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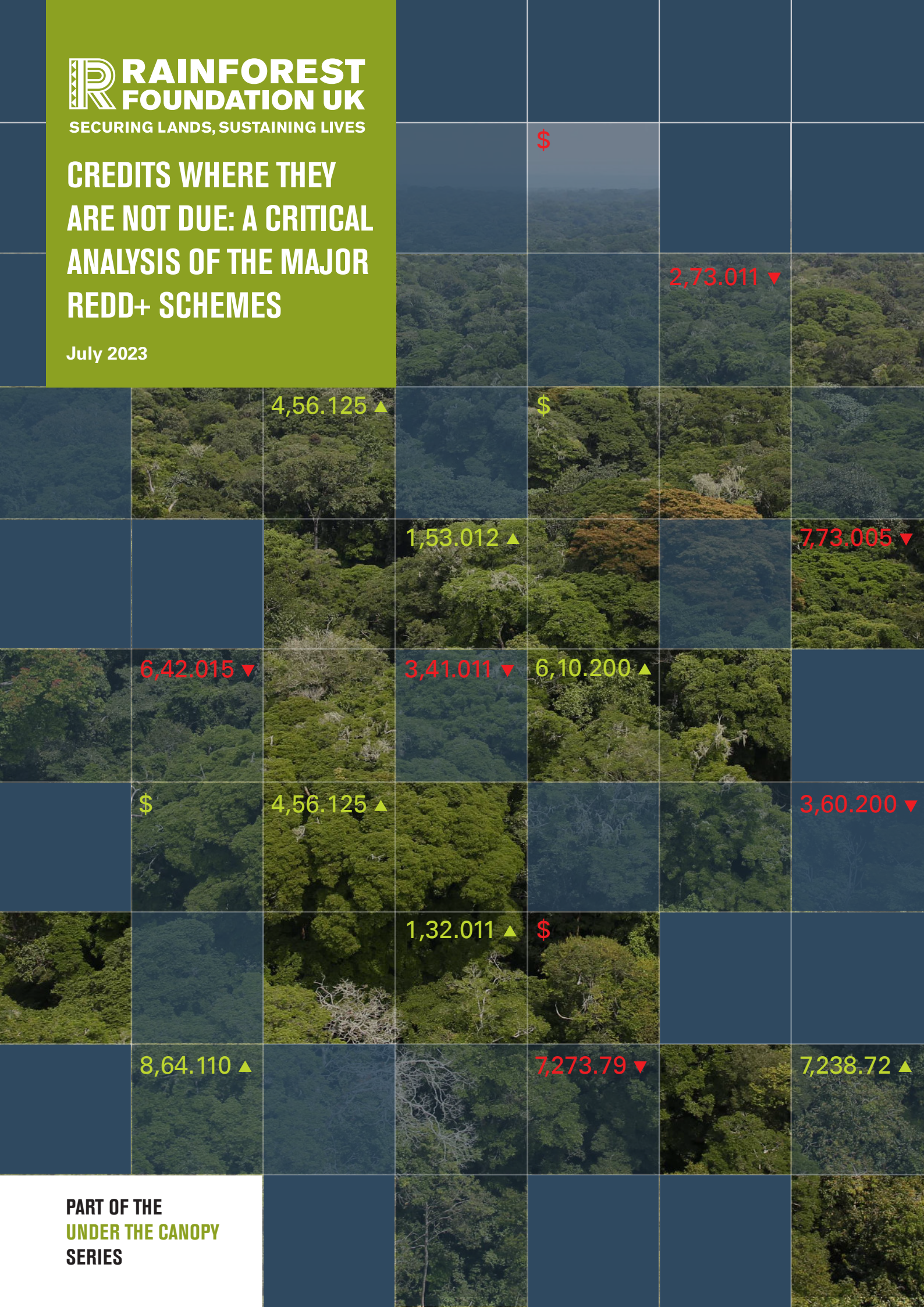
CREDITS WHERE THEY ARE NOT DUE: A CRITICAL ANALYSIS OF THE MAJOR REDD+ SCHEMES

July 2023



PART OF THE UNDER THE CANOPY SERIES

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EXECUTIVE SUMMARY

Offsetting using forest carbon has long been controversial. Its advocates see it as a way of compensating for residual emissions as the global north transitions to a low-carbon economy while also channelling much needed finance for forests. Its critics warn it is a form of greenwashing that serves to delay urgent climate action, dispossesses local communities and reduces forests to only their carbon value, while huge uncertainty in the way that forest carbon is calculated can also lead to the production of 'hot air' credits and even fraud.

Reducing emissions from deforestation and forest degradation, along with the other forest-related measures that constitute the '+' in REDD+, is something that most people agree is desirable and necessary. However, there has been little agreement on how to implement and reward REDD+ in an effective and equitable manner. This has been reflected in the very long period of awkward and faltering negotiations for inclusion of REDD+ within the global climate policy regime. This report briefly reviews the history of the concept of REDD+. It then assesses four key approaches used in developing and implementing it, noting the interactions and overlaps between them:

- Project-level voluntary carbon markets, specifically the Verra system (case study on the Cordillera Azul National Park project in Peru);
- The UNFCCC and global policy frameworks, including the 'REDD+ results' system (case study on Gabon);
- 'Pre-trading' or 'payment for performance' REDD+ schemes, specifically the World Bank's Forest Carbon Partnership Facility (case study on northern Republic of Congo);
- 'Jurisdictional'-level approaches, specifically the ART-TREES scheme (case study on Guyana).

Overall, the report finds that:

- There is very little evidence that REDD+, in its current form, has led to meaningful reductions in deforestation and degradation, much less of global carbon emissions, or that it has significantly contributed to the development of forest peoples.
- National REDD+ 'programmes' in most cases are not coherent plans so much as an amalgam of multiple (and often conflicting) economic, land-use planning, development, agricultural, forest sector and other initiatives. The UN system of assessing the 'results' of these REDD+ programmes leaves a huge amount to be desired – and potentially now opens the door to very large volumes of non-meaningful 'emissions reductions' entering a global carbon trading regime mandated under Article 6 of the Paris Agreement.
- REDD+ in the voluntary carbon markets, based entirely on project-level private initiatives, has expanded very quickly. It now comprises around one-third of all the carbon credits sold through Verra, the largest of the voluntary carbon market (VCM) standards systems and registries. But a growing number of analyses and scandals have raised serious questions about the extent to which many of these projects represent real emissions reductions.
- It is claimed that jurisdictional schemes, which usually operate at the national or subnational scales, can overcome some of the problems of project-level schemes. The evidence gathered in this report suggests though, that they have their own problems and may risk creating non-meaningful credits at a much higher rate.

A comparison of some key elements of voluntary, national (UN-assessed) and two jurisdictional-level schemes shows a range of the different qualities, strengths and weaknesses of each. The results of the comparison are shown below:

Criteria	Verra VCUs	Sovereign REDD+ Results	FCPF 'Emissions Reductions'	ART-TREES Credits
1. Requirements for additionality	☑	✗	✗	☑
2. Requirements for baselines	☑	☑	✓	☑
3. Requirements to address reversals and leakage	✓☑	✗	✗	✓✓
4. Ensures permanence	✗	✗	✗	✗
5. Measures to ensure positive impacts, and no negative impacts, for IPs and LCs	✗	☑	✓	✓
6. Measures to ensure positive environmental impacts, and no negative impacts	✗	✗	☑	✓
7. Generates a 'predictable', continuous and equitably distributed supply of benefits	✗	✗	✗	✗
8. Part of landscape, jurisdictional or national strategy to reduce deforestation/forest emissions and deliver multiple benefits	✗	✓	✓	✓✓
9. Requirement to address underlying drivers of deforestation	✗	✗	☑	✗
10. Serves to stimulate/increase non-offset investment and/or regulatory strengthening	✗	✓	✓	✗
11. Linked with (offset user) policies and strategies to reduce fossil fuel emissions first	✗	✗	✗	✗
12. Integrates measures to avoid use of the credits for greenwashing	✗	✗	✗	✗
13. Structural/institutional mechanisms to avoid conflicts of interest	✗	✗	✗	✗

KEY TO SYMBOLS

✗	No requirement
✓	Weak requirement
✓✓	Moderate requirement
✓✓✓	Strong requirement
☑	May have some requirement but not rigorously enforced or can be circumvented, avoided or manipulated

While some of the schemes fare better in certain areas than others, such as stronger ART-TREES requirements on reversals and leakage, all score poorly overall.

- Across a number of criteria, all fail completely. None of them fulfil the UN requirement for 'predictable, continuous and equitably distributed benefits' or require offset users to first reduce their fossil fuel emissions. The risk of REDD+ credits being used for greenwashing purposes is equally high across all the systems.

- There are risks of conflicts of interests in the systems (especially Verra) and a lack of transparency in the nature of the relationship between the standards-setting bodies/registries, the validation and verification bodies (VVBs) and their clients.

- All of the REDD+ schemes, to a greater or lesser extent allow, or actively rely on, inflation or artificial 'adjustment' of baselines in order to create the impression of, or to increase, the claimed emissions reductions.

- Despite their central role in the market, the VVBs lack sufficient checks and balances, and have largely escaped any form of systematic review of their own performance and reliability. There is evidence across most systems that 'red line' issues that should prevent the validation of a project, or verification of its claimed emissions reductions, are simply ignored or deferred while carbon credits from many of these projects are still claimed.

In addition, this research finds:

- There are signs that the combination of market-based (including new jurisdictional) REDD+ projects and national REDD+ schemes within the UN Framework could result in **a major and long-lasting price crisis for forest carbon offsets**. Demand and prices for REDD+, such as voluntary carbon credits, boomed in 2021-2022. This was accompanied by a huge increase in the 'pipeline' of projects that, though not producing credits at present, will do so in the coming years. REDD+ projects with the potential to issue around 150 million credits per year are already in the Verra 'pipeline'. Gabon has recently issued more than 90 million UN 'REDD+ Results Units' and Guyana more than 30 million 'TREES credits', while much larger volumes could quickly be generated through the same systems by other countries. The result will be a huge surge of REDD+ credits of one kind or another. Prices for REDD+-like credits already crashed in the second half of 2022, the trend continuing in 2023 as media revelations showed the extent of project over-crediting and widespread failure to prevent deforestation.

- Even as pro-carbon trading conservation organisations continue to emphasise the need for much higher carbon prices in order to save forests, the logic of the markets will likely prevail; **a typical boom and bust commodity pattern of high demand and prices, leading to oversupply, continued heavily discounted credit prices and the failure of projects**.

- There is evidence that the enduring weakness and instability in forest carbon markets is encouraging **some interests to turn instead to biodiversity offsetting as a source of finance. The difficulties of such markets are likely to be even greater than for carbon**.

- Thus, after nearly 15 years of efforts and billions of dollars spent, if forest protection and restoration is to contribute to the mitigation of climate change, entirely different approaches must be pursued.

- The totality of the above points to serious concerns that need to be taken into account in any consideration of how, or if, forest carbon offsets could be included in the establishment of global carbon markets under Article 6.4 of the Paris Agreement.

- There is clearly a need for a 'predictable' (and less convoluted) kind of financing to assist in the protection of forests in poorer countries, and to achieve true REDD+, which goes beyond carbon offsets and credit generation. Most urgently, **a global framework for climate funding using non-market mechanisms needs to be completed and advanced under Article 6.8 of the Paris Agreement**.

- There is **a wide array of possibilities for non-market funding that could be included within the scope of Article 6.8.** Some of these have long been advocated, including debt relief for poor countries and global levies on fossil fuel extraction, international air travel and speculative financial transactions. Some forms of refined payment-for-performance mechanisms could also be appropriate for financing forest protection, though these would need to avoid the mistakes of the past, such as the World Bank's Forest Carbon Partnership Facility. Corporate payments recognising historical responsibility for emissions, but delinked from carbon crediting, could perhaps also be considered.

- In terms of what non-market funding and policy actions should actually support, this includes much greater investment in better forest governance and regulations; substantially more funding and political support should go to understanding and tackling the real drivers of deforestation and degradation; enhanced support to Indigenous and other local communities, particularly in terms of recognising and strengthening their land tenure and knowledge systems; better and more participatory land use planning; reducing consumption of forest-destroying commodities; and stronger regulation of corporations in the sectors which most affect forests. **All of these tackle the structural causes of the environmental crisis.**

1. INTRODUCTION

The inclusion of forest carbon in the various regulated and voluntary carbon markets has always been controversial – so much so that it has largely been excluded from major trading regimes like the European Union Emissions Trading Scheme. In recent years, though, interest in ailing forest carbon markets has been revived by 'net-zero' commitments, corporate 'carbon neutral' claims and the ongoing finalisation of Article 6 of the Paris Climate Accord, confirming the establishment of an international carbon trading system. Encouraged by extravagant claims about the climate mitigation potential of REDD+ and other so-called nature-based solutions, demand for land and carbon rights in tropical forests has been surging.

While the effectiveness of REDD schemes in securing permanent reductions in greenhouse gas emissions, or additional carbon storage, has remained in question, several initiatives now claim to set the standard for high-integrity forest carbon offsetting. However, recent revelations in the international media about the 'worthlessness' of many REDD offsets in the voluntary market have sparked fiercely competing claims about which schemes guarantee the highest quality and most credible credits[1].

This study will provide a top-line review of these current trends in REDD+ and some other nature markets. It considers the most widely used systems of carbon 'crediting', from voluntary certification initiatives to jurisdictional approaches. It includes schemes where a quasi-market approach is taken, notionally 'paying for performance' in reducing forest carbon emissions. Some of these were not initially intended to generate tradable credits but essentially lay the ground for this. The report interrogates the supposed selling points and main claims of the leading systems and standards, the differences between them and the extent to which any of them are likely to deliver long-term, equitable reductions in carbon emissions.

The report first reviews the history and development of REDD+, considering how it has been incorporated into the climate policy frameworks, how voluntary forest offset markets have developed and the role of various initiatives which have sought to promote and expand adoption of the concept and the markets. It briefly describes how, increasingly, biodiversity offsetting is being seen as a potentially very large future market, modelled to some extent on the systems used for 'nature-based' offsetting of carbon. It then describes in more detail how each of the main REDD+ mechanisms work with illustrative case studies. The following section compares the schemes against a set of key criteria. This is followed by a consideration of the alternatives to REDD+ offsetting that can protect forests and Indigenous lands, and then conclusions and recommendations.

1 See for example, Greenfield, P., 2023

BOX 1: WHAT'S IN A NAME? THE NOMENCLATURE OF OFFSET UNITS

This report refers to a number of different schemes involved in generating, 'standardising' or verifying forest carbon offsets. Confusingly, each of them uses a different name for the unit of claimed offset, though all of them relate to one tonne of carbon dioxide. The proper names used by the different schemes are as below (the first four are the subject of more detailed description and comparative analysis in Section 3):

Scheme	Name of unit representing one tonne of carbon dioxide claimed to be mitigated or removed
Verra	Verified Carbon Unit (VCU)
Sovereign forest credits/ 'Warsaw Framework' credits/REDD.plus platform	REDD+ Results Unit (RRU)
Architecture of REDD+ Transactions, REDD+ Environmental Excellence Standard (ART-TREES)	TREES Credit (though also often called 'ART credit')
World Bank Forest Carbon Partnership Facility	Emissions Reduction (ER)
Gold Standard	Verified Emissions Reduction (VER)
World Bank BioCarbon Fund Initiative for Sustainable Forest Landscapes (ISFL)	Emissions Reduction (ER)
Clean Development Mechanism	Certified Emissions Reduction (CER) Temporary Certified Emissions Reduction (tCER)
Climate Action Reserve	Climate Reserve Tonne (CRT) – for use in voluntary markets Forecasted Mitigation Unit (FMU) – ex-ante credits
American Carbon Registry	Emission Reduction Ton (ERT)

Official regional and national trading schemes have their own credit nomenclature, such as the European Emission Allowance (EUA) or the California Registry Offset Credit (ROC). In some cases, credit names may be qualified, such as where they are eligible to be used by a specific trading scheme. For example, credits generated through the ART-TREES systems that can be used in the CORSIA scheme would be 'CORISA-eligible TREES credits' or 'CORSIA-eligible Offsets' (CEOs). To add to the complexity, credits from any of the specific schemes where a process of independent verification takes place (see Box 4) might generically be termed 'Verified Emissions Reductions' (VERs).

2. BACKGROUND AND CONTEXT

As the following section describes, the concept of REDD+ has only consolidated over a longish period of time, and some would say is still in the process of development and refinement. For the purposes of this study, REDD+ is taken to mean, in keeping with the UN's definition a '*framework to guide activities that reduce emissions from deforestation and forest degradation, as well as the sustainable management of forests and the conservation and enhancement of forest carbon stocks in developing countries*'[2]. The UN describes the implementation of the concept as comprising: the development of national strategies or action plans, policies and measures, and capacity-building; implementation of those national policies and strategies etc., and results-based demonstration activities; followed by results-based actions that should be fully measured, reported and verified, allowing countries to seek and obtain results-based payments[3].

The UN has always been non-prescriptive about where the funding for REDD+ would be derived, usually using terminology such as it would be '*new, additional and predictable*' and '*may come from a variety of sources, public and private, bilateral and multilateral, including alternative sources*'[4]. As will be seen below, in practice the concept has to date most commonly been invoked in voluntary carbon offset projects.

2.1 THE DEVELOPMENT OF REDD+ AND FOREST CARBON MARKETS; THE UNFCCC AND POLICY FRAMEWORKS

The inclusion of REDD+ (or broadly similar measures) in the global climate policy framework has been slow and piecemeal, consisting of numerous decisions taken at the UNFCCC Conferences of Parties over more than a decade.

Accounting for carbon emissions from and removals to forests and plantations was required of rich countries from 2008 under the Kyoto Protocol. The Joint Implementation (JI) mechanism between industrial countries allowed for forestry projects, but only one was ever developed. This concerned the WWF-backed 'permanent protection' of the Bikin 'tiger forest' in the Russian Far East[5], which lasted only three years before collapsing[6]. Activities later associated with REDD+ such as 'avoided deforestation' and 'improved forest management' were not allowed under the Kyoto Protocol's Clean Development Mechanism (CDM), because of serious methodological uncertainties[7]. Only 'afforestation and reforestation' projects were permitted. For these, the resulting credits were limited in validity to between seven years and several decades, and had to be replaced with credits from other offset projects such as wind farms that were considered to deliver permanent emission reductions[8]. A total of 64 small afforestation and reforestation projects were registered with the CDM between 2006 and 2015[9], with combined estimated annual emissions' reductions of about 1.9 million tCO2e – much less than the amount claimed by a single large voluntary 'avoided deforestation' offset scheme such as the Kariba REDD+ project in Zimbabwe[10].

But the pressure from some quarters to include forests more widely within the realm of climate funding continued to increase. The term 'reducing emissions from deforestation' had already first appeared in 2005[11]. Its proponents – notably the governments of Costa Rica and Papua New Guinea - argued that either an entirely new protocol should be developed to bring reduced emissions from deforestation *in developing countries* under the framework of the UNFCCC, and/or that the CDM mechanism should be allowed to include such projects. At COP15 in Copenhagen, 2009, the scope of the subject was broadened to include the 'REDD' and the add-ons comprising the '+' as it is generally now understood. A decision was made at this COP on '*Methodological guidance*' for REDD+ as it is now broadly known[12].

COP16 in 2010 included an item on '*Policy approaches and positive incentives*' related to REDD+[13] (though the acronym was not actually used). This included adoption of the 'Cancun REDD+ Safeguards' - a set of very broad guidelines, which countries 'should' follow in their REDD-related endeavours (see Annex 1 for the text

2 UNFCCC, undated d
3 UNFCCC, undated d
4 UNFCCC, undated d
5 UNFCCC, undated a
6 BMU, undated
7 Kägi, W. and Schöne, D., 2005
8 UNFCCC, 2006
9 UNFCCC, undated b
10 Verra, undated a
11 UNFCCC, 2005
12 UNFCCC, 2010
13 UNFCCC, 2011b

of the 'Cancun Safeguards)[14]. These are generally considered to be weak. For example, the requirement to '*Respect the knowledge and rights of Indigenous peoples and members of local communities*' is qualified with '*taking into account… national circumstances and laws*' – wording that can easily be used to justify non-application of any such requirement. Mechanisms for reporting on the Cancun Safeguards were not agreed until COP21 in 2015. As of February 2023, only 26 countries had submitted their supposed safeguard system to UN-REDD[15].

COP19 of 2013 adopted a set of seven decisions constituting what is now known as the 'Warsaw Framework on REDD+'[16]. This essentially created the framework within which jurisdictional or national-level REDD+ 'emissions reductions' could be reported and rewarded through payments. This is the basis of what are called here 'Sovereign REDD+ credits' or 'REDD+ Results Units', which are explored in more detail in Section 3.2.

Reporting on REDD+ 'results' is collected in the 'Lima REDD+ Information Hub', which was mandated under a decision at COP16[17]. This records results against an assessed reference level on an annual basis and how (if at all) the supposed forest emissions reductions have been financially rewarded. So far, none of the 80 or so REDD+ annual 'results' from 15 countries included in the Lima registry have involved transfer of emissions' reductions for the purpose of 'offsetting'. Two-thirds have received no funding at all, and most of those that have been financially rewarded were 'results-based' payments (such as by the governments of Norway or Germany, or the Green Climate Fund) for only a small portion of the claimed 'results'.

Article 6 of the Paris Agreement signed at COP21 in 2015 created the potential for 'emissions reductions' within the Warsaw Framework to eventually be traded, at least between sovereign states. But failure so far to agree on the precise mechanisms and requirements for this means that such country-to-country trading has not happened as yet. This could, however, be about to change, as explained further below in Section 3.2 on sovereign forest credits.

2.2 'PRE-TRADING' REDD+ SCHEMES

Parallel to the slow development of a formal REDD+ system within the UNFCCC framework, various efforts have been underway to build the capacity of poor countries to engage in REDD+ initiatives. The governments of Norway and Germany have both been operating unilateral 'payments for performance' or 'results-based financing' REDD+ programmes, such as the former's International Forest and Climate Initiative and the latter's REDD Early Movers programme. These were not strictly market mechanisms or trading arrangements, though it is clear that the intention was to lay a foundation for the later creation of transferable emissions reductions or carbon credits. Two key global schemes have been:

UN-REDD: established by UNDP, UNEP and FAO in 2008, this partnership aims to develop the technical and political capacity of 65 developing countries to engage in REDD+ and since 2021, to 'massively scale-up implementation'[18]. Up to 2021, UN-REDD has received $350 million in donor funding, nearly 90 percent of which has been from the government of Norway, with the EU, Denmark and Spain making up most of the rest[19]. One of the specific tasks of UN-REDD was to support countries in developing the necessary (Cancun) safeguards.

The Forest Carbon Partnership Facility: this was developed by the World Bank and launched at the Bali UNFCCC COP in 2007. The broad plan of the FCPF was to first get countries in the Global South 'ready' for large-scale REDD programmes, and then to move to large jurisdictional payment-for-performance schemes. The FCPF is considered in more detail in Section 3.3 below.

14 UNFCCC, 2011b
15 UNFCCC, undated c
16 UNFCCC, 2014a
17 UNFCCC, undated d; UNFCCC, 2014b
18 UN-REDD, 2021
19 UN-REDD, 2021

2.3 THE VOLUNTARY MARKET

The first voluntary 'REDD-like' project – the Noel Kempff Climate Action Project (see Box 2) - dates back to 1997[20]. By 2009, more private REDD+ projects were starting to be developed. At the same time, international conservation organisations such as the International Union for the Conservation of Nature (IUCN), The Nature Conservancy (TNC), World Wide Fund for Nature (WWF) and Conservation International had already foreseen the prospects for commodifying the carbon stored in protected areas and were starting to promote the concept of 'natural solutions' to climate change[21]. To the end of 2020, REDD+ projects made up around one-third of the entire global inventory of voluntary offsets by volume, an amount similar to that of renewable energy projects[22]. 'Avoided deforestation' projects alone reportedly represent almost a fifth of all the credits ever issued in the voluntary carbon market, with some 250 million minted out of a total 1.5 billion credits across the seven main certifiers[23].

BOX 2: UNDER FIRE AND ON FIRE: THE NOEL KEMPFF CLIMATE ACTION PROJECT, ONE OF THE FIRST EVER 'REDD' PROJECTS

Established by the Bolivian government, with the support of The Nature Conservancy (TNC), this project cancelled logging rights over 850,000 hectares of forest and added it to the Noel Kempff National Park[24]. TNC claimed this mitigated 5.8 million tonnes of CO2 emissions. The project was backed by BP, American Electric Power and PacifiCorp (another power utility). Hailed by TNC as a new model for financing forest conservation, the project set a precedent that would be repeated many times over. The scheme was later dismissed as 'saving forest by forcing destruction elsewhere'[25] and labelled by Greenpeace as a 'carbon scam' which 'did not deliver promised emissions reductions and failed to address fundamental shortcomings'[26]. In 2020 and 2021, over 30,000 hectares of the National Park's forests burned down[27], followed by even worse fires in 2022 that affected nearly a fifth of the park's entire area.

20 Sylvera, 2023a
21 Dudley N., Stolton S. et al., 2009
22 TSVCM, 2021
23 Carbon Pulse, 2023
24 TNC, undated
25 Pearce, F., 2010
26 Greenpeace, 2010
27 Tamayo, I. P., 2023

BOX 3: HOW THE FOREST CARBON MARKET WORKS - THE ACTORS

There are several key groups involved in forest carbon markets, common to most types of offsetting:

The Producers: these are responsible for developing and running the projects which claim to produce carbon offsets. They can be large financial institutions, voluntary organisations, individual entrepreneurs, state or quasi-state bodies, or some combination of these. Often, there will be a partnership between a local organisation and a specialist company such as the Zurich-based South Pole, which can navigate the complexities of developing and marketing a new project.

The Juicers: this group serves the purpose of creating value for a 'product' (a carbon offset unit) which is otherwise invisible, ethereal and largely based on accounting and proxies. This is done through quantifying, standardising, monitoring, validating and verifying putative stores and flows of carbon (and especially carbon dioxide). They are responsible for converting a nebulous elemental presence (or absence) into units which can be priced and traded, juicing it up into something supposedly objective, scientific and independently corroborated. They are thus largely responsible for creating the *value* of carbon offsets, which would otherwise remain largely in the realm of *narrative,* subjectivity and supposition. The work of this group is of central interest to this study.

Key bodies in this grouping are the standards-setting or standards-approving bodies, such as Verra and ART-TREES, which also run the registries that make credits available to the markets. Also key, if generally little known, are the consultancies responsible for audits of offset schemes (sometimes referred to as 'validation and verification bodies', VVBs). Some, such as Aster Global and S&A Carbon operate across multiple systems, undertaking validation and verification for voluntary and jurisdictional REDD programmes alike. Similar failings in their assessments can be found across the schemes. The group also includes the various individuals and organisations that have prepared offset projects and MRV 'methodologies' for the various schemes, some of whom (as in the Verra systems) are rewarded with commission fees whenever their methodology is used.

The Boosters: this is a very diverse and fragmented group, but broadly it serves to promote and market offsets, often serving as a broker between the producers and the users. Examples of such companies would be Germany's ClimatePartner, the Swiss myclimate, or the US-based Pachama.

The Adducers: a very small group until recently, but now growing rapidly. It consists of various outfits that seek to show that carbon credits - at a project level or more generally - can be credible and 'high quality' products. These include agencies, such as BeZero, which attribute ratings familiar to the finance industry (such as 'AAA' or 'A+' grade) to selected offset projects, supposedly on the basis of how likely they are to generate genuine emissions reductions. Also included are the various bodies such as the (voluntary) Integrity Council for the Voluntary Carbon Market (IC-VCM)[28], which aim to address concerns about systemic lack of credibility in the markets.

The Users: can be any person, company or institution that believes it can contribute to the amelioration of climate change by buying offsets – or, at least, wishes to *appear* to have some concern about this. To date, the largest known users of forest and other nature-cased offsets have been certain airlines (such as Delta[29]) and oil companies (including Shell[30]).

28 IC-VCM, undated
29 Carbon Pulse, 2022d
30 See, for example, Kill, J. and Counsell, S., 2022

BOX 4: HOW THE FOREST CARBON MARKET WORKS – THE PROCESSES

The process of creating forest credits is broadly similar across most of the systems, though each has its own particularities, methodologies and standards. The diagram in Annex 2 shows how the scheme works in the Verra and ART-TREES systems. The key steps in the process typically are:

- Project **development, submission and registration**: this typically involves a project 'proponent' selecting an approved methodology or system that it wishes to develop its activities under, submission of a preliminary concept, development of a full proposal and acceptance of the proposed scheme into a 'pipeline' or registry as a potential or applicant scheme.

- **Validation:** this does not create carbon credits, but is an assessment to ensure that the project or programme is compliant with the approved methodology under which it was developed. In most systems this is done by a third-party (typically a consultancy or certification company).

- Project **monitoring** involves reports being submitted for verification by the project owner/proponent, including claims that specific amounts of greenhouse gas emissions have been 'saved', usually over periods of 1-5 years.

- **Verification** is where an auditor (mostly, a third-party body, such as those responsible for the validation reports) checks the project monitoring reports, possibly including site visits. If the project is found to be in compliance with its monitoring requirements, the verifier typically confirms the amount of emissions reductions (or additional carbon storage) claimed by the project. Certain adjustments typically take place, such as removing some of the claimed reductions to a non-tradeable 'buffer pool' which is held and cancelled out in the event of carbon 'reversals' (i.e., unexpected carbon emissions). The remainder can then be issued and registered with the relevant offset registry, and to become available for sale or transfer as emissions reductions credits.

As explained in Box 3, the standards-setting, verification and carbon registry-running organisations are absolutely key in the markets. In order to understand how the REDD+ voluntary markets have grown, it helps to look at each of the main schemes in turn.

Verra: this has been a dominant force in the voluntary carbon markets. Formerly known as the Voluntary Carbon Standard, it was set up in 2007 by the World Economic Forum, the World Business Council for Sustainable Development and the International Emissions Trading Association[31]. It does not develop projects itself but has established the procedures, standards and monitoring and reporting requirements for others to do so. It claims to '*set the world's leading standards for climate action and sustainable development*' and certifies that carbon offsets '*achieve measurable high-integrity outcomes*'[32]. As of February 2023, Verra had approved around 50 different 'methodologies' for establishing and quantifying offset initiatives, for everything from improved methods of making concrete, to planting of plantations and preventing deforestation[33]. By November 2022, it had issued over a billion credits (roughly equivalent to a years' worth of emissions from the UK and Germany combined) generated by nearly 1,600 projects[34].

Verra has so far issued over a billion credits, roughly equivalent to a years' worth of emissions from the UK and Germany combined

Sixteen of Verra's methodologies broadly concern REDD+, including for so-called 'improved forest management'. Another eleven relate to other primarily nature-based solutions and agriculture. These are grouped together in Verra's registry as Agriculture, Forestry and Other Land Use, or 'AFOLU' projects. Another fifteen or so afforestation and reforestation methodologies relate to Clean Development Mechanism projects. Figure 1 below, based on analysis of the Verra registry, reveals how projects using REDD+-related methodologies have grown since the first one in 2013 – a long relatively slow build-up was followed by an explosion of project registration in 2020[35]. Figure 2 showing the estimated annual 'emissions reductions' from these projects tells a similar story, but with another notable element: projects are on average getting bigger.

Those currently 'under validation' in the Verra system (and hence likely to come on stream within the next 1-2 years) will, all things being equal, produce almost as many credits as the first ten years' worth of projects combined. The projects classified by Verra as 'under development' or 'requesting registration and/or verification' (and hence needing somewhat longer to start producing credits) would add a similar amount. The annual volume of REDD+ credits available just through the Verra system alone could thus more or less treble. This does not include some very large projects that Verra has so far rejected – such as one proposed by the India-based Kanaka Management Services over vast areas of DR Congo, which alone would generate more than a billion credits annually – but which could potentially be scaled back and re-presented in due course.

31 Kill, J. and Counsell, S., 2022
32 Verra, undated c
33 Verra, undated a
34 Verra, 2022b
35 The fall-off of again in 2021 and 2022 no doubt reflects the difficulty of developing new projects during the Covid pandemic.

Verra's 'project pipeline' shows similar growth across all the other 'nature-based' methodologies. Including 'improved high efficiency firewood cookstoves', the annual volume of broadly nature-based credits could increase from around 100 million per year at present to nearly 350 million in the short to medium term. As considered below, this and other developments could have major impacts on forest and other carbon markets more widely.

Figure 1: Number of Verra REDD+-like registered projects, past and proposed

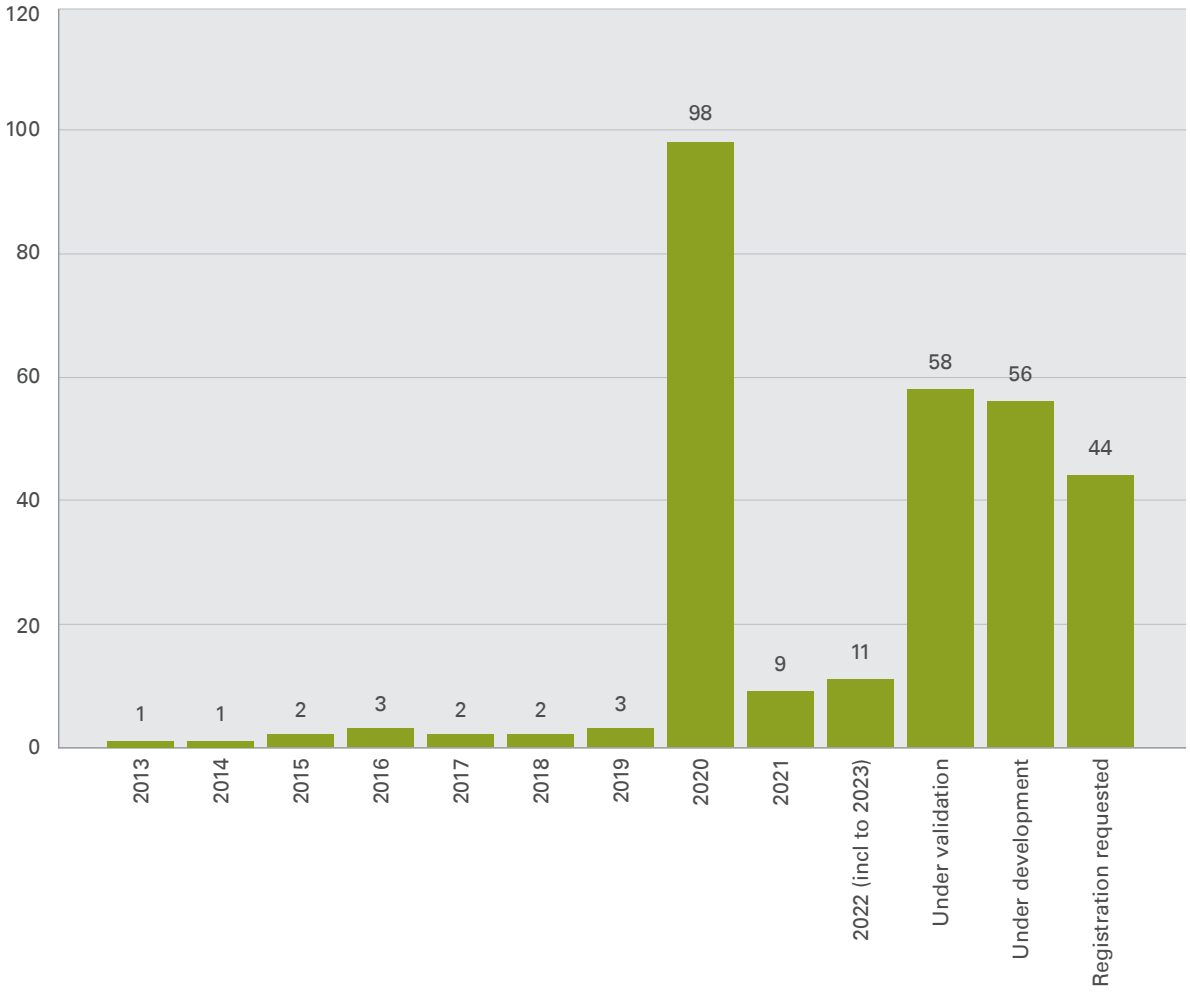
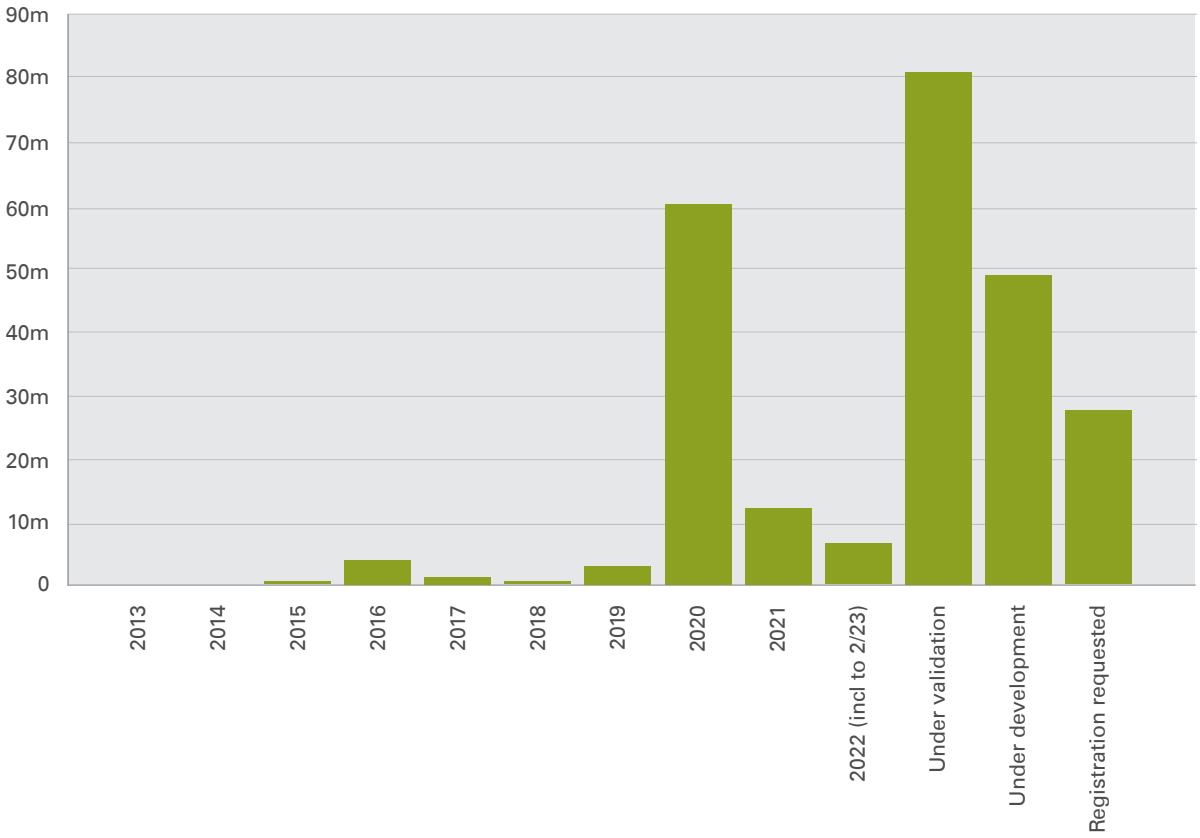


Figure 2: Estimated annual 'emission reductions' from Verra REDD+-like projects by *year of registration



* Note that the estimated annual emissions reductions are always higher – by ~10 percent - than the actual amount available for sale as offsets/VCUs, because some are deducted and placed in a 'buffer pool' and cannot immediately be sold.

The Climate, Community & Biodiversity Standards (CCBS): this system was set up specifically to '*stimulate and promote land management activities that credibly mitigate global climate change*', with a focus on REDD+. The CCB Alliance that created the standards consisted of US conservation groups Conservation International, The Nature Conservancy, Wildlife Conservation Society and the Rainforest Alliance, along with the development organisation, CARE[36].

The CCB Standard is intended to identify '*projects that deliver net positive benefits for climate change mitigation, for local communities and for biodiversity*'[37] – in which sense it focuses especially on the 'co-benefits' of offset projects, rather than just the supposed carbon emissions reductions. It can be considered as a kind of environmental, social and governance (ESG) 'add-on' to offsetting schemes such as Verra or the CDM. Projects can be CCB verified at any stage, including before they have been validated through one of the other offsetting schemes, simultaneously with Verra validation or verification, or once an offset project has already been validated. Since 2014, the CCB Standard and CCB-generated credits have been managed within the Verra structure and registry. As with all Verra-generated credits, they are sold as 'Verified Carbon Units', though have the additional label as being CCB certified.

So far, 84 projects within the Verra system have been CCB verified, and a total of 331 million CCB-labelled VCUs have been issued – representing about 70 percent of all AFOLU-type credits issued through Verra. Though these include some grassland and 'blue carbon' (marine) project offsets, they are predominantly from REDD+-like activities. Many of the largest and most controversial REDD+ projects have been CCB certified, including the Kariba project (Zimbabwe), Cordillera Azul, Alto Mayo, Madre de Dios and Tahuamanu (Peru), and Katingan (Indonesia). Whilst the CCB Standard includes 'governance' in its scope, the Rainforest Alliance, which co-wrote the Standard, co-founded the CCB Alliance and sits on its steering committee, also carries out many of the 'third party' audits of projects against the Standard[38].

Gold Standard: this was established in 2003 by WWF and other international NGOs '*as a best practice standard to ensure projects that reduced carbon emissions featured the highest levels of environmental integrity and contributed to sustainable development*'[39]. As with the other voluntary schemes, it also runs a registry of projects and available credits, and requires third-party validation and verification. It has its own methodologies for project development and implementation, though its overarching principles can also be applied to projects in other systems, such as the CDM.

Gold Standard has taken the decision that it '*will not issue carbon credits from REDD+ projects*', though it may '*explore labelling of third-party REDD+ credits from national schemes*'[40]. It has said specifically that '*by just crediting stored carbon – that is, simply paying people to stop cutting forests - many current approaches to REDD and REDD+ face technical and political challenges that may undermine their long-term sustainability*'[41]. In fact, although it avoids 'avoided deforestation'-type REDD projects, it does certify afforestation and reforestation projects in poor countries, which are typically included in the '+' part of REDD+. About 15 such projects can be found on the Gold Standard registry, most of them small and together generating an estimated 230,000 credits per year[42]. These have all been developed under its 'Afforestation/Reforestation Methodology'[43], which operates in conjunction with the organisation's overall 'Principles and Requirements' and further specific guidance on land-use and forestry[44]. Credits from some of these projects can be bought online 'over-the-counter' from Gold Standard's website, for between $38 and $45/t.

Climate Action Reserve (CAR): this outfit, established in California in 2001, is an environmental nonprofit organisation that '*promotes and fosters the reduction of greenhouse gas (GHG) emissions through credible market-based policies and solutions*'[45]. It has developed 22 methodologies for offsets programmes, and runs an offset registry including several types of credit (see Box 1). Its focus has primarily been in the US (including for reforestation and forest management), but has also supported a number of forestry projects in Mexico under a specific 'Forest Protocol' for that country, which qualify as 'REDD+' activities[46]. It is now also developing a specific protocol for Guatemala[47].

36 Verra, undated d
37 VCS, 2017
38 CCBA, undated
39 Gold Standard, 2021
40 Gold Standard, 2020a
41 Gold Standard, 2020b
42 Gold Standard, undated
43 Gold Standard, 2022
44 Gold Standard, 2020c
45 CAR, undated e
46 CAR, undated a
47 CAR, undated e

Analysis of the Climate Action Reserve registry shows that 1.2 million credits have been issued under this protocol between 2017 and February 2023, so this is a small scheme. However, the number of annual issuances has grown rapidly, from less than 20,000 in 2017 to more than 800,000 in 2022[48]. Many of the verifications have been undertaken by SCS Global, S&A Carbon and Ruby Canyon Environmental.

CAR also has a 'Climate Forward' programme in which credits called Forecasted Mitigation Units (FMUs) are issued 'ex-ante' (i.e., before the supposed emissions reductions have actually happened). Methodologies are available for 'mature forest management' and 'reforestation'[49]. Under the 'Reforestation Forecast Methodology', project proponents '*have no obligation to monitor and report ongoing project outcomes*'[50]. No credits have yet been issued under these methodologies[51], but a US-based tech firm called Intrinsic Methods has recently announced it will list 10 million tokenised FMUs on its blockchain platform, reportedly derived from 'government-backed reforestation projects' in Mongolia, Brazil, Mexico and Canada[52].

Members of the CAR Board of Governors include executives of the Environmental Defense Fund and the International Emissions Trading Association (IETA), the global carbon trade body[53].

The **American Carbon Registry:** in practice, the only true REDD+ projects that can be registered in the American Carbon Registry are those developed according to its methodology for Afforestation and Reforestation of Degraded Land, as this is the only ACR methodology' that can be applied outside North America and therefore in a REDD+ country.

2.4 'JURISDICTIONAL' FOREST CARBON

The concept of 'jurisdictional REDD+' was developed in an effort to overcome some of the evident shortcomings of project-level REDD+ (see Section 2.6 below) and to generate much larger supplies of offsets. The key feature of this approach is that, rather than applying to a self-defined geographical area determined by a project developer, it relates to a defined administrative area of tropical forested countries, typically states, provinces or regions and, in other cases, entire nations.

Its advocates have promoted jurisdictional REDD+ as solving problems such inflated baselines, leakage and over-crediting that have consistently dogged voluntary offset projects[54]. It is claimed that jurisdictional REDD+ baselines are more credible, being more clearly linked to official policy and determined on a region-wide basis rather than just locally[55]. However, there are reasons to believe that this can also create new baseline problems, for example because of variations across very large areas. Whilst there might be a better link to regional or national forest-related policies, this in itself can be a problem: policies change according to the whims of governments and electorates, hence what might be true when a baseline is formulated might well not be true five years later. The underlying problem that project developers have an interest in inflating baselines is also not resolved just because the project is bigger.

A blend of project-level and jurisdictional REDD+ is the so-called 'nested REDD+' – which can be where a REDD+ initiative sits within a wider, jurisdictional programme – possibly sharing some aspects such as the MRV procedures or baselines. The longest running example of this is probably in the Mai Ndombe province in DR Congo; both the jurisdictional level programme and a private project 'nested' within it have attracted much criticism[56], and the relationship between the two has evidently been difficult and fractious[57].

Jurisdictional and Nested REDD+ can in theory be financed through voluntary or statutory markets, or by official 'payment for results' programmes. As yet, however, no voluntary offset projects have used the Verra methodology first created for this purpose more than a decade ago[58]. A number are reported to be under development[59], including the potentially vast (200 million credits) scheme being prepared by the Brazilian state of Tocantins and the Swiss Energy Trading company Mercuria[60].

Two forms of jurisdictional REDD+, the FCPF and ART-TREES, are considered in the more detailed comparison in Section 3.

48 CAR, undated b
49 CAR, undated c
50 CAR, 2022
51 CAR, undated d
52 Carbon Pulse, 2023c
53 CAR, undated a
54 See, for example, EDF, 2023
55 See, for example, Sylvera, 2023
56 See, for example, Berk, N. and Lungungu, P., 2020; Kill, J., 2017
57 Carbon Pulse, 2022c
58 Verra, undated b
59 QCI, 2022a
60 Lang, C., 2022

2.5 WHAT HAS BEEN DRIVING THE MARKETS IN FOREST-BASED OFFSETS?

Several forces have combined to drive the huge growth in the availability of and trade in carbon credits, and especially from forest and other nature-based projects.

The Paris Agreement of 2015 marked a definitive move away from the more coordinated and regulated approach to climate change mitigation as was initially being pursued through the Kyoto Protocol, and towards a more voluntary and market-based approach. Article 6 of the agreement explicitly created the possibility that 'nationally-determined contributions' might in future include some element of offset purchasing alongside direct reductions in emissions. Though the exact rules are still being discussed, there is a possibility that some of the existing schemes might eventually be brought into the Article 6 UN trading framework.

Mandatory corporate reporting of greenhouse gas emissions and climate impacts: some requirements for mandatory reporting of carbon emissions have been in place in several major economies for a number of years, at least for the largest emitters. Offsetting potentially reduces the reportable emissions, depending on the scheme. More than 30 countries are believed to currently be developing mandatory disclosure requirements[61].

Conservation industry promotion of 'nature-based solutions': this concept started to emerge already more than a decade ago, alongside and connected with REDD+, with the realisation by a number of the large international conservation organisations such as IUCN, WWF, CI, TNC and WCS, that the protected areas they are responsible for managing contain large amounts of carbon potentially worth many billions of dollars if commoditised[62]. Its supporters began to ramp it up significantly from around 2015, especially led by TNC[63] (which itself was developing income sources from forest carbon projects[64]). The term NBS has been defined as meaning more or less anything involving nature that promotes human well-being,[65] but in reality, along with 'natural climate solutions', it has generally meant climate mitigation or adaptation schemes involving 'nature'[66].

Pushed heavily as the 'forgotten solution' to climate change, TNC also from 2017 onwards claimed that nature-based solutions could mitigate 37 percent of climate emissions by 2030, something that has since been widely repeated by senior decision makers and officials[67].

Inevitably, NBS as a concept has been taken up by polluting companies, business lobby groups such as WEF and grant-hungry UN agencies.

Oil majors such as Shell, TotalEnergies and Eni have used their investments in nature-based offsetting to try and demonstrate their commitment to carbon neutrality[68]. Reflecting that, with a few exceptions such as tropical peat bogs, tropical forests are the most carbon dense ecosystems, nature-based solutions are either REDD+ or REDD+-like activities. For example, TotalEnergies is establishing a 40,000 hectare monoculture acacia plantation in the Republic of Congo[69] and has acquired an industrial logging concession in Gabon to both log it and produce carbon offsets[70], whilst Eni is supporting various offset projects such as the Luangwa Community Forests project in Zambia[71].

Increasingly extreme weather events and patterns have started to cause corporations to realise that climate change could be bad for business, humanity and the planet more generally. More recently, greater scrutiny of corporate climate policy has come through investors and fund managers.

61 Carbon Cloud, undated
62 See, for example, Dudley, N., Stolton, S. et al., 2009
63 See, for example, TNC, 2015
64 Elgin, B., 2020
65 See, for example, IUCN, undated
66 See, for example, FoEI, 2021
67 See, for example, TNC, 2017
68 See, for example, Kill, J. and Counsell, S., 2022; FoEI, 2021
69 TotalEnergies, 2021
70 TotalEnergies, 2022
71 Eni, 2021

The 'Greta Thunberg effect': as public concern has risen, increasingly prompted by youth protests and activism, so has the need for businesses to show they are taking action. The typical demand to move towards 'Net Zero' carbon has greatly stimulated carbon markets, as it implicitly accommodates offsetting as a part of achieving such a target. Investment in offsetting reportedly increased significantly as protests peaked prior to the Covid pandemic[72]. REDD+-like projects have appealing public-relations benefits in the face of conservation-minded consumers and activists.

Supply and demand dynamics: offset projects can take several years to develop, and hence the supply of credits is relatively inelastic. The sudden increase in demand for offsets therefore led to a sharp increase in prices as world economies started recovering from the Covid shock. This appears to have led to a rapid increase in project development and future supply.

2.6 THE CRITICISMS OF REDD+

As the REDD+ market has boomed, concerns about the use of offsets – both generally, and specifically in relation to forests and other forms of NBS – have also increased. The fundamental problems with carbon trading as a means of addressing climate change have been known and well documented for at least twenty years[73]. Concerns were consistently raised in the UNFCCC meetings, one of the reasons the concept of REDD+ was so slow in developing. While some Indigenous leaders have engaged positively with the concept (or at least an Indigenous version of it[74]), other Indigenous and other local communities have firmly and vociferously opposed it[75]. Some who attempted it foundered amidst community divisions and conflict, amongst other problems[76].

The website REDD-Monitor.org, established in 2008, has published more than 2,000 articles, most of them documenting failures and problems of REDD+ projects or of the concept as a whole[77]. Detailed critiques of specific REDD+-like projects, mostly voluntary schemes but also official jurisdictional projects, started appearing around 2015[78]. From around 2020 onwards, articles critical of forest-based offsetting were published in mainstream international media[79] and have become more regular and much more probing and critical ever since[80].

The following summarises some of the main concerns about REDD+:

REDD+ in the carbon market: although some proponents have argued that REDD+ is not inherently a market-based concept, the majority of REDD+ projects have been developed to generate carbon credits or offsets, mostly through commercial markets. Even REDD+ schemes primarily based on 'payment for results' rather than actual carbon trading, such as the FCPF, were designed to kick-start a market for forest carbon, and are likely to generate tradable credits in the future. Many observers see fundamental problems with this, not least the commodification of nature involved, and the potential for effective ownership of forest lands (or at least the 'assets' they contain) to be alienated to distant owners, financiers and markets[81]. As an offsetting mechanism, it allows fossil fuel production and usage to continue, thus perpetuating the carbon-dependent economy that has caused climate change. As noted below, market-based REDD+ can also fail to comply with the UN-agreed requirement of providing 'predictable' funding, with possibly catastrophic consequences.

Impermanence: REDD+ relies on carbon storage in trees and other forest organisms and soils, which is inherently impermanent. Additional carbon either retained in conserved forests, or stored in newly planted trees, can easily (re)enter the atmosphere if the forest catches fire or is caused to degrade (such as through commercial logging). If this area has been used to 'offset' what are effectively permanent fossil fuel additions of carbon to the atmosphere, then the result is a net increase in atmospheric carbon.

Additionality, baselines, leakage. Many different types of offset projects face difficulties in complying with these fundamental requirements of carbon offsetting, but REDD+ has particular problems. As forest economists Romain Pirard and Alain Karsenty have pointed out, the fate of forests, especially in poor countries, is determined by a mass of complex factors, including development and economic policies, commodity prices and speculation, demographics, infrastructure, conflicts and climate change itself[82]. This makes the determination of additionality and baselines for REDD+ projects extremely unreliable: did the project really introduce something that would not

72 See, for example, Laville, S., 2019
73 See, for example, Lohmann, L., 2006
74 See, for example, WWF, 2014
75 See, for example, Paquette, M., 2014
76 See, for example, Nathanson, M., 2018
77 REDD-Monitor, undated
78 See, for example, Kill, J., 2017
79 See, for example, Elgin, B., 2020
80 See, for example, Fisher, T., and Knuth, H., 2023
81 See, for example, Cabello, J. and Kill, J., 2022
82 Pirard, P., and Karsenty, A., 2010

have happened anyway (additionality), and what would have happened without the project (the baseline)? These uncertainties, along with lax methodologies and inadequate auditor scrutiny, make it very easy for project developers to create inflated baselines to maximise the reported mitigation impact. So, for example, using carefully chosen 'reference areas' and 'reference periods' (places and historical times used as a comparison to show what *might* happen in the future in the project area), project developers can create a story of a threat of very high likely deforestation rates. The difference between those (inflated) theoretical rates and what actually happens is what determines the volume of credits claimed. Even if actual deforestation in the project area increases significantly, so long as it is still below the even higher, inflated, 'baseline' then the project will still generate credits.

Similar problems arise when considering whether any given project definitively stops a given amount of deforestation occurring, or simply shifts it elsewhere (leakage). Afforestation and reforestation schemes have also faced questions about additionality because they have sometimes been established where such plantations are clearly economically viable, indeed thriving, as an industrial asset without carbon financing being required.

These issues have bedevilled REDD+ projects throughout the concept's history and, as will be seen below, continue to do so. A study of three REDD+ projects used to supposedly offset some of Shell's carbon emissions found that all suffered at least two of these problems (as well as impermanence), and one suffered all of them[83].

Monitoring: despite significant advances in the last decade or so, accurate monitoring of carbon flows associated with forests presents some serious technical challenges, especially in complex, heterogenous tropical forests, which are often inaccessible. Above and below-ground carbon can fluctuate greatly across relatively short distances, and temporally according to season and longer weather patterns. The carbon flows related to traditional forest-management practices such as swidden ('slash and burn') agriculture, which is used by hundreds of millions of farmers worldwide and is typically a target of REDD+ projects, has been little documented. The supposed carbon benefits of 'avoided deforestation' projects, whilst dressed in complex data, can be little more than guesswork.

Indigenous peoples and local communities - land tenure, carbon ownership, consent and benefit distribution: the relationship between existing forest occupants, carbon, corporations and the state represents an interlocking and complex set of issues which has proven extremely challenging for REDD+. To date, very few countries have a clear and equitable legal regime for determining the rights to ownership of carbon stored in natural forests. Often this is assumed to coincide with 'ownership' of the forest as a whole, but this itself is not clear across vast areas, such as where traditional occupation and usage rights have long prevailed but are not formally recognised. In some major REDD+ schemes, such as the FCPF, ownership 'rights' to forest carbon have been determined simply through self-declaration by a government minister. Such problems have serious implications for equity of 'benefit sharing', and also can incentivise grabbing of forest land (particularly from those with weak or contested tenure) by powerful actors for financial gain.

'Consent' to REDD+ projects has frequently been peremptory at best, and understanding of them by local communities often almost entirely lacking, even numerous years after projects have been underway[84]. Unaware of their rights and obligations, local communities have found themselves victims of naked exploitation and manipulation. A study of a popular forest offset project in Peru found that the supposed local beneficiaries received nothing from for at least the first eight years of the project[85].

83 Kill, J. and Counsell, S., 2022
84 See, for example, Long, S., et al., 2023
85 Counsell, S., 2021

Protecting forests or planting more plantations? Some of the problems noted above are more surmountable with new plantations than with natural forests. There have always been concerns that, as a tool for tackling climate change, the multiple values and roles of forests – for biodiversity, hydrological functions, community benefits, spiritual and cultural importance etc. – could be reduced to serving as mere carbon stores. For this limited purpose, vast monocultures of clonal fast-growing species such as eucalyptus would be preferred and incentivized over slower-growing but more valuable 'natural' forest. In fact, both 'avoided deforestation' and establishment of plantations have formed part of REDD+.

Unreliability of funding: crucially, REDD+ projects typically rely on a constant and, as the UN requires, 'predictable' flow of funding to 'beneficiaries'. Forest-dependent people in REDD+ areas are typically expected to forgo some other forest-based livelihoods, such as logging, forest-farming or charcoal production. As experience has already shown, when the benefits fail to arrive, then the supposed forest conservation or tree-planting can quickly go into reverse[86].

Private/voluntary REDD+ projects may have benefit distribution structures such that the project *proponents* (rather than local beneficiaries) receive the first portion of any income. But projects can be expensive to establish, validate and verify, and may be unlikely to last a prolonged downturn in prices which may mean that very little or nothing is left to pay out to beneficiaries. Project developers can find themselves having to cover costs to keep the project from becoming a huge *source* of carbon[87].

Funding can also dry up from official sources too: numerous of Norway's 'results-based' bilateral REDD+ agreements have at some point been suspended for political or governance reasons, such as those with Brazil, Guyana and Indonesia[88]. The slowness of the World Bank's Forest Carbon Partnership Facility – with a decade or more between the development of programmes and potentially receiving any payments - led many countries simply to give up.

86 See, for example, Berk, N. and Lungungu, P., 2020
87 See, for example, Carbon Pulse 2023a
88 Usher, A. D., 2021

BOX 5: 'ZOMBIE REDD' – THE CASE OF GUYANA

One of the notable features of the history of REDD+ has been the persistence of its proponents to achieve an outcome, however many the failures along the way, and however implausible the final result. This is well exemplified by the case of Guyana.

The long saga of REDD+ in Guyana started around 2009. In a report published by the office of President Jagdeo (but actually prepared by the consultancy McKinsey's), it was claimed that the country's forests could disappear entirely within 25 years, at a rate of more than 4 percent per year, earning $580 million annually through agricultural development[89]. The actual rate of deforestation was around 0.2 percent per year (and by some estimates, much less), and most of the country's soils are entirely unsuitable for agriculture. The document set out what was called a 'Low Carbon Development Strategy' (LCDS) to avoid this fictional disaster[90].

Implementation of this LCDS was the purpose of a bilateral REDD+ funding agreement with the Government of Norway shortly thereafter. Guyana then received four payments totalling nearly $200 million up until 2013[91]. The agreement allowed for 'avoided deforestation' payments if forest loss remained below 0.45 percent[92], even though this was much more than the prevailing actual rate[93].

Guyana submitted a Forest Reference Emissions Level to the UN in 2014, which was assessed by UN Experts[94]. This was followed by a revised FREL in September 2015[95] - but no claim for emissions reductions or 'REDD+ Results' followed from this[96].

With the party of Bharrat Jagdeo returned to power in 2020, a new version of the Low Carbon Development Strategy was developed[97]. Simultaneously, the Norway-backed Architecture for REDD+ Transactions (ART) scheme accepted a proposal from Guyana, which in 2023 became the first country to be issued with credits for 'avoided deforestation' payments by ART – to be used, notionally, to finance implementation of the new LCDS[98]. As the case study in Section 3.4 below explains, it appears these credits also largely result from artificial 'adjustments' to Guyana's deforestation baseline.

Between the two versions of the Low Carbon Development Strategy, vast deposits of oil have been discovered off Guyana's coast, production from which began in 2019.

2.7 RECENT TRENDS

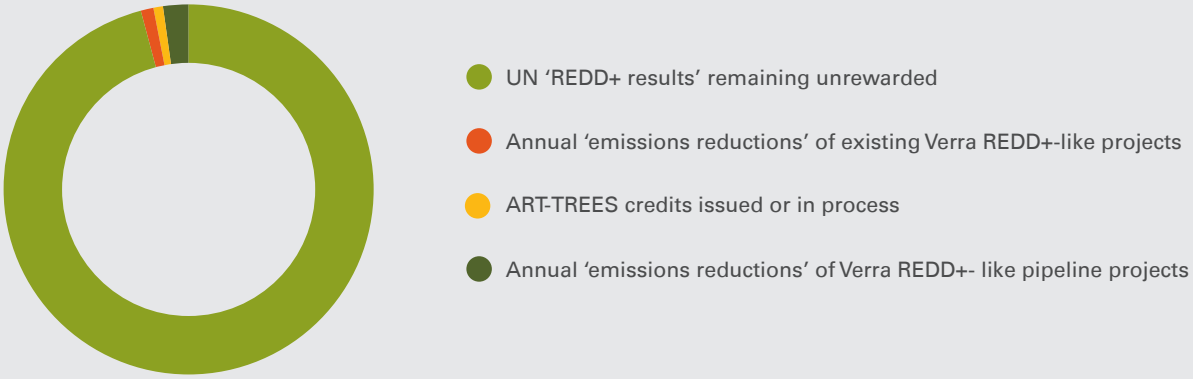
Despite the growing evidence of, at best, the ineffectiveness of the voluntary carbon markets to mitigate climate change, and evidence of widespread deception and malpractice, there have been concerted efforts to expand the market substantially. For example, former Governor of the Bank of England and UN Special Envoy for Climate Action and Finance, Mark Carney, convened the private sector-led Taskforce on Scaling Voluntary Carbon Markets, in order to 'scale an effective and efficient voluntary carbon market to help meet the goals of the Paris Agreement'[99]. This foresaw that voluntary carbon markets together could trade volumes of 1-2 Gt's worth of credits per year by 2030, valued at up to $50 billion[100].

89 Dyer, N. and Counsell, S., 2010
90 Republic of Guyana, 2010
91 Government of Guyana, undated
92 REDD-Monitor, 2009
93 See FCPF 2008 and FCPF 2021b
94 UNFCCC, 2015
95 Government of Guyana, 2015
96 UNFCCC, undated g
97 Government of Guyana, undated
98 ART, undated, e
99 TSVCM, undated
100 TSVCM, 2021

To date, voluntary projects have comprised the majority of forest carbon traded, or otherwise mobilised for offsetting. This could be about to change radically: sovereign and jurisdictional credits or REDD+ 'results' are set to come on the markets in potentially very large numbers. These would dwarf the sale of credits from even the entire voluntary REDD+ offsets projects, as shown in Figure 3.

Dominating the picture is the amount of as yet 'unrewarded' REDD+ results or sovereign credits theoretically available through the UN framework. These currently number nearly ten billion, equivalent to nearly four years' worth of fossil fuel-derived carbon dioxide emissions from the entire European Union[101]. In practice, most of these probably stand little chance of ever being traded, especially where they relate to older historical periods. But the actions of Gabon and other countries indicate that the intention is indeed to bring such credits to the market. The ART-TREES scheme has barely started so it is not possible to quantify its early programme pipeline. However, they include some very large forest areas, including Amazonas and two other Brazilian states, and Tshuapa Province in DR Congo. The scale of these, like the theoretical credit levels under the UN system, is likely to be in the gigatonne range, rather than the tens of millions of credits available through voluntary markets.

Figure 3: REDD+ credits: actual, pipeline and 'available', by source



Sources: Verra Registry, ART-TREES registry and Lima Information Hub[102]

Whilst ART-TREES and sovereign forest credits are starting to flood onto the markets, there is evidence that demand is starting to wane. According to an influential carbon trade journal, by November in 2022, a reported 16 million REDD+ credits were retired compared to 50 million in 2021, a 65 percent decline. Forest conservation projects, the journal said, *'often battered by criticism of over crediting, have crashed out of favour with corporates amid deepening economic gloom'*[103]. REDD projects, the report noted, '*have faced heightened scrutiny in the wake of wildfires, downwardly revised scores from the fast-emerging carbon ratings agencies, and difficulties with measuring the impact of forest-based mitigation, factors that have each added to the atmosphere of risk hanging over the market*'[104].

Some factors may have affected the supply side of the market, such as a moratorium adopted in Indonesia in April 2022. However, the market also saw a sharp decline in REDD+ credit prices in the second half of 2022, suggesting supply was not the issue. Nature-based credits increased rapidly in value from around $2/t in early 2021 to a peak of over $15/t by the beginning of 2022, but have since dropped to under $2/t at the time of writing[105]. The collapse accelerated following revelations in the Guardian and Die Zeit newspapers about over-crediting in voluntary offset projects[106]. Weeks after the media exposes, the carbon trade press continued to report that '*the REDD+ market was dropping like a stone*'[107].

101 EC, 2022
102 Note that there appears to be some double-counting of quite large claimed emissions reductions for Brazil included within the Information Hub, so the overall number of 'unrewarded REDD+ results' is probably exaggerated.
103 Carbon Pulse, 2022e
104 Carbon Pulse, 2022e
105 QCI, 2023a
106 See, for example, QCI, 2023b
107 Carbon Pulse, 2023

Combined with the imminent surge of credits from large jurisdictional projects and sovereign REDD+ claims, this raises serious questions about the likely price stability of forest-based offsets going forward. The long lead-in time for credit production (likely several years) to move a REDD+ project from concept to verification, as well as the structural difficulty or impossibility in reducing supply once production has started, and absence of any functioning market coordination or stability mechanism, are characteristics of sectors prone to major 'booms and busts'. As noted above, volatile carbon credit prices can be deeply problematic: failure to pay local recipients can quickly lead to project 'reversals'.

Compared with the low and possibly further declining prices, advocates say that much higher prices for REDD+ credits would be required to make much impact in terms of global climate goals. UNEP believes that a floor price of between $30/tonne and $50/tonne is needed[108] – around 20 times what is often currently being paid in the voluntary markets. The looming over-supply looks likely to ensure that such a price cannot be achieved for the foreseeable future. In other words, the reliance on markets, and the supply/demand forces this invokes, could easily undermine the very purpose for which REDD+ has ostensibly been developed.

BOX 6: REDD+ AND CORSIA

One of the long-standing hopes of REDD+ proponents has been its inclusion in the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) of the UN International Civil Aviation Organisation. The scheme aims to 'offset the amount of CO2 emissions that cannot be reduced through the use of technological improvements' in civil the aviation industry[109] and establishes criteria with which offsets of any kind would have to comply in order to be eligible.

So far, four REDD-related schemes – ART-TREES, the FCPF, Verra's Jurisdictional and Nested REDD+ scheme, and the World Bank BioCarbon Fund's Initiative for Sustainable Forest Landscapes (the latter on a conditional basis) – have been deemed to be eligible[110], albeit with some limitations (See Annex 3 for details). ICAO explicitly excluded all project-level voluntary credits from Verra and hence all of its verified REDD+ projects to date. Also excluded have been REDD+/LULUCF and afforestation/reforestation-derived credits from all other schemes which otherwise were generally accepted as eligible, including from the American Carbon Registry, the China Voluntary Emissions Reductions Programme, the CDM, Gold Standard and the Global Carbon Council[111]. Given the eligibility conditions applied by CORSIA to the FCPF, it seems likely that few credits derived from there will be used under the scheme, and the Verra Jurisdictional and Nested REDD framework has not yet verified any projects. However, credits from ART-developed programmes may well be used, including those from Guyana, many of which do not appear to represent real emissions reductions (see Case Study below).

Voluntary Market Carbon Pricing ($)

Source: CarbonCredits.com

108 Koning Beals, R., 2023
109 ICAO, undated
110 ICAO, 2022. The addition of the IFSL and Verra JNR was reported in Carbon Pulse, 2022b, but cannot be confirmed through publicly available ICAO-CORSIA documentation.
111 ICAO, 2022

Alongside the now widely understood problems of 'gaming' in REDD+ projects, another trend in the market is a preference for credits from projects that putatively *remove* carbon from the atmosphere rather than avoid it being emitted there[112]. In terms of tree-based carbon projects, removals have broadly meant either forest restoration or plantations (extension of commercial harvesting rotations is arguably part avoidance, part-removals). Plantations can represent problems in many other respects (including environmental and social impacts) but can also face serious questions about additionality, not the least because plantation forestry can be commercially viable in many settings and may not require carbon financing. But both restoration and plantations face the same chronic problems of impermanence as all REDD+ projects do. As one carbon trading veteran explained, whilst supporting 'removals' rather than 'avoidance', '*while the concept of removing a ton of carbon from the atmosphere by tree-planting is simple enough, if that newly planted forest absorbing all that carbon dioxide is felled in 30 years' time or worse, burns down, the climate benefit is lost*'[113]. In fact, the felling cycle of many plantation-based offset projects claiming to remove carbon from the atmosphere is much less than 30 years[114].

More recently, there have been efforts to reward high forest, low deforestation (HFLD) countries including for the carbon this removes from the atmosphere (see Sections 3.2 and 3.4 below)

2.8 REDD+, THE EMERGING 'NATURE POSITIVE ECONOMY' AND BIODIVERSITY OFFSETTING

Driven in large part by the conservation industry, numerous initiatives have sought to broaden the valuation of forest and other ecosystems from just carbon storage. This has gone far beyond simply demonstrating the theoretical economic value of ecosystem services as an argument for protecting them; financial instruments are being created which specifically seek to commodify nature and package it for trade, and these are gaining traction in international conservation policy. A number of the key groups with an economic interest in REDD+ are centrally involved in these new developments, some of which are described below.

Biodiversity offsets: the concept of offsetting biodiversity loss in one place with protection, creation or restoration elsewhere has existed for nearly five decades. 'No Net Loss' or 'Net Gain' policies have been applied in relation to land use change, development and planning in countries including the US, Australia, New Zealand and the UK[115]. However, these have generally been applied in relation to specific loss and 'receptor' sites, rather than involving 'standardised' packages which can be bought through open markets.

There are fundamental difficulties in developing such markets. One of the key differences between biodiversity and carbon markets is that for the latter, there is a readily identifiable unit of trade – a tonne of carbon dioxide, or equivalent – whereas for biodiversity there is not and cannot be a single unit. The 'asset' which is being traded is, by its very nature, *diverse*. Ecosystems can and do vary in content, structure and dynamics across very short distances and temporally. Hence any form of 'equivalence' between, say, one ecosystem being lost or destroyed, and another being saved or created elsewhere, can be extremely difficult to establish. In the past, most attempts to do so have relied on economic valuation models, such as quantifying the 'ecosystem services' provided by any ecosystem to be destroyed, and then protecting or creating some kind of ecosystem elsewhere notionally providing a similar value of services. This can include attributing values to the presence or absence of particular species through proxy measures, such as how much people might pay to travel to see those species.

These techniques have been heavily criticised, and the resulting offset projects are generally held to have mostly failed[116]. A recent expert commentary noted that, in showcasing two decades of practice of voluntary biodiversity credits, a presentation by the pro-offsetting World Economic Forum only mustered four examples, none of which had detail 'on scale, value or improvement to the environment'[117]. The International Union for the Conservation of Nature (IUCN) says that they can '*contribute to positive conservation outcomes*' but are only appropriate for projects that have '*rigorously applied the mitigation hierarchy (avoid, minimise, restore/ rehabilitate and offset*'[118]. Most of the underlying problems with carbon offsetting also apply to biodiversity, including the establishment of additionality, the possibility of over-crediting, faulty baselines, leakage, and non-permanence. The risk of these is even greater with biodiversity because of the sheer complexity of 'measuring' it[119].

Nevertheless, authorities have continued to push biodiversity offsetting as a means of reversing the

112 Redshaw, L., 2023
113 Redshaw, L., 2023
114 See, for example, Zhou, X., Wen, Y., Goodale, U. M. et al., 2017
115 OECD, 2016
116 See, for example, Hache, F., 2019
117 Yung, E. C., 2023
118 IUCN, 2016
119 Carbon Pulse, 2023j

'biodiversity crisis'. For example, the Australian government is currently proposing the establishment of a 'Nature Repair Market' under new legislation[120]. Commenting on this, the head of a specialist organisation, Accounting for Nature, has warned of sleepwalking into a 'massive greenwashing nightmare'[121]. The European Union did not explicitly include offsetting in its Biodiversity Strategy adopted in 2021[122] but critics say that a proposed new EU 'Nature Restoration Law' – an important piece of legislation to implement the Strategy – includes proposals which would serve to '*put a price on nature… and to set up market-based schemes to trade biodiversity offsets*'[123]. In early 2023, a group led by the Global Environment Facility, and including IUCN, the head of UNEP, the head of Verra, TNC, the World Bank and the French government, presented a new report on 'Innovative Finance for Nature and People' which strongly promotes the development by governments of markets for biodiversity offsets[124].

As with the early stages of carbon offsetting, the route to biodiversity offset markets is likely to be tested by private sector interests. In January 2023, the UK-based Plan Vivo – which has long been involved in carbon offset project development and 'payments for ecosystem services' schemes – published a draft biodiversity offset project methodology called 'PV Nature'[125]. This could yield the first biodiversity credits issued by a major standard[126].

The Convention on Biological Diversity's green light for market-based biodiversity conservation: the adoption in December 2022 of the Kunming-Montreal Global Biodiversity Framework (GBF) - a new ten-year global action plan for the Convention on Biological Diversity – provided a green global policy flag to nature markets through nature-based solutions and biodiversity offsetting. One of the specific targets in the plan calls for governments to '*substantially and progressively increase the level of financial resources… mobilising at least 200 billion United States dollars per year, including by… stimulating innovative schemes such as payment for ecosystem services, green bonds, biodiversity offsets and credits*'[127].

Commenting on how this had an immediate effect in the private sector, Morgan Stanley, one of the largest global investment management and financial services companies, said that interest in biodiversity had increased, saying. '*We are receiving an increasing number of questions from investors on how to integrate biodiversity into their investment frameworks, particularly following the Kunming-Montreal Global Biodiversity Framework*'[128]. Ironically, however, whilst the post-2020 GBF has given a policy green light to biodiversity offsetting, it may inadvertently also have caused an obstacle to it: the pledge by countries to ensure that 30 percent of the planet is put under protection by 2030, also included in the new biodiversity action-plan, might serve to make arguments for the additionality of biodiversity offsets that much more complicated to make[129].

In a development that could manifest several of the post-2020 GBF developments all at once, a US-based group of financiers operating under the name EQX Biome proposed in early 2023 that they could help secure 30 percent of DR Congo under what they term 'Economically Successful Protected Areas' through the sale of both carbon and biodiversity credits, as well as 'equities'[130].

Natural Asset Companies: in a development that could see the creation of an entirely new 'asset class' out of nature, the New York Stock Exchange has over the last two years or so been exploring the concept of Natural Asset Companies. The purpose of these, says the NYSE, is to '*convert natural assets into financial capital*', a NAC being '*a transformational solution whereby natural ecosystems are not simply a potential resource to extract, but an investable productive asset which provides financial capital to responsible stewards of ecological resources. As a publicly traded equity, NACs will enable investors to allocate capital efficiently to meet their sustainability objectives*'[131]. Leading the idea with the NYSE has been an organisation called the Intrinsic Exchange Group[132], which is seeking regulatory clearance for a first public listing of a NAC on the NYSE[133]. As one media report commented, 'With NACs, the NYSE and IEG are now putting the totality of nature up for sale[134].'

120 Australian Government, undated
121 Carbon Pulse, 2023f
122 EU, 2021
123 GFO, 2022
124 GEF, 2023
125 Plan Vivo, undated b
126 Carbon Pulse, 2023i
127 CBD, 2022
128 Carbon Pulse, 2023e
129 Carbon Pulse, 2023j
130 EQX, 2023
131 NYSE, undated
132 IEG, undated
133 IEG, undated
134 Webb, W., 2021

3. ANALYSIS AND CASE STUDIES OF THE DIFFERENT INITIATIVES

The following four schemes are included in the study: voluntary REDD+ offsets under the Verra system: sovereign forest carbon credits, and; jurisdictional REDD+ payment schemes under both the FCPF and ART-TREES. Each of these is described, along with a short case study. The section following consists of a comparative analysis of the schemes against some key criteria.

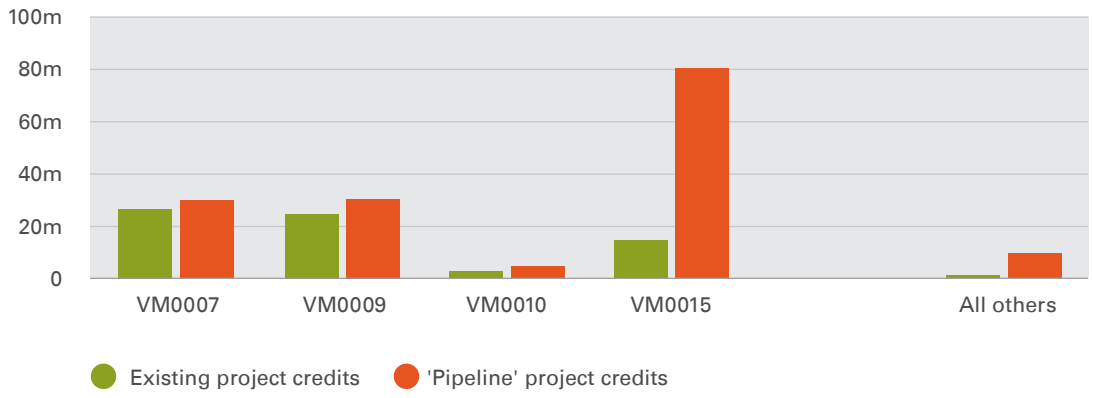
3.1. VOLUNTARY REDD+ OFFSETS – VERRA

As shown in Section 2, Verra is the dominant force among the various systems that can or do relate to the creation of voluntary carbon credits from REDD+ projects. Its requirements operate at two main levels: the programmatic level, where certain procedures and rules apply to every single project registered with the system; and the project level, where specific procedures - or 'methodologies' - apply depending on the type of project. As noted earlier, fourteen different Verra methodologies broadly concern REDD+, which account for the majority of REDD+ and other NBS projects and credits[135]. Verra has for more than a decade had in place a methodology for use with 'nested' or jurisdictional REDD+ projects, but this has never actually been used to develop a project, hence all projects developed under the Verra system operate at the project level only.

BOX 7: THE MOST WIDELY USED VERRA-APPROVED METHODOLOGIES RELATED TO REDD+

Methodology number	Name/purpose & current version	No. projects using this methodology as of Feb. 2023	'Pipeline' projects using this methodology
VM0006	Carbon Accounting for Mosaic and Landscape-scale REDD Projects, v2.2	34	6
VM0007	Framework (REDD-MF), v1.6	33	36
VM0009	Avoided Ecosystem Conversion, v3.0	12	7
VM0010	Improved Forest Management: Conversion from Logged to Protected Forest, v1.3	18	42
VM0015	Avoided Unplanned Deforestation, v1.1	33	47

Figure 4: Estimated annual credits (VCUs) produced under Verra methodologies for REDD+-like projects, curent and 'pipeline'



135 A number of additional 'project modules' and 'tools' also exist, mostly concerning estimation of emissions from various activities or demonstration of 'additionality'. These are frequently used in conjunction with the relevant project methodology.

Verra is intending to bring all the various REDD standards into one standard by late 2023[136], partly, it says, to overcome the confusion about which to use, and some evident weaknesses in them. This will also involve a requirement to use jurisdictional-scale baselines.

Multiple studies have documented problems with the Verra system. One published in 2020, which assessed all twelve Verra-verified REDD+ projects in the Brazilian Amazon, found 'limited' credible evidence of their effectiveness, and that '*results suggest that the accepted methodologies for quantifying carbon credits overstate impacts on avoided deforestation and climate change mitigation*'[137]. A later and larger study by a number of the same authors of 27 forest conservation projects in six countries on three continents found that most had not reduced deforestation[138]. A 2022 study of a sample of 40 Verra-certified REDD+ projects in nine countries found more positive results, but that the reductions in deforestation were '*small in absolute terms*' even if '*greater in sites located in high-deforestation settings and did not appear to be substantially undermined by leakage activities*'[139]. A study in the same year by the carbon ratings agency Sylvera, which claimed to cover nearly 85 percent of all its REDD+ projects, found that only 31 percent could be rated as 'high quality'[140].

The overall picture is thus of, at best, a very high degree of uncertainty about Verra verified REDD+ outcomes and, more likely, very high rates of failure. Another investigation of three Verra-verified REDD+ projects indicates more specifically where the failings are occurring. Among its findings were the selective application of Verra-approved standards and methodologies that project proponents claim to comply with, unconvincing claims and creative interpretations of what would have happened without the project, insufficient focus on 'leakage' risks and self-determined baselines that were accepted by auditors, even though relatively simply checks of publicly available deforestation data should have caused serious questions to be raised[141]. The combination of these factors, and a general lack of consistency and rigour, has resulted in what appeared to be greatly inflated volumes of allegedly avoided emissions in all three projects assessed.

Another problem that extends across the entire Verra system is an inherent conflict of interest. Verra receives a significant commission on every 'verified carbon unit' it eventually registers (typically, US$ 0.10 per credit), and hence has an interest in ensuring that projects are validated and verified rather than rejected by auditors. It also benefits from inflated baselines that result in over-crediting, which has been a serious problem with REDD+ projects.

Cordillera Azul National Park, Peru. © Vicky Brown, Forest Peoples Programme

136 Carbon Pulse, 2023d
137 West, T. A. P. et al., 2020
138 West, T. A. P. et al., 2023
139 Guizar-Coutiño, A. et al., 2022
140 Sylvera, 2023b
141 Kill, J. and Counsell, S., 2022

CASE STUDY

THE CORDILLERA AZUL NATIONAL PARK VERRA-VERIFIED REDD+ PROJECT, PERU[142]

Accounting period: since 2002

Forest area: 1.3 million hectares

Claimed carbon savings: 25.2 million tonnes

Key issues: inflated baseline, leakage, lack of additionality, lack of Indigenous peoples' consent

This project was developed under the Verra VM0007 REDD Methodology. It was initiated in 2008, though only validated by the certification company SCS in 2013, with the first verification having taken place at the same time[143]. According to the Verra registry, the first carbon credits for the project were issued in July 2015, and will continue to be generated until 2028.

The project's claim to additionality was that, in its absence, the area of the Cordillera Azul National Park (CANP) would be deforested, and funds would not be available to protect it[144]. However, according to various reports (including the carbon project document itself), the main threats to the area's forests had already been rapidly resolved following the park's establishment in 2001 – seven years before the REDD+ project started.

The baseline for the project was derived from deforestation data from the area surrounding the park. However, this was not comparable, as this area is mostly lowland suitable for agriculture, whereas the CANP is mostly uplands and partially very inaccessible. A future scenario of deforestation in the park in the absence of the carbon project rested on huge projected increases in population, up to 26 percent annual compound growth in some areas. This resulted in an implausibly high baseline, and hence the creation of a high volume of credits. Actual deforestation, even before carbon funding started, was very much lower than the project had claimed it would be.

Another major issue was the extent to which any emissions reductions inside the project area were simply shifted elsewhere. Though the project recognised this could be an issue, methodological manipulations allowed for the recordable 'leakage' (which should be deducted from the issuable carbon credits) to be reduced to zero. While the project was based on its ability to stop immigration into the park of a fast-growing population, it could not and did not attempt to do anything to stop farmers seeking land from simply clearing abundantly available forests elsewhere, even in close proximity to the park. Leakage could in fact be close to 100 percent. Nevertheless, the first four monitoring reports for the project (covering 2008-2016) recorded zero emissions leakage, and every corresponding verification report issued by Verra-accredited auditing firms duly accepted this claim.

Finally, the project failed to properly consult with and obtain the consent of various Indigenous communities living in and around the park. According to a local Indigenous federation, the CANP has blocked the community's land title claims to several thousand hectares of the park[145]. In July 2020, the community started a court case against the Peruvian Government and the park, challenging their '*refusal to title their traditional lands, the imposition of exclusionary conservation and profit-making from carbon credits sold without their consent*'[146].

142 A more detailed version of this case study, and full references, can be found in Kill, J. and Counsell, S., 2022
143 VCS, 2013
144 CIMA, 2012
145 Hill, D., 2021
146 FPP, 2021

3.2. SOVEREIGN FOREST CARBON CREDITS

As noted in Section 2.1 above, sovereign forest carbon credits are based on the agreements under the UN Framework Convention on Climate Change, particularly the 'Warsaw Framework'. The system is entirely voluntary. According to the UNFCCC, any country wishing to achieve REDD+ payments must put several components in place, specifically: a national forest strategy or action plan; a forest reference emission level ('FREL', i.e. baseline) which has been 'assessed' through the UN system; a forest monitoring system; a system to show how the Cancun safeguards are being applied, and that these are 'fully measured, reported and verified'[147]. Once a forest reference emissions level has been 'assessed', countries can submit their claimed 'REDD+ results' for payment in a technical annex to their biennial reports to UNFCCC.

As in all the REDD+ payments systems, the setting of the baseline, or in this case the 'forest reference emission level', is crucial – and potentially the most open to manipulation. According to the UNFCCC, reference levels should be '*transparent, taking into account historic data and be flexible so as to accommodate national circumstances and capabilities, while pursuing environmental integrity and avoiding perverse incentives*'[148]. However, beyond these very general guidelines, the method by which the FREL is calculated can be determined entirely by the applicant country. Assessment of it is undertaken according to a set of guidelines and procedures adopted by the UNFCCC in 2013 under the Warsaw Framework by a team of two 'forestry experts selected from the UNFCCC roster of experts', one each from a developing and a developed country[149].

Importantly, the UNFCCC requirements are only that a FREL has to have been 'assessed' – not 'approved'. In fact, there is no mechanism by which FREL's are either 'approved' or 'rejected'. Alongside assessing whether country submissions of their FREL's are in keeping with the UNFCCC's guidelines, the second stated objective of the technical assessment is '*to offer a facilitative, non-intrusive, technical exchange of information on the construction of forest reference emission levels and/or forest reference levels with a view to supporting the capacity of developing country Parties*'[150]. In other words, rather than generating a clear and consistent outcome of whether a reference level is accepted or not, the UNFCCC assessment is an iterative *process*. This is reflected in the way the outcomes of the assessments are reported where Technical Assessors merely *comment* on the proposals, noting any changes made as a result, though countries are under no obligation to make such changes.

As can be seen from the Gabon case study below, countries can make a 'REDD+ Results' claim against a FREL on which expert assessor 'comments' are still outstanding – and indeed there can be extant expert assessors' 'comments' on the claim itself, but the 'results' will still stand. No one has the mandated power to definitively block a REDD+ results claim, however flawed the FREL, or the claim against it, might be. Nevertheless, proponents of these types of REDD+ credits, especially Kevin Conrad, founder of the Coalition for Rainforest Nations, argue that the system represents the only reliable and credible way of generating offsets from forests[151]. He claims that this national system of REDD+ has saved over 10 Gt of emissions[152] (apparently based on the amount of putative 'results' recorded on the Lima REDD+ Information[153]).

147 UNFCCC, undated e
148 UNFCCC, undated f
149 UNFCCC, 2013a
150 UNFCCC, 2013a
151 Conrad, K. and Bietta F., 2023
152 Conrad, K. and Bietta F., 2023
153 UNFCCC, undated h

BOX 8: SOVEREIGN FOREST CREDITS AND THE REDD.PLUS PLATFORM

'REDD+ Results Units' (RRUs) have been made available for 'over-the-counter' sale to the public and corporations, at a price of $16 each, through the REDD.plus marketing platform, launched by the Coalition for Rainforest Nations (CfRN) in 2019. This site states:

'Let's take action to fight the climate emergency together. Save rainforests. Go carbon neutral. Support the Paris Agreement. Only on REDD.plus. Every $16 buys one ton of reduced carbon emissions and preserves two rainforest trees.'[154]

As yet, only the claimed forest emissions reductions (nearly 9 million of them) from Papua New Guinea (the adopted home country of CfRN's founder Kevin Conrad) are available on the REDD.plus platform. Comparison with PNG's originally claimed national reductions, as shown on the Lima Information Hub, indicate that a mere 20,679 of PNG's RRUs had been sold by February 2023. RRUs from Belize, Honduras, Gabon and Ghana are claimed to be 'coming soon' to REDD.plus. These countries have submitted a 'REDD+ Results' claim against an 'assessed' FREL, though Gabon has evidently so far declined to offer its 'REDD+ Reduction' units through the platform.

Unlike the Verra registry for voluntary credits, where there is the possibility for the purchasers of the credits to be recorded, there is no such mechanism on the REDD.plus platform. It is not known how or if any 'over-the-counter' sales through the platform will be recorded on the official Lima Hub.

Reflecting concerns about the quality of sovereign forest credits, the leading spot carbon exchange operator, Xpansiv, withdrew its partnership in REDD.plus in October 2022, stating '*The [Coalition for Rainforest Nations] offerings are not a match for the Xpansiv platform for technical reasons, as well as a lack of product-market fit and customer demand*'[155].

Some in the private sector are sanguine about sovereign REDD+ credits. A briefing by the Chief Investment Office of Deutsche Bank noted that '*We expect rapid growth of voluntary purchases of Paris Agreement compliant carbon credits…The COP26 sovereign credit framework, combined with the success of the UNFCCC REDD+ mechanism, is likely to accelerate growth in the sovereign carbon credit market and encourage consolidation of global carbon standards and accounting*'[156].

However, other voluntary market analysts have been scathing about the sovereign forest credits being offered through REDD.plus. One report noted that they are *'not rigorous enough to offset or compensate for emissions whether 'sovereign' or not',* are *'like engaging in a miniature result-based payment scheme'* and that '*we cannot recommend that they are considered equivalent, let alone 'superior', to high-quality project-based REDD+ or jurisdictional REDD+ credits when available'*[157].

154 REDD.plus, 2023
155 Carbon Pulse, 2022
156 Müller, M., 2022
157 Carbon Pulse, 2022a

CASE STUDY

GABON'S SOVEREIGN REDD+ REDUCTION UNITS

Accounting period: 2010 – 2018

Forest area: 23.7 million hectares

Claimed carbon savings: 90.6 million tonnes

Key issues: inflated baseline, leakage, lack of additionality, questionable accounting

Gabon submitted its proposed forest reference emission level to the UNFCCC in February 2021[158]. It was assessed in April that year by two experts from Switzerland and Brazil[159]. A revised proposal, following a 'facilitative exchange' with the experts was submitted by Gabon in October 2021[160]. One of the changes in the revised FREL was that biomass included in palm oil plantations (which have mostly been established on cleared forest land) was added into the forest carbon stock.

For its reference emissions level, Gabon used a reference period of 2000–2009, and an emissions reduction (claim) period of 2010–2018[161]. Rather than just considering the emissions levels from deforestation, Gabon presented what was in effect an estimate of the carbon stocks of its entire forest estate over both the reference and claim period. Noting that it had reduced industrial logging, and increased the extent of protected areas, it claimed that net *removals* of carbon from the atmosphere – into trees in the either newly protected areas or those subject to no further logging or 'reduced impact logging' – had substantially increased.

In the calculation of its baseline emissions level, Gabon introduced a 10 percent 'adjustment' to account for 'national circumstances'. Because it claimed to be responsible for net carbon removals to its forests, this adjustment to the historical baseline was applied *downwards*. This 'adjustment', from an estimated 107 million tonnes sequestered from 2000–2009 to 96 million tonnes, would mean that there would be a surplus above this in the claimed 'net removals' from 2010–2018. This was justified by Gabon on the grounds that such an adjustment has been allowed for 'high forest low deforestation' countries in the Green Climate Fund's REDD+ methodology[162].

The UNFCCC's technical experts questioned whether such an 'adjustment' could be made on the basis of 'national circumstances' relating to a period before the actual crediting had even begun. They also questioned whether the use of a 10 percent adjustment permitted under another scheme justified applying it under the UNFCCC one, noting '*the simple application of the maximum allowed adjustment following the Green Climate Fund REDD+ results-based payment methodology is not per se a justification for the use of that level of adjustment*'[163]. But, in their conclusions, rather than rejecting this adjustment, and limited by the UN Guidelines, they simply said that such an adjustment should in future be 'sufficiently justified'. Gabon's FREL remained at the 'adjusted' level of 96 million tonnes of net removals.[164]

158 Gabonese Government, 2021a
159 UNFCCC, 2021a
160 Gabonese Government, 2021b
161 Gabonese Government, 2021b
162 Gabonese Government, 2021b
163 UNFCCC, 2021a
164 UNFCCC, 2021a

Two months later, Gabon submitted its claim for 'emissions reductions' (or more accurately, increased carbon removals from the atmosphere) against this FREL. In this, *another 10 percent adjustment was added*, to the claimed amount of carbon being removed from the atmosphere by the country's forests for 2010-2018. The result of this can be seen in the table below: the two 'adjustments' together meant that, instead of having a net carbon removals balance of minus 16.5 million tonnes (i.e. it had net emissions), it had a positive balance of 90.6 million tonnes of net removals[165].

Gabon's 'net removals', 2010 – 2018 - the effect of 'adjustments'		
	Without adjustments	**With adjustments**
Credit level (baseline) (tCO2eq)	107,186,873	96,468,186
Claimed 'increased net removals' (tCO2eq)	90,636,103	187,104,289
Resulting credit level	-16,550,770	90,636,103

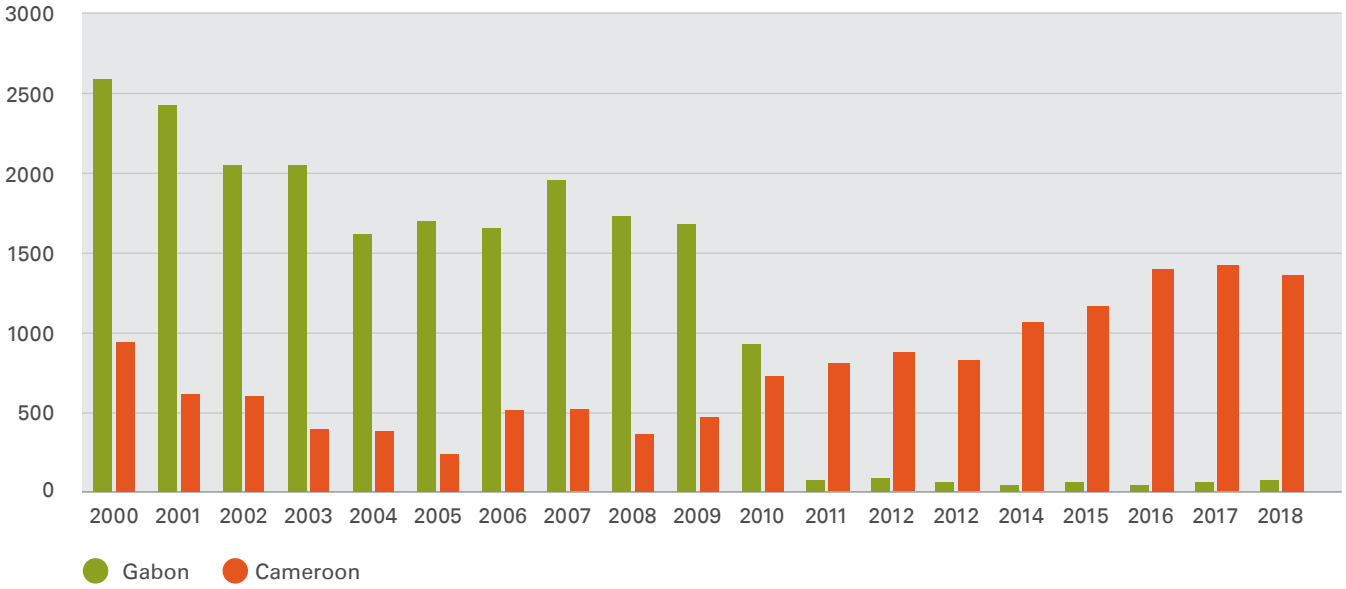
The UN's technical analysis of this was conducted by two new experts, one each from Ghana and France (the former having worked for CIRAD and actually employed by the European Commission)[166]. These experts, whilst noting a number of methodological anomalies in the way the adjustments had been calculated, did not challenge the underlying principle of making such adjustments, and merely noted these '*as an area for future technical improvement*'[167], along with about a dozen other issues. They raised a number of questions, including over the volumes of timber being harvested, and carbon emissions due to forest degradation. Their overall conclusions, though, were that the data and information provided by Gabon were '*mostly consistent*' and '*mostly accurate*'. During the assessment process, Gabon slightly revised its submission, though the number of claimed emissions reductions did not change at all. Hence 90.6 million 'REDD+ results' were duly registered (3.8 million of which were recorded as 'already rewarded', by the Central Africa Forests Initiative)[168].

The resulting credits, said Gabon's Minister for the Environment, and former WCS country director, Lee White '*result from decreased emissions, measured nationally to avoid any chance of leakage and result in increased net sequestration*'[169]. Gabon had indeed banned raw log exports, cancelled a number of logging concessions, and established new protected areas. But all this took place in the 2000s, even before the rudiments of a REDD+ framework had been installed in the UNFCCC. The policy decisions taken then had nothing to do with mitigating climate change, and everything to do with economic factors such as increasing local processing of wood[170] and geo-political dynamics, such as a WCS-brokered agreement for Gabon to receive substantial financial support from the US government to set up new national parks[171]. They were entirely non-reliant on carbon credit financing. The approach of crediting for retrospective government policy decisions thus runs fundamentally against the precepts of additionality as required under all offsetting regimes.

Moreover, at the time of Gabon's log export ban in 2010, experts suggested that this might simply lead to increased exports of logs from elsewhere, especially neighbouring Cameroon[172]. Analysis of data from the International Tropical Timber Organisation suggests this is what happened (see Figure 5 below). The increase in Cameroon's log exports from 2009 onwards represents about two-thirds of the volume no longer flowing from Gabon – indicating that most of the carbon loss no longer happening in Gabon had simply leaked to Cameroon instead. It is likely – but impossible to confirm - that the remaining volume of logs was also made up by importers with supplies from elsewhere. In terms of lack of additionality, inflated baselines, inflated accounting and leakage, the credits being offered for sale by Gabon may be worthless as a means of compensating for real emissions occurring elsewhere.

165 Gabonese Government, 2021c
166 UNFCCC, 2022a
167 UNFCCC, 2022a
168 Gabonese Government, 2022a
169 Carbon Pulse, 2022h
170 Gabonese Government, 2022a
171 WCS, 2005
172 See, for example, Hance, J., 2010

Figure 5: Gabon and Cameroon log exports 2000 – 2018 ('000s cubic metres)



Source: ITTO, 2022

At the time Gabon's sovereign credits were released onto the market, Minister Lee White said the country was seeking prices in the range $25-30 per credit, and claimed there was 'definite interest' around $15-$16/t for 'millions or hundreds of thousands of credits'[173]. Three months later, he was forced to admit that there had yet been no interest in them from buyers[174].

Given the existing and potentially greatly increasing surplus of voluntary (including jurisdictional) credits and REDD+ 'results units', there are clearly hopes by credit generators and traders that these might eventually be tradeable under the provisions of Article 6 of the Paris Agreement. There is debate as to whether 'International Transferred Mitigation Outcomes' (ITMOs) provided for under Article 6.2 might, in theory, include forest-related or nature-based credits, such as RRUs or possibly even some of the jurisdictional REDD+ credits now starting to be generated through ART-TREES[175]. As yet, the handful of countries leading in ITMO 'partnerships' or purchases have not bought avoided deforestation or (re)afforestation credits or clearly engaged with such projects. Switzerland is buying ITMOs from an improved cookstoves project in Peru[176]. Lee White has touted purchases of ITMOs by South Korea as a potential outlet for the country's recently minted sovereign REDD+ credits[177].

At the time of writing, it was unclear how or whether credits generated through voluntary markets could be 'aligned' or deemed to be eligible for use under the emerging rules for the Paris Agreement Article 6.4. The Supervisory Body established by the UNFCCC to develop the precise rules for implementation of Article 6.4 is expected to table proposals prior to COP 28 later in 2023. There is bound to be pressure from some countries to allow credits from schemes such as ART-TREES within the Article 6.4 provisions. The submissions to the Supervisory Body reveal strong lobbying from conservation industry interests such as Conservation International and EDF for inclusion specifically for nature-based credits, supported by large corporations such as Microsoft[178].

173 QCI, 2022b
174 QCI, 2023c
175 QCI, 2023e
176 Carbon Pulse, 2023
177 Carbon Pulse, 2022
178 UNFCC, 2023

3.3 JURISDICTIONAL FOREST EMISSIONS REDUCTIONS, FOREST CARBON PARTNERSHIP FACILITY

The purpose of the Forest Carbon Partnership Facility is to '*assist developing countries in their efforts on reducing emissions from deforestation and/or forest degradation*'[179]. It consisted of two funds: a 'REDD Readiness Fund' which, like UN-REDD would help develop national capacity to undertake REDD programmes, and a 'Carbon Fund' that would help develop large jurisdiction-level programmes, and eventually purchase putative forest emissions reductions (usually around 10 million of them per country) from the respective national governments.

The Readiness Fund received $400 million in donor contributions, about $100 million each from Germany and Norway, with other large contributions from Canada, Australia, Finland and Japan[180]. By 2023, less than half of the countries deemed by the FCPF to be 'Ready for REDD+' had even submitted information on how they intended to implement the REDD+ Safeguards. The Carbon Fund has been capitalised with nearly $900 million in donor funding, roughly a third each from Norway and Germany, and another sixth from the UK, with Australia, Switzerland and the EU comprising most of the rest[181].

The achievement of FCPF's aims have proved very elusive. Both FCPF funds were originally planned to close at the end of 2020. By 2018, eleven years after the FCPF's launch, not a single country had signed an actual forest Emissions Reductions Payment Agreement (ERPA) with the Bank, though a number of emissions reductions programmes had been approved[182]. To avoid the major embarrassment of the Carbon Fund closing without having purchased a single tonne of 'emissions reductions', its mandate was extended to the end of 2025[183]. (The Readiness Fund was given an additional lease of life to 2022). It then took until 2021 for the Fund to make its first purchase of putative forest emissions reductions, with a payment of $6.4 million to Mozambique[184]. As of February 2023, the only other purchase of emissions reductions by the Fund was a $4.8 million payment to Ghana in January 2023[185]. There is no consolidated list of the status of the 15 ERPAs, nor the volume of 'emissions reductions' they could potentially produce (though some of them are clearly very large) or are 'rewarded' for, nor on where the resulting ERs end up.

The FCPF's very long gestation period reflects serious miscalculation of the technical difficulties of developing such programmes, where in most countries there was little technical or administrative experience or capacity over even limited REDD projects. Many key documents, such as the central Programme descriptions for Emissions Reduction Programmes, were mostly only available in English. Often these were produced by external consultants, NGOs or private sector agents, and there was evidently very weak government ownership, buy-in or even understanding of the programmes being developed in their name.

The underlying methodological framework used to develop the Emissions Reductions Programmes was strongly criticised for multiple 'unacceptable' weaknesses, especially in relation to land tenure and forest carbon ownership issues. Assessment of tenure would not necessarily have to determine who owned or claimed land in the FCPF's intended programme areas whereas carbon 'ownership' could be established through a simple self-declaration by a government minister, without any checks on actual legal provisions or a requirement for this to be validated by a country's legislature[186]. As well as persistent political and capacity issues, it proved very difficult in a number of countries to agree how the benefits of the programmes would be distributed[187].

Beyond the 'emissions reductions' purchased by the Carbon Fund (and then in turn transferred proportionately to the donor 'investors'), a number of the programmes would produce a great many more notional emissions reductions. These would in due course be available for trading through various channels – such as the CORSIA scheme to offset airline emissions (see Box 6 above). The Mai Ndombe FCPF programme in DRC, for example, would, according to the project document, result in a total of nearly 30 million tonnes of CO2 'emissions reductions', 20 million more than the Carbon Fund contracted to buy[188]. These 'emissions reductions' remain entirely outside the UN system, and there is a strong risk of double counting of them in some countries.

179 FCPF, 2016b
180 FCPF, 2022
181 FCPF, 2022
182 FCPF, 2019
183 FCPF, 2021
184 World Bank, 2021
185 World Bank, 2023
186 Counsell, S. et al., 2013
187 See, for example, Berk, N. and Lungungu, P., 2020
188 FCPF, 2016, pp. 200–201

CASE STUDY

THE FCPF EMISSION REDUCTIONS PROGRAMME IN SANGHA & LIKOUALA, REPUBLIC OF CONGO[189]

Accounting period: 2019 – 2023

Forest area: 12.1 million hectares

Claimed carbon savings: 8.3 million tonnes (to be purchased by the World Bank FCPF)

Key issues: lack of additionality, lack of any likely impacts, inflated baseline, lack of consultation with local communities

The programme relates to a wide 'jurisdictional' area – Congo's two northernmost, and heavily forested, departments of Likouala and Sangha, together about 121,000 square kilometres (about the size of England). Much of the area has long been carved up into large-scale logging concessions, strictly protected areas and, more recently, oil palm plantations. Some of it has been allocated as exploratory oil concessions, though it appears that none have yet struck deposits. An agreement to purchase 8,349,000 tonnes of claimed emissions reductions at US$5 per tonne, was finally approved by the World Bank in 2021. The agreement applied to the years 2019–2023, so two of the years covered were already retrospective payments.

In order to give the impression of resulting in emissions reductions, it appears that the counterfactual baseline was created by taking the historical rate of deforestation and forest degradation experienced in the region and adding a 72 percent 'upward adjustment' to it. Hence, instead of assessing future emissions under the programme against the actual historical levels, calculated to be around 7.5 million tonnes CO2 equivalent per year for the region, the success of the programme would be judged against a level of nearly 13 million tonnes per year[190]. In other words, nearly three quarters of the claimed emissions reductions could be generated by simply doing nothing. The reference period was chosen as 2013–2016, the last of which was by some measure Congo's worst ever for deforestation, hence this also helped to inflate the baseline.

Under the programme, around three-quarters of the supposed emissions' reductions would be achieved through so-called 'reduced impact logging' and creating no-felling 'set asides' inside logging concessions[191]. However, logging in parts of the region has been winding down for some years anyway, due to the exhaustion of very high value, profitable, old-growth species. One concession (which alone covers nearly 300,000 hectares) is already effectively 'off limits' and could probably account for a lot of the claimed emissions reductions[192]. Also, the regions' largest loggers operate on a 20-year logging cycle, where each coupe is logged for a year, and then closed for 19 or more years. Hence the next five years' worth of annual coupes could simply be informally designated as 'protected forest' after they had been logged. In addition, concessions typically contain large areas that would never be logged anyway, because the valuable timber species do not occur there, or they are swampy and commercially inoperable. The two largest logging companies, CIB and IFO are already certified under the Forest Stewardship Council (FSC) scheme, whose rules require such protection areas, and these were long ago claimed to exist.

189 A more detailed version of this case study is available in Counsell, S., 2022
190 FCPF, 2018
191 FCPF, 2018
192 FSC-Watch, 2011

Other emissions reductions would, it is claimed, happen by promoting shade-grown cocoa production and reducing the impacts of subsistence farming. However, the logging company CIB (owned by global agro-commodity producer and trader, Olam International) had already started employing its redundant logging workers to produce cocoa in the concessions more than a decade ago[193]. In other words, as with the reduced impact logging, this component could at least in some cases pay companies for things that were already happening.

The final source of supposed emissions reductions is through oil palm companies establishing 'conservation zones' within their concessions. There is in fact only one palm oil company in the region, called 'Eco-oil'. Its largest concession covers 133,512 hectares that, by any standards, would be a vast palm oil plantation. Analysis of deforestation data shows that there has been no clearance of forest for palm oil at all in the concession to date. It is inconceivable that the whole of the area could be deforested and converted within the three years remaining of the FCPF emissions reduction programme – indeed World Bank documents show that the company has no intention of doing so. The owner would only need to designate some of the concession as 'conserved' for a few years, and the requirement for receiving an emissions reductions payment would be met.

Of the $41.8 million to be paid by the FCPF for the supposed emissions reductions, 15 percent will go to the government, a maximum 70 percent to logging and palm oil companies, and the remainder, up to a maximum 25 percent, to local communities (though the latter all through Development Committees which they themselves do not control)[194]. Rather than representing payments for genuine emissions reductions, these appear in reality to be thinly disguised subsidies to logging and palm oil companies for doing little or nothing, likely resulting in no additional emissions reductions whatsoever.

193 FSC-Watch, 2015
194 FCPF, 2018

3.4 JURISDICTIONAL FOREST EMISSIONS REDUCTIONS: THE ARCHITECTURE FOR REDD+ TRANSACTIONS (ART)

The Architecture for REDD+ Transactions was formed in 2018, with its Secretariat hosted by the US not-for-profit development corporation, Winrock International.

It describes itself as a '*standalone, independent program that develops and administers standardised procedures for crediting emission reductions and removals from national and large sub-national REDD+ programs*'[195]. ART's standard is called the REDD+ Environmental Excellence Standard (TREES), the first version of which was published in 2020, though no credits were issued under it. A second, still current, version appeared a year later, and adds methodologies for generating carbon credits in 'high forest, low deforestation' jurisdictions (see below), and also from reforestation and forest restoration[196]. According to ART, '*Under TREES, countries and eligible subnational jurisdictions can generate verified emission reduction and removal credits by meeting precise and comprehensive requirements*'[197].

Under the ART-TREES methodology, the basic 'Crediting level' (i.e. the baseline) is determined very simply, as the average annual forest carbon emissions across the five-year reference period immediately prior to the intended crediting period[198]. The crediting level has to be recalculated every five years, and cannot increase. REDD+ areas must be either an entire nation, or a jurisdiction 'no more than one administrative level down from national level' and covering at least 2.5 million hectares. In theory this can include 'recognised Indigenous territories'[199].

Verification of putative emissions reductions under TREES is carried out by consultants approved by ART. Their job is to '*ensure the government's application is in conformance with all requirements listed in TREES, including for carbon accounting and [Cancun] safeguards, and that the claims made … are complete and accurate*.' ART-TREES currently lists two American consultancy firms as approved verification bodies: Aster Global Environmental Services, Inc. based in Ohio, and S&A Carbon, LLC based in Oregon.[200] Both of these have been responsible for validation or verification of controversial voluntary market offset projects such as, respectively, the Northern Kenya Grassland Carbon Project[201], and the REDD project in Brazil Nut concessions in Madre de Dios, Peru[202].

195 ART, undated d
196 Winrock International, 2022
197 ART, undated, c
198 ART, 2021b
199 ART, 2021b
200 Usher, A. D., 2022a
201 See Counsell, S., in press
202 Counsell, S., 2021

BOX 9: ART-TREES, LEAF AND EMERGENT

The Lowering Emissions by Accelerating Forest finance Coalition (LEAF) was launched in April 2021 by governments including Norway, the UK, and USA, and companies including Amazon, Airbnb, Bayer, Boston Consulting Group, GSK, McKinsey, Nestlé, Salesforce, and Unilever[203]. The Coalition is '*designed to accelerate climate action by providing results-based finance to countries committed to protecting their tropical forests*'[204]. It will do this by aggregating demand from governments and companies for verified Emissions Reductions which, initially at least, will only be those generated through the ART-TREES scheme.

A platform to '*facilitate transactions and serve as the administrative coordinator*' of LEAF is provided by Emergent, a US non-profit organisation, established in 2019[205]. In October 2021 it was granted more than $6 million in core funding for two years by the Norwegian Government's International Forests and Climate Initiative (NICFI)[206]. Presumably at some stage it will have to become self-sustaining, and this will most likely be through the purchase and resale of ART credits, including by charging a reported 0.75 percent fee per credit issued.[207] In that sense, it could face similar conflicts of interest as Verra, where it is notionally involved in upholding standards (such as checking the benefit-sharing plans of credit-supplying jurisdictions), but also dependent on not rejecting credit purchase agreements.

LEAF's first call for proposals in 2021 sparked controversy when it was revealed that the Brazilian State of Acre had not consulted with Indigenous people over its preliminary proposal to sell carbon credits through LEAF[208]. The outcry caused Emergent to add a requirement for jurisdictions to inform Indigenous communities prior to making project proposals. LEAF claims to have established a 'Stakeholder Engagement Group' to address such concerns, but the composition of this is not publicly available, and no records of its role or deliberations are available.

In 2022, the funds committed to purchase of forest carbon offsets through LEAF (and hence of ART-TREES credits) had increased from an initial $1 billion to $1.5 billion, with new commitments made by the Republic of Korea, Volkswagen Group and H&M Group[209]. Also at the end of 2022, Ecuador, Costa Rica and Nepal signed memorandums of agreement with LEAF, foreseeing the signing of binding Emissions Reduction Purchase Agreements by April 2023[210]. Four Brazilian States, Amapá, Amazonas, Mato Grosso and Pará also signed Letters of Intent with Emergent to supply emissions reductions to LEAF Coalition participants in due course[211].

ART claims to be 'consistent with the Cancun Safeguards', and the TREES standard sets out indicators for assessing how these are being implemented[212]. But from the outset, some Indigenous leaders have questioned this, saying they've been unable to engage with the process, warning that monitoring and verification mechanism could simply ignore the 'hard realities' of their struggles to obtain security for their territories[213]. Costa Rican Indigenous leader Levi Sucre Romero, who is also coordinator of the region-wide Meso-American Alliance for People and Forests (AMPB), has said that the ART set-up could leave communities as vulnerable to governments as they have ever been and could facilitate a wholesale capture of the forest lands that Indigenous peoples manage and protect[214]. He warned that it could lead to an increase in disputes and evictions of Indigenous peoples from their lands: '*We could be facing an imminent 'blood carbon' buy-out since there is no guarantee that governments will respect the rights of Indigenous peoples in commercial transactions of carbon*'[215].

203 LEAF, 2021
204 LEAF, 2021
205 Emergent is formally registered as Emergent Forest Finance Accelerator, Inc.
206 NICFI, 2019
207 BEIS, per comms, March 2023
208 Usher, A. D., 2022b
209 N4C, 2022
210 LEAF, 2022
211 LEAF, 2022
212 ART, 2021b
213 Usher, A. D., 2022a
214 Usher, A. D., 2022a
215 Usher, A. D., 2022a

Emergent has responded that it is not its responsibility to consult with Indigenous groups '*on their involvement in a particular host jurisdiction. Our engagement is purely to build their understanding, gain information, guide information, maintain the dialogue.*'[216] However, adherence to the Cancun safeguards requires the '*full and effective participation of relevant stakeholders, in particular Indigenous peoples*'[217] – not simply add-ons after mechanisms are established[218]. Because of its minimum size requirement, ART-TREES structurally prevents this; few Indigenous communities could claim territorial rights over such a large area and therefore be able to submit an emissions reduction project themselves[219]. Not all of the countries with a proposal registered in ART's database have even submitted their Cancun safeguards plan to the UNFCCC[220].

As of February 2023, the ART registry showed seventeen programmes as being in the process of gaining its verification[221], fourteen of them being national programmes, three from different states in Brazil, and one state in Mexico[222]. Only one programme – a national scheme for Guyana – has been already been verified and has credits (33 million of them) showing on the credit registry[223] (see Case Study below). The only other programme that has so far advanced to the 'reporting' phase is that of Costa Rica, which is yet to be verified but is claiming nearly seven million tonnes of credits from 2017 to 2021. More than half of the programmes submitted to ART have been languishing at the 'concept' stage since at least the end of 2021, suggesting that the early rush to bring programmes into the scheme has not brought forward many viable ones.

A key feature of ART-TREES Version 2 is a provision to reward and incentivise 'high forest, low deforestation' (HFLD) countries that have missed out on REDD+ funding because such programmes have been narrowly designed to reward reduced deforestation against historical baselines. Under this, jurisdictions with more than 50 percent forest cover and less than 0.5 percent annual deforestation can calculate an 'HFLD score'. This is basically the sum of a score between zero and 0.5 given, first according to how much forest a country has, and second what its deforestation rate is[224]. Any jurisdiction with a combined score greater than 0.5 qualifies as 'HFLD'. Qualification as an HFLD jurisdiction allows for an 'adjustment' to be made in the way the 'crediting level' (baseline) is calculated.

Under this adjustment, rather than the baseline just being the average rate of forest emissions in the five years prior to the crediting period, an addition can be made to the baseline, based on the 'HFLD score' and the level of carbon stored in the jurisdiction's trees. Hence countries with very large areas of forest and relatively low annual deforestation rates can gain very high crediting levels, against which their actual forest emissions are deducted to derive the level of credits. This means that credits issued under the HFLD methodology reflect the *store* of carbon in the forest, rather than actual 'emissions reductions'. To this inflated baseline can be added a further adjustment for 'avoided foregone removals' – that is, hypothetical reductions from greenhouse gas storage that might have occurred in the absence of the REDD+ programme[225].

ART-TREES' HFLD credits have attracted particular opprobrium from key figures in the carbon industry, one of whom has stated that '*HFLD adjustment credits should not be [used] as offsets because the methodology to quantify them is not robust and they are not demonstrably additional….the methodology does not distinguish between HFLD credits representing emission reductions and those that come with the HFLD adjustment…these credits risk undermining overall climate mitigation efforts*'[226]. HFLD can, by definition, only be 'deforestation avoidance'-type credits which, as noted earlier, appear to be already falling out of favour.

In 2023, ART started the process of developing an optional additional certification for some of the non-carbon benefits of forests[227].

216 Usher, A. D., 2022a
217 UNFCCC, 2011b
218 Usher, A. D., 2022a
219 In theory, aggregation of territories is in principle allowed under ART-TREES, but the rules for this are unclear.
220 Ethiopia and Nepal are currently lacking such a plan.
221 ART, undated a
222 ART, undated a
223 ART, undated b
224 ART, 2021a
225 ART, 2021a
226 Streck, C. et al., 2022
227 Carbon Pulse, 2023g

CASE STUDY

ART-TREES, GUYANA CREDITS

Accounting period: 2016 – 2020

Forest area: 18 million hectares

Claimed carbon savings: 33.5 million tonnes

Key issues: lack of Indigenous consultation, artificially manipulated baseline, greenwashing links

Guyana is so far the only jurisdiction to have a claim verified and to have credits issued under the system. The process has been led by the Guyana Forestry Commission[228]. As explained in Box 5, the issuing of credits to Guyana completes a process started by the Norwegian government in 2009, to support Guyana's so-called 'Low Carbon Development Strategy (LCDS).

The ART programme concept was submitted in December 2020[229]. A more detailed 'TREES registration document' and the first monitoring report/credits claim covering the five years from 2016 to 2020 were then submitted by the Guyana Forestry Commission to ART on the same day in September 2022. The claim for credits applies to the country's entire forest area of 18 million hectares. The proposal was validated by Aster Global Environmental Services in November 2022, confirming the 'validity' of the 33 million credits claimed by Guyana. ART's briefing on the outcome notes how *'Aster Global's team spent 9 months with a team of 12 employees reviewing the Program…The process included over 30 meetings between the auditors and Guyana team, significant numbers of emails, and field visits and interviews by two audit teams*'[230]. The issuing of these credits was heralded as a '*historic breakthrough for the forest carbon market*'[231].

But analysis of the methodology used shows that, as with previous 'payments for results' to Guyana, the 'emissions reductions' being paid for may be largely fictitious. As noted above, the ART 'high forest, low deforestation' (HFLD) provisions allow for entirely artificial 'adjustments' to be made in countries which qualify as having a lot of forest and not much deforestation – and this is what occurred in the case of Guyana. Exactly how the 'adjustments' have been calculated into the final Guyana crediting level for supposed 'emissions reductions' is not clear. The publicly available monitoring report from Guyana only shows the total claimed credits. The detailed calculations are in an 'annexed Guyana ART Workbook'[232] - but this is not actually annexed to the monitoring report as available on the ART portal.

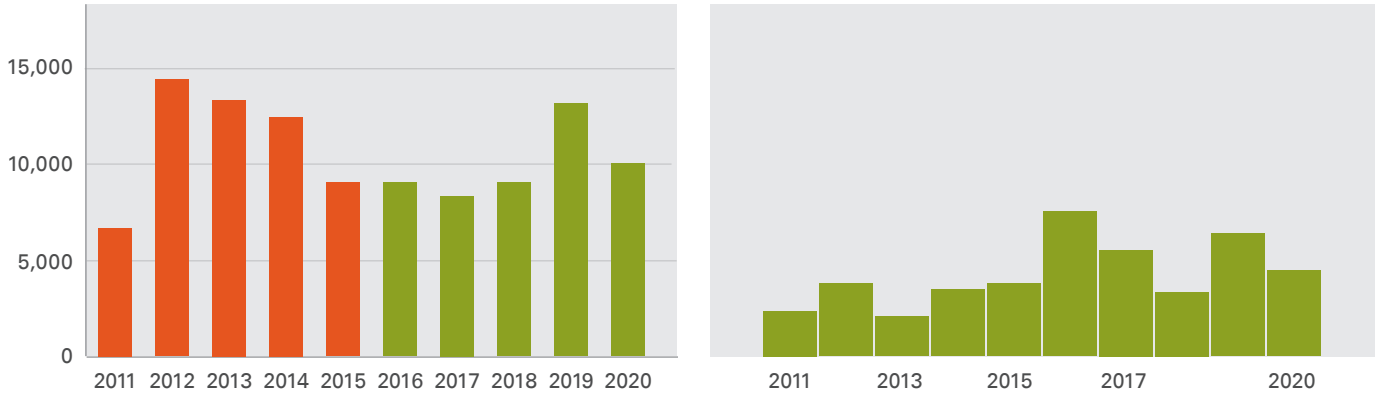
ART claims that '*TREES has been designed to ensure that all credits issued are real, measured, permanent, additional*'[233]. However, according to one analyst, '*Some 84 percent of the 33.5 [million] jurisdictional ART/TREES credits issued for Guyana resulted from this HFLD adjustment*'[234] – in other words were created purely through accounting manipulations allowed under TREES, rather than any real emissions reductions.

Analysis of the deforestation data for Guyana suggests other forms of manipulation may have taken place. As Figure 6 below shows, the data provided by the Guyana Forest Commission (GFC) shows relatively high deforestation during the reference period of 2011-2015, declining during the crediting period (apart from one

228 ART, undated e
229 ART, 2022b
230 ART, 2022a
231 NICFI, 2022
232 ART, 2022c
233 ART, 2021b
234 Streck, C. et al., 2022

year). Data for the same period from the independent Global Forest Watch portal shows almost exactly the opposite, with deforestation in the crediting period being higher in four of the five years than in all the years in the reference period. According to the GFC, total deforestation in the 10 years was around 107,000 hectares, however Global Forest Watch recorded a much higher rate of 150,000 hectares of tree cover loss over the same period, roughly 50 percent more.

Figure 6: Guyana deforestation according to (left) GFC, 2011–2015 (reference period) and 2016–2020 (crediting period) and (right) Global Forest Watch/Hansen data on tree cover loss from 2011 –2020 (hectares)[235].



Further problems have arisen. The Guyana ART programme will, it claims, allocate 15 percent of the money earned from its credit to Indigenous communities. But shortly after the credits had been announced and the first quantity sold, the Guyanese Indigenous peoples organisation the Amerindian Peoples Association (APA) said there had not been proper consultation about the programme, and that Akawio and Arecuna peoples could stake a claim to some of the credits, following a High Court ruling recognising their rights to their ancestral lands in the Upper Mazaruni region[236]. This was rebutted by ART, which said that the National Toshaos Council had passed a resolution endorsing the LCDS 2030 and the TREES REDD+ benefit sharing plan[237]. The National Toshaos Council is a quasi-governmental body; and some have questioned its legitimacy to endorse the consultations[238].

In what is an almost universal response to criticism of REDD+ offset projects, the Guyanese government dismissed these concerns by pointing out that the scheme had been verified and validated by an independent, approved auditor, and that some APA people had made 'positive contributions' to 'multi stakeholder' processes[239].

But the credit issuance was not altered. On December 2nd, the day after it had been announced, the Hess Corporation – which has a 30 percent stake in an Exxon-led consortium exploiting oil from Guyana's recently-opened Starbroek offshore oil block - announced its intention to buy some 37.5 million credits through ART from 2022-2032, at a cost of $750 million[240]. Exxon has reportedly indicated that it might follow suit in buying ART credits[241].

235 Sources: ART, 2022d; ART, 2022e; GFW, undated
236 Carbon Pulse, 2022f.
237 ART, 2022a
238 Carbon Pulse, 2022f.
239 Carbon Pulse, 2022f.
240 Hess Corporation, 2022
241 iNews Guyana, 2022

Through ART, Guyana's 2022 Low Carbon Development Strategy will thus be funded by the oil industry. The LCDS's brief chapter on the fossil fuels sector describes some measures to reduce, for example, methane emissions, but does not of course propose to leave any fossil fuels in the ground[242]. Vice-President Jagdeo reportedly contended that there is no conflict between Guyana continuing to extract its fossil fuel resources and the country's climate action objectives: '*We support net zero. We support early decarbonisation…but in countries like Guyana, we have to secure our funding to continue to make our contribution to global climate change objectives… developing the oil and gas sector can allow us to get the revenues to fund the billions of dollars of adaption needs*'[243].

Comparison of forest carbon credits so far produced by ART and the estimated Co2 emissions from oil development in Guyana

Claimed Co2 savings so far produced through ART-TREES = 33 million tonnes

Estimated Co2 emissions from 11 billion barrels of oil = between 3.3 and 5.5 billion tonnes

In comparison to the 33 million of forest carbon credits so far produced by ART, the 11 billion barrels of oil believed to be in the field being exploited by Hess/Exxon[244] could, by our estimates, release somewhere between 3.3 billion and 5.5 billion tonnes of CO2 over its lifetime, and not accounting for emissions from gas flaring, leaks of methane etc. Guyana, with its population of less than a million people, will rapidly be propelled into the global top league of per capita carbon polluters. To illustrate the net impact of this on global carbon emissions, note that the Guyanese government has authorised that its ART credits can be used for the CORSIA offsetting scheme for airlines (see Box 6)[245].

A second claim for credits – for just 2021 – was already submitted to ART by the Guyana Forestry Commission in October 2022, and is still being verified[246]. In April 2023, APA submitted a formal complaint to ART-TREES because of the government's failure to receive consent from communities to the scheme[247].

242 Government of Guyana, 2022
243 Carbon Pulse, 2022g
244 Carbon Pulse, 2022g
245 GFC, 2022
246 ART, 2022d
247 Amerindian Peoples Association, 2023; ART Secretariat, 2023

3.5 A COMPARISON OF THE SCHEMES

This section consists of a brief comparison of each of the four schemes considered above (the findings are also further elaborated in the conclusion). This is based on the long-term observation and analysis of two of the systems (Verra-verified voluntary offsets, and the FCPF) and a great deal of accumulated and documented information. For the other two, the experience is limited so far to only one example of credits being issued very recently – hence, arguably, the scoring on these is more subjective, and 'preliminary'. Lessons from the case studies given above are reflected in the scoring

It should be noted that the comparative assessment below considers primarily what each scheme offers and lacks *in theory*. There can be very significant differences between that and what happens in practice. As WWF explains, '*Even though standards have procedures in place for ensuring credit quality, there are still risks of discrepancies, e.g., between the standard, the project or programme's implementation, and verification and validation of results*'[248]. The earlier case studies illustrate how some of these discrepancies arise.

In terms of the assessment criteria used for this comparison, all of them have a basis in other organisation's recommendations or guidance for best practice in carbon offsetting and trade, particularly as provided by WWF, as well as the 2022 UN High-Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities. The rationale, justification and references for where each criterion has been drawn are explained in Annex 4.

248 WWF, 2021

Criteria	Verra VCUs	Sovereign REDD+ Results	FCPF 'Emissions Reductions'	ART-TREES credits
1. Requirements for additionality	☑	✗	✗	☑
2. Requirements for baselines	☑	☑	✓	☑
3. Requirements to address reversals and leakage	✓☑	✗	✗	✓✓
4. Ensures permanence	✗	✗	✗	✗
5. Measures to ensure positive impacts, and no negative impacts, for IPs and LCs	✗	☑	✓	✓
6. Measures to ensure positive environmental impacts, and no negative impacts	✗	✗	☑	✓
7. Generates a 'predictable', continuous and equitably distributed supply of benefits	✗	✗	✗	✗
8. Part of landscape, jurisdictional or national strategy to reduce deforestation/forest emissions and deliver multiple benefits	✗	✓	✓	✓✓
9. Requirement to address underlying drivers of deforestation	✗	✗	☑	✗
10. Serves to stimulate/increase non-offset investment and/or regulatory strengthening	✗	✓	✓	✗
11. Linked with (offset user) policies and strategies to reduce fossil fuel emissions first	✗	✗	✗	✗
12. Integrates measures to avoid use of the credits for greenwashing	✗	✗	✗	✗
13. Structural/institutional mechanisms to avoid conflicts of interest	✗	✗	✗	✗

KEY TO SYMBOLS

✗	No requirement
✓	Weak requirement
✓✓	Moderate requirement
✓✓✓	Strong requirement
☑	May have some requirement but not rigorously enforced or can be circumvented, avoided or manipulated

3.6 ALTERNATIVES TO CARBON MARKETS

There is very little evidence that REDD+ based on carbon values and markets has had any significant impact on preventing deforestation in poor countries, despite the many billions of dollars invested in it. Apart from a flawed funding model, it also reflects conceptual failures in implementation. Typically, REDD+ projects, either at project or wider jurisdictional-level, have sought to impose a conservationist 'land-sparing' approach; what are, in effect, protected areas established where there is a claimed threat to the forest. This, essentially, then opposes the carbon value of trees against the opportunity cost of other land uses, especially agriculture. With carbon having rarely exceeded $20/t, and most of that accruing to middle-men rather than actually reaching the ground, the carbon value has almost never been able to make forests worth more standing than felled.

The response from pro-market advocates has been that, somehow, the value of carbon needs to increase substantially. For example, in 2022, UN-REDD argued that, in order to reduce forest carbon emissions by one gigaton by 2025, a global floor price of $30-$50 per tonne of carbon would be required. This not only ignores the reality of market conditions, but also of potential other approaches which circumvent the huge transaction costs of market-based REDD, and tackle some of the underlying drivers rather than trying to battle the resulting symptoms of the problem. For example, the importance of good *governance* has long been recognised as a critical enabling condition for forest protection. Better and more participatory land use planning can underpin better forest policies. Better regulation, including taxation regimes, over sectors impacting on forests, including the forest sector itself, can have dramatic positive impacts. More and better-quality support to Indigenous and other local communities, particularly in terms of recognising and strengthening their land tenure and knowledge systems can protect forests even better than strictly protected areas. Community-based forestry can reduce forest emissions whilst sustaining livelihoods. The reduction of consumption of forest-destroying commodities can reduce international impacts.

Most of the above require relatively little financial input, albeit more political willing. There is nothing new about most of them. All of them are low-risk, 'win-win', actions. Some of them are in fact essential conditions to any form of long-term funding mechanism. Most of them are neglected (though the newly adopted EU regulation on importation of 'deforestation-free' commodities is a rare exception).

That said, there is still a need to scale up financing to assist in the protection of forests in poorer countries, and to achieve true REDD+, which goes beyond carbon offsets and credit generation. At the global level, and most urgently, a global framework for climate funding using non-market mechanisms needs to be completed and advanced under Article 6.8 of the Paris Agreement. These have lagged behind development of market-related mechanisms under Article 6.4 but are much more likely to prove effective and sustainable.

There is a wide array of possibilities for non-market funding that could be included within the scope of Article 6.8. Some of these have long been advocated (included specifically within the context of Article 6.8[249]) including debt relief for poor countries, global levies on fossil fuel extraction, levies on international air travel, and levies on speculative financial transactions. Some forms of refined payment-for-performance mechanisms could be appropriate for financing forest protection, though these would need to avoid the mistakes of the past, such as the World Bank's Forest Carbon Partnership Facility and some of the Green Climate Fund's schemes[250]. Corporate payments recognising historical responsibility for emissions, but delinked from carbon crediting, could perhaps also be considered.

A new institutional mechanism, or mechanisms, would be required to manage and direct such funding, and this in itself presents potential challenges. However, some of these non-market approaches have the potential to deliver what market-based mechanisms have never done, and that is the critically important 'predictable' and reliable funding.

249 See, for example, CLARA, 2022
250 See, for example, RFUK, 2019

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

The development of REDD+ has been chaotic, fragmented, slow, conceptually flawed and lacking 'connectedness', often driven by ideology and vested interests rather than by learning. There is very little evidence, after around 14 years of various efforts to implement REDD+ that it has materially improved deforestation in poor countries, other than perhaps in a few very local sites. The evidence also suggests that the overwhelming majority of the carbon credits or 'REDD+ results' so far generated do not represent genuine, additional and verifiable reductions in carbon emissions. Moreover, there are strong grounds to believe that, due to the structural weaknesses and manipulability of all the schemes, the creation of largely 'hot air' credits will continue to prevail.

The comparative approach of this study suggests some reasons why this has been the case, and will likely continue to be so, including:

- All, to a greater or lesser extent allow, or actively rely on, **inflation or artificial 'adjustment' of baselines** in order to create the impression of, or to increase, the claimed emissions reductions. The mere fact that *any* inflation of baselines is occurring undermines the credibility of all the credits emerging from all the systems.

- There appears to be a **'race to the bottom' of offset standards** developing amongst the various verification schemes. This could become most pronounced in the jurisdictional REDD+ space, where the numbers of credits being claimed are very high (in the tens or hundreds of millions). A table included in Gabon's FREL submission to the UNFCCC was very revealing. It compared the results of using its forest carbon data under different schemes, including the possible adjustments allowed by them. These ranged from a negative amount of 11 million credits under ART-TREES standard (i.e., non-HFLD) methodology for 2017-2021 (though in reality a negative amount of credits is not possible), to around 50 million credits using the UNFCCC scheme without any 'adjustments', to 90 million credits using an 'adjusted increased removals' methodology under the UNFCCC[251]. As the case study above shows, it chose the latter, of course.

Most schemes (the notable exception being the UN system) are based on independent validation and verification, but to some extent share the characteristic that this tends to be used as a means of **distancing the standards-setting bodies from responsibility** from, or accountability for, problems or failure.

Whilst project developers and standards/registry organisations invariably point to the 'independent verification' to lend credibility to REDD+ credits, none of the systems have **any mechanisms for ensuring accountability of the validation and verification bodies**. Only Verra appears to have an established process for sanctioning VVBs in the event of improper or negligent audit outcomes. There appears to have been almost no evaluation of the VVB's performance or 'learning' about this across the various schemes, despite there being more than a decade's worth of documented evidence and case studies available.

- Across all of the schemes the 'verifiers' – be it private consultancies under the Verra, ART-TREES or FCPF schemes, or technical experts under the UNFCCC system – seem willing (or obliged) to **simply defer any 'red line' issues that would result in the project being rejected outright**. This probably results from commercial pressures in the first three cases, and the consensus politics of the UN in the latter.

- As the Gabon sovereign credits case study indicates, **claims that 'jurisdictional REDD+ addresses problems of leakage' may only be partially true**. In the globalised markets for commodities which have a strong impact on forest lands – such as timber, soya, palm oil and beef – production can shift elsewhere, including across national boundaries or even continents.

- Across all the offsetting schemes, **the question of ownership rights over forest carbon remains largely unresolved**, thus conflicts and challenges, especially from communities with tenure or traditional claims to the land and forests, are likely to grow.

- Whilst there is broadly the same level of 'transparency' between the programmes – an almost overwhelming amount of dense technical material is available for all – there is also a **common lack of transparency in key areas**. This includes key calculations (such as the computation of baseline figures in Verra, the 'TREES Workbooks' in ART, or the underlying national forest data in the UN system), which are not made publicly available. This can make it very hard to double-check what assumptions (or manipulations) have been made.

251 Gabonese Government, 2021b

- Also, and importantly, there is almost no information made readily available in any of the systems as to **the fees being paid between key parties**, and what safeguards, if any, are applied to minimise conflicts of interest. This is necessary to ensure that, for example, both the validation and verification bodies, and the standard-setters, are truly independent.

- Similarly, the very lengthy 'validation' periods sometimes occurring in both the Verra system and ART systems means in practice that **the VVBs are essentially providing consultancy services to their various clients** in developing the programmes, and then supposedly validating or verifying what is effectively their own work.

- As the volume of REDD+-like credits grows through various schemes, so do the potential commercial **conflicts of interest**. For example, the Tocantins State REDD+ programme in Brazil currently under development would, if verified through the Verra Jurisdictional and Nested REDD+ methodology, potentially bring around $20 million in income to Verra just from commissions on VCU issuances.

- **Whilst any of the schemes can in theory deliver equitable benefits, few of them are likely to**. Payments to national governments or jurisdictions for either sovereign or jurisdictional credits are likely to end up in central treasury budgets, which may or may not be spent on things benefitting the communities whose lands generated the emissions reductions sales. None of the schemes have mechanisms to detect or deal with such corruption or misuse of funds by project entities or administration officials.

- There will likely be a **large surge in the supply of REDD+ credits** in the coming 1-2 years. Many of these are likely to be as poor quality as many of those already on the markets. The profligate, uncoordinated, and unregulated issuing of credits of dubious value from multiple systems could not only serve to further discredit the concept of REDD+, but might also cause a prolonged 'bust' in the offsets markets.

- All of the above points to serious challenges that must be taken very seriously if REDD+ is to be considered as admissible in the **Paris Agreement Article 6 trading regime** now under development.

- Whilst some **advocates of biodiversity offsetting acknowledge that lessons need to be learned from the mistakes made in carbon offsetting**, there is little evidence that this is actually happening. Probably the greatest mistake has been the failure to regulate the markets. In the case of the REDD+, instead of promoting clear policy standards, the UN has instead adopted a crediting system that arguably suffers weaknesses at least as serious as those in the voluntary markets.

As the UN rightly recognised, financing for forests needs to be predictable and equitable in order to be effective. This is not just a case of the private sector needing a foreseeable future return on investment. Hundreds of millions of mostly subsistence farmers depend either on forest lands, or lands that could be used for afforestation, for their survival. If they are to be required to sacrifice the basis of their fragile economy, they cannot be subject to fluctuations or cessation of whatever 'carbon compensation' finance they receive. The potential returns from carbon are still far short of what would be required to financially out-compete logging, palm oil, rubber or other forms of ecosystem-destroying commodities.

4.2 RECOMMENDATIONS

The above detailed conclusions are not intended to suggest that, with the relevant technical fixes, forest carbon crediting and trading can in future play the significant role in protecting forests and mitigating carbon emissions that its advocates have long claimed. Such radical changes would be required in the voluntary market system that it is arguable that REDD+ would cease to have much appeal for either project developers or credit buyers. The blundering FCPF scheme is giving way to ART-TREES which, whilst having some more positive elements (such as baseline-setting and revision), still allows for significant manipulation and the generation of questionable credits. The UN 'REDD+ results' system, having been negotiated slowly and tortuously over many years, is unlikely to be renegotiated any time soon, however obvious the need to do so.

Three overarching recommendations are that:

1. There should be a **lengthy inhibition placed on the inclusion of REDD+ in the Paris Article 6.4 trading arrangements**, as these start to unfold. This should allow for a rigorous and transparent review of the actual results of the various REDD+ schemes, going beyond simply how much money they have transferred, and closely assessing what effect they have had on forests and people.

2. There should be intensive, consultative and transparent **development of non-market approaches under Article 6.8**, with a view to mobilising large-scale funding for forest protection that is predictable and equitable.

3. Alternative, and specifically **rights and governance-based approaches need to be developed, tested, and then applied at scale**, applying any lessons learned throughout the process. Many of the most promising means of protecting forests have long been known, if rarely implemented, as summarised in Section 3.6 above.

Some specific measures that should accompany the above are:

- **Development of a much better understanding of, and policies to address, the underlying drivers of deforestation**. Too often international attempts to tackle deforestation have been based on 'received wisdom' and supposition about what drives deforestation, rather than a properly informed analysis. As a result, programmes have frequently focused on tackling the symptoms or proximate causes of forest loss.

- **Much greater efforts to address problems of land tenure and insecurity, especially for Indigenous people**. The strengthening of Indigenous and community land tenure can yield relatively quick results, and there is a need for much more funding for this. IPLC's have made significant pledges towards the protection of forests and prevention of carbon emissions, and these should be supported.

- Better respect for, and recognition in, the climate policy regime and major REDD+ programmes of **existing international agreements and standards**, especially the United Nations Declaration on the Rights of Indigenous People (UNDRIP), the United Nations Declaration on the Rights of Peasants (UNDROP) and the FAO Guidelines on the Responsible Governance of Tenure.

- Greater **emphasis on better and participatory land use planning**. The mapping and demarcation of Indigenous and other community lands can be an important precursor to this.

- More direct funding mechanisms for Indigenous and community organisations for the eco-system services they provide.

- Much more concerted and focused efforts to **fund and strengthen local and national civil society in forested countries**. This needs to go beyond simply out-sourcing forest programmes to international conservation organisations, and to embrace the importance of local groups acting as watchdogs over the forest sector and governance and legal systems, project originators, advocates, and mediators.

- Governments need to strengthen requirements to corporations to **remove deforestation from their supply chains**. The new EU legislation on deforestation-free commodities is a potential good step in the right direction, but implementation needs to be strongly supported by member states and closely monitored to avoid some of the weaknesses that became evident in the earlier EU-FLEGT programme.

ANNEX 1: THE CANCUN SAFEGUARDS IN FULL

Guidance and safeguards for policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries

1. The activities referred to in paragraph 70 of this decision should:

(a) Contribute to the achievement of the objective set out in Article 2 of the Convention;
(b) Contribute to the fulfilment of the commitments set out in Article 4, paragraph 3, of the Convention;
(c) Be country-driven and be considered options available to Parties;
(d) Be consistent with the objective of environmental integrity and take into account the multiple functions of forests and other ecosystems;
(e) Be undertaken in accordance with national development priorities, objectives and circumstances and capabilities and should respect sovereignty;
(f) Be consistent with Parties' national sustainable development needs and goals;
(g) Be implemented in the context of sustainable development and reducing poverty, while responding to climate change;
(h) Be consistent with the adaptation needs of the country;
(i) Be supported by adequate and predictable financial and technology support, including support for capacity-building;
(j) Be results-based;
(k) Promote sustainable management of forests;

2. When undertaking the activities referred to in paragraph 70 of this decision, the following safeguards should be promoted and supported:

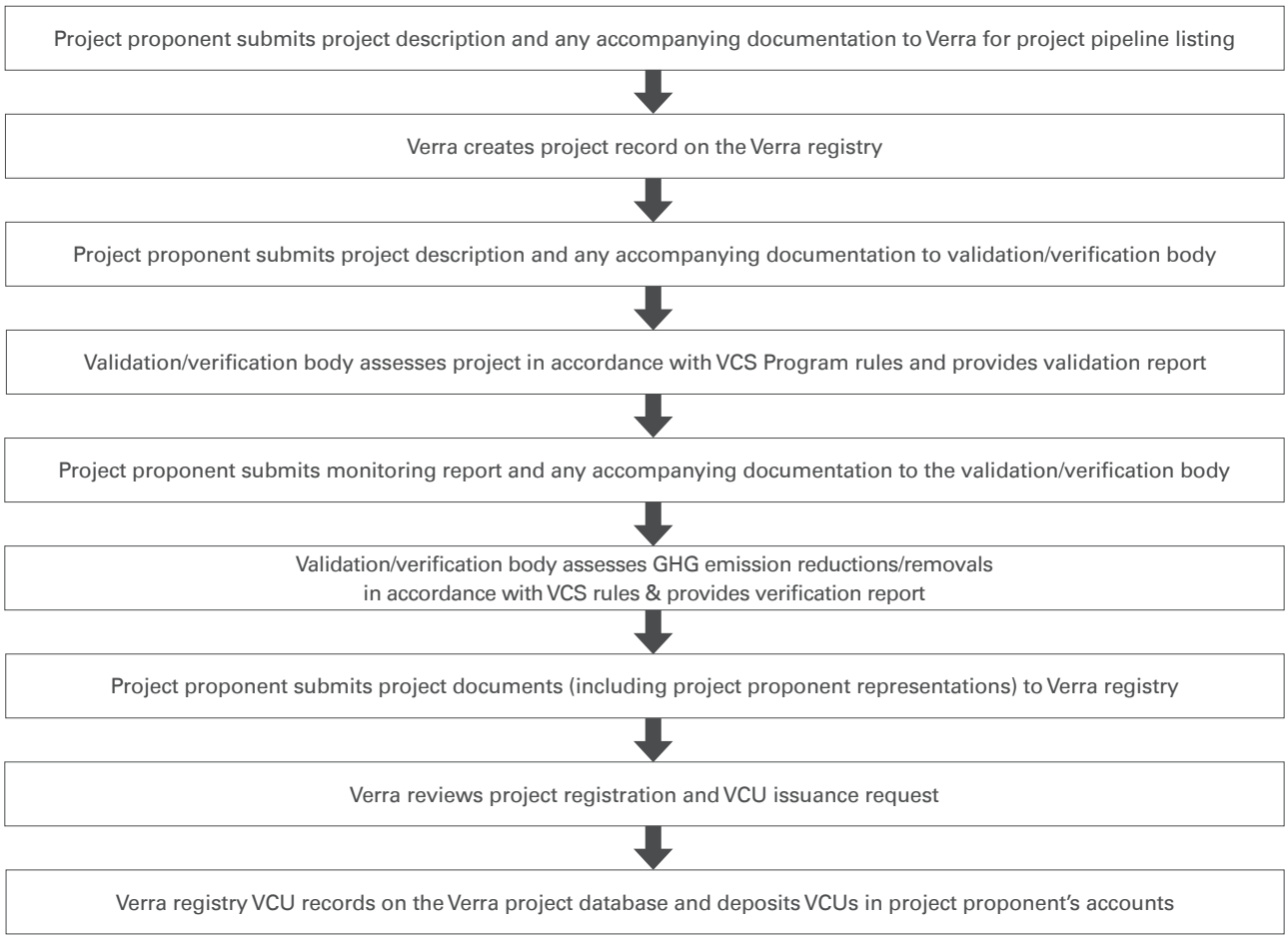
(a) That actions complement or are consistent with the objectives of national forest programmes and relevant international conventions and agreements;
(b) Transparent and effective national forest governance structures, taking into account national legislation and sovereignty;
(c) Respect for the knowledge and rights of Indigenous peoples and members of local communities, by taking into account relevant international obligations, national circumstances and laws, and noting that the United Nations General Assembly has adopted the United Nations Declaration on the Rights of Indigenous Peoples;
(d) The full and effective participation of relevant stakeholders, in particular Indigenous peoples and local communities, in the actions referred to in paragraphs 70 and 72 of this decision;
(e) That actions are consistent with the conservation of natural forests and biological diversity, ensuring that the actions referred to in paragraph 70 of this decision are not used for the conversion of natural forests, but are instead used to incentivise the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits;
(f) Actions to address the risks of reversals;
(g) Actions to reduce displacement of emissions.

Source: UNFCCC, 2011b

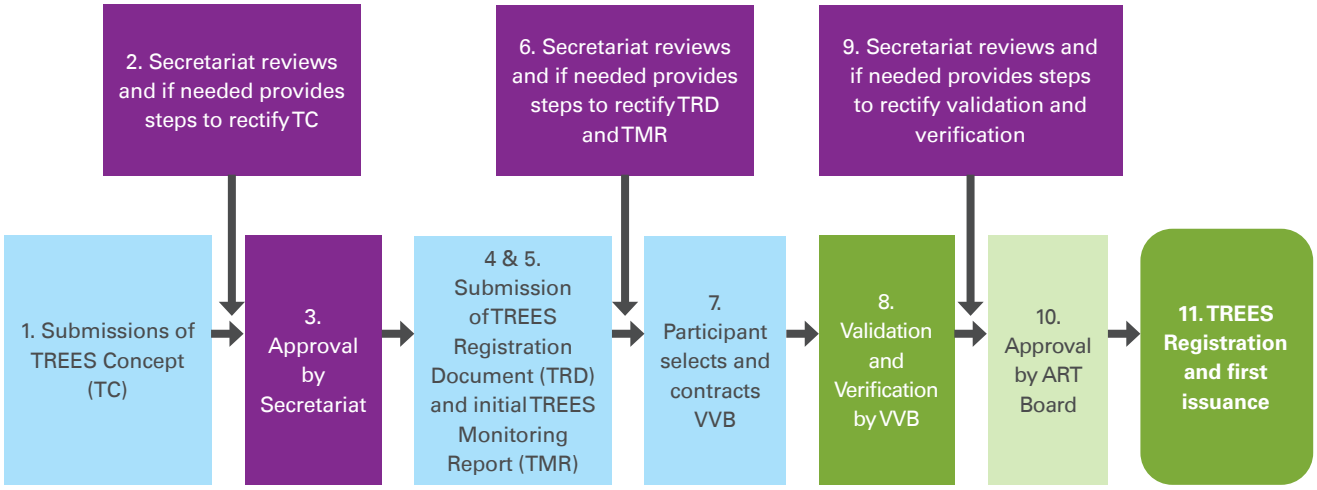
ANNEX 2: PROCESSES OF VALIDATION AND VERIFICATION

Verra[252]**:**

Figure 2: Verra/VCS Project life cycle and offset credit registration process



ART-TREES[253]**:**



252 Adapted from Verra, 2022a
253 From ART, 2021a

ANNEX 3: REDD+ PROGRAMME ELIGIBILITY TO SUPPLY CREDITS TO CORSIA, AS OF FEBRUARY 2023[254, 255]

Name of scheme	Scope of eligibility
Architecture for REDD+ Transactions	Eligible for CORSIA offsetting from 2021 – 2023; issued to activities starting their first crediting period from 1 January 2016, for emissions reductions until 31 December 2023.
Forest Carbon Partnership Facility	Eligible for CORSIA offsetting from 2021 – 2023; issued to activities starting their first crediting period from 1 January 2016, for emissions reductions until 31 December 2020, excluding: *'All emissions units issued to programs that do not have in place reversal management mechanism, including a periodic monitoring and third-party verification mechanism, that FCPF approves as demonstrating up-front and continued equivalence to the ER Program CF Buffer through at least 31 December 2037 and ideally longer, according to 1) FCPF's summary of measures for determining this 'equivalence', and 2) the Mechanisms' consistency with the procedures that FCPF conveyed to TAB in its application and all subsequent form(s) and communications with TAB, in respect of all EUC and Guidelines for Criteria Interpretations, with an emphasis on the following:* *a) Offset Credit Issuance and Retirement Procedures* *b) Identification and Tracking* *c) Validation and Verification procedures* *d) Quantified, monitored, reported, and verified* *e) Permanence* *f) Assess and mitigate incidences of material leakage* *g) Are only counted once towards a mitigation obligation.'*
Verra's VCS Jurisdictional and Nested REDD+ (JNR) Framework	Unconditional eligibility, but periods of validity not published
World Bank BioCarbon Fund Initiative for Sustainable Forest Landscapes (ISFL)	Conditional Eligibility – conditions and periods of validity not published

254 ICAO, 2022
255 Carbon Pulse, 2022b

ANNEX 4: BASIS, JUSTIFICATION AND REFERENCES FOR THE ASSESSMENT CRITERIA USED IN SECTION 3.5

Basic assessment criteria	Comments/Observations	Source/reference (see notes at end)
1. Requirements for additionality	Fundamental requirement of offset projects	Broadly accepted (1) (2) (4)
2. Requirements for baselines	Fundamental requirement of offset projects	Broadly accepted (1) (2)
3. Requirements to address 'reversals' and leakage	Fundamental requirement of offset projects	Broadly accepted (1) (2)
4. Ensures permanence	Fundamental requirement of offset projects (but inherently impossible with forest offsets: all schemes will fail this!)	Broadly accepted (1) (2) (4)
5. Measures to ensure positive impacts, and no negative impacts, for IPs and LCs		(1) (2) (4)
6. Measures to ensure positive environmental impacts, and no negative impacts		(1) (2)
7. Generates 'predictable', continuous and equitably distributed supply of benefits	UN requirement	
8. Part of landscape, jurisdictional or national strategy to reduce deforestation/forest emissions and deliver multiple benefits	Possibly could be combined with 6 below into one criterion assessing whether the scheme in any way facilitates transition to zero emissions.	(2) (4)
9. Requirement to address underlying drivers of deforestation		(2) (4)
10. Does it serve to stimulate/increase non-offset investment and/or regulatory strengthening		(2) (4)
11. Linked with (offset user) policies and strategies to reduce fossil fuel emissions first		(3) (4)
12. Integrates measures to avoid use of the credits for greenwashing		(4)
13. Structural/institutional mechanisms to avoid conflicts of interest? (e.g., true independence of verifiers and standards-setters; influence of donors over policy and practice)		(2)

Notes:

(1) These criteria are explicitly or implicitly a part of the Oeko Institute-WWF-EDF's 2020 'Phase 1 of the 'Carbon Credit Guidance for Buyers' project: Definition of criteria for assessing the quality of carbon credits'.

(2) Explicitly or implicitly included in WWF's November 2021. 'Beyond Carbon Credits: A Blueprint for high-quality interventions that work for people, nature and climate'.

(3) Explicitly or implicitly included in WWF's 2020 'Beyond Science-Based Targets: A blueprint for corporate action on climate and nature'

(4) These criteria are consistent with the 2022 'Report from the UN High-Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities: Integrity Matter: Net Zero Commitments by Business, Financial Institutions, Cities and Regions' (see McKenna, C. et al., 2022)

ACRONYMS

ACR	American Carbon Registry
AFOLU	Agriculture, Forestry, and Other Land Use
APA	Amerindian Peoples Association (of Guyana)
A/R	Afforestation/Reforestation
ART	Architecture for REDD+ Transactions
BMU	German Ministry of Environment, Nature Protection and Nuclear Safety
CANP	The Cordillera Azul National Park
CAR	Climate Action Reserve
CARB	California Air Resources Board
CBD	Convention on Biological Diversity
CCQI	Carbon Credit Quality Initiative
CDM	Clean Development Mechanism (scheme of the UNFCCC)
CEO	CORISA-eligible Offsets
CER	Certified Emissions Reduction
CfRN	Coalition for Rainforest Nations
CI	Conservation International
CIB	Congolaise Industrielle des Bois
CIMA	Centro de Conservación, Investigación y Manejo de Áreas Naturales (Peru)
CLARA	The Climate Land Ambition and Rights Alliance
COP	Conference of Parties (such as of the UNFCCC)
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CRT	Climate Reserve Tonne
CTFS	California Tropical Forest Standard
EDF	Environmental Defense Fund
ER	Emissions Reduction
ERPA	Emission Reductions Payment Agreement
ERT	Emission Reduction Ton
EU ETS	European Union Emissions Trading Scheme
FCPF	Forest Carbon Partnership Facility
FMU	Forecasted Mitigation Unit
FoEI	Friends of the Earth International
FPP	Forest Peoples Programme
FREL	Forest Reference Emission Level
FSC	Forest Stewardship Council
GBF	Global Biodiversity Framework
GEF	Global Environment Facility
GFC	Guyana Forestry Commission
GFW	Global Forest Watch
GFO	Green Finance Observatory
Gt	Gigatonne – 1,000,000,000 tonnes
HFLD	High Forest, Low Deforestation
ICAO	International Civil Aviation Organisation
IC-VCM	Integrity Council for the Voluntary Carbon Market
IETA	International Emissions Trading Association
IFO	Industrie Forestière de Ouesso
IPCC	Intergovernmental Panel on Climate Change
IPLC	Indigenous Peoples and Local Communities
IRS	Internal Revenue Service (of the US Department of Treasury)
ISFL	Initiative for Sustainable Forest Landscapes (of the World Bank Biocarbon Fund)
ITMO	International Transferred Mitigation Outcomes
ITTO	International Tropical Timber Organisation
IUCN	International Union for the Conservation of Nature
JI	Joint Implementation (scheme of the UNFCCC)
JNR	Jurisdictional and Nested REDD+ Framework (of Verra)
HLFD	High Forest Low Deforestation
LCDS	Low Carbon Development Strategy (of Guyana)

LEAF	Lowering Emissions by Accelerating Forest finance Coalition
LULUCF	Land Use, Land Use Change and Forestry
MRV	Measurement, Reporting, and Verification
N4C	Nature for Climate Coalition
NAC	Natural Asset Company
NAMA	Nationally Appropriate Mitigation Action
NDC	Nationally Determined Contribution
NICFI	Norwegian Government's International Forests and Climate Initiative
NMA	Non-market approaches (in the context of the UNFCCC/Paris Agreement implementation)
NYSE	New York Stock Exchange
OECD	Organisation for Economic Cooperation and Development
QCI	Quantum Carbon Intelligence
REDD+	Reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks
RRU	REDD+ Results Unit
tCER	Temporary Certified Emissions Reduction
tCO2eq	Metric tons of CO2 equivalent
TFCI	Tropical Forest Credit Integrity
TNC	The Nature Conservancy
TREES	The Environmental Excellence Standard (as in 'ART-TREES')
TSVCM	Taskforce on Scaling Voluntary Carbon Markets
UNFCCC	UN Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCM	Voluntary Carbon Market
VCU	Verified Carbon Unit
VER	Verified Emissions Reduction
VVB	Validation and Verification Body
WCS	Wildlife Conservation Society
WWF	Worldwide Fund for Nature

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