recommendations:

The main actors – donors, REDD+ countries and project developers – should come together and agree on a roadmap to harmonise approaches with regard to reference levels, monitoring, reporting and verification.

Reference levels

- Make a choice as to whether only historical data (with potential minor adjustments) or business-as-usual scenarios should be permitted and if (and on what basis) these can be updated. It is most important that a high level of ambition is retained and environmental robustness is guaranteed in reference levels.

- Identify an aligned approach to uncertainty analysis.

Monitoring

- Agree what data are permissible for monitoring purposes. For example, all REDD+ accounting could shift to be in line with VCS and FCPF guidance: both prescribe that the same activity data and emissions factors should be used as were applied to the reference levels.

- Agree principles for acceptable coverage of data (e.g. for forest degradation).

Reporting

- Consider how to align reporting periods with the UNFCCC. This doesn't necessarily mean that a full report has to be issued to the VCS or the FCPF every other year, as long as all the data have been collected that can then be used for UNFCCC biennial update reports.

Verification

- Instigate third-party verification for all REDD+ reporting and agree an acceptable minimum level of assurance coverage.

While these basic principles need to be agreed at international level, a greater level of alignment may be needed within countries. This is due to the different actors working on REDD+ at different scales – for example, project developers at project level or local communities and governments at both subnational and national levels.

On a national scale, the following should be actioned:

- Agree across actors on the precise alignment of methods and what data (including non-carbon data) could feasibly be collected. REDD+ countries could then collate all the data from actors within-country into a national accounting system and use them for the numerous UNFCCC reporting requirements (greenhouse gas inventories, Nationally Determined Contributions, biennial update reports, etc.).

- Work towards aligning REDD+ accounting with NFMS.

With regard to the consistency principle, we recommend the following:

- The current consistency approach should be retained, with the explicit option that countries can update their reference levels as they build their capacity and are able to reduce uncertainty. Once made, changes to methodologies should not be reversed, to avoid situations where this option may be abused.

- If actors decide to change the rules, all actors have to come together and do this jointly to ensure comparability is retained.

Role in building trust

Having one system would help to reduce some of the complexity that is a barrier to trust in REDD+. While setting reference levels will always be a complex exercise, it would mean that actors have to understand only one approach and its implications. It would also be easier to gain a sense of the advantages and drawbacks of the approach, and what investors should be mindful of.

Having harmonised approaches within countries would also help to prevent double counting of emissions reductions by actors at different scales. This is key to making sure the accounting is environmentally robust.

The consistent application of methods by REDD+ actors helps to improve confidence that environmental robustness is being maintained and that the system is not being manipulated for the creation of extra credits. Having a consistent standard for REDD+ efforts can also build trust by reducing the complexity that comes with ever-changing rules. It means that once actors have agreed on a system, all the players have certainty that the rules aren't likely to change and that all actors within the system will abide by them.

In addition, making the outputs of different actors at global and country levels comparable and consistent would open up the possibility of external benchmarking and scrutiny, which currently isn't feasible. For example, a type of rating agency could be used to increase external trust in the system and the different actors within it. Such an agency could look at all types of REDD+ projects (at project, subnational and national levels) and rate them according to a number of criteria, including how soundly the methodology has been applied, potential for emissions reductions, and non-carbon benefits. These ratings could then be made publicly available for investors and donors to choose those initiatives that are best aligned with their criteria. The agency could also indicate in which countries REDD+ projects collect non-carbon data, to help companies looking to fulfil their zero deforestation commitments to choose where to plan their next projects.

Conclusions and recommendations

In order to implement our suggested approach, the following steps should be taken by donors, REDD+ governments and the private sector:

Relevance

- National governments should aim to provide relevant reporting to different information users, such as commodity producers active in their country.

- REDD+ countries and programmes should explore carefully how their accounting systems can inform REDD+ implementation alongside reporting to external stakeholders. Examples may include conducting wall-to-wall monitoring in key hotspots for deforestation; establishing complementary monitoring systems to provide information on different timescales; and combining carbon data with land tenure information to help inform enforcement.

- National governments should work together with private sector actors to establish joint or aligned accounting systems, as well as tailored reporting that is understandable to private sector actors.

Faithful representation

- REDD+ countries and donors should work to improve the technology for monitoring non-carbon changes, such as changes in biodiversity, that are highly relevant for REDD+.

- REDD+ countries and programmes should aim to develop smart approaches to REDD+ accounting that use an appropriate combination of remote sensing and ground-truthing to meet objectives.

- Donors and other key REDD+ stakeholders should encourage and fund the collation of data onto public platforms to increase accountability. Private sector actors and REDD+ countries should release as much forest and emissions data as possible onto platforms in the public domain to increase trust in their actions as well as to allow for crowd-sourcing.

- REDD+ countries and programmes should work towards the reporting of all key emissions sources.

- The UNFCCC should increase the accountability of REDD+ countries for acting on the results of the technical assessment of their reference levels.

- The REDD+ community should look to establish a common rating system for REDD+ programmes and projects.

- REDD+ countries and donors need to agree a standardised, robust approach to undertaking and reporting uncertainty analyses.

- Those running the different REDD+ systems should agree on requiring independent, third-party verification for all REDD+ efforts, including an agreed scope.

Comparability

- All actors (donors and private sector parties) should develop a roadmap towards a harmonised set of requirements for results-based payments (to provide another level of detail beyond that provided by the Warsaw Framework).

- Independent third-party verification with an aligned assurance standard should be required.

- Countries should work towards the harmonisation of REDD+ accounting among the different actors. These combined data can then be used by countries for a whole range of requirements, including for biennial update reports and reporting on Nationally Determined Contributions.

- If actors decide to change REDD+ methodologies, this should be jointly agreed to help maintain consistency.

This paper is suggesting that all actors – public and private – need to come together to improve the system in order to build trust in REDD+. This would necessarily be a stepwise process, starting with current approaches including the Warsaw Framework. The Green Climate Fund, in its recent decision on a US$500 m. REDD+ pilot, has pointed to how this might work. While its scorecard is based on, and explicitly references, the Warsaw Framework, it makes decisions on certain details that go beyond what the Warsaw Framework prescribes – for example, it only allows for historical reference levels.

A similar approach is suggested here. This paper is not arguing for renegotiation within the UNFCCC; instead, it asks actors to take stock and build on what already exists. This would include making decisions on some items (such as reference levels) and adding more detail to others (such as transparency requirements) in order to develop a common accounting approach that provides a relevant and reliable picture of REDD+ impacts.

Endnotes

1. IASB (2015) *Conceptual framework for financial reporting. Exposure draft ED/2015/3*. London: International Accounting Standards Board (www.ifrs.org/-/media/project/conceptual-framework/exposure-draft/published-documents/ed-conceptual-framework.pdf).
2. ISU (2015) *Tropical forests: A review*. London: The Prince's Charities' International Sustainability Unit (www.pcfisu.org/wp-content/uploads/2015/04/Princes-Charities-International-Sustainability-Unit-Tropical-Forests-A-Review.pdf).
3. Meyers, N. (1988) 'Tropical forests and their species going, going … ?', in Wilson, E.O. and Peter, F.M. (eds) *Biodiversity*. Washington, DC: National Academies Press (www.ncbi.nlm.nih.gov/books/NBK219303/).
4. FAO (nd) 'Global forest resources assessments'. Rome: Food and Agriculture Organization of the United Nations (www.fao.org/forest-resources-assessment/en/).
5. REDD+ 'readiness' commonly refers to activities that need to be conducted by countries prior to their receiving results-based payments. For example, countries have to put in place REDD+ strategies, a national forest monitoring system and information on safeguards, among others.
6. Clark, P. (2016) 'The great land rush – Indonesia: Saving the Earth'. *Financial Times*, 1 March (https://ig.ft.com/sites/land-rush-investment/indonesia/?mhq5j=e5).
7. Volume of sales declined from 2015 to 2016, as demonstrated by the following reports: Hamrick, K. and Goldstein, A. (2016) *Raising ambition: State of the voluntary carbon markets 2016*. Washington, DC: Ecosystem Marketplace, Forest Trends Association (www.forest-trends.org/documents/files/doc_5242.pdf); Hamrick, K. and Gallant, M. (2017) *Unlocking potential: State of the voluntary carbon markets 2017*. Washington, DC: Ecosystem Marketplace, Forest Trends Association (www.forest-trends.org/documents/files/doc_5591.pdf#).
8. UNFCCC (2015) 'Adoption of the Paris Agreement'. United Nations Framework Convention on Climate Change, p. 22 (https://unfccc.int/resource/docs/2015/cop21/eng/l09.pdf).
9. Green Climate Fund (2017a) Decision on REDD+, unpublished minutes, October.
10. Green Climate Fund (2017b) 'Pilot Programme for REDD+ Results-based Payments, GCF/B.17/13'. Incheon, Republic of Korea: Green Climate Fund (www.greenclimate.fund/documents/20182/751020/GCF_B.17_13_-_Pilot_Programme_for_REDD__Results-based_Payments.pdf/8e3e9bf8-c02a-478b-b26f-f0743da2395e).
11. CORSIA is the airline industry's global carbon offsetting scheme. Its goal is to address any annual increase in carbon emissions above 2020 levels. It is currently being discussed which emissions reductions would be eligible under CORSIA, with REDD+ carbon credits being one of the options on the table. See: ICAO (nd) '4. What are the mechanisms for the CORSIA implementation? How will ICAO support States to implement the CORSIA?'. Frequently Asked Questions, Carbon Offsetting and Reduction Scheme for International Aviation. Montreal: International Civil Aviation Organization (www.icao.int/environmental-protection/Pages/A39_CORSIA_FAQ4.aspx).

12. Hosking, G. (2014) 'Trust and financial markets'. *European Financial Review*, 21 October (www.europeanfinancialreview.com/?p=3523).
13. Elliott, L. (2012) 'Three myths that sustain the economic crisis'. *The Guardian* Economics blog, 5 August (www.theguardian.com/business/economics-blog/2012/aug/05/economic-crisis-myths-sustain).
14. Lang, C. (2016) 'More than 80 NGOs oppose aviation sector's carbon offsetting plans'. *REDD-Monitor*, 4 April (www.redd-monitor.org/2016/04/04/more-than-80-ngos-oppose-aviation-sectors-carbon-offsetting-plans/).
15. FCPF (2015) 'ER program buffer guidelines'. Draft, 2 October. Washington, DC: Forest Carbon Partnership Facility (www.forestcarbonpartnership.org/sites/fcp/files/2015/October/DRAFT%20FCPF%20ER%20Program%20Buffer%20Guidelines%20final.pdf).
16. Lang, C. (2017a) 'Mai Ndombe REDD programme in DRC poses serious risks to people living in the province – Rainforest Foundation UK and US letter to the World Bank'. *REDD-Monitor*, 27 August (www.redd-monitor.org/2017/08/27/mai-ndombe-redd-programme-in-drc-poses-serious-risks-to-people-living-in-the-province-rainforest-foundation-uk-and-us-letter-to-the-world-bank/); Lang, C. (2017b) 'Tropical forests are a carbon source not a sink. What does this mean for REDD?'. *REDD-Monitor*, 13 October (www.redd-monitor.org/2017/10/13/tropical-forests-are-a-carbon-source-not-a-sink-what-does-this-mean-for-redd/); Lang, C. (2017c) 'REDD early movers: The fallacy of the Green Economy'. *REDD-Monitor*, 29 September (www.redd-monitor.org/2017/09/29/redd-early-movers-the-fallacy-of-the-green-economy/).
17. IASB (2015) Op. cit.
18. Decisions adopted by the Conference of the Parties. Decision 15/CP.17: Revision of the UNFCCC reporting guidelines on annual inventories for Parties included in Annex I to the Convention (http://unfccc.int/resource/docs/2011/cop17/eng/09a02.pdf#page=23).
19. Decisions adopted by the Conference of the Parties. 12/CP.17 Guidance on systems for providing information on how safeguards are addressed and respected and modalities relating to forest reference emission levels and forest reference levels as referred to in decision 1/CP.16 (http://unfccc.int/resource/docs/2011/cop17/eng/09a02.pdf#page=16); 13/CP.19 Guidelines and procedures for the technical assessment of submissions from Parties on proposed forest reference emission levels and/or forest reference level (http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf#page=34).
20. Comparability is an 'enhancing characteristic' rather than a 'fundamental characteristic'. However, we have included it as a key theme, alongside relevance and faithful representation, as REDD+ approaches are still maturing and lack of comparability remains a key and timely challenge.
21. UNFCCC (2014) 'Warsaw Framework for REDD-plus'. United Nations Framework Convention on Climate Change (http://unfccc.int/land_use_and_climate_change/redd/items/8180.php).
22. VCS (nd) 'The VCS Program'. Washington, DC: Verified Carbon Standard (www.v-c-s.org/project/vcs-program/).
23. Paciornik, N., Rypdal, K. et al. (2003) 'Chapter 5: Cross-cutting issues', in Penman, J. et al. (eds) *Good practice guidance for land use, land-use change and forestry*. Hayama, Japan: Institute for Global Environmental Strategies for the IPCC (www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf_files/GPG_LULUCF_FULL.pdf).
24. FCPF and UN-REDD (2012) *National REDD+ Framework Strategy of the Democratic Republic of the Congo: Summary for decision-makers*. Washington, DC: Forest Carbon Partnership Facility and UN-REDD (www.regjeringen.no/globalassets/departementene/kld/kos/drc/national-redd-framework-strategy_drc_summary-for-decision-makers_2012.pdf); Sinai, C., Thuaire, B., Bondo, S. and Bottrill, L. (2015) 'Monitoring REDD+ safeguards with communities in Mai Ndombe District'. Washington, DC: Moabi (http://moabi.org/reports/monitoring-redd-safeguards-with-communities-in-mai-ndombe-district-drc/).
25. Assunção, J., Gandour, C. and Rocha, R. (2013) *DETERing deforestation in the Brazilian Amazon: Environmental monitoring and law enforcement*. Rio de Janeiro: Climate Policy Initiative (https://climatepolicyinitiative.org/wp-content/uploads/2013/05/DETERring-Deforestation-in-the-Brazilian-Amazon-Environmental-Monitoring-and-Law-Enforcement-Technical-Paper.pdf).
26. Mayfield, H., Smith, C., Gallagher, M. and Hockings, M. (2017) 'Use of freely available datasets and machine learning methods in predicting deforestation'. *Environmental Modelling & Software* 87: 17–28.
27. FCPF (2017) 'Carbon Fund Emission Reductions Programme Document: Ghana Cocoa Forest REDD+ Programme (GCFRP)', 21 April. Washington, DC: Forest Carbon Partnership Facility (https://www.forestcarbonpartnership.org/sites/fcp/files/2017/June/GCFRP_Carbon%20Fund_Final%20Draft_April%2022%202017-formatted.pdf).
28. UNDP (2014) 'Procurement Notice: Development of a protocol for monitoring land use change within the productive landscapes of Costa Rica'. New York: United Nations Development Programme (http://procurement-notices.undp.org/view_notice.cfm?notice_id=17276).
29. Bholanath, P. and Cort, K. (2015) 'National scale monitoring, reporting and verification of deforestation and forest degradation in Guyana', presented at 36th International Symposium on Remote Sensing of Environment, 11–15 May 2015, Berlin. *International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XL-7/W3 (www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XL-7-W3/315/2015/isprsarchives-XL-7-W3-315-2015.pdf).
30. EOS (nd) 'Global Ecosystem Dynamics Investigation Lidar (GEDI on ISS)'. Washington, DC: NASA's Earth Observing System (https://eospso.nasa.gov/missions/global-ecosystem-dynamics-investigation-lidar).
31. Bennie, A. (2017) 'Forest Carbon Partnership Facility Sixteenth Meeting of the Carbon Fund (CF16), Paris, France, June 19–22, Chair's Summary'. Washington, DC: Forest Carbon Partnership Facility (www.forestcarbonpartnership.org/sites/fcp/files/2017/CF16%20Chair%20Summary_Final.pdf).
32. Brown, G. (2017) 'World's largest tropical peatland found in Congo basin'. *The Guardian*, 11 January (www.theguardian.com/environment/2017/jan/11/worlds-largest-peatland-vast-carbon-storage-capacity-found-congo).
33. FCPF and UN-REDD (2012) Op. cit.; Sinai et al. (2015) Op. cit.
34. Green Climate Fund (2017a) Op. cit.
35. See: www.globalforestwatch.org
36. Mighty Earth (2016) 'Olam rubber Gabon – deforestation in the past 5 years'. Submission to the FSC. Washington, DC: Center for International Policy (www.mightyearth.org/wp-content/uploads/2016/07/Olam-Rubber-Gabon.pdf).

About CDKN

The Climate and Development Knowledge Network (CDKN) supports decision-makers in developing countries in designing and delivering climate compatible development. It does this by combining research, advisory services and knowledge-sharing in support of locally owned and managed policy processes. CDKN works in partnership with decision-makers in the public, private and non-governmental sectors nationally, regionally and globally.

About PwC

PwC is the world's largest professional services advisory firm, with representation in almost every country in the world. PwC's network of climate change and development professionals and practitioners is working in more than 100 countries, supporting governments, NGOs and the private sector.

Editing, design and layout: Green Ink (www.greenink.co.uk)

Funded by:

Ministry of Foreign Affairs of the Netherlands

www.cdkn.org e: enquiries@cdkn.org t: +44 (0) 207 212 4111

This document is an output from a project funded by the UK Department for International Development (DFID) and the Netherlands Directorate-General for International Cooperation (DGIS) for the benefit of developing countries. However, the views expressed and information contained in it are not necessarily those of or endorsed by DFID or DGIS, who can accept no responsibility for such views or information or for any reliance placed on them. This publication has been prepared for general guidance on matters of interest only, and does not constitute professional advice. You should not act upon the information contained in this publication without obtaining specific professional advice. No representation or warranty (express or implied) is given as to the accuracy or completeness of the information contained in this publication, and, to the extent permitted by law, the entities managing the delivery of CDKN do not accept or assume any liability, responsibility or duty of care for any consequences of you or anyone else acting, or refraining to act, in reliance on the information contained in this publication or for any decision based on it. CDKN is led and administered by PricewaterhouseCoopers LLP. Management of the delivery of CDKN is undertaken by PricewaterhouseCoopers LLP, and an alliance of organisations including Fundación Futuro Latinoamericano, LEAD Pakistan, the Overseas Development Institute and SouthSouthNorth.