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Advancing Indigenous Protected and Conserved Areas (IPCAs) through Carbon Financing

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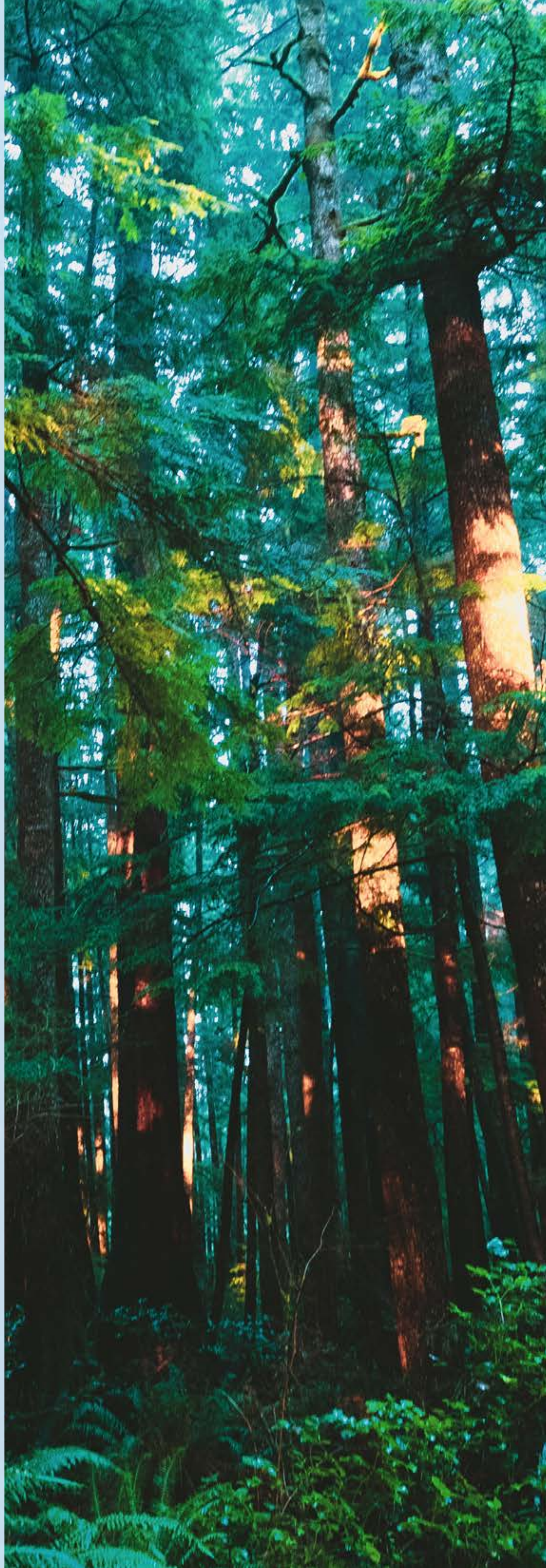

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Introduction

Indigenous Protected and Conserved Areas (IPCAs) are lands and waters where Indigenous governments have the primary role in protecting and conserving culture and ecosystems through Indigenous laws, governance, and knowledge systems.[1] IPCAs can enable continued storage and sequestration of carbon in natural ecosystems because protecting and restoring the land increases the overall stock of carbon pulled out, and kept out, of the atmosphere.[2]

Recent carbon offset projects led by Indigenous communities worldwide have been shown to support community objectives around revenue, land use, and resilience.[3] [4] Some carbon offset project types — such as those based on conservation — generate revenue by maintaining and enhancing natural processes in a defined geographical area and then reflecting the climate benefit as an environmental asset that can be sold, thereby funding the underlying work on the land.[5] Because those project types are about protecting the physical properties of the land, rather than exploiting them, they can be compatible with an IPCA.

In June 2022, the federal government launched Canada's Greenhouse Gas Offset Credit System. This, along with increasing voluntary carbon offset price and demand, has led to a significantly improved feasibility situation for projects that may be developed as a key funding component of IPCAs. Carbon offset projects must meet stringent requirements to verify and sell carbon credits on voluntary or compliance carbon markets; these requirements apply no matter the nature of the concurrent IPCA.

> There needs to be more clarity about the conditions required for carbon financing to be applied to concurrent IPCAs.

This paper seeks to help advance clarity on this topic by outlining the necessary community, political, and governance conditions to achieve IPCAs supported by carbon offset finance within the Canadian context. There are currently no active IPCA projects financed by carbon projects within Canada. However, two case studies are presented in this document to illustrate two situations where there is an overlap between a carbon project and an IPCA.

The core concepts of successful carbon offset projects are *italicized* in the central part of this document and defined in Appendix A. Appendix A also includes important carbon project concepts that are not mentioned in the central part of this document. Appendix B describes an approach to assessing the feasibility of Indigenous-led carbon projects.

Land Rights and Tenure

Natural climate solutions and *carbon offset projects* are about the control of land through jurisdictional oversight or management frameworks established through laws, regulations, or legal agreements.[6] In combination, IPCAs and carbon offset projects can help First Nations achieve their goals of bringing the land back into sustainable Indigenous stewardship and jurisdiction and be used as tools to re-establish social and ecological balance.[7, 8] Defining land tenure and carbon rights is the most significant barrier to First Nations' participation in carbon markets. This is the most significant barrier to new IPCAs across Canada as well.

As many leaders and land managers are already aware, there is resistance among colonial governments to both IPCAs and Indigenous-led carbon projects that involve conservation. This is likely because of the loss of "Crown" control over land management that they entail and the alienation of those lands from industrial development. Carbon and conservation-related activities (e.g. protection and restoration) tend to prevent the pursuit of other non-aligned economic ventures (e.g. logging, mining). In other words, there are competing interests for the land.

Indigenous rights to the *carbon* stored and absorbed across Indigenous lands and the potential revenues related to such carbon are mostly not recognized by provincial, territorial, and federal governments, which limits Indigenous autonomy over carbon generated, or sequestered and stored, in their territories, including in IPCAs.[9] Three options for Indigenous governments in Canada claiming ownership and rights of use of *carbon credits* are paraphrased by Mary-Kate Craig in *Nature-Based Solutions: Indigenous-led Conservation and Carbon Storage in Canada:*[10, 11]

1. Claiming ownership of carbon as a resource not ceded by First Nations to the Crown specifically, and thus ownership and rights of use are still retained by the First Nation.

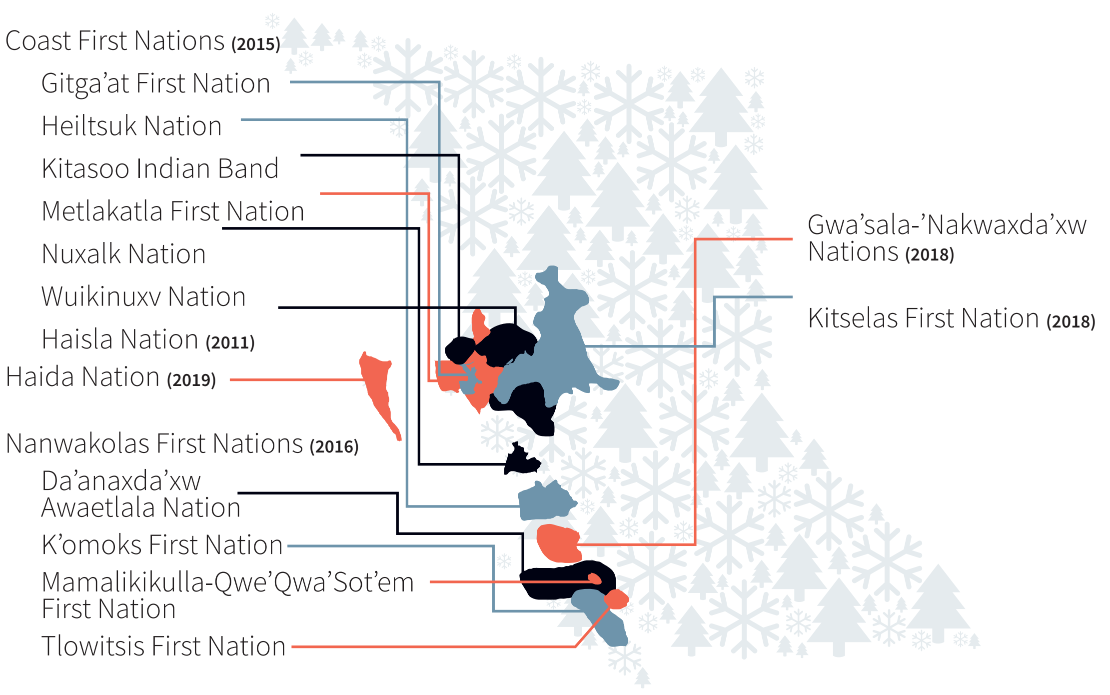
2. Asserting territorial jurisdiction over forests and areas that can be managed and conserved in a way compatible with recognizing the existence of carbon rights that underlie carbon offsets. This could happen in areas controlled by First Nations governance structures under settled land claims agreements, on reserves, and off-reserve through the assertion of Aboriginal title.

3 First Nations can argue that they have Aboriginal and treaty rights to, or related to, the conservation and environmental management practices that would result in the ability to own and sell carbon offsets.

In Canada, colonial governments generally take the position that, in the absence of any agreement or legislation to the contrary, they are the owner of the rights to benefit from the sale of carbon credits on "Crown land," except in relation to lands where Aboriginal title has been proven.[12] A "Crown tenure" is one mechanism by which some provinces transfer specific rights, obligations and their duration to private companies, individuals, non-Indigenous communities and First Nations.[13]

Formal land tenure and/or subsequent demonstration of exclusive entitlement to carbon improvements made on the landscape are critical steps to carbon offset project development. This is because tonnes of emissions reductions claimed through a carbon credit and traded as a commodity need to be clearly owned by the *project developer* if they are to be then sold as offsets.[14] In other words, an Indigenous nation must have the legal right to manage the carbon over a sustained period to participate in a carbon market.

ATMOSPHERIC BENEFIT SHARING AGREEMENT LOCATIONS

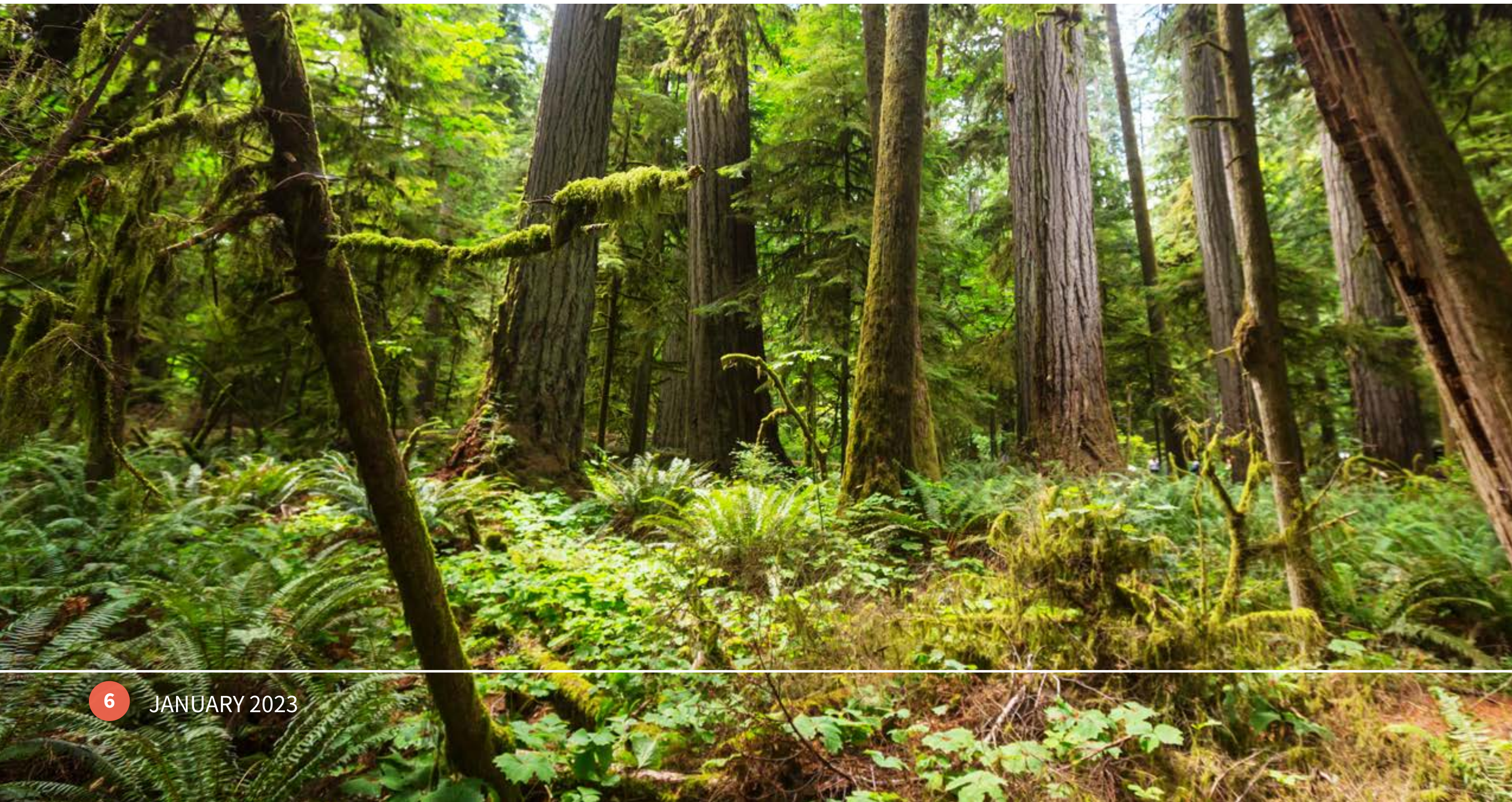


An *Atmospheric Benefit Sharing Agreement (ABSA)* (now called Indigenous Atmospheric Benefit Agreements in British Columbia) is how provincial, territorial, and federal governments currently allocate the right to the climate benefit achieved by carbon offset projects on "Crown land" to a First Nation or other party.[15] In Canada, BC has led the way on this, with ABSAs, negotiated directly with First Nations, such as in the Great Bear Rainforest offset project, and commercially negotiated ABSAs with municipal and First Nations governments in the case of the Cheakamus Community Forest Offset Project. An ABSA clarifies ownership of carbon improvements on the landscape achieved by a project and allows the generation and sale of carbon credits.

Resource rents are allocated to the Crown by identifying a percentage of the atmospheric benefits granted annually back to the government.[16] ABSA percentages are typically re-negotiated every five years and, in certain situations, have lowered the Crown portion to zero in subsequent periods.[17]

In the report, *We Rise Together – Achieving Pathway to Target 1 through the creation of Indigenous Protected and Conserved Areas in the spirit and practice of reconciliation,* the Indigenous Circle of Experts recommends that federal, provincial, and territorial governments use land withdrawals and other measures to prevent development by external interests in IPCA candidate areas while those areas are being considered.[18] There is no apparent reason why the same cannot be done for candidate carbon offset project areas. Candidate IPCAs can also support the acquisition of carbon rights because the land is withdrawn from "Crown land" and rights are given back to Indigenous communities.

Land withdrawals are one way to prevent the possible loss of opportunity for a successful IPCA or carbon offset project in a contentious area. It could be followed by the securing of land rights or tenure by a First Nation. In a limited number of cases, in BC, carbon offset projects have been key in securing First Nations carbon rights via ABSAs.



Markets and International Trading Mechanisms

The Paris Agreement is a legally binding international treaty on climate change.[19] It was adopted in 2015 and compels countries that have signed on to help fulfill the goal to limit global warming to 1.5 degrees by reducing emissions and protecting and enhancing carbon storage and absorption in nature.[20] The Paris Agreement Rulebook, which was finalized at the global climate summit in 2021, outlines how countries will work together to achieve their commitments.[21]

The establishment of the Paris Agreement Rulebook at the 2021 global climate summit created the international market necessary to stimulate demand for carbon credits. At the 2021 summit, countries reached a consensus on how to implement Article 6, which establishes the rules for countries to trade carbon credits in the form of something called an Internationally Transferred Mitigation Outcome (ITMO).

> Article 6 creates an opportunity for countries to cooperate and finance proven emissions reductions and removals where they can be best achieved in countries across the world, increasing climate ambition and demand for carbon offset projects.

It will be up to individual countries to reach bilateral agreements to trade ITMOs under Article 6.2, or to purchase ITMOs through the Article 6.4 mechanism. The Blockchain for Climate Foundation has launched the BITMO platform, which allows the issuance and exchange of ITMOs as non-fungible tokens equivalent to one tonne of CO_2.[22] The BITMO platform provides the accounting and exchange infrastructure necessary under Article 6.2.

When implemented by its federal government, signatory countries can purchase BITMOs from proven emissions reductions achieved elsewhere. Each token is embedded with all pertinent carbon credit data. The BITMO platform is a secure record of issuance, transfer, and retirement for each country's ITMOs that can be reconciled with national carbon registries and meet future UN requirements.

Through this work, prospective carbon offset projects within IPCAs may access buyers and demand from countries worldwide, in addition to Canadian, provincial/territorial, and voluntary demand. Indigenous communities in Canada, through an IPCA mechanism, are well-positioned to benefit from this demand due to the strong governance and stability of project development in Canada.

Some have argued that access to larger markets is critical to actualizing broader opportunities for Indigenous carbon offset projects. Others argue that making markets compatible, or simply having a single global carbon market, is an essential way to improve the existing system for sellers, buyers, and the atmosphere.[23] While some suggest that there should be a certification for First Nations carbon offset projects to help differentiate them from other projects,[24] others argue that carbon markets do better the more they converge rather than segment.[25]

Rather than creating a new Indigenous carbon offset standard and building all the details, certifications, trust and market demand, it may be more desirable to develop an additional certification to designate quality Indigenous projects, such as those concurrent with an IPCA.[26] The Verra Climate Community and Biodiversity Standard is an excellent example of such an additional certification, as it is not a standalone offset generation standard but rather a standardized screen for other added biodiversity and community data, additive to the climate certification achieved by another standard like the Verra Verified Carbon Standard (VCS).[27]

In Canada, legislation that creates demand for carbon credits is the *Greenhouse Gas Pollution Pricing Act (GGPPA)*, which came into force in 2018. This act includes a carbon pricing system for large industrial facilities, known as the federal Output-Based Pricing System (OBPS). A new Federal Greenhouse Gas Offset Credit System (Federal Offset System) has taken effect in June 2022 to enable the generation of carbon offsets eligible to be utilized for compliance under the OBPS[28]. Though the primary objective of developing this system is to generate offsets for compliance, its offsets may also be used by companies pursuing voluntary emissions reductions.[29]

LIMITS ON EMISSIONS FOR INDUSTRIAL POLLUTERS

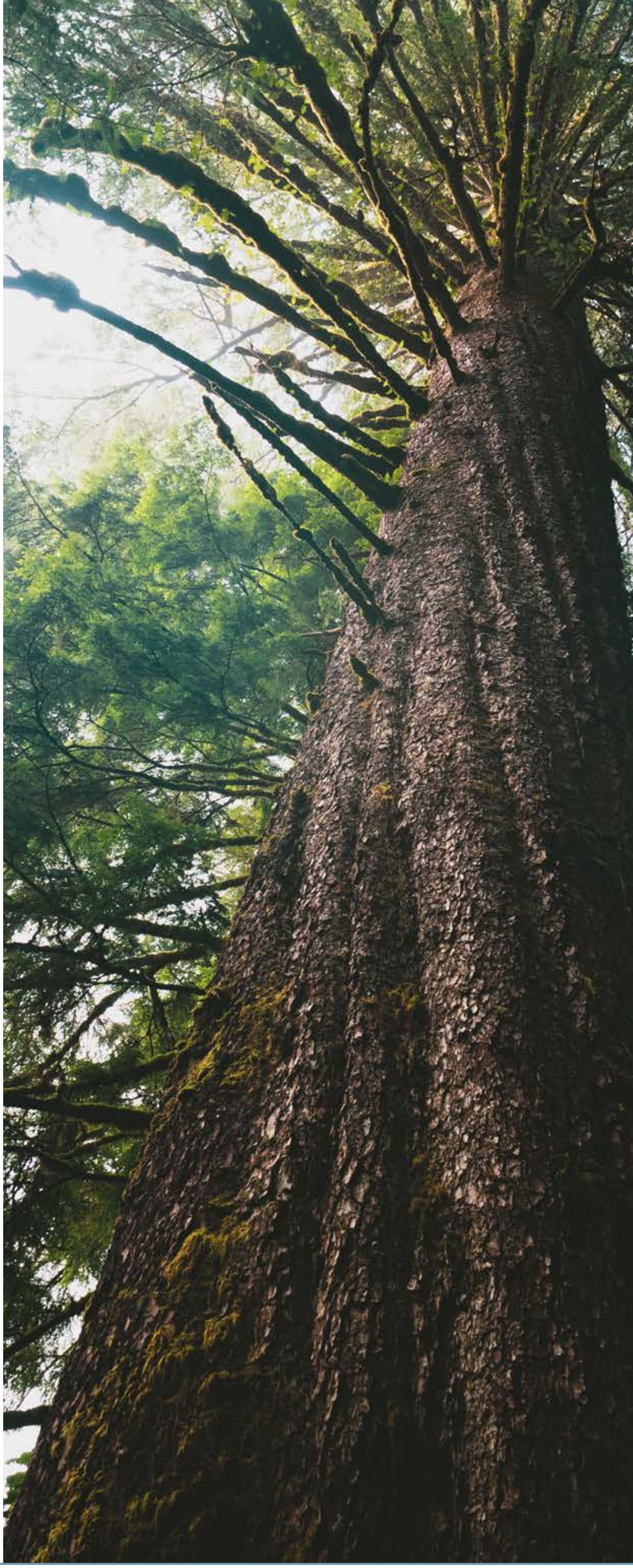
Tonnes of carbon dioxide pollution per year

10,000 - 49,999	Voluntary Participation
> 50,000	Mandatory Participation

The OBPS sets a limit on emissions for industrial polluters such as mines, oil and gas, cement production and others. Under the OBPS, regulated facilities that emit more than 50,000 tonnes of carbon dioxide pollution a year must compensate for emissions exceeding their annual limit.[30] Polluting companies that emit between 10,000-49,999 tonnes a year can voluntarily participate in the program. Facilities that emit more than their limit have a legal obligation to compensate for their excess emissions. They can comply by paying a charge at the annual carbon price[31] for each tonne of excess emission or by remitting a "compliance unit" for each excess emission that exceeds their allowed limit.[32] This compliance unit may either be a carbon credit or excess emissions permit acquired from another company that has reduced its emissions below its annual emissions limit. [33]

To expand the options for compliance, the OBPS has accepted Alberta's and British Columbia's offset programs to enable provincial offset credits that can be used as compliance units[34]. The mechanism is set up so that if a provincial offset protocol is approved as a "*recognized protocol,*" offset projects under those protocols can access the demand of the federal OBPS market. A selection of Alberta's offset protocols is approved by the federal OBPS as recognized protocols. There are currently no announced recognized protocols from BC's offset system. Given the incoming BC's Forest Carbon Offset Protocol, there is a possibility that the provincial protocol could become recognized under the federal OBPS once it is published.

The Federal Offset System is separate from the OBPS but primarily designed to deliver compliance carbon credits for use within the OBPS. Because the OBPS directly addresses



emissions from fossil fuel combustion and a range of other activities, the system is designed to support the reduction of domestic emissions from sources not covered by carbon pollution pricing, such as the OBPS.[35] The Federal Offset System includes regulations, protocols for different project types, and a public registry for tracking projects. In 2022, the Landfill Methane Recovery and Destruction protocol was published. Five additional protocols are currently in development, including Improved Forest Management for Private Land (Improved Forest Management for Public Land is in subsequent consideration for development)[36]. Considering the potential outcomes of the Federal Offset System, it is arguable that carbon credits generated by IPCAs could be deemed highly valuable in addition to its carbon benefits — delivering Indigenous jobs and social, environmental, and climate impact.

The Paris Agreement does not currently cover the international aviation sector. This sector could fill the demand gap for IPCA-generated carbon credits.[37]

Canada is a signatory to CORSIA along with 190 other countries where operators have international flights with more than 10,000 tonnes of emissions annually.[38] Programs currently eligible for creating carbon credits that airlines can use in this market are on the International Civil Aviation Organization (ICAO) website.[39] The ICAO approved the inclusion of forest carbon credits issued through the Verified Carbon Standard and achieved by conservation and avoided deforestation in November 2020 — a positive sign for the inclusion of IPCA carbon credits in this system.[40] In general, demand for voluntary carbon offsets grew significantly in 2021 on the back of the business and financial institutions seeking to go “net zero” carbon and demand from the blockchain-based carbon markets.

Planning and feasibility

Land use planning centred on Indigenous rights and ecological imperatives is a critical start for IPCAs and carbon offset projects. The Indigenous Circle of Experts suggests that for enduring IPCAs, communities should define parameters using their language and knowledge.[41] Such an approach would also create the conditions necessary for a successful concurrent carbon offset project. It could inform future IPCA management planning and the regular *verifications* required for carbon offsets.

Mapping and boundary delineation are the product of Eurocentric systems and values.[42] IPCAs and successful carbon offset projects require the identification of lands and the quantification of the carbon storage in those lands. Planning that brings both traditional and western systems together must be rooted in the abiding values of spirituality and respect for using traditional protocols.[43]

To establish and manage IPCAs, communities require the capacity to undertake consensus building, land use and watershed planning, mapping, and spatial data management, among other foundational work.[44] Carbon offset projects require all the above and more specialized initial work by carbon experts to determine feasibility. Initial IPCA and carbon work can be done concurrently by one cohesive team with the right expertise.

LAND USE PLANS

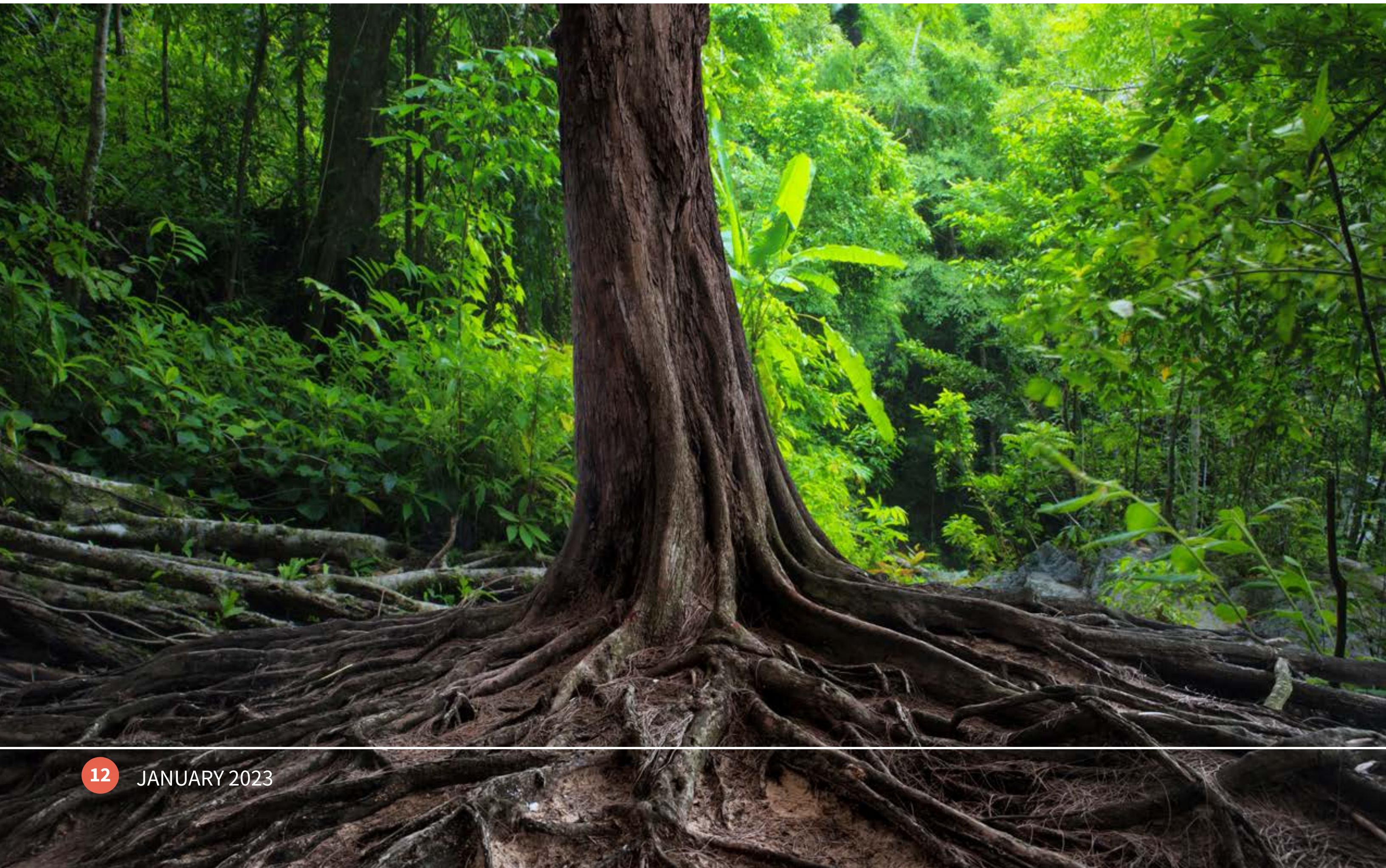
A land use plan should identify areas of cultural importance, intact ecosystems (such as primary forests, grasslands, wetlands, and peatlands), and degraded areas that require restoration.

These lands constitute a potential IPCA. A concurrent carbon offset project may be able to support the protection of these areas, and where it cannot, it may be a smaller part of the larger IPCA or established outside the IPCA.

Where communities are considering the development of any carbon offset project, including one in concert with an IPCA, it is recommended that a feasibility assessment is undertaken. A two-phase feasibility assessment (see Appendix B) is designed to develop, understand, and clarify the data necessary to determine whether a carbon offset project is likely to succeed. Undertaking a feasibility assessment allows communities, project participants, and other stakeholders to make the best go/no-go decision, and where the project proceeds, to identify key areas of both risk and opportunity. Working through a feasibility assessment gives a community an excellent first look at the project and allows proponents to get key project information laid down in one place. It also provides structured carbon offset project design content for sharing with communities and other affected stakeholders.

An initial feasibility assessment allows for structuring an initial determination on whether a carbon offset project's fundamentals are strong and whether there are grounds for deeper analysis. Where the initial assessment looks promising, one can proceed to a full feasibility assessment, including a Project Idea Note.

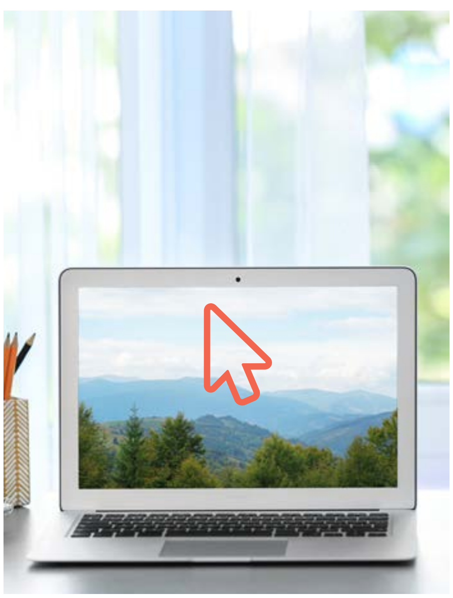
Ecotrust Canada is available to develop [feasbility] assessments with communities who would like the support to do so.



Capacity-Building and Communication

Basic technical knowledge of carbon offset projects is not widely held in Canada. Communities will have the best chance to build a successful, beneficial offset project where they can build a level of understanding of this space within their members. This may mean developing the skillsets to deliver an offset project on their own, or simply raising the level of knowledge at a lands department or community group so they can engage more effectively on behalf of community interests.

About IPCAs, the Indigenous Circle of Experts recommends a collaboration and learning platform where Indigenous People are given the means to understand and make decisions within a western-based system, while non-Indigenous participants are supported in learning, appreciating, and integrating Indigenous knowledge into western-based decision-making processes.[45] Ecotrust Canada applies this recommendation to carbon offset projects.



Ecotrust Canada, in partnership with the British Columbia Assembly of First Nations (BCAFN), is building a user-friendly, two-way learning platform for First Nations communities interested in learning more about core concepts of forest carbon, First Nations rights related to carbon, and evaluating the feasibility of a forest carbon project in their territories.

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The Toolkit will provide a curriculum that builds knowledge among potential First Nations project proponents. What is a carbon offset project? What might it mean for my community or Indigenous Rights and Knowledge? What are the steps to develop a project? A " clickable " curriculum will back each project concept with capacity-building educational content, allowing First Nations project proponents to access high-quality insight into the ideas, questions, and tools necessary to complete the project development and description process. This will support proponents to design the best, most successful carbon offset projects possible that align with First Nations concepts of well-being.

The Project Idea Note Web App (the Web App) will allow communities to work through feasibility assessment steps and develop a Project Idea Note — two critical steps in early forest carbon project development. The Web App will guide prospective First Nation project proponents through a) composing and explaining their project concept, b) quantifying the estimated GHG impact, and c) compiling this information into a well-recognized carbon standards document for communication to a wide variety of project stakeholders.

The Web App will draw inspiration from carbon offset protocols and carbon inventory models but seeks to provide GHG emissions reduction impact data in line with the Canadian federal carbon inventory approaches and will generate data with the widest applicability to federal, provincial, or international reporting.

> The Web App will enable and guide First Nation project proponents to make high-level, reasonably accurate, standardized, repeatable estimates of the GHG impact their forest carbon project can hope to deliver.

Preparing a communication plan can cover topics such as risk, trust, and greenwashing and address the real concerns community members may have.

> Carbon offset projects have drawn criticism for how they appear to commodify nature, but they can also be viewed as commodifying human action to preserve or restore nature as opposed to commodifying nature itself.[46]

For IPCA-carbon offset, this messaging may help assuage any concerns from the community and is a crucial step that can be developed alongside capacity-building.

Shared Territories and on-the-land Programs

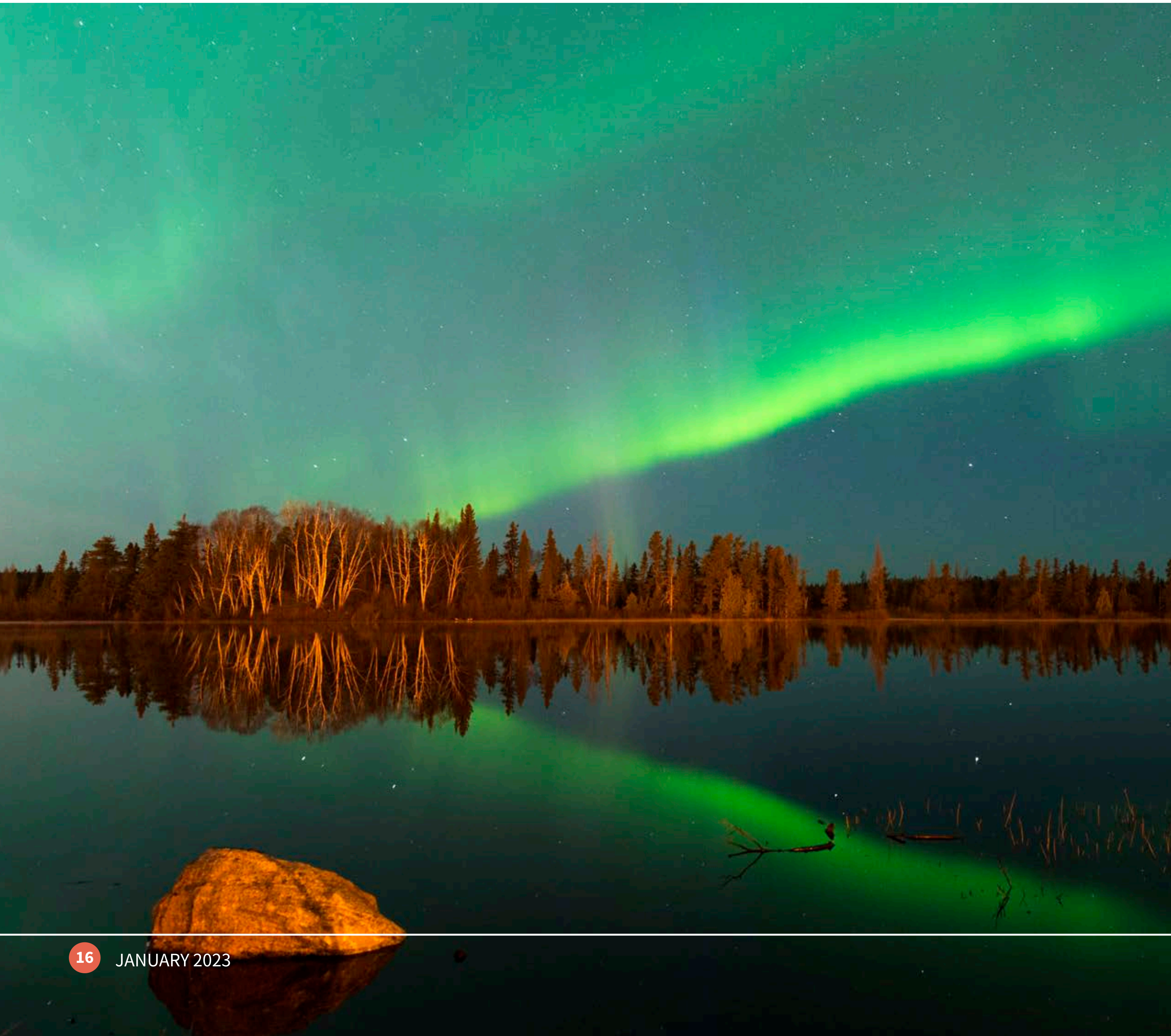
When First Nations were forced onto reserves a fraction of the size of their traditional territories, it created a scarcity of land over which First Nations have recognized authority.[47] First Nations remain at different stages of rebuilding their nations and governments, with the current reality being that there typically remain many nations and governments in the same territory.[48] Politics can complicate the development of IPCAs and carbon offset projects between nations.[49]

For a successful IPCA carbon project, communities with shared territories must agree. Indigenous governments must have the opportunity to develop the appropriate protocols or agreements for reconciling management and uses between nations to answer questions such as: who will take charge of project leadership?[50] Inter-national (between Indigenous nations) collaborations can enable a more successful IPCA carbon project because size is a key element for both. Larger protected areas are more ecologically robust, and carbon offset projects must be sufficiently sized to store enough carbon to be economically viable.[51] [52]

On-the-land programs (e.g., guardian programs or similar community-based initiatives) are essential for developing and managing both IPCAs and carbon offset projects. Many existing guardian programs are designed to steward Indigenous territories and transmit Indigenous knowledge.[53] In addition to helping create land use and/or watershed governance area plans and working alongside other staff in managing the operations of an IPCA, guardians can also be trained to perform inventory work necessary for carbon offset projects.

Forest carbon offset projects, for example, are built on high-quality forest inventory data collected according to the proper protocol. On-the-ground, routine monitoring of a carbon offset project ensures that it is being implemented and managed as described in the carbon offset project plan. Annual monitoring reports require a description of management activities on the land over the prior year and changes in carbon stocks that results from yearly growth and harvest or natural disturbance that occurred that year.

A team of guardians can do this necessary technical work with training provided by an experienced project developer. A project developer supporting a community's carbon offset project capacity building would enable a nation to monitor and reduce the long-term cost of managing a project.[54]



Governance and Funding

Indigenous conservation governance is a theory and practice that re-centre Indigenous worldviews, philosophies, and methods.[55] IPCAs and carbon offset projects can enable self-determination when they are established and managed according to First Nations legal orders, governance systems, and authorities. Provided that a carbon offset project meets the basic requirements described in Appendix A, there is no reason that Indigenous governance systems cannot be applied to the lands within which a project is located.

As explained by the Indigenous Circle of Experts, there is a spectrum of potential IPCA governance models ranging from entirely governed by an Indigenous nation to co-governance models and agreements that allow for joint decision-making powers between Crown ministers and Indigenous governments.[56]

> Indigenous governments ought to have most of the decision-making power on all aspects of management and operations of both IPCA and a concurrent carbon offset project to ensure that both arrangements meet local values and needs.[57]

In a carbon offset project, because carbon credits are being sold based on a commitment to a particular land management regime for a specific period, any form of governance over the land being managed for the carbon offset project must enable the continued integrity of the project, such as adherence to the protocol, and the ability to pass third party verification (see Appendix A for the definitions of protocol and verification).

Any non-Indigenous government or non-governmental organization involved in the governance of an IPCA or a carbon project should approach relationship-building within the framework of Ethical Space, which includes the minimum standards set out in the UN Declaration on the Rights of Indigenous People, the Truth and Reconciliation Commission's Calls to Action, the Canadian Constitution and Canadian jurisprudence, and Treaties, Agreements and Other Constructive Arrangements.[58] "Hybrid" partnerships involving collaboration between Indigenous governments and non-Indigenous and/or non-governmental organizations require that all parties have clearly defined roles. A carbon project developer, such as Ecotrust Canada, may play a technical and supportive role to the Indigenous or hybrid governing body, as opposed to being involved in the governance of the carbon project.

An IPCA requires a streamlined, predictable, and flexible funding model.[59] Carbon offset projects are designed to generate capital. A successful carbon offset project with an IPCA can produce own-source revenues to sustain land management priorities over the long term and reduce the risk of unreliable funding from "Crown" governments.

A carbon offset project can generate employment and funds to seed new businesses with a conservation and sustainability focus to be compatible with an IPCA.

Carbon offset projects can also generate capital to support Guardian programs. Building technical and professional capacity for careers in carbon and conservation might be considered by particularly keen community members.

Case studies

Délı̨ne Got’ine Government and Great Bear Lake

Délı̨ne is a fly-in community on the shores of Great Bear Lake in the Northwest Territories (NWT). Great Bear Lake is the sixth largest in the world. The Great Bear Watershed holds more than 4.5 billion tonnes of soil organic carbon — equivalent to over 20 years of Canada’s annual industrial greenhouse gas emissions. The lake is a unique management zone under the Sahtu Land Use Plan, and the watershed is a UNESCO biosphere reserve.

The community wants to protect the Great Bear Watershed within Deline district in an IPCA that encompasses the area’s current mix of conservation zones and some special management zones. To the people of Deline, the ideal IPCA would have more active land protection and stewardship, Guardians, cabins and trails. The Délı̨ne Got’ine Government has requested a new partnership agreement with the NWT government that establishes the IPCA and outlines each party’s responsibility. The NWT and Délı̨ne Got’ine governments have recently completed a feasibility study on establishing an IPCA and are working together to enact the agreed recommendations. For Deline, an IPCA is an expression of nationhood, and they will declare it under their own Indigenous law regardless of the territorial government’s position.

Thaidene Nëné and Edéhzhíe have protected areas in other parts of NWT. Both National Parks are also IPCAs. In 2019, they were examined for feasibility in a carbon project. Unfortunately, a project could not proceed in those areas because carbon projects in existing protected areas cannot meet additionality requirements.

The Délı̨ne Got’ine Government has considered doing some preliminary explorations of a possible carbon offset project for the proposed Great Bear Lake IPCA but has been discouraged by the technical challenges experienced by IPCAs in the NWT to date. Because the Great Bear Watershed is not currently protected, it is possible that it would not run into the same additionality barrier as the Thaidene Nëné and Edéhzhíe IPCAs.

BigCoast project

In BC, a timber company's private ownership of large swaths of forested land is rare; the Crown owns most land. Starting in 1884, a series of land grants given to the Esquimalt & Nanaimo Railway Company on Vancouver Island established 853,050 hectares of "private" land on unceded Indigenous territory, which has since been dubbed as "E&N land." [60] These are the territories of the Kwakwaka'wakw, Coast Salish, and Nuu-chah-nulth people. These lands are known to have been heavily exploited by industrial logging and roads.[61]

Mosaic is a company that manages these private lands for TimberWest and Island Timberlands on eastern Vancouver Island. In 2022, Mosaic Forest Management announced that they were halting logging in 40,000 hectares of private land on east Vancouver Island under a project called the BigCoast Forest Climate Initiative.[62] The BigCoast Forest Climate Initiative claims to reduce greenhouse gas emissions by more than 10 million tonnes of carbon dioxide over the life of the 25-year initiative.[63] Approximately 3,000 hectares of the area is old forest.[64]

A portion of the revenue generated by the BigCoast carbon project Mosaic will share with the IPCA Innovation Program. Mosaic has also offered First Nations whose territories fall within the project area the opportunity to add lands under their management to the project. The BigCoast project will be implemented following the Verified Carbon Standard — Improved Forest Management in Temperate and Boreal Forests methodology.

"This initiative provides decades of certainty for First Nations to research these lands and identify priority areas for consideration as Indigenous Protected and Conserved Areas. The funding we receive from the BigCoast Forest Climate Initiative will be leveraged by dozens of our partners and deployed respectfully through the advice of each of the Nations whose territories are involved in confirming locations of the most important ecological and cultural sites,"

- Chief Gordon Planes,
IPCA Innovation Program

Summary

In other parts of the world, such as the United States and New Zealand, Indigenous people have been able to participate in carbon markets because land tenure was defined in a way that clearly delineated their carbon rights.[65] In Canada, Crown recognition of First Nations' jurisdiction over their territories is limited and carbon rights have not yet been defined, despite Canada's stated interest in implementing the UN Declaration.[66] Tenure and carbon rights need to be negotiated on a government-to-government basis and obtained through a treaty or a reconciliation agreement.

Once tenure has been established and a carbon project has been developed, marketing the offsets in a way that makes clear that they are Indigenous led is key. In a dialogue on land-based carbon offsets hosted by the BC Assembly of First Nations in April 2022, William David explains that marketing is important because of "tremendous goodwill in the international community to be sponsoring projects for Indigenous peoples, particularly projects which mobilize Indigenous rights and jurisdiction, traditional occupations and traditional economies." [67] David adds that "… if we allow our views of what carbon means to be subsumed underneath a system that is basically a more bland regulatory approach it's harder to do that marketing. This allows First Nations to explore on our own terms what a green economy could look like."

Ecozones for IPCA and carbon revenue impact

Carbon offset projects must reduce emissions beyond what would have happened in the absence of the project, also known as "going beyond business as usual." The intervention of the project should cause additional reductions in emissions above and beyond any legal or regulatory requirements or a conservative business-as-usual scenario.[68] In light of this constraint on carbon offset projects, we should examine where natural landscapes are at risk of 'business as usual' for an IPCA with a concurrent carbon offset project.

Immediate carbon benefits can be obtained by conserving primary forests, peatlands, wetlands, rangelands, and blue carbon slated for industrial activities.[69] Protection of these high carbon-density and high-biodiversity ecosystems that are under imminent threat would result in the removal of up to 10 Mt CO_2 per year from the atmosphere on implementation, to over 175 Mt CO_2 per year by 2030.[70] Moreover, emissions of 586 Mt CO_2 e would be avoided by maintaining carbon stores under imminent threat.[71] By 2030, this would increase to 1.8 to 11 billion tonnes (Gt) of CO_2 e and beyond 2050, it would increase to between 35 and 186 Gt of CO_2 e.[72]

This list recommends high-risk and high-priority Ecozones across Canada for IPCAs with concurrent carbon offset projects.[73]

Montane Cordillera and Pacific Maritime

Temperate old-growth and other primary forests of British Columbia are threatened by logging for dimensional lumber, pulp, pellets, and biofuels. These ecosystems store vast amounts of carbon in trees and soils (approximately 455 t CO2 per hectare in some parts of the Montane Cordillera), three-quarters of which is lost when they are converted into wood products.[74 75 76 77 78] Secondary stands do not begin to store carbon for two or three decades and take more than a century to reach the storage capacity of the primary stand they replaced, leading to increased atmospheric levels for this time.[79] Carbon absorbed (sequestered) by young stands cannot replace the stored carbon lost due to logging.[80 81 82]

Prairies

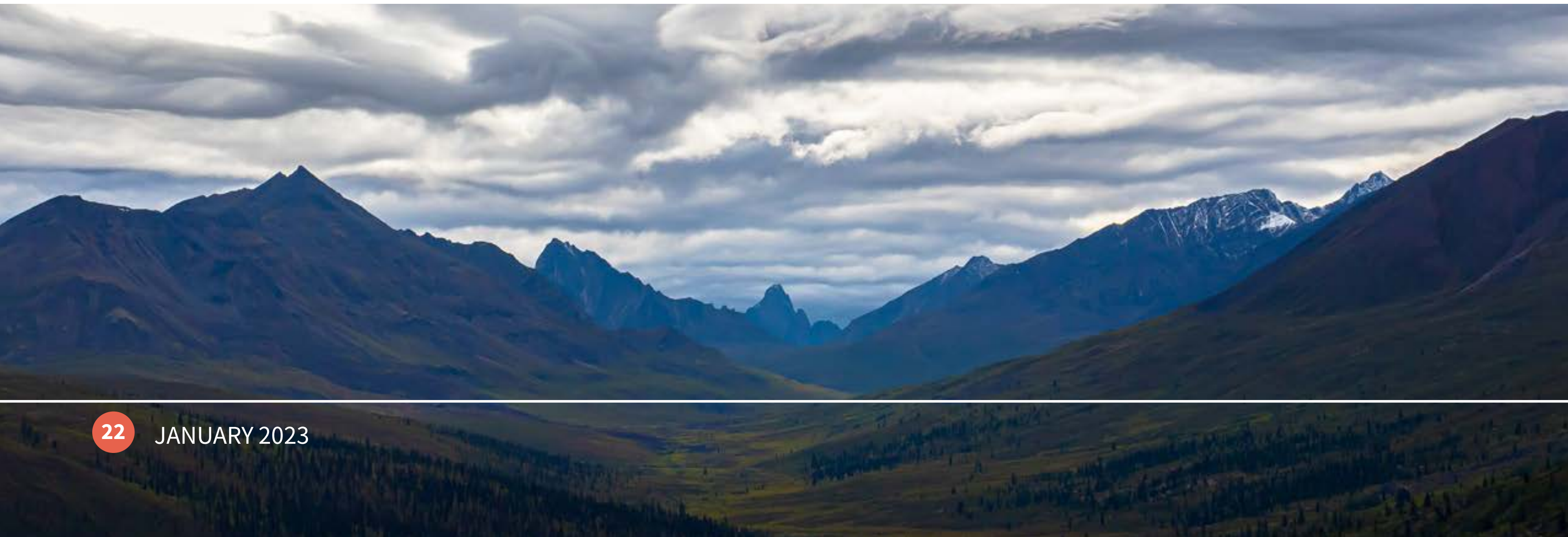
Natural prairie grasslands of Alberta, Manitoba, and Saskatchewan are threatened by conversion to agriculture and other uses. Canada's remaining 12,700 km2 native prairie grasslands store an estimated 2,000 to 3,000 Mt of carbon.[83] Ensuring no further conversion of prairie grasslands could avoid emissions of 381 to 1905 Mt of stored carbon.[84] Remaining native prairie grasslands sequester about 2.41 Mt CO2 per year.

Boreal Shield

The old-growth boreal forests of Quebec, Ontario, Newfoundland, and Labrador are threatened by logging for wood products. Estimated stored carbon in boreal forests over 100 years ranges from 24,850 to 137,850 Mt CO2; and 13,694 to 75,960 Mt CO2 for the boreal forests over 200 years; and 8,114 to 45,010 Mt CO2 for the boreal forests over 300 years.[85 86] These forests have especially high soil carbon densities.

Mixedwood Plains

Remnants old-growth Carolinian forests of Ontario, Quebec, and the Maritimes are threatened by urban development and agriculture (deforestation).[87] Aboveground carbon storage in these forests can be up to 83 tonnes per hectare.[88] The mean net primary productivity for the Mixedwood Plains is estimated at 257 g CO2 per square metre per year. However, forested areas within the Niagara Escarpment and Frontenac Arch (which have 43 percent forest cover) have values as high as 500 g CO2 per metre squared per year and, therefore, some of the highest net primary productivity in Canada.[89]



Hudson Plains

Peatlands are threatened by draining industrial activities. Canadian peatland systems store 136,700 to 154,000 Mt of carbon.[90] The Hudson Plains ecozone is a largely intact peatland complex that provides habitat for many species of national and international concern and is only 12.8% protected.[91] The peatland forests of the Hudson Plains sequester 74.6 Mt of CO2 per year.[92] [93] The Boreal Plains and the Taiga Shield ecozones also contain high densities of peatlands.[94]

Northwest Atlantic Marine

In Canada, eelgrass beds are threatened by shoreline development, log storage, and boat moorage.[95] These ecosystems are estimated to store 7.8 to 52.8 Mt of carbon and sequester 0.1 to 0.71 Mt of CO2 per year.[96] Canada has mapped at least 643 km2 (64,300 ha) of eelgrass, but mapping is incomplete.[97]

In the Gulf of St. Lawrence, extensive eelgrass meadows are found along the coasts of New Brunswick, northern Nova Scotia, Prince Edward Island, Québec, and Newfoundland.[98] [99] [100] [101] On the Scotian Shelf, eelgrass meadows are found along Nova Scotia's Atlantic coast, including Cape Breton Island but are sparse in the Bay of Fundy. [102] [103] [104] Eelgrass meadows are also commonly found along the northeast coast of Newfoundland.[105]

Arctic Basin Marine

In the Arctic and Subarctic, eelgrass inhabits Hudson Bay and James Bay.[106] [107] [108] [109] Much less about eelgrass distribution in the higher Arctic is known. Still, it has been observed near settlements in the Northwest Territories and Nunavut, with the most northern observation at Grise Fiord in Nunavut in the Eastern Arctic (~76°N).[110]

Pacific Marine

Intertidal and subtidal eelgrass meadows are found along the entire coastline of British Columbia but are absent from offshore areas. Pacific eelgrass meadows range from small fringing meadows on gentle slopes to large expansive meadows on tidal flats. They can form vast networks of nearly continuous meadows in inlets with large shallow and gently sloped areas of suitable substrate. [111] [112] Some of the most extensive documented meadows (33 km2) are intertidal and found near the Fraser River outflow and at the mouth of the Skeena River.[113] Extensive networks of meadows separated by areas of unsuitable habitat include Masset Inlet on Haida Gwaii and Clayoquot Sound on the west coast of Vancouver Island.[114] In northern British Columbia, there is almost 10,000 km of eelgrass measured with line data but no area data. [115]

In summary, IPCA projects that protect the natural ecosystems within any of the above Ecozones (Montane Cordillera, Pacific Maritime, Prairies, Boreal Shield, Mixedwood Plains, Hudson Plains, Northwest Atlantic Marine, Arctic Basin Marine and Pacific Marine) could be bolstered by a solid argument for carbon project financing.

Appendix A

Carbon offset concepts and project elements

Additionality:

Greenhouse gas reductions are additional if they would not have occurred in the absence of a market for offset credits; this is referred to as 'additionality.'[116] If the reductions would have happened anyway, i.e., without any prospect for project owners to sell carbon offset credits — they are not additional. [117] Financial additionality — where a project could not happen in absence of the revenue from carbon offset sale is a common type of additionality. Still, there are others, including common practice additionality and standardized baselines, that establish whether a project activity is a business as usual based on the penetration rate of that activity in the jurisdiction.

Aggregation:

An aggregated project can be when a single project proponent bundles smaller parcels of land into a project of a larger size to increase the economic feasibility of a project.[118] An aggregated project can also be where multiple proponents group projects together to share project costs and register a project as a group.[119] The Great Bear Forest Carbon Project is an example of an aggregated project.[120]

Atmospheric Benefit Sharing Agreement:

An Atmospheric Benefit Sharing Agreement (ABSA) is how governments negotiate the rights to carbon improvements achieved by an offset project, laying the basis for community ownership and the opportunity to generate carbon offsets on "Crown land" by an Indigenous community.[121] An ABSA clarifies the responsibilities of both the Crown and the proponent and indicates a percentage of the credits or revenues that go back to the Crown.[122] In BC, the Provincial Minister of Forests/ Lands and the Minister of Indigenous Relations and Reconciliation currently have the authority to approve ASBAs, which are typically re-negotiated every five years.

Baseline:

One looks at the baseline to figure out what emissions would be under business-as-usual. A baseline is a forward-looking prediction of events and actions expected to occur in the absence of the project. The additionality of a potential carbon offset project is assessed relative to this baseline for the 100-year life of a typical forest carbon project. Carbon offsets are generally calculated based on the difference between baseline and project emissions.

Buffer pool:

A percentage of GHG offset credits created by a project is often withheld by the GHG offset program to function as collective insurance if GHGs removed by the project are "reversed" and released back to the atmosphere, in which case an equivalent number of credits in the buffer pool would be cancelled. This buffer pool provides certainty that total GHG emissions reductions credited represent actual reductions.

Carbon:

Carbon is an element that connects us to Mother Earth. It is found in our bodies, the atmosphere, the soil, and the Earth's crust. Forests, wetlands, grasslands, and the ocean absorb and store carbon in living and dead tissues through a process that has been occurring for millions of years. Indigenous peoples, for millennia, maintained the earth's carbon balance. The burning of fossil fuels transferred carbon from under the Earth's crust to the atmosphere, and the conversion of forests and grasslands into cities and farms altered the land's ability to absorb and store carbon. Half of the carbon produced by the global economy each year goes into nature.[123]

Carbon market:

Carbon markets give value to the act of reducing greenhouse gas emissions in the atmosphere. They operate to connect emission reduction opportunities (like increasing emissions reductions from forestry or capturing methane from a landfill) to demand those emissions reductions — from governments, businesses, and individuals. This market enables greenhouse gas emitters to purchase credits that can help them achieve regulatory or voluntary emissions reduction goals by investing in proven emissions reductions achieved.

Carbon credit:

The outputs of a carbon offset project are carbon credits. A carbon credit represents an emission reduction of one metric tonne of CO2 or an equivalent amount of other greenhouse gas (CO2e) that has been reduced already. The emission reduction represented by a carbon credit has already been achieved, usually in the preceding year.[124] Carbon credits can be quantified, proven, and traded (transferred),[125] and are used to convey a net climate benefit from one entity to another. The purchaser of a carbon credit can "retire" it to claim the underlying reduction towards their own greenhouse gas reduction goals.

Carbon offset project:

A carbon offset project generates revenue by maintaining and enhancing natural processes in a defined geographical area and then turning this service into a tradable commodity to be exchanged (a carbon credit).[126]

Carbon offset standard:

Legitimate carbon credits must be developed and issued under a recognized carbon offset standard. Voluntary carbon offset standards include Verra's Verified Carbon Standard, the Gold Standard, and the American Carbon Registry. Compliance carbon offset standards are usually specific to a particular jurisdiction and create offsets eligible for use in compliance with government regulations. Such standards include BC's carbon offset standard, the Canadian Federal Greenhouse Gas Offset System, and California's Compliance Offset Program.

Compliance and voluntary markets:

There are two broad types of carbon markets. Compliance markets are regulated by the regional, national, or international government to enable the generation of offset credits eligible for use in a regulated system.[127] In compliance markets, offsets are purchased by emitters that must comply with emissions reduction requirements, helping ensure that Canada's total greenhouse gas emissions decrease. Compliance markets lead to emission reductions by ensuring that large industrial emitters either pay a fee for their emissions over their annual emissions limit or pay for carbon credits.[128] Voluntary markets exist outside government-mandated compliance programs and enable entities such as businesses, governments, and nongovernmental organizations to purchase carbon offsets voluntarily.[129] The voluntary carbon market comprises various offset standards that third-party, non-government bodies have created.

Leakage:

Leakage refers to the risk that emissions reductions due to the project activity in one area will cause the previous user to move to another site, resulting in no net change in emissions. An example of this effect is when a project reduces logging in an area, and harvest activity shifts outside the area, leading to forest loss and carbon release elsewhere.[130] Leakage is assessed at the start of a project, as well as throughout the life of the project, and is accounted for in project calculations. Determining the ongoing risk of potential leakage in a forest project, for example, would be done through periodic monitoring, reporting, and verification of harvested wood products.

Monitoring:

Monitoring is a routine check of a project to ensure it is functioning as designed. On the ground, monitoring in a land-based project designed to avoid logging emissions, for example, would need to establish that no more trees have been removed than was in a project plan and protocol and that the project is implemented and managed as described in the project plan.

Project area:

Defining the project area is one of the first tasks for a community considering a carbon offset project.[131] An economically feasible project requires that it be large enough and have enough carbon sequestration ability to cover the costs of management and monitoring over the commitment period and generate a profit.[132]

Project developer:

A project developer can support, lead, or complete the work of turning emissions reduction actions into an offset for the market.[133] In addition to doing an initial feasibility assessment, project developers manage project documentation, write and negotiate purchase contracts, model emissions (baseline and project), manage the third-party validation and verification processes, register the offsets and sell them.[134] Some project developers offer the service of a feasibility assessment before an agreement is made to save a community the up-front capital costs of this key step. An experienced project developer could also support community capacity building so that a First Nation may monitor and reduce the long-term cost of managing a project.[135]

Project plan:

A project plan is written by a protocol, which sets out the carbon project's fundamentals — including the project purpose, boundary, baseline scenario, and selected emission sources and pools.[136] A project plan also identifies when the project will be eligible to create offsets.

Protocol:

A protocol is an approved, technically sound method for quantifying the emission reductions associated with a particular project activity, such as an improved forest management project. Protocols, also known as Methodologies, are specific to their underlying carbon offset standard.

Once the emission reductions of a project have been achieved, quantified, and verified as carbon credits under the requirements of a protocol, the carbon credits are issued by the offset system, such as a compliance market or voluntary market.[137] They may be sold to an interested party.

Permanence:

Carbon offset projects must maintain carbon storage for a century from the start of the project. Traditional First Nations property systems may be able to provide increased assurance of permanence.[138] The continuity of land ownership and management under First Nations governing entities may lower the permanence risks of land-based carbon projects compared to projects done by non-First Nations interests.[139] In addition, a community can incorporate a particular land use into its laws and regulations, which would further increase the stability and permanence of a project.[140]

Reversals:

Carbon in a forest is regularly emitted into the atmosphere through natural events such as a lightning-caused fire or an insect outbreak that kills trees. It can also be released by logging and road building. A threat to permanence in a land-based project is an unexpected reversal, such as a natural disturbance that is larger or more severe than expected or logging more than was planned.

Sources, Sinks, and reservoirs:

To estimate both the baseline emissions and the project emissions for a forest project, greenhouse gas sources, sinks and reservoirs in that forest must be identified and accounted for.[141] In a natural forest, for example, living trees, shrubs and herbaceous plants actively absorb (sequester) carbon; they are carbon sinks. Dead trees, standing and fallen, store carbon (as reservoirs) or release carbon as they decompose (sources). The forest floor and the soil also store and release carbon over time. Values for sinks, sources, and reservoirs are plugged into a model approved for use by a protocol and quantified to produce the total baseline (business as usual) emissions and the project emissions.[142]

Validation:

Some offset systems include the requirement for validation of a project plan. This step consists of having a certified independent professional review the project plan for the correctness and whether the project can be expected to successfully generate carbon credits if it is delivered according to that plan. Completed project plans are validated by an accredited third party, free of conflicts of interest. Where this step is not required, such as in the Canadian federal offset system, project proponents may seek to have an independent professional review of their project plan, mitigating risk before moving forward with the expense of project implementation.

Verification:

An independent, third-party inspector must verify a carbon offset project's performance. The verification process aims to ensure that a project has reduced emissions, meets all requirements, and that project information is well-documented.[143] Verification is akin to auditing in the financial world; it provides credibility and transparency of a project's claims in a way that is easy to understand by concerned entities such as regulatory bodies, governments, the public, investors, and market actors.[144] Carbon credits can be issued following a successful verification.

Appendix B

Prospective carbon offset projects benefit from a two-phase feasibility assessment (Initial and Full, which includes a Project Idea Note).

Initial Feasibility Assessment

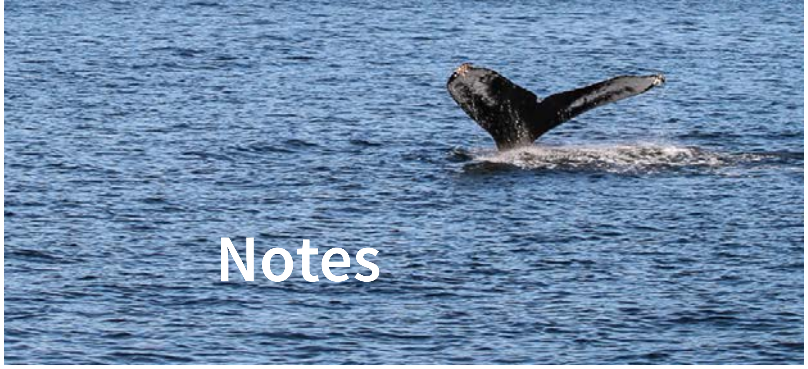
1. Define how the prospective project provides an eligible carbon offset benefit.
2. Confirm ownership of carbon rights/pathway to Atmospheric Benefit Sharing Agreement (ABSA).
3. Describe change to forest management activity undertaken to reduce emissions and the significance of this to existing community, ecological and economic function.
4. Preliminary modelling & assessment of carbon stocks. Estimate volume of gross climate benefit.
5. Identify best and alternate routes to market for the project offsets. Calculate expected revenues.

Full Feasibility Assessment

6. Consolidate existing project, landscape, community & background data. Review pertinent documentation.
7. Assess project eligibility & productivity under available carbon Protocols and Standards on a priority basis. Select and vet the applicability of the best available Protocol.
8. Seek out and assess a wide range of available precedent documents. Protocols, Project Design Documents (PDDs), Validation Reports, Stakeholder Reports and calculation appendices. Select the appropriate Protocol and which other documents shall be utilized to undertake project development.
9. Prepare initial Baseline Timber Supply Model. Define project boundary and in-scope emissions.
10. Estimate new Project-Case Timber Harvesting Landbase within the affected area & the impact on Annual Allowable Cut.
11. Refine estimated emissions reductions according to chosen offset Protocol. Calculate emissions reductions for different potential project scenarios.
12. Prepare SWOT Analysis (Strengths, Weaknesses, Opportunities, Threats) on the project.
13. Refine the timeline and budget estimate over the lifetime of the project.
14. Initiate discussions with potential offset purchasers, financiers and investors, if desired.
15. Prepare a Project Idea Note (PIN) according to industry standards describing the project for distribution to potential funders, financiers, and pre-sales clients and for stakeholder consultation.

Project Idea Note Sections

1. Project Summary, a. Overview, b. Project Purpose and Objectives
2. Contact Information and Respondent Experience, a. Project Proponent, b. Project Partners, c. Proposed Validation Body if Known, d. Proposed Verification Body if Known
3. Preliminary Assessment of Viability, a. Within Scope, b. Real, c. Quantifiable, d. Clear Ownership/Counted Once, e. Baseline and Project Justification
4. Project Risk, a. Project Description, b. Conditions Before Project Initiation, c. Project Timeline, d. Key Project Assumptions, e. Project Risks and Mitigation, f. Project Delivery Volume
5. Environmental, Economic and Social Co-benefits



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