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# ADVANCING EFFECTIVE AND EQUITABLE CREDITING

Natural Climate Solutions Crediting Handbook

# EXECUTIVE SUMMARY

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**The NCS Crediting Handbook will guide readers through key decisions and complex issues involved in creating effective crediting systems for natural climate solutions (NCS).** NCS crediting is one of the most controversial issues in climate policy. Some see it as an indispensable tool, if the world is to have any chance of meeting the temperature targets of the Paris Agreement. These advocates argue that NCS crediting can help achieve the Paris Agreement goal in a way that supports sustainable development for economically disadvantaged people and regions, while also providing and protecting much-needed ecosystem services that are themselves vital for climate resilience. Others, however, see NCS crediting as an opportunity for greenwashing, diverting resources from climate action in the energy and industry sectors, and sometimes undermining the rights of Indigenous Peoples and local communities or contributing to ecologically damaging monocultures. We aim to unpack these arguments and debates, and to provide the reader with an impartial guide to many key arguments around this complex topic.

**NCS refer to the protection, restoration and improved management of natural ecosystems and managed landscapes as pathways to address climate change.**

The greatest policy focus to date has been on NCS in tropical forests, although there are also many opportunities to use NCS in temperate and boreal forests, agricultural lands, peatlands and marine ecosystems. NCS activities support climate change mitigation in one of two ways. First, they can lead to a reduction (or avoidance) of greenhouse gas (GHG) emissions into the climate system, relative to what would otherwise have been emitted. These emissions-reducing pathways includes, for example, avoiding anticipated deforestation. Second, they can remove (or capture) previously emitted carbon from the climate system, coupled with long-term storage through natural means. Removal pathways include activities like planting new forests or restoring wetlands. Overall, researchers estimate that NCS can provide about one-third of the mitigation needed in the period before 2030 to remain on or below a 2-degree pathway (World Economic Forum, 2021).

**NCS crediting is a policy option to drive financial support for NCS activities.** Crediting involves recognizing NCS activities that result in a difference in GHG emissions or carbon sequestration from a baseline, quantifying that difference, and creating an equivalent

number of credits that have monetary value. These credits have value because their owners can claim the reductions or removals they represent for regulatory compliance or to meet, or go beyond, voluntary targets.

**We explore key issues and debates surrounding NCS crediting through four key lenses:**

**The supply of NCS credits:** which considers issues that arise for people (for example, farmers, Indigenous peoples, project developers and government agencies) making decisions about whether – and how – to undertake activities that could lead to the generation of NCS credits. It also includes the decisions of those who regulate the supply of credits. In other words, this part of the Handbook assumes that there will be a buyer for each credit supplied and considers the questions that arise in generating high-integrity credits to meet that presumed demand.

**The demand for NCS credits:** which explores issues that may be considered by those who wish to purchase and use an NCS credit (and the emission reduction or removal that the credit represents), and/or by those who might regulate such purchases. In this part of the Handbook, we assume a credit has been generated and focus on the issues that those who might buy that credit might face.

**The market for NCS credits:** which looks at how buyers and sellers come together to transact credits, and the various ways in which these interactions can be organized. We pay special attention to the issues that arise when NCS credits are traded across international borders.

**Financing for NCS activities:** which recognizes that the opportunities associated with NCS crediting can be realized only if those with the potential to generate credits can access finance to cover the costs they incur before receiving revenues from credit sales (as well as any other financial benefits from the NCS activities). This financing can come from a variety of sources, including credit buyers. We explore these dynamics and discuss a range of options available to overcome related challenges.

**Throughout, our intention is not to tell the reader the ‘correct’ answer to the wide range of questions that NCS crediting raises.** Rather, we hope to lay out the key debates, explore why different people believe and

defend the stances that they do, and unpack what assumptions may underlie some of these arguments. Our ultimate goal is for readers – (potential) buyers, sellers, regulators, policymakers and investors – to be empowered by the Handbook to better navigate the NCS crediting landscape. We hope this text will help these groups better understand where there is already broad consensus on key issues of importance and where real debates remain, so that they can make more informed decisions.

## The supply of NCS credits

**Ultimately, NCS credits are generated by the actions of the people who work with, care for and manage landscapes and ecosystems.** NCS crediting will only be successful if the prospect of income from the sale of NCS credits makes it more feasible and attractive for these people on the ground to engage in the sustainable, climate-smart activities that underpin crediting. To work at all, NCS crediting must work for them.

**A key distinction between different NCS crediting activities is the physical scale at which efforts to define, measure and verify NCS credits take place: project-based or jurisdiction-based crediting.** In a project-based approach, activities that reduce or remove GHGs from an agreed baseline are evaluated in a defined, relatively small geographic area, with a 'project proponent' responsible for carrying out the NCS activities. This project proponent may either be one or more people with secure land title in the location where the NCS activities will take place, or, alternatively, it may be a person or group who are assured that they have the rights to any credits generated by their NCS activities. In contrast, under a jurisdictional model, a subnational or national government entity (including Indigenous governments) is provided with incentives to take responsibility for ensuring that increasing implementation of NCS activities is carried out within the geographic region in which it has authority. This jurisdiction then typically holds the right to sell the credits generated by these activities.

**Many advocate for jurisdictional crediting.** Advocates for jurisdictional crediting point to benefits offered by an approach implemented under the unique authority of governments to make and enforce laws. These benefits relate strongly to the increased scale of NCS activity made possible by this approach, and the increased confidence it can provide that credits generated will be of high integrity (defined below). To date, however, there remain relatively few examples of jurisdictional crediting, and jurisdiction-scale implementation may be especially complex or challenging in some locations. Critics point to the

difficulty of negotiating and generating credits with governments that might sometimes have little control over the activities that are expected to generate credits.

**Regardless of the scale at which they are generated, high-integrity credits should meet six criteria:**

- **Real** — Credits issued and sold represent unique units of actual emissions reductions or removals (ERRs), without double counting, and with measures in place to mitigate the risk of leakage.
- **Quantifiable** — Credited activities can be accurately linked to measurable ERRs, based on robust methodologies and monitoring approaches.
- **Additional** — Activities and/or GHG emission reductions or removals that exceed those otherwise required by law, regulation or legally binding mandate, and that result in more reductions or removals than would occur under a conservative business-as-usual scenario.
- **Verifiable** — Crediting activities, outcomes, rules and processes are transparent, and where appropriate are validated and verified by an independent third party, in order to ensure compliance with other high integrity criteria.
- **Permanent** — Mechanisms are in place to ensure that the carbon associated with credited ERRs is not released into the atmosphere over the agreed-upon timeframe of the credit.
- **Equitable** — The crediting program incorporates effective and ethical environmental and social safeguards, including meaningful partnership and engagement with IP and LC stakeholders and fair benefit-sharing mechanisms.

**Crediting standards are a critical tool for ensuring the generation of high-integrity credits.** Standards lay out the technical parameters for how NCS activities are translated into a defined number of credits, as well as other related requirements to which credit generators must adhere. The standard used by a supplier can affect both the quality of the credits generated, and the real and perceived value of these credits to potential buyers. Standard-setting bodies may provide methodologies for both project-based and jurisdictional crediting. Examples of crediting standards include those developed by the American Carbon Registry, Climate Action Reserve and Gold Standard, as well as those used in compliance markets (see below), such as those provided by the California Air Resources Board or the New Zealand Emission Trading System. However, credit suppliers will often need to complement the requirements of credit standards with other actions in order to deliver truly high-integrity credits.

TABLE ES1

## Tool and mechanisms for promoting high-integrity credits

Integrity element	Tools and mechanisms for promoting high integrity	Key discussion points/ongoing debates
<b>Real</b>	<ul style="list-style-type: none"> <li>• Safeguards against double-counting including credit registries, third party validation and verification, and growing efforts at sharing and harmonizing information</li> <li>• Safeguards against leakage to reduce underlying demand/need for emitting activity</li> </ul>	<ul style="list-style-type: none"> <li>• Jurisdictional programs likely to have a structural advantage over project-based crediting in preventing leakage, but there can still be concerns about addressing leakage that occurs across jurisdictional boundaries</li> </ul>
<b>Quantifiable</b>	<ul style="list-style-type: none"> <li>• Use of calculation methods and buffer pools that account for ecosystem carbon dynamics (in different ecosystems)</li> <li>• Effective monitoring, reporting and verification (MRV) protocols</li> </ul>	<ul style="list-style-type: none"> <li>• Jurisdictional crediting may better account for uncertainties in quantification by allowing averaging over larger spatial scales</li> <li>• May be a need to recognize that some regions should not be relied upon to continue storing carbon at their current rates</li> <li>• Potential for growing use of remote sensing technologies, at least in some NCS pathways</li> <li>• Jurisdictional crediting may offer economies of scale in MRV</li> </ul>
<b>Additional</b>	<ul style="list-style-type: none"> <li>• Appropriately conservative baseline setting</li> <li>• Design of methodologies to avoid adverse selection</li> </ul>	<ul style="list-style-type: none"> <li>• Baseline setting remains inherently challenging, leading to risk of both errors of inclusion or exclusion</li> <li>• Jurisdictional crediting may allow for more accurate baseline setting (although the impact of any errors may be more substantial)</li> <li>• Ongoing debates over whether and how to conceive of additionality for NCS activities in High-Forest Low Deforestation (HFLD) contexts</li> </ul>
<b>Verifiable</b>	<ul style="list-style-type: none"> <li>• Effective and consistent measurement methods/tools/frequency</li> <li>• Transparent reporting of all stages of process with third party verification/validation</li> </ul>	<ul style="list-style-type: none"> <li>• 3rd party verification seen as crucial by most</li> </ul>
<b>Permanent</b>	<ul style="list-style-type: none"> <li>• Buffer pools</li> <li>• Replacement requirements</li> <li>• Safeguards and local consultation to ensure buy-in, lowering risk of future reversal</li> </ul>	<ul style="list-style-type: none"> <li>• Different drivers of reversal at project versus jurisdiction may demand different approaches</li> </ul>
<b>Equitable</b>	<ul style="list-style-type: none"> <li>• Free prior informed consent practices</li> <li>• Social and environmental impact monitoring</li> <li>• Benefit sharing arrangements</li> <li>• Support for adaptation and resilience</li> </ul>	<ul style="list-style-type: none"> <li>• Best practices may not be fully specified in crediting standards,</li> <li>• IP and LC groups are not homogenous and should not be treated as such, even under uniform standards.</li> <li>• Consultation processes are lengthy but are necessary for high-quality credits.</li> <li>• Identifying which IP and LC groups will be impacted by a program/project can be difficult</li> </ul>

**Table ES1 on previous page summarizes how standards, complemented by other actions of credit suppliers and intermediaries, can help to promote high-integrity credits.** It also identifies some of the key discussion points and outstanding areas where there is ongoing debate about how credit integrity can best be ensured.

The attractiveness of jurisdictional NCS crediting approaches, coupled with the prevalence of existing project-based NCS credits in many places, is driving growing interest in the concept of ‘nesting’. This refers to the integration and alignment of crediting at both scales within one jurisdiction, while continuing to ensure that all credits meet the integrity criteria outline above. For those jurisdictions considering nesting, a number of different models have been proposed; different approaches are also reflected in crediting standards and associated methodologies. In all cases, however, effective nesting will require the development of clear legal and institutional frameworks, as well as standardization of GHG accounting approaches, to align efforts at the two scales.

## Demand for credits

**There are four main types of NCS credit ‘end-users’ – i.e., those who retire NCS credits and claim the emission reductions or removals they represent:**

- **Voluntary market participants** who use NCS credits either as part of their strategy to meet GHG emission targets within their value chain, or to achieve ‘beyond value chain impact’ where they support emission reductions and removals that go beyond the targets they have established within their own value chains;
- **Compliance market participants** who are subject to emissions constraints imposed by national or sub-national jurisdictions, and who use credits instead of either reducing their emissions or purchasing allowances or paying a carbon tax;
- Those companies operating under **international sectoral commitments** to reduce their emissions below a target, which currently refers to airlines operating under the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) scheme; and
- **Governments/sovereign countries**, who may purchase NCS credits as a strategy to meet their nationally determined contribution or provide effective climate finance.

In addition, others may purchase credits in the hope of profiting from the difference between the price at which they purchase the credits and the price at which they sell them.

**In the recent past, the majority of end-user demand for NCS credits has come from the voluntary market, although growth in this market has slowed since 2021.** This slowdown reflects both market guidance suggesting that credits should only be used in targeted circumstances, and fears of reputational risk from purchasing low-quality credits. Demand from the other three sources has significant growth potential as the global climate response intensifies.

**Buyers – and, where appropriate, their regulators – need to weigh a number of factors when deciding how much emphasis to place on NCS (and other) credit purchases in their emission reduction strategies.** On the one hand, the option to purchase NCS credits expands the range of mitigation options that can be considered. This makes ambitious climate action easier and less costly, which may encourage buyers to set more ambitious targets in the first place. Buyers may also value the robust quantification of emissions impact that purchasing credits provides; they may also value the benefits that NCS credit purchases can provide to marginalized communities, regions or countries. On the other hand, some stakeholders express concern that purchasing NCS credits may result in buyers putting less effort into reducing their own GHG emissions than is globally equitable and efficient. A diminished focus on buyers’ own emission reductions would also mean that important co-benefits of their potential emission reductions – such as improved air quality for a local community within the buyer’s supply chain – would be lost. Some have also expressed concern that purchasing credits risks undermining other forms of national or international cooperation.

**Balancing these considerations typically results in restrictions on the use of NCS and other credits.** For example, in compliance markets, regulators often set limits on the extent to which NCS credits can be used compared to reducing emissions directly; these limits sometimes distinguish between NCS credits sourced domestically (which may ensure co-benefits occur within the geographic territory of the compliance market itself) and those credits sourced from overseas. In the voluntary market, it is generally accepted best practice to use NCS (and other) credits only for those emissions that cannot be technically and economically reduced by other methods, or in cases where voluntary buyers want to use credits to further exceed the targets they have set for themselves.

**End-users also need to consider what types of NCS credits to purchase.** This will depend on factors such as cost, co-benefits, the presence of benefit-sharing mechanisms, execution risk and strategic alignment. In

addition, however, buyers (and, in compliance markets, their regulators) will need to consider three issues that have attracted broader policy interest. These are:

- **The weight to give to project-based versus jurisdictional credits.** Given the attractiveness of jurisdictional crediting to many stakeholders, buyers may wish to increase the proportion of credits from such programs (or from nested projects within programs). They may also wish to make forward purchases of such credits or finance to these programs, which can strengthen these efforts by clearly signalling future demand. Such signals may also encourage project developers to support jurisdictional crediting and nesting arrangements.
- **The balance between reduction and removals credits.** Stakeholders have different perspectives on how quickly buyers should shift from the current market focus on reduction credits to removal credits. These perspectives reflect different assumptions about the importance of credit purchases – compared to other approaches – in providing the financial incentives needed to protect tropical forests and other existing ecosystems.
- **Within the class of reduction credits, the priority to give to high forest, low deforestation (HFLD) credits.** Those who advocate for the purchase of HFLD credits note that the revenues associated with credit purchases will help sustain ongoing efforts to combat deforestation threats; they are also likely to benefit Indigenous peoples and local communities, avoid the risk of perverse incentives to increase deforestation and help provide ecosystem benefits. Others argue that HFLD credits should not be purchased because of the perceived difficulty of demonstrating their additionality. Yet another perspective argues that buyers should purchase these credits, but not claim legally that they represent additional emission reductions. In balancing these perspectives, a key consideration for buyers is whether there are effective alternative approaches available for supporting forest protection in HFLD countries and how this is likely to change over time.

**Given the diversity of credits available, end buyers often face challenges in distinguishing high-integrity NCS credits.** In response, a number of coalitions and initiatives have emerged, particularly focused on the voluntary market. The most notable of these is the Integrity Council for the Voluntary Carbon Market (ICVCM), which has published both Core Carbon Principles (CCP) and an Assessment Framework to help apply these Principles. A number of civil society and private sector tools and products are also emerging to help to address this challenge. However, in some

cases, the methodologies and processes used to assess credit quality lack transparency.

**Within the voluntary market, there is a growing interest in what end-users should communicate to investors, clients and others about their use of NCS (and other) credits.** In particular, there is interest in using corporate sustainability disclosures to increase transparency about the claims that NCS credit buyers are making, and the types of credits being used to meet those claims. This area has been supported by the Voluntary Carbon Market Integrity Initiative (VCMI), which has developed a Claims Code of Practice that identifies different types of claims that purchasers might make and the information about (NCS) credits that should be disclosed.

## Markets for NCS credits

**Buyers and sellers, assisted by traders and brokers, can come together to transact credits either through over-the-counter (OTC) transactions or on a market exchange.** The former offers buyers and sellers the flexibility to tailor the transaction to meet their respective needs. The latter offers the prospect of scale, liquidity and greater market transparency. The majority of NCS credits are currently traded in OTC transactions, although exchanges are becoming increasingly popular.

**NCS credits can be traded domestically, or across international borders.** In some cases, buyers and sellers (and their regulators) may prefer to maintain a domestic market for NCS credits. There may be more trust between buyers and sellers if they are located in the same jurisdiction; limiting buyers to purchasing NCS credits from within a domestic market may ensure that the territory of the jurisdiction also receives any ecological or social co-benefits from the NCS activities that underpin the credits. However, allowing NCS credits to be traded across international borders can have a number of important benefits. For sellers, many of whom will be based in tropical countries, an expanded pool of potential buyers makes it more likely that they can find partners and structure contractual and commercial relationships that meet their needs and preferences. For buyers, meanwhile, the wider range of suppliers available in a global market can help ensure that they are able to purchase credits based on activities that reflect their preferences. Expanding the geographic scope of NCS credit markets to cover credit generation in tropical countries and others can also increase the feasibility of achieving global temperature targets in part by reducing the cost to the global community of supporting climate action. This in turn opens the door for the global community to “reinvest” these cost

savings, increasing the overall ambition of their climate actions. Some economic modeling illustrates how reinvesting cost savings from NCS credits could dramatically increase the global volume of mitigation at no extra cost; although real-world challenges of implementation will limit the magnitude of these gains in practice, such studies help to illustrate the potential value of allowing this type of international NCS crediting use.

**The institutional/organizational options available to sellers and buyers considering cross-border transactions vary, depending on the level of government involvement in the transaction.** Significant government involvement in the supply side of transactions is, by definition, required to realize the benefits of jurisdictional crediting. Supplier-side government involvement in sales of project-scale crediting or other types of ERR transactions may also help to ensure that credits are sold in a manner that protects the integrity of the supplying country's NDC and also offers opportunities to invest the gains from trade towards other broader development goals. For some, however, a perceived trade-off of these benefits is the risk that strong government involvement could erode competition between suppliers, making credits from the country less attractive to buyers. On the buyer side, strong government involvement (most obviously in the form of direct purchase by governments) provides close control over how NCS credits are deployed in the national climate change strategy. It also provides the ability to align credit purchase decisions with broader foreign policy objectives. However, strong government involvement on the side of buyers may reduce the extent to which buyers compete to explore new ways to source credits and reduce emissions, while credit purchase decisions may also be distorted by non-climate policy objectives. These different supply and demand options interact to create a range of potential institutional options for international transactions, including Climate Action Teams and ETS linking.

**When NCS and other credits are traded across international borders, a critical question is whether the host government – the government in the country where the NCS activity takes place – should make a corresponding adjustment (CA).** In cases where the NCS credit is used to meet NDC obligations in the buyer's country or to help airlines meet their CORSIA targets, a corresponding adjustment is required. This helps to avoid double counting of emission reduction efforts – when the same emission reduction is counted towards the targets of two (or more) parties. However, if the purchased credits are used to meet only a voluntary commitment rather than to meet NDC (or

equivalent) requirements, the Paris Agreement rules do not require a corresponding adjustment. This leaves the decision on whether to make a CA to the host government, as well as to the buyers, who can decide whether to purchase credits with such an adjustment. Proponents of using credits with CAs in this context argue that this makes it more likely that voluntary purchases will lead to an increase in additional global emission reduction efforts. They also argue that it reduces the risk that companies purchasing credits will make misleading claims. Those who oppose the use of CAs in this context point out that the credits purchased are not used to meet another country's NDC, thus obviating the need for an adjustment. Furthermore, they argue that the use of a CA in this context could reduce the size of the voluntary market and the benefits it brings to drive NCS and other creditable mitigation activity. The loss of this potential stream of 'stacked' financial support for credits may make it more challenging for the host country to meet its current NDC, and/or set a more ambitious NDC in the future.

## Financing NCS crediting activities

**The creation of thriving NCS credit markets requires both that NCS credits be appropriately valued and that actors are willing to provide the capital needed to invest in credit generating activities.** The capital needed for NCS activities can come from a variety of sources. Sometimes it may come from the internal resources of the credit providers. In other cases, credit providers will seek external financing from public or private banks or equity investors. In other cases, potential credit buyers will provide capital in exchange for preferential access to the credits that the NCS activities will generate. While there is a close link between the value at which NCS credits sell and the ability to raise capital for NCS credit generation activities – for example, it will be easier to access external capital to invest in NCS activities if the price of credits is high – the two concepts are separate. Both require policy attention if NCS credit markets are to scale.

**There is currently a significant shortfall in investment for NCS activities in general, including those that are expected to generate credits.** One estimate suggests that the total investment required for NCS activities – both those that generate NCS credits and those that do not – over the period to 2050 could be as high as \$11 trillion, if the world is to meet a 1.5 degree temperature target while halting biodiversity loss and achieving land-degradation neutrality. The same report also estimates that current annual investment flows for the same activities are about \$154 billion, about 32% of the 2030 investment needs and 23% of the 2050 needs (United Nations Environment Programme, 2022). Key

potential investors in NCS crediting activities – such as institutional investors and large agribusinesses – have so far contributed relatively little in the way of actual investment.

**A number of barriers can make it difficult to invest in credit-generating NCS activities.** Some of these relate to issues associated with realizing revenues from the successful delivery and sale of high integrity credits. These include:

- **Generation risk** — the risk that the activities will generate fewer credits than expected;
- **Price risk** — the risk that supply and demand dynamics may reduce the price at which credits can be sold;
- **Policy risk** — the particular impact that policy changes can have on changing supply and demand dynamics and hence prices, for example by changing the rules on credit eligibility; and
- **Reversal risk** — the risk that the emission reductions or removals that lead to the generation of NCS credits will be reversed. This either reduces the demand for NCS credits in the first place, or the additional requirements may be placed on credit providers to address this risk can make NCS activities a less attractive investment proposition.

Other challenges relate to the characteristics of NCS activities themselves, and the geographic, political, and economic environments in which many crediting activities are located.

**Some of the risks associated with the crediting process can be addressed by using different types of contracts to structure the sale of credits.** For example, forward/future contracts – whereby buyers and sellers agree the price at which credits will be sold in the future - can help reduce the price risk that credit suppliers and their investors face. Similarly, donors or philanthropists can offer ‘put options’ that give NCS credit suppliers with the right, but not the obligation, to sell NCS credits at a certain fixed price. Contracting structures can also be used to help reduce reversal and delivery risk.

**However, other barriers to investment in NCS activities suggest the need for increased support for jurisdictional crediting, and/or greater use of carefully designed blended finance solutions.**

- The greater scale of **jurisdictional solutions** reduces the significance of transaction costs when designing the financing arrangements and might provide an easier way to attract large pools of institutional investor capital into NCS crediting solutions than is possible with project-based crediting. But the greater scale of jurisdictional crediting may also increase risks, as larger quantities of capital will need to be invested before credits have been generated. To address this conundrum, public finance providers (such as development finance institutions) can play an important role working alongside jurisdictional authorities. These bodies can provide support or upfront financing to enhance the readiness for jurisdictional crediting, making it more likely that jurisdictions can exceed their targets. Carefully designed nesting solutions can have the same effect. Another option to ease financial flows into jurisdictional solutions is incorporating NCS readiness activities within broader rural/agricultural or other sustainability reform programs, which will help to diversify the cashflows of the needed activities.
- **Blended finance** – which involves the use of concessional capital from public or philanthropic sources, to reduce risks to private actors investing to support sustainable development – can also have a role in either project- or jurisdictional-scale crediting. Some blended finance structures that offer potential for support of NCS activities include investment funds with different capital stacks, as well as the provision of concessional partial guarantees to provide comfort to those taking on the financial risk of lending to NCS crediting activities. Blended finance activities have attracted criticism, however, and need to be carefully designed to increase their likelihood of success. Effective finance solutions may ultimately be as diverse as the jurisdictions from which credits are sourced.