



Natural
Climate
Solutions
Alliance

Natural Climate Solution Carbon Credits: **the role of project developers and communities**



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About the NCS Alliance

The Natural Climate Solutions Alliance (NCSA) is a multistakeholder coalition that brings together public and private sector stakeholders to identify opportunities and barriers to investments in carbon credits in new and existing markets to scale up financing for climate solutions. The Alliance also serves as a forum for knowledge sharing and technical capacity building to ensure climate solutions reach their full potential in abating climate change. The Alliance is a collaboration between the World Business Council for Sustainable Development (WBCSD) and the World Economic Forum.

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Website: www.naturalclimatesolutionsalliance.org

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The World Business Council for Sustainable Development (WBCSD) is a global community of over 225 of the world's leading businesses driving systems transformation for a better world in which 9+ billion people can live well, within planetary boundaries, by mid-century. Together, we transform the systems we work in to limit the impact of the climate crisis, restore nature and tackle inequality.

We accelerate value chain transformation across key sectors and reshape the financial system to reward sustainable leadership and action through a lower cost of capital. Through the exchange of best practices, improving performance, accessing education, forming partnerships, and shaping the policy agenda, we drive progress in businesses and sharpen the accountability of their performance.

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This report is released in the name of the Natural Climate Solutions Alliance (NCSA).

Drafts were reviewed by NCSA members, ensuring that the document broadly represents the majority view of NCSA members. It does not mean, however, that every member organisation agrees with every word.

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Preamble

This document is for companies that are considering buying Natural Climate Solution (NCS) voluntary carbon credits and want to learn more about the origination of NCS credits. It aims to provide clarity on the many steps a project developer takes in order to generate high-integrity NCS credits.

Natural Climate Solutions are Nature-based Solutions (NbS) addressing climate change. The UN [defines](#) NbS as “*actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience and biodiversity benefits.*” In combination with fossil-fuel reductions, NCS can provide up to 30 percent of the emissions reductions needed to limit global warming to 1.5 degrees Celsius by 2030.¹

All carbon credits represent one metric tonne of CO₂ (or its equivalent in another greenhouse gas), but the NCS projects generating these credits differ in their specifics, like activity, location, scale and benefit types, and the presence of Indigenous

Peoples and local communities. Therefore, every NCS project has a unique profile, but project developers and other actors involved in design and development follow a common blueprint for building and delivering impactful carbon projects.

With regards to interventions to prevent unplanned deforestation and forest degradation (also known as REDD+), this document focuses on the development of project-scale REDD+; it does not cover the development process of jurisdictional REDD+ programmes, which generate credits on a national or subnational scale and may or may not include projects within them. The story of how credits are generated from jurisdictional REDD+ programmes is captured in a separate document.

Finally, the document draws on the experiences and insights of project developers, NGOs and communities associated with the [Natural Climate Solutions Alliance](#) (NCS Alliance). The document is not a support tool for procurement. The go-to resource for organisations that have purchasing related questions is [The Buyer's Guide to Natural Climate Solution Carbon Credits](#) and the [NCS Procurement Hub](#).

¹ <https://www.pnas.org/doi/10.1073/pnas.1710465114>

Acronyms

ALM: Agricultural Land Management. A type of NCS project that removes and reduces greenhouse gas emissions through regenerative farm and pasture management practices.

ARR: Afforestation, Reforestation, and Revegetation. A type of NCS project that grows forests on both new land and on land that has been previously deforested or degraded.

CCP: Core Carbon Principles. A set of best practices developed by the Integrity Council for the Voluntary Carbon Market (IC VCM) to ensure credit integrity.

FPIC: Free, Prior and Informed Consent. The UN-backed right of Indigenous People to approve and withdraw from projects impacting their territories.

IFM: Improved Forestry Management. A type of NCS project that implements sustainable forestry practices that protect and increase carbon stocks.

IP & LCs: Indigenous Peoples and Local Communities.

NbS: Nature-based Solutions. Defined by the UN as “actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience and biodiversity benefits.”

NCS: Natural Climate Solutions. A subset of NbS that seeks to mitigate climate change.

REDD+: Reducing Emissions from Deforestation and Forest Degradation, plus the sustainable management of forests, and the conservation and enhancement of forest carbon stocks. A UN-backed framework for NCS projects to reduce greenhouse gas emissions in developing countries.

VCM: Voluntary Carbon Market. The VCM is where carbon credits are traded.

VVB: Validation/Verification Bodies. Independent auditors that confirm whether a project is meeting the requirements of its carbon crediting programme.

Glossary

Baseline scenario: A description of the situation and the outcome that is predicted or assumed to occur in the absence of the incentives created by the carbon credits and their associated mitigation activities, while holding all other factors constant.

Carbon credit: A tradeable, intangible instrument that is issued by a carbon-crediting program, representing a GHG emission reduction to, or removal from, the atmosphere equivalent to one metric tonne of carbon dioxide equivalent. This is calculated as the difference in GHG emissions or removals from a baseline scenario to the emissions or removals occurring under the mitigation activity, and any adjustments for leakage. The carbon credit is uniquely serialised, issued, tracked and retired or administratively cancelled by means of an electronic registry operated by an administrative body, such as a carbon-crediting program.

Carbon crediting programme: A standard-setting programme that registers mitigation activities and issues carbon credits.

GHG emissions reduction: A net reduction in anthropogenic greenhouse gas emissions by sources.

GHG emissions removal: A net enhancement of anthropogenic removals by sinks.

Registry: Carbon registries are systems for reporting and tracking project information including credits generated, ownership, sale, and retirement.

Verification: The process of periodic independent, third-party, ex-post evaluation by a VVB of requests by a registered mitigation activity to issue carbon credits against the programme provisions of the applicable carbon-crediting programme.

Vintage: The calendar year in which the emission reduction or removal associated with a carbon credit took place. Because the verification process is conducted after the emission reductions or removals have occurred, carbon-crediting programmes may issue carbon credits after the vintage year.



1. Introduction

1.1. Natural Climate Solutions: A key piece in the climate mitigation tool-box

The World Meteorological Organization reported that 2023 was the warmest year on record, with some of the most devastating extreme weather events—wildfires in Maui that killed 99 people, torrential rains in Libya that triggered a dam collapse—in recent memory. In 2024, the El Niño pattern in the Pacific Ocean, coupled with anthropogenic global warming, could temporarily push the average global temperatures past the 1.5-degrees Celsius warming threshold that scientists have warned against. Society can prevent that disaster from becoming permanent only with urgent, drastic and concerted reductions in greenhouse-gas emissions.

Agriculture, forestry and other land uses account for about a quarter of global greenhouse-gas emissions² but have attracted a smaller proportion of climate investment than other sectors like renewable energy. This lack of investment has left many farmers and landholders unable to afford the transition to sustainable practices. It has denied forest communities ways to profit from their huge, natural carbon stocks except by depleting them through licensing commercial logging in primary forests, clearing forest for agriculture or felling trees to produce charcoal to meet household energy demand.

The voluntary carbon market (VCM) has made it possible for communities and other land holders to benefit from their “carbon rights”—that is, broadly, the right to trade the carbon stored in their land. While there

isn't a universally agreed upon definition of carbon rights, they are similar in some ways to other types of rights often conferred with land rights, such as mineral rights; but with the key difference that their economic value is realised through conservation and land-use activities that maintain and enhance, rather than extract, the carbon in local ecosystems while simultaneously delivering social and biodiversity benefits.

When done right, NCS can empower communities and other landholders to capitalise on their carbon rights to fund development and conserve local ecosystems. NCS projects reduce emissions and sequester carbon by protecting, restoring and sustainably managing forests and other natural ecosystems. These projects are funded by selling carbon credits on the voluntary carbon market to buyers looking to counterbalance their remaining greenhouse-gas emissions in the transition to net zero.

The revenue generated by carbon credit sales is giving farmers the means to implement sustainable agricultural practices such as agroforestry, fertiliser management, crop rotation, cover crops, minimum-/no-till or conservation tillage and water management techniques. It is helping forest communities to conserve or restore native forests, create jobs, safeguard traditions and improve education and public health; and it is giving Indigenous Peoples and local communities and other marginalised groups access to the

2 https://unfccc.int/files/adaptation/application/pdf/3_tubiello_sbsta-ipcc_special_event_6june.pdf

global financial system which has eluded them in the past. The UN has estimated that nature-based solutions need USD\$11 trillion in investment by 2050 to limit global warming to 1.5 degrees Celsius. The VCM is one of the financing mechanisms that can help channel funds towards Natural Climate Solutions.

The VCM has existed since the '90s, but it has grown by several orders of magnitude since the Paris Agreement in 2016. Its value reached USD\$2 billion in 2021 as companies have made climate action a growing part of

their corporate strategies. To catalyse further growth, VCM stakeholders have launched several integrity initiatives to ensure the quality of credits with new international standards and guidance for both developers and buyers. In particular, the Integrity Council for the Voluntary Carbon Market (IC VCM) and the Voluntary Carbon Markets Integrity Initiative (VCMI) have been working on end-to-end international standards and guidance for both the supply and demand-sides of the VCM.

1.2. Identifying the best project-based credits on the VCM

Although all carbon credits represent one metric tonne of CO₂e reduced or removed from earth's atmosphere, each individual NCS credit reflects a project's specific context and activities. An NCS credit could be associated with an avoided deforestation project in southern Africa, or an improved forestry management project in the Pacific Northwest of the United States. Or it could be a credit from a forest restoration project that rehabilitates a degraded ecosystem or a soil carbon project teaching farmers sustainable techniques that build crop resiliency and sequester carbon dioxide underground.

NCS project types include Reducing Emissions from Deforestation and Degradation (REDD+); Improved Forestry Management (IFM); Afforestation, Reforestation and Revegetation (ARR); improved rangeland management; blue carbon and soil carbon.

The diversity of projects on the VCM can seem daunting to buyers looking to find high-integrity credits that not only mitigate climate change but also protect biodiversity and deliver social benefits to local communities. NCS voluntary carbon credits can be generated either through reduction or removal mitigation activities. A reduction NCS credit prevents new greenhouse-gas emissions by protecting a carbon sink that,

without the intervention, would otherwise be destroyed. Common project types issuing reduction credits are REDD+ and IFM. A removal NCS credit is produced by project activities that sequester greenhouse gases from the atmosphere. Common project types issuing removal credits are soil carbon, improved rangeland management, and reforestation.

Price alone isn't always the best guide to quality, as different credit types have different average values. For example, NCS credits from projects that remove carbon, such as reforestation tend to sell at higher prices because of factors like higher project costs and a smaller overall credit pool; but that does not mean a removal NCS credit is more impactful or higher-quality than a credit of another kind. A balanced climate portfolio should include both reduction NCS credits, which come from the protection of intact carbon stocks and tend to deliver climate benefits quickly—as well as removal NCS credits, which come from activities that support the restoration of damaged ecosystems over the longer term.

This means that buyers must look beyond price to identify high-integrity carbon credits that not only reduce or remove emissions but also empower Indigenous Peoples and local

communities and protect biodiversity. “People describe carbon credits as environmental commodities, but it’s not really a commodity market where everything is the same,” says Teresa Lang, the senior director of advisory services at the project developer Anew. “The underlying story is important, not just that emission reductions or removals occurred, but also how, where, what other co-benefits did the project bring about?”

That story is written during the development of the NCS project. Delivering emissions results through NCS projects is a long-term, complex, and technical process that requires collaboration between a project developer with scientific and operational expertise; investors with a long-term outlook and financial resources; and the communities that own the land or will be directly affected by the project activities.

To find the highest-integrity project-based credits aligned with their climate strategies and business values, buyers will benefit from understanding of how NCS projects are developed.

There are several key actors in the NCS project development process:

- Land stewards and carbon rights holders, especially Indigenous Peoples and local communities, are central to the delivery of high-integrity NCS projects.
- Project developers design and implement projects in collaboration with partners on the ground, land stewards, carbon rights holders and local communities.
- Non-governmental organisations (NGOs) often provide technical support to local communities, work in partnership with project developers, and can act as project developers themselves.
- Carbon crediting programmes define the rules and methodologies for different types of mitigation activities and issue credits to project developers once the project has gone through validation and verification.
- Validation/verification bodies (VVB) conduct third-party assessments to provide independent confirmation that projects are meeting the requirements from carbon crediting programmes.
- Investors offer up-front finance to start the initial stages of the project, until revenues from the credit sales come in.



2. A blueprint for NCS project development

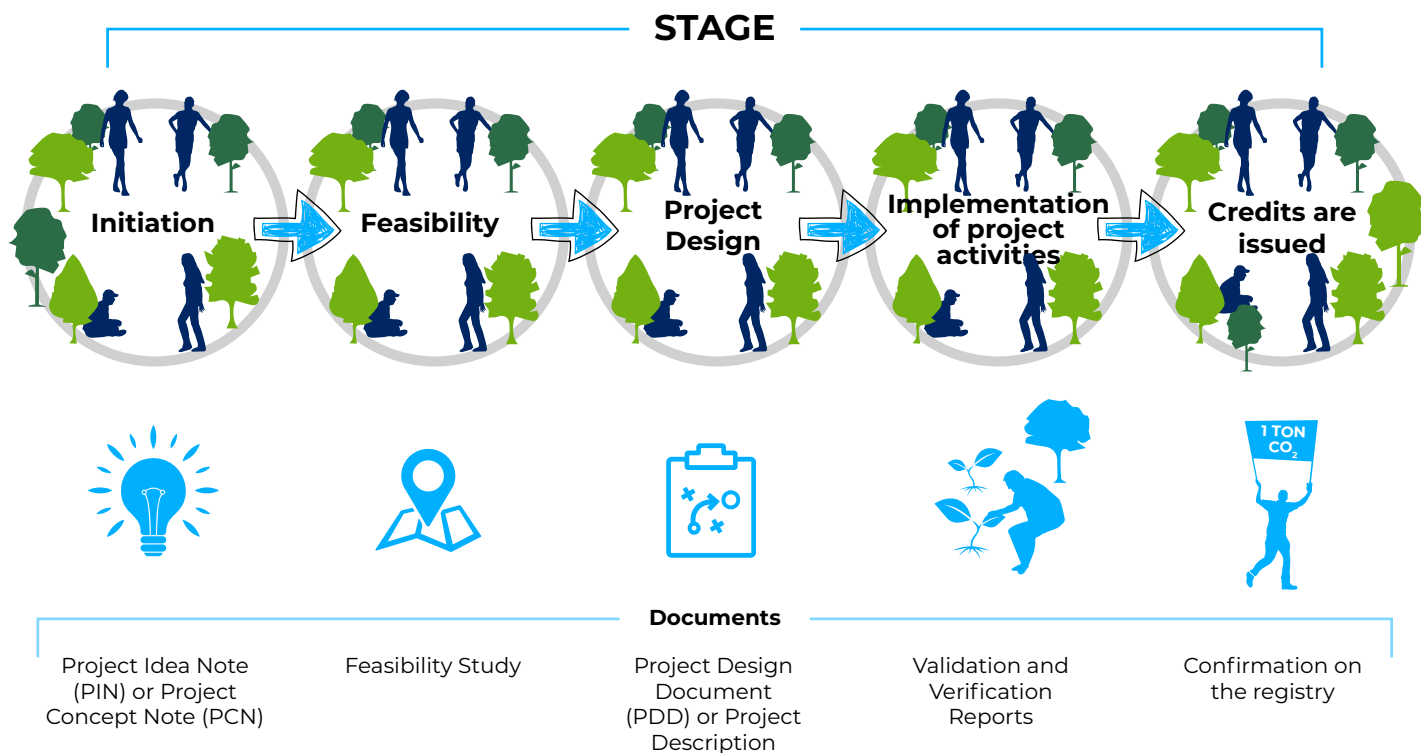
An NCS project must be built for the long haul, as it can run from anywhere from five to 100 years. Development alone can take several years of assessments, negotiation and design.

In most cases, the project developer does not own the project land but rather partners with the government and/or the people who own and use the land. Project developers are most often businesses, with some NGOs becoming developers to implement NCS projects that align with their institutional aims. Throughout the development process, the project developer will partner with communities,

farmers, landowners, government, financiers, aid organisations, NGOs and other stakeholders. There are also examples where the communities or farmers themselves act as the project developers.

Typically, a project developer breaks project development down into several stages, each of which reduces a project's risk profile and defines its core activities and benefits. Each stage culminates with the production of a key document summarising the work so far and laying the foundation for what comes next (Figure 1).

Figure 1. The stages of an NCS carbon credit project development



2.1. Initiation

High-integrity NCS projects don't begin solely as vehicles for simply selling carbon credits. Rather they generate and sell carbon credits to achieve a greater goal. It could be to protect the habitat of an endangered species in Southeast Asia; to help a group of Amazonian Indigenous Peoples protect their ancestral forests; to create a safe corridor for wildlife between East African national parks; or to improve forest management in heavily-logged North American woodlands.

Communities, government agencies and locally active NGOs often have a long history of working towards these types of goals. Their impact has often been limited, however, by the need to chase funding from donors and aid organisations every few years. Carbon finance is an opportunity to create reliable long-term financing, deepen the impact and expand the ambitions of conservation and development projects.

NCS projects often start, then, with informal conversations between a project developer with the technical expertise to design, implement and manage projects; and a community, landholder or local organisation intimately familiar with the local ecosystem, culture, system of governance and social needs. These initial conversations do not replace the process of Free, Prior and Informed Consent (FPIC), which is the UN-backed right of Indigenous Peoples to approve and withdraw from projects impacting their territories. A good project developer will work continuously with communities to formalise and maintain FPIC as they flesh out the design of the project to ensure that local people fully support and benefit from the project activities.

Finding the right project activities

The initial conversations with communities and landholders should give the project developer a sense of what type of NCS

activities best suit the needs of local stakeholders and address the local conservation priorities. Projects with standing forest exposed to risk of deforestation are often a good fit for the UN mechanism called Reducing Emissions from Deforestation and Forest Degradation (REDD+). If the forest is being logged commercially, it could also be suitable for Improved Forest Management (IFM), which implements sustainable management in aggressively harvested forests. Areas that have already been deforested or converted to farmland can be suitable for other types of NCS projects. Afforestation, Reforestation and Revegetation (ARR) projects restore forests that have been degraded. Soil carbon projects enhance carbon stocks in the soil through sustainable agricultural practices on farmland and pasture. Other types of Agricultural Land Management (ALM) projects implement better fertiliser, irrigation, livestock management and waste-management techniques.

"You can have a great project, but can it work from a carbon methodology perspective?" says Margot Clarvis, the head of nature-based solutions at C-Quest Capital. "Not every wonderful small holder or community programme is going to fit." Experienced project developers are good at spotting problems right away with project proposals—such as, say, a lack of community or government support; insufficient forest area to produce credits at scale; or a land-use pattern that does not fit within an existing methodology.

Putting principles first

As the VCM has matured, project developers and other stakeholders have adopted several ethical standards to guide their work. First and foremost is the "Do No Harm" principle—meaning that even a project with excellent potential for producing carbon credits should

not be pursued if it might inadvertently damage other parts of the environment or the social fabric of communities.

A project developer producing high-integrity credits always operates transparently with a clear paper trail and, as much as possible, creates social and biodiversity benefits in addition to emissions reductions and removals. Most experienced project developers have their own rigorous guidelines for the types of projects they will pursue. These will often go above-and-beyond what is required by the carbon crediting programme later in the design process.

2.2. Feasibility

A project developer will spend several months—and sometimes even years—carrying out an in-depth “feasibility study” to assess technical, environmental and social risks and determine whether a project works on a technical level and makes financial sense. “The outcome of a good feasibility study is the basis of engagement for all the stakeholders that will form a part of that project, whether it’s government, local communities, other implementation partners or the people from whom you’re seeking financing,” says Colin Moore, regional carbon advisor for the Wildlife Conservation Society. “In many respects, a good feasibility study is also your business plan.”

The feasibility study not only digs into the details of carbon quantification but also lays out operational and financial challenges.

Technical feasibility. Will the project in fact reduce or remove CO₂e? Will these outcomes be quantifiable according to the methodology of a carbon crediting programme? Will the project meet the eligibility requirements of the chosen methodology?

Key document: Project Idea Note (PIN) or Project Concept Note (PCN)

The PIN or PCN is a short, wireframe sketch of a project. It provides basic details on the project; identifies target groups and communities; proposes potential activities and interventions and assesses whether they will fit the eligibility requirements of carbon crediting programmes; and makes a rough estimate of the project’s potential to reduce or remove greenhouse-gas emissions. While not an in-depth study, the PIN will give a developer a sense of the risks and uncertainties around a project and whether it makes sense to commit additional time and resources to a more detailed appraisal.

The project developer will have begun exploring these questions in its PIN. Now it will really crunch the numbers to determine not only that the reductions will take place but that they will also be additional—meaning they would not have otherwise occurred without the incentives created by the revenue from carbon credits. Mitigation activities that are legally required, for example, will not be additional under most methodologies.

Determining a project’s technical feasibility requires the project developer to evaluate and compare the methodologies of different carbon crediting programmes that can be used to measure its results. It also requires a detailed understanding of land-use trends in and around the project area, so that the project developer can come up with a realistic estimation of what will happen in the absence of the project’s activities; demonstrate that the mitigation activities will generate measurable reductions and removals; and prove additionality.

Operational and legal feasibility. Will the project be able to implement on-the-ground actions to mitigate the drivers of deforestation (or other sources of greenhouse-gas

emissions)? Will the project be able to formalise its relationships in contracts with the communities and other stakeholders? Does the government allow the project activities and generation and sale of carbon credits? Does the project meet the legal and regulatory requirements for designing and implementing that category of projects?

One of the most important tasks for the project developer at the outset is to determine who owns, manages, uses and controls the land in the project area. This can be a complex process, as carbon rights are not clearly defined in many countries. In some countries, carbon rights are coupled with land rights; in others, they are coupled with the right to natural resources; in others, they are undefined. In some cases, carbon rights will need to be assigned to the project developer to produce and sell credits on communities' behalf. In many countries, insecure land tenure goes together with deforestation; and communities, government and private entities (such as individuals or corporations) may all exercise overlapping claims.

A project developer can potentially work with all three types of land holder, so long as the land tenure is clear. It is important for any project, though, where Indigenous Peoples or a local community use the land that the landholder makes them the core beneficiaries of project activities (through, for example, formal benefit-sharing mechanisms). In many countries, Indigenous Peoples do not have legal land titles—which were introduced only during the colonial period—but are granted customary rights by the government to administer their forest according to their traditions. A project developer (as well as a buyer) should always identify and recognize customary rights, even if they are not codified in law.

Financial feasibility. What are the project costs versus revenues? What will be the upfront costs and the ongoing management costs? Will the project need other sources of investment or financing before issuing credits?

Project development is a years-long process, and a project that is financially feasible in the long run will require significant investment before it issues credits. A project will incur expenses—including salaries, field supplies, equipment and vehicles—during the development process; and may begin implementing activities before selling credits. Project developers often finance development through their own operating reserves or with support from a government agency, an NGO or an international development agency. Some project developers fund development by partnering with an interested buyer for prepayment for future delivery of credits. “There are many buyers out there who value the role they can play as early supporters of a project,” says Kevin Hackett, the vice president of market strategy and engagement at Native. “This role can provide them with access to credits before they hit the market, price certainty and increased substantiation of causality claims.”

Key document: Feasibility Study

The feasibility study digs into the project details including the carbon quantification to determine whether the project will work on a technical level. It identifies all the key stakeholders; details the existing deforestation and land-use activities and trends within the project area; compares the methodologies of different carbon crediting programmes for the project type; identifies methodologies that suit the project goals and specifics; estimates how many carbon credits project activities will produce under the different methodologies; and includes long-term financial projections.

2.3. Project design

After the feasibility study, the project developer is ready to start building the project. Designing an NCS project means engaging deeply with communities, government, local organisations and other relevant stakeholders to ensure that the project will achieve lasting and measurable impacts for people, nature and the climate (Box 1).

Undertaking Free, Prior and Informed Consent (FPIC)

When an NCS project involves Indigenous Peoples and/or local communities—including marginalised communities and other sensitive groups—the project developer has to obtain Free, Prior and Informed Consent (FPIC). Without FPIC, the project should not go forward.

While FPIC is a specific right of Indigenous Peoples, most project developers extend

the FPIC process to all local communities impacted by the project (though an Indigenous community may require special attention to specific and unique rights, knowledge and governance structures).

FPIC is much more than just a signature on a line. It is a long and on-going process that will determine many of the critical goals and activities of the project. In many cases, especially in REDD+ projects, communities are the agents of deforestation through practices like charcoal production and slash-and-burn agriculture. It is therefore essential to build their trust, support and, in many cases leadership, as local communities will usually lead the project activities on the ground. In high-integrity NCS, local communities are not simply regarded as beneficiaries of a project's activities but rather as active partners in a project's design, implementation and management.

Box 1. Examples of nature, social and climate change mitigation benefits

Examples of Nature-positive and Socio-economic Benefits associated with Natural Climate Solutions

Nature-positive Benefits	Socio-economic Benefits	Climate Benefits Beyond GHG Mitigation
<ul style="list-style-type: none"> • Halt and reverse environmental degradation. • Preserve and enhance local, regional and global biodiversity. • Protect and enhance ecosystem services (e.g., improved water quality, reduced soil erosion, increase in pollinators). • Prevent extinction of rare and endangered species. 	<ul style="list-style-type: none"> • Support local communities and Indigenous Peoples. • Improve quality of life through access to clean natural resources. • Create and sustain jobs. • Achieve health outcomes by improving air quality, offering buffers from extreme weather and cooling local air temperatures. • Improve human health and wellbeing by increasing green spaces. 	<ul style="list-style-type: none"> • Warming or cooling from change in natural vegetation, affecting surface albedo (reflection of sunlight), windspeed, or the emission of aerosols and volatile organic compounds. • Cooling effects of evapotranspiration. • Reduced vulnerability to climate-related disasters through NbS-based adaptation and resilience (e.g., mangrove restoration to prevent sea surges).

Source: *Natural Climate Solutions and the Voluntary Carbon Market: A Guide for C-suite Executives* (wbcsd.org)

“FPIC is a critical first step,” says Marc Baker, the founder and director of Carbon Tanzania. “If you get that, everything you’re trying to build then happens in a place of transparency and honesty.”

Project developers usually begin the FPIC process by meeting with community leadership, but they must also make sure the leadership’s support for a project is shared by the broader community. That means holding public meetings in local languages, which are recorded and detailed in minutes and where every attendee can ask questions and ultimately cast a vote. The developer must also make sure to engage women and any groups that are marginalised within the community.

For NCS projects with small populations, it is often possible to hold meetings in every village. Projects with much larger populations—in some cases, upwards of a million people—need to carry out FPIC in a way that gives them confidence they have broad community support.

FPIC meetings often begin with basic conversations about the causes of climate change, the roles of natural habitats in mitigation and the impact of project interventions on the ground (i.e., rotational grazing or tree plantings). As the FPIC process advances, communities should develop a clear sense of the benefits (such as revenue sharing, job creation and cleaner air and water), costs and obligations (such as patrolling and data collection) of participation in the project. It is also through these conversations that communities identify their economic and societal challenges and propose solutions. Typically, core project activities emerge—such as developing ecotourism business or providing legal assistance in obtaining land titles for Indigenous Peoples with only customary rights.

Throughout the process, it’s good practice—and in some countries legally required—for the project developer to provide the

communities with an impartial, third-party legal advisor. If communities give consent, the developer and the community leadership will sign an agreement, such as a Project Implementation Agreement (PIA), memorandum of understanding (MOU) or a memorandum of agreement (MOA) that outlines a clear understanding of, and agreement on the project’s terms. Communities should have the right to refuse the project at any time should they choose to do so.

NCS projects that do not cover an area with Indigenous People and other local communities will not entail a formal FPIC process; but even projects without FPIC will still require significant engagement and negotiation with local stakeholders, such as farmers and other landholders. Some standards require a project developer to carry out FPIC with all impacted stakeholders, no matter who they are.

Revenue sharing

A share of the revenue of all high-integrity NCS credits should be given to communities to spend as they determine through their own local decision-making bodies. The size of the share will depend on the specifics of each project but generally it should be maximised and distributed in a transparent way. “We do not want the carbon markets to turn into an agricultural commodity where a farmer in Tanzania gets USD\$1.20 for a kilo of coffee that’s selling for USD\$50 in the US,” Baker at Carbon Tanzania says.

Revenue-sharing is crucial to creating real economic alternatives to deforestation and high-emissions forms of land use (such as illegal logging) in local communities. “Given financial-decision making powers, the vast majority of people will agree on improving their children’s education and access to health care”, says Baker. They may also fund activities that build resilience to the effects of climate change, such as increased drought or flood. Communities should be ensured

flexibility and autonomy in how they spend the revenues, though the project developer may also include safeguards to ensure, for example, that benefits do not fund illegal activities and that they flow to women and marginalised groups within a community. Communities may choose to spend revenues on culturally specific activities. Bantu herding communities in East Africa might hire a rangeland manager to coordinate rotational grazing, for example. Some projects implement performance-based revenue sharing, where communities are awarded a share of revenues proportionate to their contributions to project activities. These arrangements can help boost project performance, so long as the communities themselves support their design.

Planning land-use

NCS projects are fundamentally about improving land use to protect and restore nature while lifting livelihoods in communities. As part of a project's design, the project developer works with local communities and landholders (such as farmers) to draft land-use plans based on their own needs and goals and to build resilience to climate change. A local community will designate a protected area of forest and other areas for agriculture and development; a farmer might designate specific fields for regenerative practices. The developer provides technical support to make sure the land-use plans contribute to emissions reductions, are inclusive and fit in with the larger aims of the project. Project activities should help local communities build the capacity to realise and enforce their plans.

Protecting biodiversity

NCS projects are meant to protect, restore and improve the management of nature; a developer must therefore ensure that its project activities will not have any unintended negative impacts on local biodiversity. They must carefully consider whether the proposed

project activity is suitable to the local ecosystem; and only plan activities that will not only prevent biodiversity loss but actually yield biodiversity benefits while mitigating climate change.

Choosing a carbon crediting programme and a methodology

A project developer must choose a methodology from a carbon crediting programme to measure its impact and sell credits on a registry.

Carbon crediting programmes define the standards to ensure that a project delivers high-integrity carbon credits. They define the methodologies that will be used to calculate the project's mitigation activities and by which the project's impact will be validated and verified. It is the carbon crediting programme that then determines how many credits will be issued each year (also called the vintage). The choice of the carbon crediting programme is therefore central to the integrity of the credits.

Carbon crediting programmes have methodologies for different activity types like REDD+, soil carbon, improved forest management and many more. Many project types can choose from a number of suitable methodologies from different carbon crediting programmes; while other project types may have just one or two suitable methodologies. The best carbon crediting programmes are constantly developing new methodologies with processes that include some form of peer-review. When choosing a methodology, a developer is picking more than just a mathematical formula for calculating carbon credits. The methodology is also, in many ways, a roadmap for the technical parts of project design. "Methodologies provide us with frameworks for developing projects to ensure they are designed in a way that will enable validation of the project and verification of its performance," says Native's Hackett.

A high-integrity credit will have been issued by a carbon crediting programme recognised by CORSIA and the Integrity Council for the Voluntary Carbon Market (IC VCM). The IC VCM provides independent guidance for the voluntary carbon market, it developed the Core Carbon Principles (CCP) to build trust in the VCM. Recognised carbon crediting

programmes can issue CCP labels to credits generated using methodologies that have been approved by the IC VCM. Buyers can use the CCP label to identify high-integrity credits no matter which carbon crediting programme the project uses; where the project is based; or the credit type (Box 2).

Box 2. Key factors influencing the high-integrity of carbon credits

A credible carbon credit methodology, including associated modules and tools, provides a process for estimating GHG emission reductions and carbon removals. Methodologies have procedures for addressing the key factors that influence a high-integrity carbon credit.

Additionality. Additionality refers to the degree to which a carbon credit contributes to an emissions reduction or carbon removal that would not otherwise have occurred without carbon financing. A methodology may provide additionality tests for a developer to determine whether a project is additional or not.

Quantification. For robust quantification, a developer must establish an emissions baseline and identify land-use scenarios against which it will measure the emission reductions or carbon removals associated with the project activities.

Leakage. The chosen methodology will also require the developer to demonstrate that deforestation and other carbon-emitting activities will not simply migrate outside the project area, thereby cancelling the gains from project activities. A project developer must identify commodities and services whose supply may be reduced as a result of the project; and deploy models for how these reductions will resound through local and national markets. Any emissions that are estimated to leak will be subtracted from the project's issuance of carbon credits.

Permanence. The chosen methodology also requires that the developer create credits that are "permanent" over a long period of time. Depending on the methodology, that could be as long as 100 years. The methodology will give the developer a formula for calculating a risk rating that assesses different kinds of risk that could undermine the permanence of a credit, including internal risks (such as encroachment by outside actors), external risks (such as unclear land tenure) and natural risks (such as fires). To protect against reversals, typically developers set aside credits in buffer pools. These credits can be permanently retired in case a credit sold on the VCM is wiped out by a storm, flood, fire or other natural cause. Other tools that reduce the risk of reversal are conservation easements and a thorough FPIC and stakeholder-engagement process (since any gains that are made without the support of the local community will likely be undone).

Setting the baseline

A baseline is the basis against which emission reductions or carbon removals will be measured. The method for defining the baseline is included in the selected methodology. The simplest scenario is to look at historical changes in carbon stocks in the proposed area and to project these trends into the future. A project developer may also look at scenarios that include events like road construction or agricultural conversion based on recent land-use patterns in similar areas. The most plausible scenario will become a “crediting baseline,” which is the emissions level against which the project will measure reductions and removals. Each project will measure its activities against the baseline, in order to quantify the emission reductions or carbon removals achieved.

For afforestation and reforestation projects, the baseline usually assumes that the area has already been deforested. Soil carbon projects use models and measurements of underground carbon at a control plot, which they compare to changes in the project area as a result of their activities.

For REDD+ and improved forest management projects, setting the baseline is one of the biggest challenges of the development process. Avoided-deforestation projects have typically looked at forest-cover data and historical deforestation trends and assessed specific risks—such as, say, the construction of a mine or road—in a reference area similar to the project area. The developer of an improved forest management project will look at past management practices and historical timber harvesting trends in the region and carry out significant forest inventory work, such as measuring trees and setting up sample projects. The developers use the data they collect to create a “counterfactual” model of what would likely happen in the project area without the project’s activities.

Going forward, REDD+ projects will align their baselines with jurisdictional-level (such as a nation) baselines used to account for all the emissions reductions within a jurisdiction’s

borders. “If you’re a national government, you don’t want to have to negotiate with every project about its baseline,” says Mike Korchinsky, the founder of Wildlife Works. “You want to have a risk map on which you can drop any project boundary on a map and say, ‘this is your baseline.’ It becomes very transparent.”

Responsible project developers work in safeguards to keep their baselines conservative and avoid the risk of issuing too many credits. “One of the key things we assess is whether a baseline is conservative or inflated,” says Ed Hewitt, the director of Natural Climate Solutions at Respira, which helps project developers fund development through off-take agreements for future carbon credits with private buyers.

Remote-sensing technology is also making it possible for some carbon crediting programmes to create “dynamic baselines” for certain credit types that test additionality and create a new baseline at every verification. This helps to capture the constantly evolving nature of land-use and forests.

Ensuring biodiversity and social outcomes

Most carbon crediting programmes do not usually factor social and biodiversity outcomes directly into the carbon crediting methodologies. Instead, they offer supplemental verifications for biodiversity and social benefits, such as Verra’s Climate, Community, and Biodiversity Standard (CCB) and the Sustainable Development Verified Impact Standard (SD VSta).

Still, it does not make sense to think of biodiversity and social benefits as “supplemental” to the project’s core goals. REDD+ projects, for example, must deliver social benefits to create alternative livelihoods to deforestation. The more social benefits these projects deliver, the better they will be able to reduce the local causes of deforestation. “Without these investments and community benefits, there isn’t going to be a carbon project,” Wildlife Works’ Korchinsky says.

For this reason, responsible project developers consider the carbon crediting programmes' supplemental standards as floors and not ceilings for social and biodiversity outcomes (and long-term project success). They think not just in terms of carbon baselines but also biodiversity and social baselines for what would happen in the absence of project activities. Credits with demonstrable social and biodiversity benefits tend to trade at higher prices on the VCM.

Signing contracts

NCS projects are generally long-term commitments. "NCS project developers are taking on very long contractual agreements relative to other businesses," says Meredith Reinfeld, director of carbon policy and strategic partnerships at IndigoAg. "If you go out in the world, there are not a lot of people signing 100-year contracts for the land tenure."

The contracts with the community and land-title holders will formalise the results of FPIC (and other stakeholder engagements)—including the benefit-sharing agreement. Independent legal counsel and translation services help protect communities from

getting into legally binding engagements that they don't really understand.

Key document: Project Design Document (PDD) or Project Description

The PDD is a highly detailed document that will demonstrate, step-by-step, the project's compliance with the rules and requirements of the chosen methodology. It usually includes measurements of all the different carbon pools in the project area; a description of how the developer identified and calculated a baseline scenario; documentation of FPIC and stakeholder engagement; compliance with relevant laws and regulations; and projections of reductions and/or removals from the project activities. The PDD will be directly evaluated by a Validation and Verification Body (VVB) - an independent third-party auditor - to ensure that the project fulfils the carbon crediting programme's methodology. The PDD and other relevant documentation are publicly available on the chosen programme's registry for buyers and other stakeholders to educate themselves about the details of the project and its alignment with business strategy and goals.

2.4. Implementation of project activities

Validation of project design

Once the PDD is completed, many carbon crediting programmes require the developer to open a period of public comment. When public comment has concluded, the developer will hire a VVB that has been accredited by the carbon crediting programme. The selected VVB will review the PDD and make on-the-ground surveys and measurements to assess whether project activities comply with the methodology's requirements. It will attempt to resolve any discrepancies between its own findings and the PDD with the developer. Once the VVB determines that the developer has satisfied the methodology, the developer

submits the project to the carbon crediting programme for registration of the project. A validated project will be listed on the carbon crediting programme's registry.

Monitoring and Reporting

Once a project is listed on the registry, project activities begin in full. Community members will begin working as forest rangers and community liaisons in REDD+ projects. Farmers in a soil-carbon project will begin regenerative practices in their fields.

The project developer will also begin measuring emission reductions and carbon removals by monitoring activities and tracking changes in the carbon pools. This requires a combination of boots-on-the-ground and cutting-edge technology. Project workers (usually community members or foresters employed through the project) can make direct measurements in the forest, while high-resolution satellite imagery and light detection and ranging (LiDAR) can monitor the project area from outer space. Digital Measurement, Reporting and Verification (dMRV) is making it easier, more cost-effective and transparent for developers to collect data and measure their results.

Financing

Both project design and implementing activities require upfront and continuous financing. Project developers often finance the bulk of design and implementation from their own operating reserves. Other funding sources are project partners like a government agency, aid group or NGO; private investors; or a buyer who has purchased credits in advance through an off-take agreement, which can be critical to bring new carbon projects online.

As the VCM has matured, some companies have started to sell carbon-credit insurance to protect investors from under-delivery of forward-purchased carbon credits—which makes it easier for high-integrity projects to finance the long development process. A project developer can request that an insurance company vets its design while it is designing and implementing a project. These insurance companies apply their own due-diligence processes and thus serve as another independent risk assessment of NCS projects.

The project developer will use the revenue from carbon credits to replace other sources of financing; and begin distributing revenue and other benefits to the Indigenous Peoples and local communities, which should be

continued out for the lifetime of the project as per revenue-sharing mechanisms.

Verification

While validation is a one-off process to ensure that a project's design is sound, verification is a recurrent activity to check whether the project is being implemented according to plan and that emissions reductions or carbon removals are, in fact, taking place. The developer will submit to a VVB a monitoring report accounting for its activities and their impact. The VVB will also once again visit the project to measure the impact of its activities against the validated baseline. The VVB will send its findings again to the carbon crediting programme, which will review the report and point out any issues with the project. Once the project developer has addressed the issues to the carbon crediting programme's satisfaction, the carbon crediting programme issues credits for the period of the verified activities.

It's then time to go to market! A project will continue monitoring and be verified again before every issuance of new credits; and the project developer will usually be required to update its baseline every few years.

Key document: Validation and Verification Reports

These documents are created by the VVB (and not the project developer). They confirm that the project has satisfied the rules and requirements of the carbon crediting programme's methodology. The reports will usually end with a confirmation that the project has met the criteria; and will be published by the carbon crediting programme on the registry. Once the carbon crediting programme has signed off on the validation and verification reports from a VVB, a project will issue credits to the project to sell on the VCM. Buyers and investors can review a project's validation and verification reports on the carbon crediting programme's registry.



3. NCS in Action

The NCS Alliance includes experienced project developers who have pioneered many parts of the project development process, from engaging Indigenous Peoples and local communities through FPIC to sharing revenue with communities to spearheading entirely new NCS project types and innovative monitoring approaches.

3.1. Native: Determining additionality

Not long ago, the project developer Native, a Public Benefit Corporation and Certified B Corporation, identified a promising blue carbon project—a carbon-removal project focusing specifically on mangrove forest restoration. “From the demand side, it seemed attractive,” says Kevin Hackett, Native’s vice president of market strategy and engagement. “There are not a lot of those projects in operation, and there’s been a lot of desire to scale up that type of project activity.”

The project was an opportunity to work with communities, which depended on mangrove resources like fish, to better manage natural resources and strengthen the local economy—exactly the kind of social and

biodiversity benefits that Native seeks in its projects. While carrying out a feasibility study, however, Native learned that the government was planning to start a programme with similar activities. “The fact that there were other ways of making the proposed activities happen made us question the additionality of our potential project,” Hackett says.

Native felt that, if the activities had a way of proceeding without their support, then the reductions from their project might not be additional. Despite its many promising components, Native chose not to pursue the project—an example of how a feasibility study can identify and evaluate risks that might not initially be apparent.

3.2. Carbon Tanzania: Doing FPIC right

Since 2012, Carbon Tanzania has developed three REDD+ projects in Tanzania: Yaeda-Eyasi Landscape, Makamme Savannah and Ntakata Mountains. Each project protects a unique biome and involves communities of Indigenous Peoples with distinct traditions: Hadza hunter-gatherers, Maasai pastoralists and Bende, Tongwe and Ha farmers.

For each project, FPIC was a two-to-three month process that started with a large meeting in the centre of the district where the project was being planned. The meeting included both elected and administrative representatives from the district and village governments, as well as forest reserve managers, village counsellors and representatives from community groups. Carbon Tanzania explained the idea for each

project. When the response was positive, it proceeded to hold public meetings in Swahili in every village that was included in the project.

In Tanzania, villages have general embassy meetings, where every resident over the age of 18 is invited to ask questions and ultimately cast a vote. “Someone might ask, will our forest die if it absorbs all this carbon?” Baker says. “That’s a legitimate question that needs an answer. Someone will explain that carbon dioxide doesn’t kill trees. It’s what trees eat, essentially.”

FPIC meetings proceeded from these basic introductory questions to conversations about the core benefits communities would gain from the project. Everyone who attended a meeting signed an attendance sheet; and the meeting was documented. Carbon Tanzania also used the meetings as opportunities to scout local people to employ. “We have a policy of employing everyone up to project manager from the communities we work with,” Baker says.

For all three projects, all the villages voted to give their consent. Carbon Tanzania then drafted a Memorandum of Understanding with the government of each village.

3.3. IndigoAg: Developing the right methodology

IndigoAg was founded in 2013 to help farmers use naturally-occurring soil microbes to combat crop stresses and reduce the use of chemicals. In 2018, IndigoAg began working with farmers to develop an NCS project around nitrous oxide reductions from fertiliser management. Within a year, they decided to launch a soil carbon project for farmers across the United States, growing many different crops under a variety of management practices. The revenues from removal credits would make it possible for these farmers to fund the transition to regenerative practices, like no-till farming and cover cropping, that are often cost-prohibitive under normal market conditions and can face significant social and cultural barriers to adoption.

Indigo developed software technologies to help farmers collect data for Indigo to accurately measure the changes to carbon in their fields. The problem was that no methodology existed for such an ambitious project. Existing agriculture methodologies were either too limited in applicability (e.g. measuring only nitrogen from fertilisers, not soil carbon); too limited in approach (e.g. either measurement-only or modelling-only); or simply lacked the guidance to

ensure scientific rigour. “That’s when we decided a new protocol was needed,” says Max DuBuisson, IndigoAg’s vice president of sustainability policy & engagement.

Indigo hired Terra Carbon, a consultant with lots of experience in methodology development. Together they worked with both Climate Action Reserve (CAR) and Verra to develop accurate methodologies for agricultural greenhouse-gas emissions and changes in soil carbon that were validated by a third-party VVB. After sampling soil from enrolled fields, Indigo could model the carbon impact and assess risks like additionality, leakage and permanence across such a large and geographically dispersed project. “We’re gathering data from every single field and aggregating the results to produce one number,” DuBuisson says. “That’s what enables the scale.”

Indigo chose CAR for its American program, which has enrolled more than 2,500 farmers with more than 6 million acres of land; and it plans to work with Verra for global projects that are still being designed. Indigo’s contributions to these methodologies have made it possible not only for other developers

to start soil carbon projects; but also for the carbon crediting programmes to incorporate more advanced computer modelling into methodologies for other project types. “By putting out this really detailed guidance,

we’ve provided guardrails around the use of models—this is how you calibrate, this is how you validate, this is how you quantify the uncertainty,” DuBuisson says.

3.4. Chloris Geospatial & Permian Global: Improved carbon measurement

In 2016, Verra issued credits to the Katingan Mentaya Project in Indonesia. The project has become the world’s biggest REDD+ project, issuing 7.5 million credits annually while protecting one of the world’s largest peatland forests; sharing revenue with 34 villages; and providing habitat for endangered species like Bornean orangutans and proboscis monkeys.

Monitoring and accounting for carbon in such a vast area is an enormous technical challenge for Katingan Mentaya. This work is becoming easier, though, thanks to technologies like high-resolution satellite imagery, light detection and ranging (LiDAR) and machine-learning models. Unlike standard satellite imagery, LiDAR uses satellite- or aircraft-borne lasers to penetrate the canopy and make three-dimensional maps of a forest. “You get a full historic view, back to the year 2000, with spatially explicit data on above-ground biomass and related forest carbon dynamics: how much carbon is absorbed and emitted, year over year, for every 30-metre pixel, or even higher resolution,” says Florian Reber, the head of partnerships at Chloris Geospatial, a company whose web-based platform helps developers measure carbon stocks.

This precision allows developers to understand exactly how much carbon is stored in the project area; and where it is most under threat. “It really enables us to have a much more accurate representation of what’s happening on the ground,” says Christopher Philipson, the project manager of forest ecology and remote sensing in Southeast Asia for Permian Global, which helps manage Katingan Mentaya. A pixel that is particularly high in biomass is more likely to be targeted by illegal logging—making it possible for the project to prioritise monitoring and protection in that specific area.

Katingan Mentaya combines Chloris’ spaceborne LiDAR data with on-the-ground measurements collected both by technical specialists and community members employed by the project. This data is then run through machine-learning models that predict future trends and changes. This data will be especially useful, as Katingan Mentaya prepares to re-validate its baseline scenario with Verra; and it will be applicable at scale for jurisdictional programmes, as well.

3.5. Anew: Quantifying reductions and removals

Meeting climate goals will require both emissions reductions and removals—but most NCS projects generate one type of credit or

the other. Improved Forestry Management (IFM) projects, however, are an exception.

IFM projects are the most common project type in North America and generate reductions by restricting timber harvesting. In the early years of a project, IFM projects generate emissions reductions by protecting trees that would have been cut under the baseline scenario. As a project outperforms its baseline over time, new trees also grow back and remove carbon dioxide from the atmosphere.

At first, the American Carbon Registry (ACR) methodology for IFM did not distinguish between reductions and removals; but as the VCM matured and buyers began expressing more interest in removals, ACR updated its IFM methodology with new rules and regulations that made it possible for

developers to calculate and label removal credits in addition to reductions. Anew's Elk Forestry Project in the United States was the first IFM-project to receive tagged removal credits from ACR.

The ability to buy both reductions and removals from a single project allows buyers to support both the growth of new trees and the maintenance of old trees—which provide crucial biodiversity benefits in forests, like nutrient cycling and water filtration. The ability to quantify and sell removals is also incentivizing land managers to change their harvesting and forest management practices, as carbon revenue from a blend of reduction and removal prices competes with the economics of timber harvesting.

3.6. Wildlife Conservation Society: Sharing revenues

Since 2010, the Keo Seima Wildlife Sanctuary REDD+ Project has protected some of Cambodia's most biodiverse forest and the ancestral homeland of the Bunong Indigenous People. Initially, the Wildlife Conservation Society designed the project's benefit sharing mechanism to share half of the project revenue equally with 20 Bunong villages. The other half was used to fund core project activities, cover overhead costs and build operating reserves. Each village's council determined how the money would be spent. Villages used the money to expand access to piped water; open mobile health clinics; and establish a local ecotourism business.

As villages started to realise opportunities from this revenue, some of them wanted to do more to protect forests. "Some of the communities started to ask, 'If we're protecting more, shouldn't we receive more revenue too?'" WCS's Colin Moore says.

After three issuances of credits, WCS redesigned its benefit sharing mechanism to reward villages that went above and beyond. Communities could earn money by protecting a greater expanse of forest. Villages could also boost their revenue share with other metrics, such as the efforts they made to be inclusive.

Crucially, WCS designed the new performance-based mechanism with the input and approval of the villages themselves. "It was essentially another round of FPIC," Moore says. All of the participating villages agreed to the new mechanism for a three-year period. After the most recent verification, the best-performing village earned more than USD\$50,000, while the worst-performing village still earned USD\$13,000—more than double the village's annual disbursement from the government.



4. It's time to buy NCS carbon credits

The role of NCS carbon credits

To achieve the climate targets set by the UN's Paris Agreement adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, in 2015 and the nature targets set by the Kunming-Montreal Global Biodiversity Framework (GBF), a historic agreement adopted by 196 countries during the UN Biodiversity Conference (COP15) in December 2022, the private sector must annually invest USD\$2.2 trillion to tackle climate change, USD\$160 billion for nature loss, and a yet-to-be-determined amount for social equity challenges. These investments are only a fraction of the total amount needed to finance climate mitigation and nature recovery. To combat planetary degradation and foster a thriving planet, companies must take actions that extend beyond their traditional boundaries, specifically beyond their value chains.

Beyond-value-chain actions—actions or investments outside a company's physical value chain—can mobilise much-needed private finance to help deliver societal targets such as net zero, nature positive and global equity.

The voluntary carbon market represents a very effective approach to finance actions beyond the company's value chain and channel funds to mitigation activities that otherwise would not receive finance as the mitigation activity is not profitable. In the NCS space, many of the protection and restoration interventions would likely not be financed, leading to further losses of nature.

How to buy NCS carbon credits

The differences in NCS credits offer opportunities for the companies purchasing them to deliver ambitions in the nature and equity spheres as well. However, these differences also make it more challenging to compare projects and use a one-size-fits-all approach. A comprehensive due diligence process will help the buyer not only mitigate reputational risks associated with low-integrity credits but also to identify a project's positive benefits for nature and people, as well as the specific characteristics that make the project unique.

[*A Buyer's Guide to Natural Climate Solutions Carbon Credits*](#) offers practical information to guide a business step by step through the entire due diligence process for the purchase of NCS credits. The guide identifies the key players across the value chain and ongoing work on improving quality in the market to help buyers in their due diligence. Included in the guide is a list of criteria and associated questions that procurement officers can use in conversations with NCS project and program developers and intermediaries to assess whether social and biodiversity outcomes qualify as “high-quality”. In addition, the [*NCS Procurement Hub*](#), is an online community platform designed to guide businesses through the procurement process of NCS carbon credits as an additional measure to rapid and deep decarbonization, and is available for businesses that are thinking about or already buying carbon credits. It features curated content related to the NCS procurement process and provides a safe space for peer-to-peer learning and collaborating to achieve climate and nature goals through NCS credits.



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