Future of the Voluntary Carbon Markets in the Light of the Paris Agreement

Perspectives for Soil Carbon Projects

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The German Federal Environment Agency has commissioned Silvestrum Climate Associates, LLC., and Duene e.V. to prepare a study taking stock of global developments in the field of voluntary soil carbon (in particular: peatland) standards, providing a comparative analysis of model standards for project development, and presenting forward-looking options for voluntary soil carbon engagement. The focus is both on regulatory challenges and opportunities – notably in the context of the Paris Agreement and concerning the move of the international aviation industry towards offsetting – as well as on practical questions: How should a peatland carbon standard be designed to attract the widest possible audience? This workshop serves as a research touchstone for the project team. We hope to discuss with both government representatives as well as voluntary carbon project practitioners current trends and expectations concerning international emissions trading, soil carbon prospects, and the appetite for voluntary action under the new Paris paradigm. The following background paper is meant as an aide-memoire to guide our thinking.

We will first (1) present overall information on soil carbon projects and then (2) walk through relevant key concepts, namely double counting (2.1), results-based finance (2.2.), transparency (2.3), additionality (2.4), non-permanence (2.5), leakage (2.6), and market considerations (2.6). In the final section (3) we share our preliminary recommendations for future voluntary standards and standard use.

1 Soil Carbon Projects

Soil carbon projects are rare. Despite the high emission reduction potential of organic soils – some hundred million tonnes of CO_2e may be reduced globally each year through rewetting of degraded peatlands – project-based carbon finance approaches have not yet gained much traction. The lack of action is explained by the difficult position land-use based emissions, in general, and peatland-related emissions, in particular, were left with after the adoption of the Kyoto Protocol in 1997 and the Marrakech Accords in 2001. The regulated carbon markets were shaped towards energy- and industryfocused projects and as such were virtually not accessible to land-based project activities.

However, recent years have seen the birth of various voluntary carbon standards at the global as well as at the national level, some of which have introduced dedicated project windows for soil carbon interventions either exclusively concerning restoration, or restoration and conservation. The world's biggest voluntary standard in terms of number of projects and credits – Verra (what used to be the Verified Carbon Standard) – now offers a dedicated wetlands standard with bespoke methodologies on, inter alia, avoided conversion of peat swamp forests, rewetting of drained tropical peatlands, and (since 2017) rewetting of drained temperate peatlands. Other global standards – notably the Gold Standard and Plan Vivo – have so far not introduced methodologies or project activities targeting specifically the conservation or restoration of peatlands. However, as the Gold Standard has turned to address mitigation options in the agricultural sector, peatlands may come soon into view. Plan Vivo is generally open for proposals on new project categories and accepts existing methodologies from other standards.

More peatland-specific standards exist within several national systems, notably Germany, the UK, Switzerland, and the US. Growing out of a public-private partnership at the sub-national level, the MoorFutures standard offers peat restoration investment in three German states. In the UK, a peatland-oriented standard, the UK Peatland Carbon Code, several years in the making, has 2 recently been completed. While a few pilot projects are under development, the bigger potential lies in the integration of the Peatland Carbon Code into the UK Woodland Code, a fully grown voluntary carbon standard. It is so far limited to afforestation and reforestation – with a project pipeline of 250 projects across the UK as well as a well-established carbon marketing platform with 70 corporate buyers. The Swiss standard max.moor has been operational since 2017. In the U.S., the American Carbon Registry provides for several wetlands methodologies linked to various geographies and recently published a global methodology on peat swamps ("Avoided Planned Land Use Conversion in Peat Swamp Forests").

Voluntary standards broadly follow what has become the canonical carbon project cycle, i.e. the sequence of steps and actions from a project's design phase to the crediting, transferring and retiring of credits. There are differences among the standards, however. Some of which are substantial, especially when seen in the light of any standard's core concept, environmental integrity. The notion of environmental integrity has crystallized as the key threshold for any regulated form of international emissions trading, and it is only fair for voluntary markets to demonstrate their own consistent compliance with it.

The environmental integrity concept expresses itself, in particular, in the capacity to prevent double counting. Yet, it stretches further and includes the concept of results-based finance, a robust framework of transparency – specifically the procedural guarantee of a transparent and independent review – as well as the principles of additionality and permanence.

2 Key Concepts

2.1 Double counting and the Paris Agreement

During the time when the Kyoto Protocol represented the only emissions trading format at the global level, double counting and its impact on voluntary markets was limited. Since the Paris Agreement has entered into force, however, the peripheral issue has taken centre stage. Double counting refers the risk that the same activity or effect to reduce or remove GHG emissions is accounted for twice (or multiple times), Double counting can occur in different forms. A common typology differentiates four types of double counting. Double selling occurs where an issued unit is sold more than once to different actors. Double issuance means the scenario in which a unit is credited twice under two different standards or in two different registries or in which it is duplicated in the same registry. Double claiming occurs where two entities 'claim' the environmental benefit of the exact same reduction or removal unit. Double monetization, finally, refers to the situation in which the same GHG emission reduction effort is monetized multiple times, e.g. once by the government at an intergovernmental level and by a company in a private transaction.

Table 1: Classification of double counting risks

Risk of double counting			
Double issuance	Double selling	Double claiming	Double-monetizing

While the risks of double selling and double issuance are mostly mitigated at a technical level through robust registry systems, both double claiming and double monetization present manifest challenges in the light of the Paris Agreement. With the Paris Agreement intended to lead to a regulated world in which each country accounts for all its GHG emissions across sectors and sets itself reduction targets ("caps"), any voluntary initiative will ultimately show at the national accounting level: An emission reduction achieved through voluntary action reduces the overall national emissions output in the host country. That would allow the relevant country to either claim the relevant emission reduction as a compliance effort under the national target or monetize it (e.g. in line with the emissions trading mechanisms of the Paris Agreement, in particular Article 6.2).

Both from the perspective of environmental integrity as well as from the perspective of the voluntary market investor, double claiming and double monetization must be avoided. Ultimately, to avoid double counting, voluntary crediting will only be acceptable on the condition that the host country makes a commensurate deduction ("corresponding adjustment" in the language of Article 6 of the Paris Agreement) to its cap, so that the voluntary mitigation benefit does not weaken the country's overall target. As a consequence, at the country level, voluntary initiatives would only appear in the form of a debit, never as a credit. The resulting mitigation benefit would hence be a definite reduction gain ("benefit for the atmosphere").

The leading voluntary standards have started designing rules on double counting, but the underlying concepts need further clarification, not least what the call for a corresponding adjustment means in practice. What is the NDC double counting threshold? Agriculture is mentioned in 95 % of NDCs (TNC 2018, forthcoming), but primarily as a topic of adaptation commitments only. It is extremely rare to have an NDC with dedicated soil carbon targets. Uruguay and Japan, in this context, stand out. As an unconditional target until 2025, Uruguay plans to halt emissions from 10% of the country's grassland areas (1 million hectares), 50 % from the country's peatlands (4,183 hectares) and from 75% of its cropland areas which have a soil use management plan in place (1,147,000 hectares).

Additionally, it plans to sequester CO_2 in the remaining 25% of the area (383,000 hectares). With international support, the targets for grassland emissions and peatland emissions are extended to 30 % of the grassland area and 100 % of the peatland area, respectively (UNFCCC, NDC of Republic of Uruguay (UNFCCC). Japan put dedicated removal targets in place both for forests as well as for "cropland management, grazing land management and revegetation" (UNFCCC, NDC of Japan). In most NDCs, however, soil carbon is not subject to a target, often not even in the context of REDD+ (e.g. Brazil[1]).

It seems appropriate to allow voluntary projects – without restrictions – in all instances, in which in which the specific reduction is not represented in the target, whether such target is absolute in nature (such as x% below 1990 levels) or whether it is a target relative to business-as-usual (BAU) developments, GDP production, or other. Every five years, following the NDC update cycle, the existence of a relevant target would need to be examined for the project to continue unchanged.

Once a target applies, a country must commit to a corresponding adjustment for a project to go ahead. However, from the perspective of a project developer or investor, what should be the strategic action, if a country government does not provide relevant procedures? The Gold Standard has recently proposed to hand over all crediting rights to the host country government and to issue climate finance statements to investors only. This may not be wholly satisfying from the perspective of environmental integrity – the country ambition will *de facto* be lowered – however, it may be a pragmatic and better choice compared to doing nothing.

Various countries have started creating legal frameworks for voluntary markets. Indonesia, for instance, requires for certain REDD+ projects that 51 % of the credits must not be traded internationally, in an obvious anticipation of an international rule according to which internationally traded (voluntary) credits may not be credited against a country's commitment. Any voluntary action, in this scenario, helps the host country comply with its target, even though double counting is formally avoided.

Another potential concern are hybrid projects, i.e. projects that are funded jointly by voluntary investors/buyers, on the one hand, and state actors, on the other hand. The Swiss max.moor standard is a good example. Buyers of Swiss peatland credits pay only a fraction of the real costs of the underlying emission reductions. The lion's share is provided by federal and state sources. In these cases, a clear-cut allocation of exclusivity is hardly possible. max.moor credit vendors have chosen a pragmatic way out of the dilemma. They support every peatland credit with a credit from Kyoto's Clean Development Mechanism (CDM). Whenever max.moor credits are transacted, the ("shadow") CDM credit will be retired (or canceled). Such cancelations certainly fortify the principle of environmental integrity.

There may not be general, off-the-shelve solutions for escaping the double counting conundrum, at least not for some time. Rather, tailored solutions will have to be found for each intervention type in each host country concerned. Again, from a practical point of view, it is important to note that soil carbon related emissions are frequently not yet part of any regulated (compliance) order, and as long as this is the case, classical offsetting (without the need for corresponding adjustments) remains possible.

It should also be noted that voluntary carbon project efforts are meant to supplement compliance regimes and advance emission reduction pathways. This is a finite exercise, when the 2 °C (or even the 1.5 °C) ceiling as laid out in the Paris Agreement is to be kept. The stricter these regimes will (have to) become *across countries*, the less room will there be over time for additional emission reductions (or offsets). The importance of voluntary standards consists in advancing emission pathways, it being understood that every delay makes the subsequent abatement needs exponentially steeper.

1 In its 2017 Biennial Update Report, Brazil clarified for its forest reference emissions level ("FREL Amazonia"): The FREL Amazonia considers the following carbon pools: aboveground biomass, belowground biomass and litter. Dead wood and soil organic carbon (for mineral and organic soils) were not included, as they are not considered to be significant sources, following the Second National Greenhouse Gas Inventory, the most recent inventory at the time of the FREL Amazonia submission. As per the gases included in the submission, only CO_2 was considered." (at https://unfccc.int/files/national_reports/nonannex_i_parties/biennial_update_reports/application/pdf/bur2-ing-02032017_final.pdf, last accessed on 18 April 2018).

2.2 Results-based finance

Results-based financing (or "RBF") means the principle by which climate finance is distributed on the condition that pre-defined climate mitigation (or adaptation) achievements from a certain intervention have been achieved and verified. This "ex-post" financing modality is widely applied across various climate policy instruments and lies at the core of emissions trading (carbon finance) as a whole: An emission reduction has to be achieved ("generated"), reported and verified, before it can be issued and transferred.

A surprising number of voluntary standards active in the AFOLU sectors diverge from the RBF principle by offering straight-forward "ex-ante" credits or by going a middle way: Some standards issue forward credits. Such forward credits have the advantage of adding a market layer and advancing carbon trades, thereby leveraging financing in a market with high pre-financing needs. However, they also add a level of complexity and may confuse market participants. The Gold Standard even applies its buffer rules to the Planned Emissions Reductions (PER) issuance process, no doubt in an attempt to exactly mirror the mechanics of final credit issuance. The PER may consequently be mistaken, though, for the sort of collateralized "results-based" credit that buyers will ultimately go for. Yet, those buffer PERs do not (yet) represent any real ("generated") emission reductions. For certain state-backed voluntary standards, the fact that each intervention is underwritten by a dedicated land tenure title (a servitude) and that the government ultimately guarantees the success of the mitigation output, removes many, but arguably not all, of the concerns one would otherwise associate with ex-ante crediting.

Table 2: Practice of ex-ante and ex-post crediting among standards.

Standard	Verra	Plan Vivo	American Carbon Registry	Gold Standard	Carbon Farming Initiative	MoorFutures	UK Peatland Code	Max. moor	CDM
Ex-ante crediting				X		X	X	X	
Ex-post crediting	X	X	X		X				X

2.3 Transparency

As part of the Paris Agreement, all countries agreed to an enhanced transparency framework for action and support, with built-in flexibility for those developing country Parties that need it in light of their capacities (Article 13 Paris Agreement). A similarly strong commitment to transparency is present in voluntary carbon standards. All Standards examined have detailed rules in place concerning project documentation, validation of the project design, monitoring, and follow-up. The need for robust, independent verification of emission reduction results, in this context, is at the core of a standard's credibility and robustness.

The CDM had established a centralized accreditation process for what it called the "designated operational entities" (or "DOEs") to be responsible for both the validation of the project design and the verification of results; and over just a few years, a dedicated DOE market of globally active, highly specialized firms had emerged. This brought a range of benefits in terms of professional service provision, project quality assurance, and global outreach, but it also came with a number of disadvantages, notably in terms of costs and efficiency (including time efficiency).

Most of the voluntary standards *grosso* modo follow the CDM approach requiring independent firms to go through a specific accreditation process before they can be engaged as validators/verifiers. Among voluntary standards, an important simplification to the CDM is offered: Project validation and verification can be performed by the same operator.

Accounting methodologies are pivotal in transparent and credible (science-based) carbon credit generation, and various standards have complex rules in place for the approval of methodologies. Such validation procedures, in particular in the wetlands sector, require a team of specialists in general accounting, surveying and the science of wetlands (e.g. peatland hydrology). At the moment, the lack of expertise represents a substantial bottleneck. Dedicated training will be needed to accelerate the validation of methodologies and the carbon project cycle at large. This need, however, points to a Catch-22: For as long as project numbers are minimal, private operators will not invest in providing and training staff; this in turn perpetuates small project output numbers.

To break the circle and promote wider access to project development, scrupulous simplification tools for validation and verification procedures, including for micro- and small-scale intervention types, should be developed (see below).

2.4 Additionality

Another topical concept for climate finance intervention, in general, and carbon project development, in particular, is the principle of additionality. It means in the context of project development that a project would not have occurred in the absence of carbon market incentives, i.e. that it was not the most likely or profitable option and that there were barriers for its implementation. The underlying ratio behind the additionality principle is twofold. First, it is an expression of environmental integrity: If an intervention that would be realized as a natural course of action were to be accounted for as a mitigation effort, the intervention agent's ambition is put in doubt, and any offsetting function really would increase the overall emissions balance. Second, it addresses the need for efficient resource allocation. Carbon finance should be a means to an end. Allocating funds to interventions that have no need creates an inefficient windfall for the recipient and leaves legitimate beneficiaries with less cash to distribute.

While a pressing concern for various economic sectors, securing project additionality presents less of a challenge in many land-use categories, in particular conservation and restoration activities. Successful conservation/restoration technologies are often not widely practiced and economic considerations usually favour land degradation over protection/restoration. This notwithstanding, at least when it comes to forest conservation projects (REDD+), a number of interest groups is extremely vocal about their deep concerns concerning the principle of additionality. Interestingly, the difficulty to assess a hypothetical situation – would the project be implemented in the absence of carbon finance – is turned into an argument against forest carbon projects as a concept, rather than the notion of additionality. For project developers on the ground, conversely, additionality often presents a procedural hurdle, not a material one. The risk that windfalls are produced from nature conservation interventions is certainly low for peatland protection and restoration. In fact, assuming otherwise may do more harm than benefit, as farmers and forest owners may feel an incentive to intensify degradation to establish a ground for unquestioned additionality. The authors consider the case for simplified additionality tests strong (for suggestions see **below**).

2.5 Non-permanence

The risk of reversal (non-permanence) of carbon stocks is widely seen as an inherent feature of LULUCF projects. While the authors argue that the risk of reversal applies to some LULUCF projects (sequestration projects, i.e. projects that create a carbon stock), but not to others (in particular not projects that slow or halt emissions from a pre-existing carbon stock, see figure 1), voluntary standards apply non-permanence rules to all sorts of LULUCF projects.

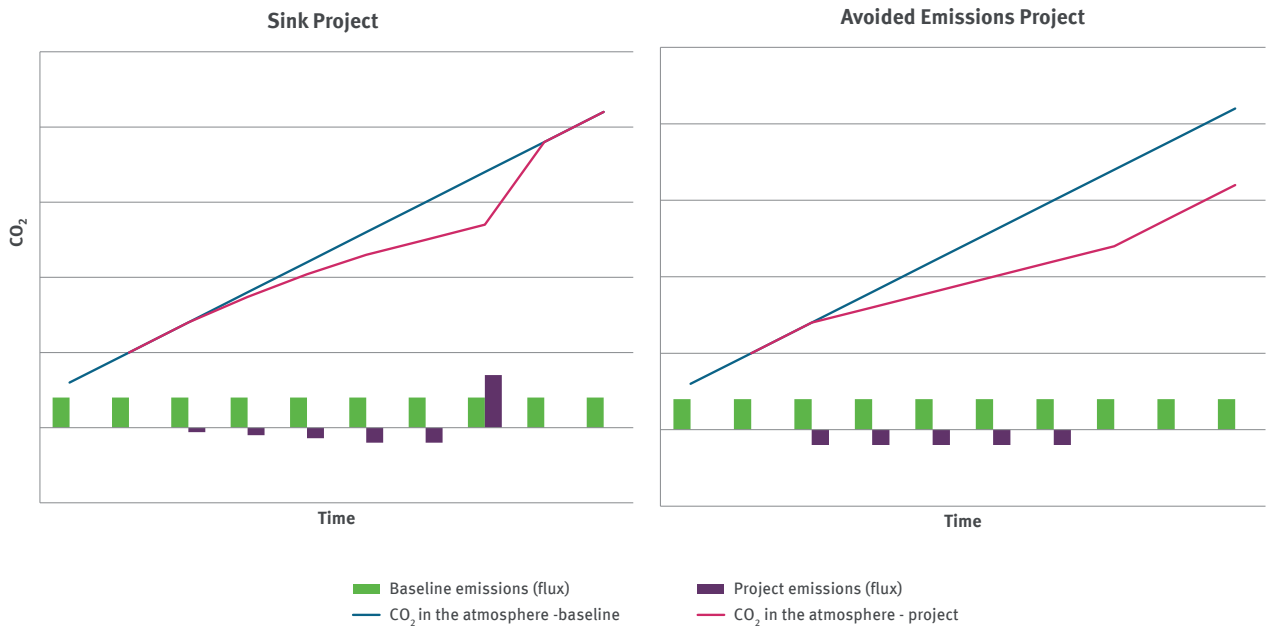

Figure 1: Emission reduction in the case of project reversal. A: In a sink project (e.g. afforestation), CO_2 is removed from the atmosphere and stored in wood biomass; the CO_2 concentration in the atmosphere is reduced. If the forest is cut after the end of the project (and the wood is not used for durable products), the stored carbon is released as CO_2 again and the atmospheric CO_2 concentration is the same as in the baseline scenario. B: In an avoided emissions project (e.g. peatland rewetting) less CO_2 is released into the atmosphere. If the peatland is drained again after the project ends, emissions return to their old (baseline) level, but the atmospheric CO_2 concentration nevertheless remains lower in comparison to the baseline scenario. Graph: I.M. Emmer / J. Couwenberg, from Joosten et al. 2015.

The distinction between sink and emission reduction projects aside, the technical answer to the problem of non-permanence, as developed by voluntary standards, is decidedly different from the classical CDM approach. While the CDM issued temporary credits only (which suffered from considerable market drawbacks), voluntary standards mostly address the risk of reversal through collateralization. They oblige every project to transfer, from every credit issuance, a certain percentage into a collateral or "buffer" account. Detailed rules show a high level of disparity between the standards (see table 3). There is not yet much data available on the resilience of established buffer accounts, though published information from Verra (formerly the VCS) suggests comfortable levels of protection.

Table 3: Buffer thresholds for land-use projects in a variety of voluntary carbon standards.

Standard	Verra	Plan Vivo	ACR	Gold Standard	Carbon Farming Initiative
Buffer contribution	10-60 %	10-30 %	10-60%	20 %	5 %
Standard	**MoorFutures**	**UK Peatland Code**	**Max.moor**	**CDM (A/R)**	**Climate Action Reserve**
Buffer contribution	30 %	15 %	NA	NA	10 %

In a longer-term perspective, it should be noted that another way to address non-permanence would be through comprehensive accounting, something particularly relevant in the context of the Paris Agreement and the trajectory of comprehensively capped economies. This is because once a cap for peatland (and/or other land-use related emissions) is established, the respective accounting system will directly account for any reversal or stock loss.

A related but distinct topic concerns the longevity of project interventions, i.e. the minimum thresholds for project durations. Long project cycles are good from the perspective of climatesmart sustainability, yet they can become an obstacle for farmers that are willing to implement a project for 10 or 15 years, but not to commit for a generation, let alone for three or four generations. Some standards set minimum longevity requirements at 30 years. The ACR requires 40 years, the Climate Action Reserve sets a 100 year longevity rule, and some standards such as MoorFutures and max.moor require project areas to be taken irreversibly out of agricultural usage (see further table 4). While obviously preferable to maintain project conditions for as long as possible, for most peatland interventions (emission-reduction focused), short-term and mid-term project implementation periods have a clear climate benefit. This is not necessarily put at risk, if a project closes after ten (10) or fifteen (15) successful years (emission reduction projects only), and the landowner returns to the previous use (see figure 1). Modules should be offered to farmers to commit to project periods of 10+ years, with obvious implications for the achievable carbon output and the buffer calculation (see below).

Table 4: Project longevity thresholds (land-use projects) in different voluntary market standards.

Standard	Verra	Plan Vivo	ACR	Gold Standard	Carbon Farming Initiative
Project minimum longevity	30y	NA	40y	30y	100y
Standard	**MoorFutures**	**UK Peatland Code**	**Max.moor**	**CDM (A/R)**	**Climate Action Reserve**
Project minimum longevity	NA	NA	NA	20y	100y

2.6 Leakage

Perhaps the least contentious project requirement – in abstract – concerns leakage, i.e. an increase in emissions or a decrease in removals of greenhouse gases outside of the project area as a result of the carbon project's interventions. The concrete determination of leakage emissions and opportune mitigation strategies is arduous, however, and the various standards have established rather different and complex leakage accounting modules. Exceptions apply for those standards – such as max.moor – that concentrate on degraded peatlands, which are no longer in agricultural usage. Ecological leakage risks aside, in these cases, the risk of market leakage – agricultural production moves on to other peatlands – is not much of an issue.

Safeguards and Co-Benefits

Voluntary standards react increasingly to the expectation from impact investors and the public at large that their investments be adequately vetted against doing harm (safeguards) and that they yield benefits not just in terms of emission reductions, but in terms of other ecosystem services. As with other land-use projects, adequately identifying the environmental and social impacts, risks and opportunities of a project intervention should be a prerequisite for any standard. Existing voluntary standards include safeguard protocols to varying degrees. The Gold Standard has developed a detailed standard-wide protocol (Gold Standard 2018). The more open approach chosen by the ACR (ACR 2018) – to set out a few core principles and have project proponents choose fitting protocols (e.g. from the World Bank) – is perhaps equally robust, while maintaining a minimalist approach to rulemaking. Solely referencing "threats to biodiversity", negative environmental impacts, e.g. soil erosion or reduction of water quality" and non-invasive species (Plan Vivo 2013), on the other hand, may not be wholly reassuring. The risk exposure naturally is different among regions and countries. While in countries with high primary forest coverage the situation of indigenous peoples may be of major concern, in many industrial country settings, ecological and cultural safeguards for historic landscapes play an important role.

Soil carbon projects usually offer a wide set of ecosystem services ranging from clean water provision to flood prevention and biodiversity gains. Attempts are ongoing to tap into these portfolio benefits and offer certified ecosystem service credits. It may be some time before a peat "super-credit" sees the light of day, but for a number of services, robust quantification metrics exist and can be demonstrated alongside the carbon results ("climate+" benefits). The German MoorFutures standard has created a bespoke set of accounting methods for peatland-related ecosystem services outside carbon, though the work is still at an early stage.

2.7 Market considerations

The number of voluntary carbon markets have stagnated globally for the most recent years, though regionally there are stark differences. In some countries, including Germany, both growth in demand and diversification of project types have been reported. Across standards, most credit demand is corporate, led by socially and environmentally responsible corporate decision making (Goldstein 2016). For the forestry and land-use sector, in 2016, an annual transaction volume of about 13 m t CO_2e has been reported, with an average price of US$ 5.1 per tonne. REDD+ credits traded in average at US$ 4.2, A/R credits at US$ 8.1, credits sourced from improved forest management at US$ 9.5, and credits from grassland and rangeland management at US$ 6.9.

While global demand has slowed since 2011 and many suppliers are over-stocked with unsold credits, corporate attention has moved into two directions: First, corporations across the globe have adopted more holistic climate mitigation policies, committing to reducing their carbon footprint in production, sourcing and distribution, without necessarily relying on offsetting. Second, corporate offset buyers make more refined choices concerning the type and origin of credits, not necessarily the standard itself. A study from 2016 (Hamrick Gallant 2017) found that buyers are increasingly interested in credits that "fit" with the organization's mission (e.g. in terms of sector and also, for small buyers, in terms of location) and that "co-benefits", in particular in the areas of biodiversity and community-benefits, are of great importance. Similarly, a survey among German offset buyers (Ivleva 2015) concluded that demand is different according to the project and the project location – with domestic projects generating by far the highest demand.

Serving niche appetites presents many opportunities for land-use projects (at least beyond REDD+). Yet, it may not necessarily show along the path of mainstreaming standard operations or demand. Both seem critical, however, if scale is the ultimate goal. Voluntary carbon markets are in fact marked by a considerable level of fragmentation. There are no centralized market platforms; prices are extremely variable; and the specifics of a project become ever more important. What is traded on the voluntary markets is both credits and projects.

Standards can guarantee high-value products, they can work on their brand and reputation, and they can explore emission reduction opportunities neglected by compliance markets or other climate policy tools. Ultimately, however, standards cannot create demand, and it is the lack of predictable demand that is in the way for a rare niche market to assume scale. The lack of healthy demand is hardly a concern for the few soil carbon projects planned or under development. Project numbers are so limited, and peatland and other soil carbon projects are exotic enough that each of the projects – if developed under a robust standard – will attract a buyer. As the standards MoorFutures and max.moor illustrate, this holds true even for credit prices above US$ 60. The challenge arises, once there are no longer a handful of projects, but dozens or even hundreds. As the case of REDD+ shows, demand has not nearly kept up with supply over recent years; supply is deemed up to 10 times larger than demand.

An issue to watch in coming years will certainly be the way in which the aviation industry will position itself in the market. There are early indicators that the incoming aviation offsetting mechanism – Carbon Offsetting and Reduction Scheme for International Aviation or "CORSIA" – with an expected demand of 150 to 800 million credits annually over the period 2025 to 2040 will include the land-use sector in its scope. Airlines have started to seek out particular projects rather than purchase wholesale from anonymous sources. Delta Airlines, for instance, identified as a pioneer venturing in the future aviation offsetting market, recently announced investments in four offsetting projects, all of them in the forestry sector, located in the following countries: Brazil, DRC, Guatemala, and Zimbabwe.

Table 5: Average prices for land-use projects among standards (the prices for MoorFutures and max. moor are specifically for emission reductions from peatland restoration measures).

Standard	Verra	Plan Vivo	ACR	Gold Standard	Carbon Farming Initiative
Price per credit	$ 4-5	$ 8	$4.7	$ 4.6	$ 10.5
Standard	**MoorFutures**	**UK Peatland Code**	**Max.moor**	**CDM (A/R)**	**Climate Action Reserve**
Price per credit	$ 45-95	$ 7-12	$ 110	NA	$ 3

However, there is no indication so far that specific project windows will be created, and soil carbon projects will have to compete with other land-use intervention types. Peatland projects, in particular, may be in the defensive. This is less of market problem in a number of tropical countries with abundant peat areas and comparatively low abatement costs, but in many industrial countries, average offset prices will have to increase considerably to become attractive for peat projects (see table 5). Other soil carbon interventions have fewer abatement costs, however, and competition will be easier for them. The growing experience with paludicultures (meaning cultivation methods for wet environments) may help reduce abatement costs in the mid- and long term as it allows continued agricultural use on restored peatlands.

3 Preliminary Recommendations

The study project is not yet complete. We are still in the process of exploring consolidation and simplification opportunities across the voluntary standard board and we are working on options for moving soil carbon interventions into the compliance as well as the hybrid aviation market. However, we would like to share a number of preliminary recommendations, meant as discussion points for the workshop. We start with recommendations for standards and, then, turn to recommendations regulators (governments).

On the side of standards, the authors see room for improvement and simplification in the following areas:

1. *Create micro, small and standard project categories*
   a) Develop different intervention formats in terms of in area size, with substantial simplification options for small- and or micro-formats;
   b) Our option for consideration: The smallest size – micro-projects – would cover areas up to 10 hectares; the medium size – small-scale projects – would cover areas up to 500 hectares; and everything beyond would be deemed a standard project.

2. *Double counting*
   a) Define, in a transparent way, for each country and sector the double counting threshold (accounting minimum to warrant the risk of double counting) and introduce periodical double counting tests (linked to the 5-year NDC cycles);
   b) Offer transparent, yet flexible double counting guidelines and report on double counting risks and solutions, it being understood that there may not be ideal situations in each project scenario;
   c) As part of such double counting guidelines, offer a default mechanism for project developers to compensate for double counting conflicts with separate credit cancelation policies (e.g. from Pre-2020 CDM credits);
   d) Do not stop voluntary projects for double counting concerns;
   e) Advocate towards a decision by the delegated legislator of the Paris Agreement – the CMA – concerning corresponding adjustments for voluntary market projects.

3. *Results-Based Finance*
    a) Reconsider the need for advance crediting taking into account (1) the emergence of Results-Based Finance (RBF) as a key climate finance principle, in particular in the context of landuse emissions (for forests, see Article 5.2 Paris Agreement), and (2) the expectation of project investors and carbon buyers to purchase safe and secure credits.
    b) Consider alternative financing tools, including forward sales and new collateralization tools (perhaps creating a stand-alone insurance fund to back advance payments).

4. *Transparency*
    a) Review project and methodological requirements for leaner processes and pragmatic tests. Allow, in particular, simplified approaches to greenhouse gas (GHG) measurements by encouraging the use of highly accessible proxies, as long as these show a strong and robust correlation with GHG fluxes;
    b) Permit the calculation of project baselines on current default figures established by the Intergovernmental Panel on Climate Change (IPCC);
    c) the treatment of wet peatlands always as sinks (disregarding momentary GHG fluxes, which factor out over time, in any case); and the application of fixed default value classes for uncertainty levels (e.g. 10 %, 25 % and 50 % default values, each indicating mandatory deduction values).
    d) Rethink the need for dual validation of methodologies and instead introduce a platform for ongoing peer-review of methodological procedures. e) Offer off-the-shelf methodological modules for project developers to develop their own bespoke in-situ methodology.
    e) Open existing methodologies for legitimate project-specific adjustments (beyond the current limited possibilities within 'methodology deviations') and provide for procedures at monitoring and verification stage.
    f) Focus on concentration and aggregation of small- and micro-scale project activities in groups (or programmes), with highly skilled group (or programme) managers designing the methodological approach able to communicate with validators as peers.
    g) Simplify and harmonize project documents making standard-wide (if not across standards) use of well-organized database modules (with standardized review procedures for validators).
    h) Small and micro projects. Simplify rules for micro projects (stand-alone projects as well as grouped/bundled projects) and permit sampling methods and easy-to-establish evidence tools (e.g. footage, simple water-table measurements, and more).
    i) Small and micro projects. Focus on concentration and aggregation of small- and micro-scale project activities in groups (or programmes), with highly skilled group (or programme) managers designing the methodological approach able to communicate with validators as peers.

5. *Additionality*
    a) Standardize additionality tests per soil carbon intervention type: With activity penetration levels of 5 % or less compared to the maximum implementation potential, the project should a priori be deemed additional.
    b) Concentrate on regulatory additionality: If there is a legal obligation for conservation or restoration or if there are separate incentive schemes in place (e.g. biodiversity banking), additionality has to be individually justified.

6. *Non-permanence and project longevity*
    a) Simplify the non-permanence risk calculation and apply, as some standards already do, a common buffer threshold.
    b) The common buffer threshold may be conservatively set at 20% (for stock enhancement activities).
    c) Reconsider the permanence risk for emission reduction projects.
    d) Offer short-term project windows of (10) and (15) years for certain project types, including for peatland rewetting activities.
    e) For stock enhancement projects, such short windows may be offered, but only against additional buffer withholdings.

7. *Leakage*
    a) Create standardized no-leakage assumptions, such as (for peatland restoration projects):
        a. Land is abandoned (no ongoing agricultural use);
        b. Displaced activity is banned on un-degraded peatlands;
        c. Displaced land use baseline emissions are not accounted for;
        d. Land use will continue at a similar level of service or production (e.g. reed or hay harvesting; subsistence harvesting);
        e. Potentially displaced activities are compensated for (e.g. sphagnum harvesting by onsite paludiculture; wood harvesting from woodlots established by the project outside the project area);
        f. Concerning hydrological leakage: Buffer zone has been established and hydrological connectivity is avoided (through dams, or other).
    g) For other categories, simplified procedures may not exist, and leakage would need to be assessed in each individual case.

8. *Safeguards and Co-Benefits*
    a) Develop a simple safeguards protocol, with ex-ante clearance procedures, and in-depth examination for higher-risk situations (e.g. concern for indigenous peoples, ecological conflicts, etc.).
    b) A forceful and comprehensive "do-no-harm" principle should be spelled out in any standard.
    c) Develop simple methodologies for the calculation of co-benefits and standardize the way reporting is done.
    d) Consider creating premium ("super credits") that are standardized in the sense that they combine a certain minimum number of verified ecosystem services (with minimum performance levels).

For regulators, the following suggestions are made:

1. *Paris Rulebook*
    a) Develop double-counting rules to allow voluntary market activities to be accounted for against NDCs ("corresponding adjustments" for private-sector initiatives).
    b) Develop an international registry or reporting platform for voluntary market activities.
2. *At the national/state level*
    a) Create dedicated funding tools to set incentives for (certain) soil carbon projects (for examples, see Australia's Emission Reduction Fund or Germany's Forest Climate Fund).
    b) Install a program assistance facility that helps set up groups of project activities, develops required documentation, communicates with project entities (often: farmers), on the one hand, and validators/verifiers, on the other hand, and provides simple and standardized participation and monitoring tools.
    c) Help spread paludicultures through pilots, simplified permitting processes, and farm subsidy adjustments (which to date penalize a number of paludicultures by not recognizing them as forms of agriculture).

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