IAPB International Advisory Panel on Biodiversity Credits

Learnings from Government-Led Approaches to Nature Credit Markets

In collaboration with the Environmental Policy Innovation Center and Forest Trends

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About the International Advisory Panel on Biodiversity Credits (IAPB)

IAPB is an independent, stakeholder-led initiative that aims to support the development and growth of high integrity nature credits, as one route to scaling up finance for the conservation and restoration of nature. Established by the governments of France and the UK in mid-2023, it has since moved to operate as a fully independent legal entity outside government. The global Panel, led by Dame Amelia Fawcett and Sylvie Goulard, brings together more than twenty-five senior representatives from finance, business, Indigenous Peoples and local communities, academia, and NGOs. In October 2024, IAPB published its *Framework for high integrity biodiversity credit markets*, setting out 21 High-Level Principles and market actor guidance for the establishment of impactful, inclusive, and transparent markets.

About the Environmental Policy Innovation Center (EPIC)

The Environmental Policy Innovation Center is a non-profit with a mission to produce faster environmental progress. EPIC focuses on clean water, environmental markets, and planet-positive technologies. EPIC's restoration work focuses on advancing policies and strategies that expand performance contracting, improve environmental permitting, and build policy rules that reward private investment in nature restoration.

About Forest Trends

Forest Trends Association is a 501(c)(3) organisation founded in 1999. Forest Trends' mission is to drive innovation in environmental finance to sustain resilient ecosystems and communities. For over two decades, Forest Trends has pioneered the idea that creating economic value in our forests and natural ecosystems is one of the most powerful incentives for sustaining them. It works through knowledge creation, capacity enhancement, and coalition building. Its Ecosystem Marketplace initiative is a leading global source of credible information on environmental finance, markets, and payments for ecosystem services.

Acknowledgements

We extend our heartfelt thanks to the many government officials, CSOs, representatives of Indigenous Peoples and local communities (IPs and LCs), and other stakeholders who made time to speak with us, and whose insights formed the cornerstone of this research.

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Our appreciation also extends to the researchers, institutions and organisations whose existing databases and inventories have fed into the landscape mapping presented here. This includes the team that worked on the GEF-funded mapping assessment as part of the IAPB Governance and Stewardship Working Group's 2024 report.

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Executive Summary

The *Kunming-Montreal Global Biodiversity Framework* (GBF) sets out humanity's vision to halt and reverse nature loss, a key component of which is the need to mobilise greater funding to close the biodiversity finance gap. The GBF emphasises the need for a range of financial instruments to be deployed in order to accelerate the transition to a nature-positive future, including nature credits and credit markets.

Building on the momentum of the GBF, the International Advisory Panel on Biodiversity Credits (IAPB) was launched in mid-2023. Its *Framework for high integrity biodiversity credit markets*, unveiled at CBD COP16 in October 2024, sets out principles of high integrity – covering robust measurement, equity and inclusion, and good governance – to support credit markets to develop in ways that are credible, timely and coherent on an international scale.

This study, the first of its kind, seeks to provide an overview of policy-driven approaches to nature credit markets around the world. Government action on nature credits has taken a variety of approaches to date, ranging from pilot projects and draft frameworks to fully operational markets. Government-led frameworks currently span almost twenty countries across six continents and cover a range of biomes and sectors. This study groups them according to a set of world-first market archetypes that illustrate the various roles that governments have chosen to play in these markets across different jurisdictions.

A selection of the study's key learnings is shown below.

1. **A total of 19 national and subnational nature credit schemes have been or are in the process of being developed globally.** In addition, a number of emerging initiatives were identified, showing where other government-led activities are taking place to establish or pilot nature credit frameworks.

2. **Government-led approaches can be grouped into three archetypes:** "principle driven", where the government takes on an enabling and/or regulatory role but leaves aspects of market administration to the private sector; "shared governance", where government provides regulatory oversight and management of some market functions; and "centralised governance", where government assumes responsibility for managing the majority of market operations. It is worth noting that all the principle driven schemes included were voluntary contribution in nature, while the majority of schemes in the latter two categories of archetypes were compliance compensation-based (or a mixture of compliance and voluntary).

3. **High integrity standards, such as adherence to the mitigation hierarchy and no net loss principles, are well integrated into many existing schemes.** A comparison of operational frameworks against IAPB's 21 High-Level Principles revealed strong coverage of several aspects of high integrity, with transparent governance arrangements relating to biodiversity credit purchase and use in place across many. Most governments have existing or planned systems for credit issuance and tracking, as well as publicly accessible registries with data on credits generated/sold/retired.

4. **Explicit measures to uphold Indigenous Peoples and local communities' rights and ensure equitable benefit sharing are not clearly or consistently integrated.** "No harm" protocols, adherence to FPIC (free, prior and informed consent) and respect for data sovereignty are conspicuously absent in many of the frameworks assessed.

5. **Compliance markets are already driving significant demand in several jurisdictions, with credit transactions in some established markets estimated to be worth hundreds of millions to several billions of dollars.** The latest studies indicate that two well-established markets are transacting credit volumes per year worth approximately EUR €2.5 billion and USD $3.6 billion, respectively. Compliance constitutes the major demand driver in most countries, although other drivers like corporate disclosure and ESG concerns were also highlighted.

6. **Sustained political leadership and securing long-term funding to support scheme implementation are key factors.** Governments highlighted the need to embed resilience into frameworks to ensure they withstand political headwinds and changes in administration. They also noted the importance of strong coordination between local and national authorities, ensuring that different branches of government with regulatory and administrative responsibilities operate in a joined-up manner, and that locally held data is better integrated into centralised databases.

7. **Commonly occurring challenges identified by interviewees include difficulties in implementing like-for-like ecological equivalence and data gaps relating to land titling and land ownership, particularly for IPs and LCs.** Some governments noted that inflexible ecosystem equivalence rules may be tricky for companies to comply with, particularly if there is a lack of available credits within the same ecosystem. Governments also noted that a fragmented data landscape makes it challenging to identify where IPs and LCs are rights-holders over lands/resources and ensure they receive commensurate benefits.

1. Introduction

1. Introduction

This learnings study aims to provide a comprehensive overview of the current state of government action on nature credits and credit markets globally. A growing number of governments are turning to nature credits as one mechanism for channelling significant financial flows to nature, helping to close the biodiversity financing gap, estimated at approximately USD $942 billion per year (**Paulson Institute 2025**). This is attested by the rise in government-led nature credit schemes in recent years and across a range of jurisdictions internationally.

The International Advisory Panel on Biodiversity Credits' (IAPB) *Framework for high integrity biodiversity credit markets*, published in October 2024, identified 16 existing government actions in establishing policy frameworks for compliance or regulated biodiversity credits. This study has identified 19 credit schemes – both contribution and compensation – at the national and subnational levels. These are in addition to other kinds of compensation policies that already exist or are being developed in over 100 countries worldwide. A non-exhaustive selection of "emerging initiatives" i.e., government-led nature credit frameworks which are planned or in the initial stages of development, is also presented.

This study builds on the mapping undertaken for IAPB that informed its Framework, as well as other existing inventories, in particular Forest Trends' 2017 *State of Biodiversity Mitigation* report and the IUCN's 2018 *GIBOP database*. It is also informed by interviews with over 70 stakeholders from over 35 countries, including governments in the Global North and Global South, country experts, representatives of Indigenous Peoples and local communities (IPs and LCs), and others. The research gathering has followed an open and inclusive approach, grounded in the latest data and market information available, and which puts the learnings and experiences of on-the-ground actors front and centre.

IAPB's Framework drew attention to the crucial role of governments in shaping nature credit markets that are high integrity and which simultaneously deliver ecological gains for the planet and equitable returns for nature's stewards. As this study shows, governments are already playing a range of roles in enabling, supporting and regulating nature credit markets. The diversity of policy-driven approaches, which interviews with policymakers have consistently underscored, also indicates that no "one-size-fits-all" model is likely to be suitable. Interviews have shown the need for schemes to be anchored in local realities and tailored to local stakeholders' needs. In many cases this will involve a lengthy consultation process with relevant individuals and organisations, in particular Indigenous Peoples and local communities as nature's stewards, whose consent and priorities are fundamental to the development of equitable and inclusive nature markets.

Regional, national and subnational governments, in consultation with other actors including IP and LC groups, must decide what sort of approach works best for them given their specific needs and capacities. For this reason, it is not suitable for this study to make recommendations on specific questions of how policy-driven approaches should be designed and implemented. Rather, it aims to bring together learnings from diverse geographies and government-led approaches to date, to equip policymakers with clear, accurate information on the current landscape of nature credit regulations and frameworks, some of the development pathways that government-led schemes follow, how they aim to tackle issues of high integrity, and first-hand lessons learned from them.

The study's structure is as follows. Section 2 summarises the three kinds of archetypes that government-led schemes are broadly divisible into. Section 3 presents the findings of the landscape mapping and interviews with country experts. Section 4 offers a high-level comparison of government-led schemes with the high integrity principles published in IAPB's Framework. Lastly, in Section 5, a selection of key learnings is shared from the landscape assessment and stakeholder interviews.

2. Market archetypes

2. Market archetypes

The landscape assessment and interviews identified a range of ways in which governments are supporting the development of nature credit markets. Broadly speaking, these policy-led approaches can be classified into a set of archetypes, based on certain recognisable features and shared traits. These archetypes are not fixed or rigid categories, and the precise actions and interventions that governments can take vary across all three.

It is important to note that these market archetypes apply to both voluntary and compliance markets. In other words, governments can act solely as the regulator of a compliance nature credit market or the full or partial administrator of a voluntary credit market.

Furthermore, while there will exist variation in the extent to which these government-led markets operate in different jurisdictions, this should not be taken to mean that some regimes can or should have fewer safeguards than others. High integrity is a prerequisite for all kinds of policy-driven and regulatory approaches and there is a need to secure the requisite quality of credits and their outcomes for both biodiversity and its stewards irrespective of scheme type. Further guidance on how enablers like governments should operationalise high integrity in line with the BCA-IAPB-WEF High-Level Principles is provided in **IAPB's Framework**.

The three archetypes of policy-driven approaches are summarised below. Specific examples of each are outlined in the landscape mapping section that follows.

2.1. Principle driven

In this first category of principle driven approaches, government takes on a regulatory and/or enabling role but is not heavily involved in market administration. The role of government is focused on creating the conditions for markets to work by setting principle-based rules, providing infrastructure and facilitating growth, with many market functions handled by the private sector.

Examples of this type of framework are Canada's Conservation Exchange Pilot and New Zealand's Voluntary Nature Credit Market. This category also includes certificate programmes that have measurable environmental criteria associated with them. While these programmes are not market-based credit mechanisms, they share several of the same characteristics. One such scheme is Japan's Certificate Scheme of Support for OECMs.

2.2. Shared governance

Government-led approaches that belong to this archetype include frameworks in which government provides strong regulatory oversight and market administration functions such as approving and publishing credit and transaction data. Other aspects of credit market implementation are conducted by the private sector, for instance, drafting legal agreements and transacting credits, which means that governments share market governance with private sector actors and intermediaries.

This middle approach includes the largest number of frameworks, including Brazil's CRA (Environmental Reserve Quota) scheme, Colombia's Habitat Banking regime, England's Biodiversity Net Gain (BNG) policy, Finland's Voluntary Ecosystem Compensation framework, France's SNCRR (Natural Compensation, Restoration and Renaturation Sites) framework and the US Stream/Wetland Mitigation Banking and Conservation (Habitat) Banking frameworks.

2.3. Centralised governance

In this archetype, government takes on responsibility for operating or managing the majority of market functions, sometimes through direct ownership or day-to-day management. Centralised governance schemes involve the government acting as regulator, administrator, and potentially even the buyer and/or seller of credits. Examples of government-led approaches in this category are Australia's Nature Repair Market, India's Green Credit Programme, New South Wales's Biodiversity Offsets Scheme, and South Africa's SANParks Offset Bank.

The table below presents a high-level summary of the three archetypes and their features.

Market archetype	What role does government play?	Description of potential actions taken by governments
1. Principle driven	Regulator, enabler (Many market functions left to the private sector)	Standard setting or adoption of existing standards Regulations for credit generation and market operation Approval of projects
2. Shared governance	Regulator, administrator	Standard setting or adoption Regulations for credit generation and market operation Approval of projects Some market administration
3. Centralised governance	Regulator, administrator, buyer and/or seller	Standard setting or adoption Regulations for credit generation and market operation Approval of projects Majority of market administration Credit supplier and/or credit buyer

3. Landscape mapping

3. Landscape mapping

This section summarises the results of the landscape assessment and interviews with experts, policymakers, representatives of IPs and LCs and others on country-specific schemes.

It is worth noting that the assessment encompasses both contribution and specific compensation (or offset) schemes. In the case of biodiversity offsets, there are three main routes to implementing them:

- Permittee-responsible offsets, where developers conduct offset activities themselves on- or off-site;
- Purchasing offsets from a public or private third-party, such as a conservation bank, habitat bank, mitigation bank, or species bank;
- Payments-in-lieu, where regulatory agencies levy fees on developers for their adverse impacts on biodiversity.

Only in the second of these instances does a credit transaction occur, although there are a handful of exceptions to this, including where a developer is allowed to sell excess on-site gains to count towards another development's no net loss (NNL) or net gain (NG). For this reason, only schemes that belong to the second category i.e., which allow for compensation by purchasing third-party credits, are included in the following assessment.

Nonetheless, the principles of high integrity outlined by IAPB's Framework apply to all kinds of biodiversity compensation. Whether credits or certificates are generated as a result of investment or not, it is necessary that compensation follows the steps of the mitigation hierarchy and is based on local-to-local and like-for-like ecological equivalence. Caution must also be exercised when making claims on biodiversity compensation of any sort, to ensure these are independently assured for integrity and to mitigate greenwashing risks.

The government-led frameworks **in scope** of the mapping were as follows:

- Regional, national and subnational government frameworks where detailed nature credit (including third-party compensation) policies, regulations or guidance were available;
- Government-led actions that involve some unitisation of nature-positive outcomes e.g., certificate schemes.

The following types of frameworks were **not in scope** of the mapping:

- Nature credit frameworks where there was limited or no evidence of formalisation i.e., planning documents, regulations or guidance;
- Regulations that may require compensation but for which no detail has been provided yet by the government on the compensation requirements and standards, including on whether habitat bank mechanisms may be acceptable forms of third-party mitigation;
- Programmes where government is the only funder, such as in some government-led and government-funded payments for ecosystem services programmes.

Based on these inclusion criteria, a total of **19** nature credit (including third-party compensation) national and subnational schemes were identified by the landscape assessment. These nature credit schemes are part of a larger ecosystem, which includes other kinds of compensation policies in over 100 countries worldwide that have been or are being developed. (It is worth noting that policies mandating biodiversity offsets exist in at least 42 of these, with the remainder not legally requiring compensatory measures.[1])

The 19 frameworks identified range from pilot projects and draft frameworks to fully operational markets. They include more established government-led frameworks (e.g., Colombia, England, France, India), new government-led markets that have recently been established (e.g., Finland, Paraná State in Brazil, South Africa), and government-led markets that are currently in development (e.g., New Zealand).

The table below lists the 19 government-led nature credit frameworks in full. This is also displayed visually as a map on page 18.

Table 1: Government-led nature credit frameworks

Archetype	Location	Framework title	Status	Use case
1	**Canada**	Conservation Exchange Pilot	Operational	Voluntary contribution
1	**Japan**	OECM Certificate Scheme	Operational	Voluntary contribution
1	**New Zealand**	Voluntary Nature Credit Market	In development	Voluntary contribution
1	**Niue**	Ocean Conservation Commitments	Operational	Voluntary contribution
1	**Paraná State, Brazil**	Certification of Private Protected Areas	Operational	Voluntary contribution
2	**Brazil**	Environmental Reserve Quota (CRA)	Operational	Compliance compensation
2	**Colombia**	Habitat Banking	Operational	Compliance compensation & voluntary contribution
2	**England**	Biodiversity Net Gain	Operational	Compliance compensation

[1] Data on offset policies is taken from *OECD 2025, Scaling Up Biodiversity-Positive Incentives*, available at: https://www.oecd.org/en/publications/scaling-up-biodiversity-positive-incentives_19b859ce-en/full-report/biodiversity-offsets_01412516.html#chapter-d1e18821-a228dbe1fd and *GIBOP 2019, Global inventory of biodiversity offset policies (GIBOP)*, International Union for Conservation of Nature, available at: https://portals.iucn.org/offsetpolicy/.

Archetype	Location	Framework title	Status	Use case
2	**Finland**	Voluntary Ecological Compensation	Operational	Voluntary compensation
2	**France**	Natural Compensation, Restoration, and Renaturation Sites (SNCRR)	Operational	Compliance compensation & voluntary contribution
2	**Germany**	Habitat Banking	Operational	Compliance compensation
2	**Jiangxi Province, China**	Wetland Mitigation Banking	Operational	Compliance compensation
2	**USA**	Stream/Wetland Mitigation Banking	Operational	Compliance compensation
2	**USA**	Conservation (Habitat) Banking	Operational	Compliance compensation
2	**Victoria, Australia**	Native Vegetation Credits	Operational	Compliance compensation
3	**Australia**	Nature Repair Market	Operational	Voluntary contribution
3	**India**	Green Credit Programme	Operational	Compliance compensation & voluntary contribution
3	**New South Wales, Australia**	Biodiversity Offsets Scheme	Operational	Compliance compensation
3	**South Africa**	SANParks Biodiversity Offset Bank	Operational	Compliance compensation & voluntary contribution

Figure 1: Map of government-led nature credit frameworks globally[2]

[2] The map above does not include the "emerging initiatives" detailed in section 3.4.

The landscape mapping also surfaced a number of biodiversity credit market frameworks in development, referred to as "emerging initiatives". At the time of publication, these frameworks did not have publicly available documentation of planned framework components and several elements of them were still undergoing formalisation. Nonetheless, they are important indicators of emerging global activity and are briefly discussed later in the report.

While we have endeavoured to provide a comprehensive mapping of emerging approaches, it does not purport to be exhaustive. We look forward to continued engagement with a wide variety of stakeholders in the months ahead to learn more about these schemes, as well as others for which detailed information was not available or which we were not able to locate within the timeframe of this project.

A further category of initiatives that are not within scope are where biodiversity credits are mentioned as part of a National Biodiversity Strategy and Action Plan (NBSAP) but further detail on framework components has not been forthcoming to date. Some countries' NBSAPs (e.g., Indonesia) or Biodiversity Finance Plans (e.g., Thailand) make mention of biodiversity credits, signalling the potential for these mechanisms to be used to meet national biodiversity and economic targets and international commitments, and leaving open the possibility of nature credit market development at a later date.

The 19 government-led nature credit schemes identified are presented in further detail below. These summaries have been informed by extensive interviews with government officials, country experts, representatives of IPs and LCs, and others. To facilitate comparison across schemes, they have been grouped by market archetype, based on the three categories outlined in Section 2.

3.1. Principle driven

Canada's Conservation Exchange Pilot (Voluntary contribution)

Overview: *The Conservation Exchange Pilot (CEP) is a government-led initiative to incentivise businesses to voluntarily fund conservation projects in partnership with conservation organisations. The government gives a science-based, government-backed certificate to participating companies to recognise their positive contributions towards restoration and conservation in Canada.*

The CEP is not technically a credit or offset framework but is included on the grounds that it is a model of government oversight over measurable voluntary conservation actions. Through this scheme, the government (Environment and Climate Change Canada) works collaboratively with industry, conservation organisations, Indigenous leaders, interested provinces/territories, and conservation experts to deliver the Pilot. Through this external working group, partners provide expert advice on the development of the Pilot and the selection of conservation projects.

Businesses and conservation organisations can submit applications together, or businesses can apply to find a conservation partner. In the latter case, the government will help link the business with a partner or project. Proposed projects are assessed against the following criteria: Indigenous engagement, stakeholder engagement, location, and expected conservation benefits.

The government keeps a list of selected projects on its website. Certificate issuance occurs only when the project has been fully executed on the ground, meaning that all conservation actions have been completed. Each certificate is marked with a unique identification number and displays estimated national biodiversity benefits funded by the partner, as well as assessed biocultural benefits where applicable. Companies receive certificates from the Government of Canada for biodiversity benefits delivered in proportion to the funding that the company contributed to the project (ECCC 2024).

Figure 2: Conservation Exchange Pilot

Source: Environment and Climate Change Canada 2024

Japan's OECM Certificate Scheme (Voluntary contribution)

Overview: *The Japanese government has developed its OECM certificate programme to recognise positive contributions that private companies are making to improve their stewardship of biodiversity. Based on such a certificate programme, a voluntary and/or compliance nature credit market could be developed after careful consideration in the future.*

Under Japan's Certificate Scheme related to Nationally Certified Sustainably Managed Natural Sites (Japanese OECMs), two types of certificates are available: 1) certificates to reflect companies' management activities and protection on lands under their control; and 2) certificates to recognise companies who may, in lieu of conducting land management and protection activities on their own land, contribute to another company's activities instead.

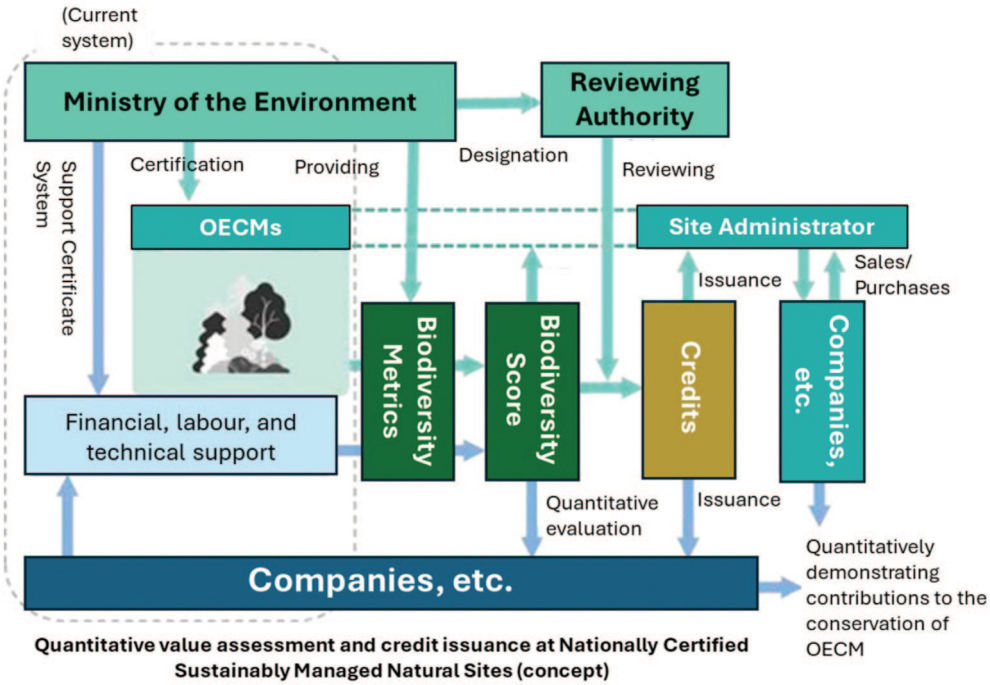
The first of these Certificate Schemes was introduced in 2023 while the second was introduced in 2024 through a pilot phase, and both schemes are now in full implementation. In April 2025, the Nationally Certified Sustainably Managed Natural Sites System was codified in law as the **Act on Promoting Activities to Enhance Regional Biodiversity**. The government (Ministry of the Environment (MoE)) certifies sites and maintains an online, public registry where certified sites are listed and tracked.

The government envisions that companies will make use of the certificates in their information disclosures based on the Taskforce on Nature-related Financial Disclosures (TNFD) framework and other reports. As of September 2025, the government had certified 448 sites in total. All of these sites, except those located within protected areas, are regarded as Japanese OECMs. The government is also considering other ways to expand protected areas and OECMs to achieve the global target of 30x30.

Some companies in Japan are already developing methodologies for biodiversity credits, nature-positive assessments, and biodiversity net gain certifications. The Japanese government is also currently working on biodiversity and natural capital quantitative valuation and related pilots with experts. These valuation and pilot activities may inform the development of various frameworks, including contribution-based credits at Nationally Certified Sustainably Managed Natural Sites, offset certifications, and offsets required for development permits.

In taking these actions, the government plans to accelerate quantitative value assessments of biodiversity on site, such as the Nationally Certified Sustainably Managed Sites, which will then possibly lead to credit issuance for those sites (see the framework draft below). Feasibility and effectiveness of such policy options will be further discussed and examined by considering relevant principles, such as the mitigation hierarchy and community involvement and participation. At the same time, these principles are also crucial for the frameworks that the private sector is already working on. The Government of Japan is therefore planning to release “Japanese Principles” for biodiversity valuation methods in 2026 that are aligned with IAPB’s High-Level Principles but rooted in a Japanese context.

Figure 3: Possible Example of Contribution-Based Credit Framework at Nationally Certified Sustainably Managed Natural Sites



Source: Ministry of the Environment, Japan

New Zealand's Voluntary Nature Credit Market (Voluntary contribution)

Overview: *New Zealand's proposed Voluntary Nature Credit Market (VNCM) approach envisions the government playing a non-regulatory and enabling role, including government-endorsed credits following high integrity principles to support market confidence and encourage the private sector to innovate and grow market activity.*

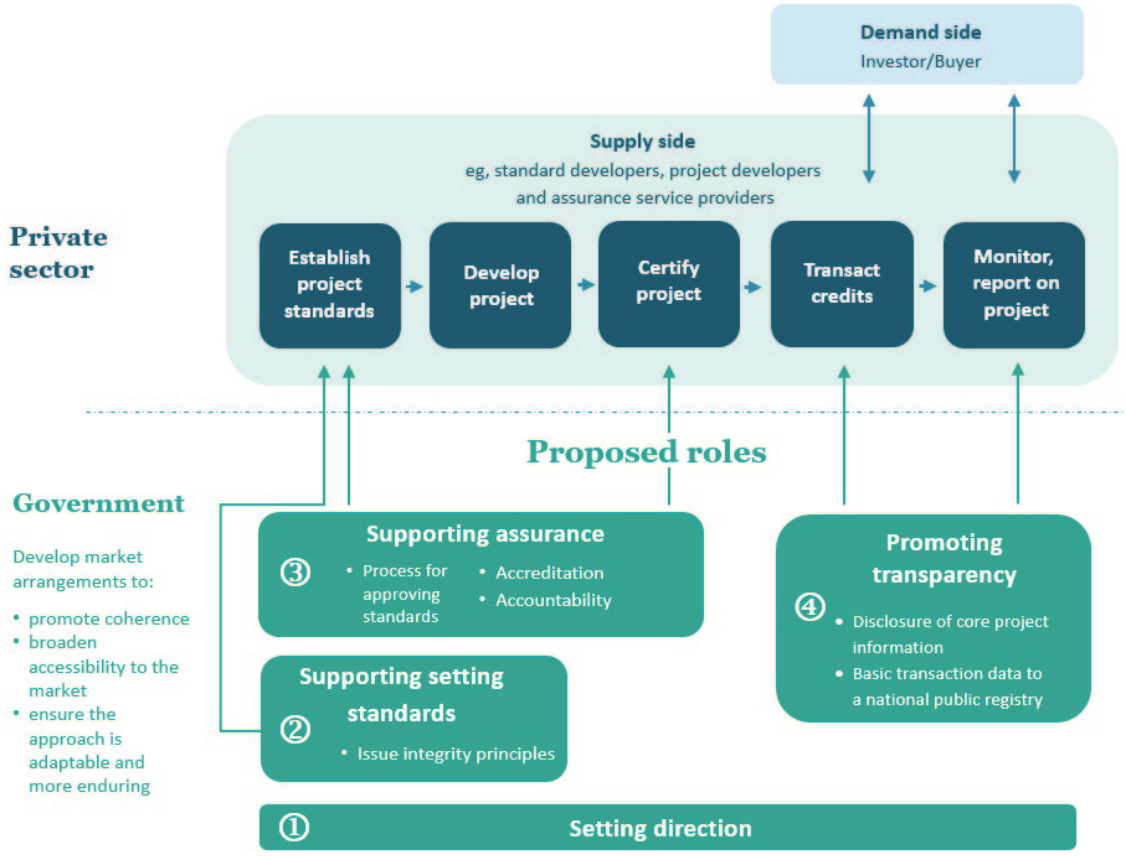
In June 2025, New Zealand's Ministry of Environment published a blueprint drawing on its 2023 public consultation and targeted stakeholder engagement on a voluntary nature credit market. This document outlined "proposed government roles being developed, which are intended to support confidence and growth in New Zealand's voluntary nature and carbon credits markets." The aim of developing these markets is to better leverage private funds for climate and nature conservation and restoration in New Zealand. The government is currently working with several private sector-funded pilot projects to test and refine the market framework and considerations of what role the government may play in supporting the market to scale. The integrity principles under the VNCM are being developed to align to international principles (including the IAPB's) and to fit New Zealand's unique context, and are expected to be finalised in 2026.

While the VNCM framework is still under development, the latest documentation available indicates that the government's role will be mainly enabling and endorsing, rather than administering the market, as it seeks to amplify private sector activity that is already emerging.

To date the government has indicated the following:

- A preference for a single, integrated biodiversity and carbon credit market framework, recognising overlapping methodologies and the presence of both carbon and biodiversity benefits in many emerging voluntary market projects (with flexibility to extend the framework to other environmental domains as markets develop);
- "New Zealand" credits are certified under project standards endorsed by the government and which meet specific integrity principles. Project standards endorsed by external international standards that meet the government's principles could also be automatically recognised by the framework;
- The government intends to set the direction of the market by: defining what a "New Zealand" credit is; supporting private sector project standard setting based on integrity principles (including criteria to ensure robust third-party validation and verification of projects); supporting assurance through appropriate due diligence to approve standards; and promoting transparency through requiring disclosure of project information and, as the market scales up, establishing a national registry to provide a coherent view of transactions across different market providers;
- This combined set of activities is intended to support confidence and encourage the private sector to innovate and grow a market that is accessible to New Zealand landowners and credible for investors and buyers.

Figure 4: Envisioned Nature Credit Market in New Zealand



Source: Government of New Zealand 2025

The government's efforts to support development of the VNCM are complemented by other activities it is undertaking to update guidance on voluntary carbon market activities (e.g., claims that can be made via the purchase of voluntary credits) and invest in data and information required for investment in nature markets.

Niue Ocean Conservation Commitments (Voluntary contribution)

Overview: *The Government of Niue created the Ocean Conservation Commitments (OCC) programme as a Public-Private Partnership with the Niue and Ocean Wide (NOW) Trust, a charitable trust under New Zealand law. The OCC programme is an innovative financing framework to drive investment into conserving the country's marine ecosystems.*

One OCC is equal to sponsorship of 1 km^2 of the ocean waters around Niue. The price of one OCC has been calculated as the cost and value of conserving the 1 km^2 over 20 years. Sponsors receive a certificate recognising their contribution. Funds are deposited into a trust endowment for ocean conservation and/or used to support conservation and restoration projects directly. To date, individuals comprise the majority of sponsors. Sponsors are primarily from Germany, Niue and the United States (**Niue Oceanwide 2025**).

The government is clear that OCCs are not offsets, tradeable products, guarantees of specific impacts, legal ownership documents, or financial products that provide returns (**Niue Oceanwide 2022**).

Paraná State Biodiversity Credit Programme (Voluntary contribution)

Overview: *Paraná State in Brazil is piloting a voluntary biodiversity credit programme through a partnership between the state government and BRDE (Banco Regional de Desenvolvimento do Extremo Sul). The programme focuses on "Private Reserves of Natural Heritage" (RPPNs), private lands that are converted to protected areas recognised by the state government, due to voluntary action in the majority of cases. The government hopes to expand the programme to other private and public lands based on the pilot programme's outcomes.*

The state government envisions the voluntary Biodiversity Credit Programme as a financial mechanism to incentivise greater biodiversity protection. The programme is part of a diverse array of actions that the government is already implementing, including payments to municipalities for ecosystem services (**ICMS Ecológico**) and a Green Bank Initiative. To support the Biodiversity Credit Programme, the government enacted a state-wide biodiversity credit policy (**SEDEST Resolution 53**) in October 2024, which conferred regulatory authority for administering the programme onto the State Secretariat for Sustainable Development (SEDEST), including determining all aspects of the framework, such as legal procedures and technical criteria for quantification of biodiversity credits.

The pilot is focused on i) recognising landowners who have already protected their lands within RPPNs and ii) incentivising them to undertake further biodiversity restoration activities on protected areas under their control. Following the release of a public notice, inviting landowners to participate in the programme, the government is now in the process of selecting proposals. Credits will be generated in the first year based on the government's evaluation of the existing biodiversity resources in the protected areas. In the second year, credits will be generated based on restoration and conservation activities that landowners complete (e.g., invasive species removal) following an action plan developed in collaboration with the government. Credit prices in the second year will be higher if the owners have implemented the defined actions.

The government will support the certification of areas in the first year, identify activities that could improve on-site biodiversity, and develop restoration action plans. The government is providing seed funding for implementing activities to prepare for certification and is also paying for the audit which landowners must complete in order to obtain certification. The government has also established an online platform (**Banco Verde**) which allows project owners to register and investors to search for projects – including but not limited to biodiversity credits – to support their compliance or voluntary purposes.

3.2. Shared governance

Brazil CRA (Compliance compensation)

Overview: *Brazil is commencing activity under its Forest Code regulation that requires forest conservation levels across the country and allows landowners with surplus conservation to sell credits to landowners who require additional conservation.*

Brazil has regulated conservation on private forest lands for almost 100 years. The Forest Code was established in 1936, with the most recent iteration released in 2012. A 1965 revision created two categories of forest reserve on private lands: (1) Permanent Preservation Areas (PPAs) and (2) Legal Reserve Areas (LRAs). PPAs are areas deemed critical to ecosystem services e.g., riparian corridors, while LRAs are native forest areas that protect natural habitats and must be conserved according to legally mandated percentages. Landholdings exceeding the proportion of required conserved forest area in LRAs have a "forest surplus", while those under the proportion have a "forest debt". Landowners with forest debt are required to restore forest until they meet or exceed the required amount.

The 2012 Forest Code (Native Vegetation Protection Law) and subsequent regulations under the Code set out a framework for landowners to meet their compensation requirements, either by (1) restoring LRAs on their own property or (2) offsetting an equivalent area in the same biome. Offsetting can occur in a range of ways: by purchasing a Forest Reserve Credit through the Environmental Reserve Quota (CRA) system; leasing another property; or purchasing or donating land within conserved areas to the government. Compensation outside of the state in which the property is located requires offsetting in Priority Conservation Areas as established by the Ministry of Environment (MoE).

A **2018 decree** by the federal government established regulation for the CRA. The CRA is a market-based compensation mechanism that allows landowners with forest debt to purchase the forest surplus as Forest Reserve Credits on other landholdings. Regulations for the CRA are federal, with implementation conducted at the state level. Landowners of rural properties who want to create CRAs must have registered their property in the CAR, the Rural Environmental Registry, an online database created in the 2012 Forest Code and administered by the MoE. Rural landowners are required to register their properties in this system, which permits the MoE to assess forest debts and other environmental conditions. The competent environmental authority in the state is responsible for regulating the Forest Reserve Credits, including estimating forest debts, issuing credits, and keeping a ledger where credits and debits are balanced.

A 2016 study estimated the potential size of the CRA market as worth around USD $10 billion, making it potentially the largest forest trading market globally (**Soares-Filho 2016**).

Colombia Habitat Banks (Compliance compensation & voluntary contribution)

Overview: *The Colombian government has facilitated the development of habitat banks to meet the offset obligations of developers with environmental licences and offset requirements. Habitat banks are regulated via guidance within the Compensation Manual of the Biotic Component.*

The Government of Colombia's framework for environmental compensation has been in law for several decades. Law 9915 in 1993 established mandatory environmental licences for development projects and required that project developers with impacts and reliance on water sources pay at least 1% of the value of their investment towards watershed restoration and conservation activities. In 2008, the Colombian Ministry of Environment and Sustainable Development released the "Compensation Manual of the Biotic Component" that provided detailed guidance on compensatory requirements. The Manual incorporated the principles of no net loss, the mitigation hierarchy, additionality, and methods to calculate credit values. Further laws between 2012 and 2017 have clarified environmental offset rules and the role of habitat banks, including Decree 2099 in 2016 that formally recognised habitat banks as a source for compensation, and Resolution 1051 in 2017, which provided regulations for habitat banks. The 2018 update of the Manual formally recognised habitat banks as one instrument that developers with environmental licences could use to meet offset requirements.

Developers with offset requirements can conduct permittee-responsible mitigation on their own or can purchase credits from habitat banks. Credits in the Colombian system are called "*cupos*" and reflect one ha of an ecosystem type that is conserved, enhanced or restored through a habitat bank. Developers are required to conduct ecosystem-specific compensation to achieve no net loss at a 1:1 ha for ha offset by ecosystem type (like-for-like). A compensation factor is also applied as a multiplier to reflect the ecological value of a habitat, resulting in impacts to more ecologically valuable areas requiring compensation greater than the 1:1 ratio. The minimum duration for a *cupo* is 20 years.

A two-step process exists for approval and sale of credits from habitat banks. The Ministry of Environment and Sustainable Development approves the establishment and operation of habitat banks upon submission of habitat bank applications, while the National Environmental Licensing Authority (ANLA) approves the use of offsets generated by banks for compensation actions.

Habitat banks can sell to both the compliance offset market and the voluntary market. As of 2023, 18 habitat banks had been registered in Colombia by five entities and ranged in size from 125 ha to over 1,500 ha. The Government of Colombia has also taken action to clamp down on unexecuted offsets; Law 2327 in 2023 established an Environmental Liabilities Information System and a National Committee for Environmental Liabilities Management. Unexecuted offsets in Colombia – offset obligations that have not been implemented – were estimated by one study to be worth USD $1.62 billion in 2022, primarily from the hydrocarbon, mining and energy sectors (**UNDP 2023**).

England Biodiversity Net Gain (Compliance compensation)

Overview: *Biodiversity Net Gain (BNG) is a compliance compensation framework established through legislation in England, which includes a net gain addition of 10% on compensation requirements.*

According to the UK Government, "BNG is an approach to development. It makes sure that habitats for wildlife are left in a measurably better state than they were before the development". BNG was established in the 2021 Environment Act for new developments in England. The framework applies to small sites (residential <10 dwellings, <0.5 ha; commercial <1,000 m^2 or <1 ha) as well as major developments (10+ dwellings, sites >0.5 ha, etc.).

Developers have three ways in which to comply with BNG requirements: (1) mitigation of impacts and creation of biodiversity on-site; (2) a combination of on-site and off-site, including the purchase of biodiversity units; or (3) purchase of statutory biodiversity credits from the government. BNG has a biodiversity gain hierarchy with a preference for compensation in the order presented (on-site, a mix, statutory credits). Local planning authorities receive applications from developers with details on how BNG compliance will be achieved. Local authorities can only approve permits and allow development to proceed when the BNG plan has been approved.

The BNG metric is a standardised biodiversity unit (BU) that reflects the size, location, quality and type of habitat that is impacted. Net gain requires offsetting for the difference in the BU score on the project site before and after the development, plus an additional 10% of BUs. Biodiversity gains can be achieved through creation or enhancement of habitat and must be maintained for 30 years either through conservation covenants or planning obligations. The UK Government maintains online guidance on how to implement BNG and a Biodiversity Net Gain Register hosted by Natural England which tracks off-site gains and statutory credits.

To date roughly 125 BNG sites are registered in the Net Gain Register. In addition, at the time of this report's publication, two separate public consultations were underway on the BNG framework. These explore (1) potentially easing BNG requirements for minor developments and (2) bringing nationally significant infrastructure projects into the mandatory BNG framework. The first consultation is considering whether small sites (up to nine homes) and medium sites (between 10 and 49 homes) should have relaxed BNG requirements. The UK Government is also considering the role of a **Nature Restoration Fund** that would be in addition to BNG requirements. Where BNG is intended to be delivered primarily on-site within developments (with the possible purchase of off-site biodiversity units), the Nature Restoration Fund would enable development in areas where it has stalled due to environmental requirements through facilitating positive environmental activities at the watershed or landscape scale outside of development sites.

Finland Voluntary Ecological Compensation (Voluntary compensation)

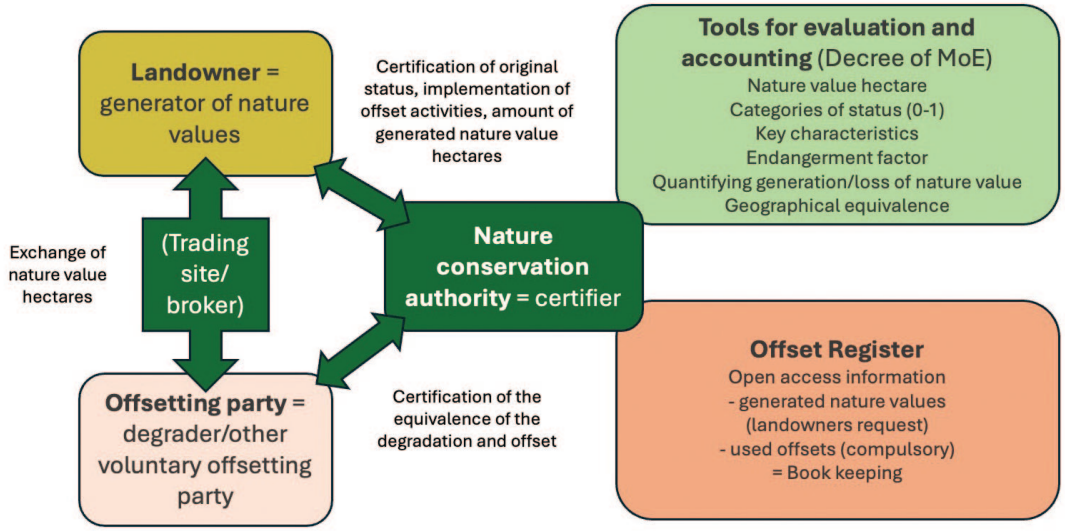
Overview: *In 2023, Finland established a voluntary ecological compensation framework under the Nature Conservation Act and a 2023 Ministry of Environment Decree. The Ministry's 2024 guidance operationalises the framework. The framework targets habitat types and species' habitats. The voluntary ecological compensation framework supports Finland's biodiversity objectives and is consistent with EU-level biodiversity ambitions. This system creates mitigation in advance of compensation that can be created by third-parties and purchased by project proponents to offset human activities that harm nature.*

In 2023, the Finnish government amended its **Nature Conservation Act** (NCA). Chapter 11 of the revised NCA included voluntary ecological compensation to offset development activities and other human activities that harm nature. Compliance offsetting is only required for projects that impact Natura 2000 network sites (protected areas under the EU's Habitats Directive). The Act also established a Finnish Nature Panel tasked with "producing, compiling and analysing scientific information for planning, implementation, monitoring and decision-making concerning policy measures relating to biodiversity". The September 2023 **Decree of the MoE on Voluntary Ecological Compensation** further detailed compensation requirements. It defined a "natural value hectare" as the hectares of natural value in an area (quantity) multiplied by its natural value state (quality). Natural values are assigned in tenths from 0 (no natural value left) to 1 (area is representative of a natural state). Multipliers are applied when habitat types or species that are critically endangered are present.

In 2024, the Ministry of Environment released the **Voluntary Ecological Offsetting Guidance Document**. This guidance further details how the voluntary ecological offsetting framework will work and how private landowners can generate natural values usable in the offset market. In this guidance, the government set out a methodology to assess natural value creation and deterioration, and a process through which the transactions will be approved by the competent authority and recorded in an authority-hosted registry. The Act requires that offsets are carried out in the same habitat type as the natural value degraded.

The voluntary offsetting framework is guided by national law and guidance but implemented and administered through regional nature conservation authorities. Market functions are carried out by third-parties. It is possible that in the future verification would be transferred to accredited third-parties in case the legislator regards it as suitable. The local nature conservation authorities maintain an offset register for projects using a uniform database across the country. Currently, five projects have been approved by the competent authority, with more projects in the pre-planning phase. The government has legislation in progress to include voluntary contributions to the existing framework, where implementation would be identical, but credits would be retired for contribution specifically.

Figure 5: Components of Voluntary Ecological Offsetting



Source: Ministry of Environment 2024, Voluntary Ecological Offsetting Guidance Document

France SNCRR (Compliance compensation & voluntary contribution)

Overview: *In 2023, France introduced a new habitat banking legal framework to encourage development of banks that can generate and sell credits to voluntary and compliance buyers. The SNCRR (Natural Compensation, Restoration and Renaturation Sites) framework is decentralised, with national environmental code rules implemented through regional prefects. Credits generated for either the voluntary or compliance markets are available upon bank approval and are certified by the state for environmental offsets or claims.*

In 2012, the national government led a wide-ranging consultation process on the environment, known as the *Grenelle de l'Environnement*, which strengthened the mitigation of environmental impacts. The process resulted in a National Doctrine in 2012 and guidelines for implementation of the mitigation hierarchy released by the Ministry of Sustainable Development in October 2013 (General Commission for Sustainable Development 2014). Under this legal framework, compensation is mandatory for residual adverse impacts from project development. Compensation must also be based on ecological equivalence (like-for-like) at sites close to the impact site.

In 2016, under the Law for the Re-establishment of Biodiversity, Nature and Landscapes, the Environment Code was updated to include no net loss provisions. A new legal tool was also created to allow landowners to "create sustainable land protection obligations on this land", thereby permitting the use of offsets from habitat banks (called *sites naturels de compensation* or SNCs) for compliance purposes, though developers with offset obligations may still undertake permittee-responsible mitigation measures as an alternative. Pursuant to the 2016 law, a pilot habitat bank (the 357 ha Cossure Bank developed by CDC Biodiversité) was enabled to sell offsets into the compliance market. This bank is now fully obligated.

In 2023, France implemented the **Green Industry Law** which amended the country's Environment Code to revise aspects of the existing compliance framework and introduce a new voluntary biodiversity credit framework. The law created Natural Compensation, Restoration and Renaturation Sites (SNCRR) in a "supply-side approach" that "has the advantage of allowing for the pooling and anticipation of measures on a larger scale. It contributes to greater ecological efficiency and is part of an ecological planning approach in the territories". Under this law, SNCRRs are authorised to provide offsets for ecological compensation as well as voluntary biodiversity credits. Developers requiring offsets have the option to conduct permittee-responsible mitigation or to purchase credits from an SNCRR site.

In the SNCRR model, regional government bodies (regional prefects) are largely responsible for administering the programme. Local authorities can also implement SNCRRs and use them for their own ecological compensation requirements. Regional prefects receive applications for SNCRRs and develop opinions on approval of proposed sites together with an independent scientific board opinion. Monitoring of SNCRR sites is conducted by local monitoring committees established and chaired by the regional prefect. If the credits generated at these sites are used as offsets, a different government agency assesses the equivalency and number of credits required. The registry of sales from the site is kept by the SNCRR owner and reported annually to the local monitoring committee chaired by the regional prefect. Credits generated for either the voluntary or compliance markets are certified by the state for environmental offsets or claims.

Germany Habitat Banks (Compliance compensation)

Overview: *Germany adopted the Impact Mitigation Regulation (IMR) as part of the 1976* ***Federal Nature Conservation Act (FNCA)****. The IMR requires mitigation of impacts across a broad range of biodiversity, ecosystem services and functions, although impacts from the agriculture, fishery and forestry sectors are exempt.*

The IMR requires the mitigation hierarchy, no net loss, and like-for-like compensation. In 2002 and 2009, the compensation rules were expanded to allow for the ex-ante production of compensation credits (called "eco-points") through habitat banks ("compensation pools"/"eco-accounts") and like-for-like requirements were relaxed. However, compensation must occur in the same bio-geographic region as the impacts to nature. The IMR sets broad legal requirements at the national level. Germany's federal system gives the sixteen states broad jurisdiction over implementation of the law as well as authority to develop their own nature protection laws. For this reason, states set their own compensation requirements, assessment methods and metrics, which vary widely with at least 40 different approaches.[3] The Federal Association of Land Agencies (BFAD) has also introduced voluntary standards for compensation pools to abide by, including a requirement for securing outcomes in compensation pools for at least 25-30 years and clear documentation of baselines used to estimate gains.

One study estimated the total value of Germany's compensation market to be worth EUR €2.5 billion (**IEEP 2022**).

Jiangxi Province Wetland Mitigation Banking (Compliance compensation)

Overview: *In China, Jiangxi Province launched wetland mitigation banking in 2021 in seven of its counties to implement no net loss policy as contained in the Wetland Protection and Restoration System Plan, a national document released by the General Office of the State Council.[4] The Wetland Protection Law codified wetland protection in national law in 2022 and states support for market-based mechanisms.*

The initiative aims to facilitate the transformation of ecological value into economic value, promote modernisation of wetland governance, and create a win-win situation for ecological protection and socio-economic development. According to the Pilot Implementation Plan, its phased objectives are: i) to establish the information management platform and wetland resource database, develop the technical system and launch pilots in seven counties; ii) gradually improve operational mechanisms and supporting systems; and iii) form a mature model for wetland protection and restoration, making wetland conservation a new focus in green finance.

It aims to establish a province-wide wetland resource database, with defined control targets at provincial, municipal and county levels, and implement a dynamic adjustment and performance evaluation system to ensure no net loss of wetland areas. It will also establish management institutions in pilot counties, build a unified digital platform, and ensure transparent registration, accounting and trading of wetland balance indicators. By 2024, transactions under the programme reached USD $16.7 million.[5]

[3] Darbi and Tausch, 2010.
[4] http://ly.jiangxi.gov.cn/jxslyj/col/col5240/content/content_1864234945742077952.html.
[5] http://www.jx.xinhuanet.com/20240728/a231d7f31bd7441fbf5c90e4eaca7a52/c.html.

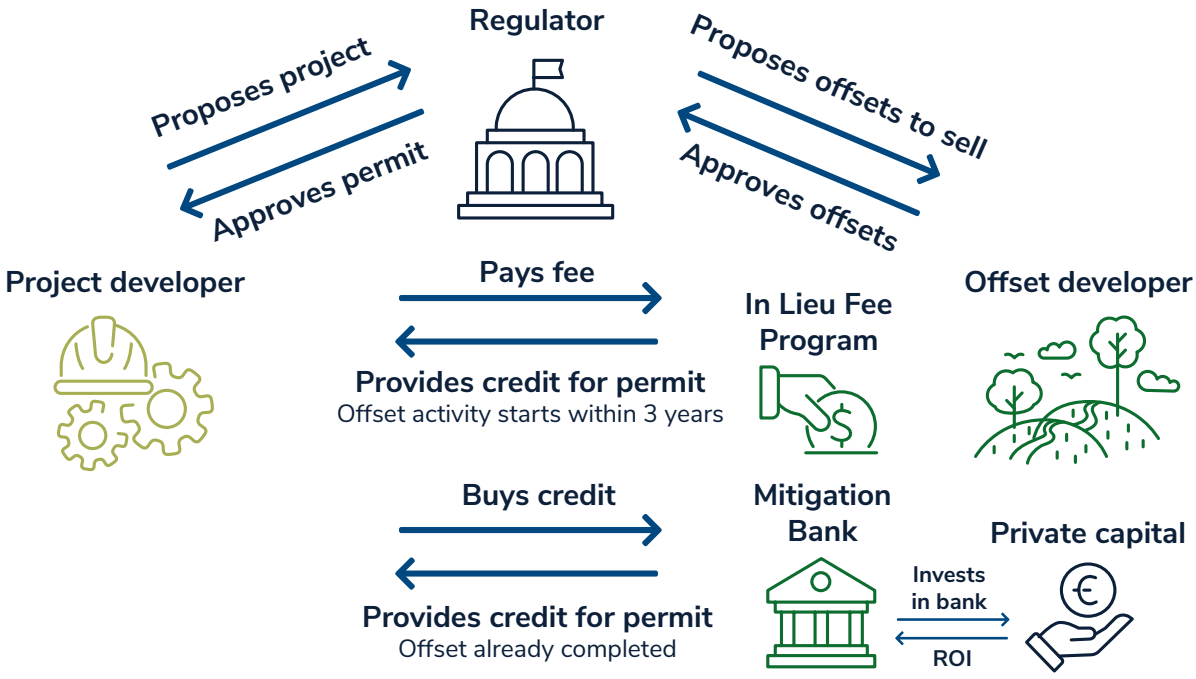
US Stream/Wetland Mitigation Banking & Conservation Banking (Compliance compensation)

Overview: *The US Government takes an enabling and regulatory role in the compliance frameworks for streams/wetlands and species credits. Detailed regulation and policy are accompanied by strict enforcement of offset requirements, regulatory preference and detailed verification of mitigation banks by the US Army Corps of Engineers and the US Fish and Wildlife Service. The government also manages a transparent online registry of available offsets and transactions. Other aspects of market implementation are handled by the private sector.*

The US has multiple operational nature credit markets, of which the largest by transaction volume are for streams and wetlands under the federal 1972 Clean Water Act (CWA) and species under the federal 1973 Endangered Species Act (ESA). Together, these markets reflect sales of USD $3.6 billion per year.

Within these markets, the government allows three kinds of mitigation to achieve no net loss to address adverse impacts on ecosystems and species: (1) developers may implement offsets on their own land or through a third-party (permittee-responsible mitigation); (2) purchase of an offset from a mitigation bank; and (3) paying a fee to an in-lieu fee (ILF)/compensation fund run by a government agency or non-profit. About 75% of offsets in the US are provided by mitigation banks (Green Finance Institute 2024). While the mitigation banking market began with individual banks and investments through savings, today mitigation banks are developed by private equity firms, privately held companies, and non-profit organisations.

Figure 6: US Mitigation Banking Framework



Source: Green Finance Institute 2024

While the government provides a regulatory framework and oversight, intensive verification processes for mitigation banks, and an offset registry, most other aspects of credit market activity are conducted by the private sector.[6] The regulator (USACE for stream/wetland impacts and USFWS for species impacts) reviews permit applications for development projects that state how they will avoid and minimise impacts and requires offsets where impacts remain after these measures have been taken. The regulator approves private mitigation banks following strict criteria for information, financial assurance, protection in perpetuity, and long-term endowments.[7] Where offsets are required, private sector actors (project developers and mitigation banks) then develop legal agreements and transact offsets, which is estimated to happen 50% faster than permittee-responsible offsetting (**Hough and Harrington 2019**).

The US markets rely on the foundational enabling federal legislation of the CWA and ESA, as well as multiple other factors including the adoption of no net loss (adopted for the CWA in 1990 and for the ESA in 2023), adoption of the mitigation hierarchy (in 1981 and updated in 2008 for streams/wetlands and in 2023 for species), a formal regulatory preference for mitigation banking and equivalent standards across compensation options (on-site, off-site/mitigation bank, or ILF) that have been detailed in subsequent rulemaking, and transfer of legal liability from the permit holder to the mitigation bank or ILF.

Victoria Native Vegetation Credits (Compliance compensation)

Overview: *The Australian state of Victoria has one of the oldest biodiversity offsetting frameworks globally, a native vegetation compliance compensation policy framework focused on no net loss of native vegetation that was introduced in 2002. This framework allows for the purchase of native vegetation credits to meet compensation requirements and stems from the high levels of native vegetation clearing that have historically occurred in the state (~80% on private land since 1750) (***Victorian Auditor-General's Report 2022***).*

Victoria's native vegetation compliance compensation policy, administered by the state government's Department of Energy, Environment and Climate Action (DEECA), requires no net loss of native vegetation and application of the mitigation hierarchy, which were underscored by recent (2017) amendments to the Victoria Planning Provisions (**Victoria State Government, Amendment VC138 2017**) that included guidelines for native vegetation removal and compensation requirements (**Victoria State Government 2017**). The guidelines require the application of the mitigation hierarchy and compensation for residual impacts. Planning applications to remove native vegetation must be accompanied by information on how the biodiversity values of the removal will be offset. General offsets (i.e., removals that do not impact threatened species) or species-specific offsets (i.e., removals that impact threatened species) may be required, depending on the results of the biodiversity value assessment of the removal. Offsets must be located in the same municipal district or Catchment Management Authority

[6] The offset registry is called the Regulatory In-lieu Fee and Bank Information Tracking System (RIBITS).

[7] Mitigation plans for mitigation banks, ILF projects, or permittee-responsible projects are required to have the following information: objectives, site selection factors, site protection instrument, baseline information, credit determination, work plan, maintenance plan, performance standards, monitoring requirements, financial assurances, long-term management plan, and an adaptive management plan. Source: 40 C.F.R. §230.94(c)(2)-(14) (2018); 33 C.F.R. §332.4(c)(2)-(14) (2018) as cited in **Hough and Harrington 2019**.

boundary as the native vegetation that will be removed. Entities removing native vegetation can implement the offset requirement on their own or purchase credits from a third-party provider.

Native vegetation credits can be generated by third-parties at offset sites. Standards for offset sites were developed by the government in 2025 (**Victoria State Government 2025**). These standards state that offset sites need to provide permanent protection and management of native vegetation. Offset sites are formalised through Security Agreements entered into and signed between a statutory body (a local council, DEECA, or the Trust for Nature) and the landowner establishing the offset site. A management plan for the offset site is required that details management actions that will be employed over a required 10-year management period. DEECA maintains a **Native Vegetation Credit Register** that tracks offsets generated.

At the time of a recent (2022) audit, 386 offset sites were in place across the state covering a total of 19,000 hectares. These sites were primarily third-party sites (366) and generated over 5,000 credits for sale.

3.3. Centralised governance

Australia Nature Repair Market (Voluntary contribution)

Overview: *The Nature Repair Market (NRM) is Australia's government-led and administered voluntary nature credit market. The framework has been linked to the existing carbon market infrastructure in Australia and will release distinct methodologies over time for biodiversity credit projects.*

The NRM was legislated through the **2023 Nature Repair Act**. The Act is a detailed roadmap for how the NRM will be administered, with details on how eligible participants can get involved. In 2024, Australia's Department of Climate Change, Energy, the Environment, and Water (DCCEEW) released the **Nature Repair Rules**, a legislative document detailing the requirements that participants of the market must follow relating to registering projects, reporting and audits. In 2025, the government legislated the **Nature Repair (Biodiversity Assessment) Instrument** (BAI), which details methods for data collection and measurement to ensure consistency and comparability. The BAI was developed in collaboration with a **Biodiversity Assessment Expert Reference Group** that included First Nations representatives.

The NRM has leveraged the market infrastructure and capacities developed for the country's voluntary and compliance carbon markets, known as the Australian Carbon Credits Unit (ACCU) framework. Both frameworks are administered by the same regulator, the Clean Energy Regulator. The NRM aligns with the ACCU framework and allows proponents to develop projects that can earn both biodiversity certificates and ACCUs when they meet the requirements of both the "Replanting native forest and woodland ecosystems" methodology and an ACCU methodology.

The NRM releases certificates for projects that are approved and registered under specific methodologies. The project developer can choose to sell or hold the certificate, or deposit the certificate with the Clean Energy Regulator. In March 2025, the NRM released its first methodology for **replanting native forest and woodland ecosystems** on historically cleared landscapes. This methodology and the biodiversity outcomes it produces (the extent and condition of native vegetation) can be stacked with an ACCU carbon credit project for the carbon sequestered in wood vegetation and debris. Two separate applications for the same project are required for credits from the NRM and ACCU markets as they have different requirements. With the launch of the first NRM project, the government established the **Biodiversity Market Register**, an online platform where buyers and other stakeholders can view detailed information about registered projects.

A brief overview of government agencies' roles and responsibilities under the NRM is shown below (**DCCEEW 2025**).

Government agency	Key responsibilities
Department of Climate Change, Energy, the Environment, and Water (DCCEEW)	• Nature Repair Market legislation • Development of methodologies in collaboration with experts and stakeholders • Development of Ecological Knowledge System • Provision of information and tools for/about the market
Clean Energy Regulator	• Administration of the Nature Repair Market • Registration of projects • Maintenance of the project register • Assessment and verification of project reports • Issuance of biodiversity certificates
Nature Repair Committee	• Independent advisory board appointed by the Minister for the Environment and Water • Expert advice and review of methodologies
Biodiversity Assessment Expert Reference Group	• Supports DCCEEW in developing the science and knowledge that underpins the NRM, including the Biodiversity Assessment Instrument

In designing its voluntary nature credit market approach, the Australian government has leveraged the experiences of existing nature markets in the country at both the subnational (New South Wales, Victoria) and national (mandatory compensation for matters of national environmental significance under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)) levels.

India Green Credit Programme (Compliance compensation & voluntary contribution)

Overview: *This state-run programme aims to attract private capital to restore degraded state forest lands for compliance or voluntary purposes. Green credits are generated when compliance actors exceed compensation requirements, or when voluntary actors invest. The state selects the degraded parcels for inclusion in the programme, thereby creating a variant of a "land bank" for restoration projects. Private project developers pay for restoration and maintenance on the sites for 10 years and earn credits after 40% canopy has been achieved and it has been at least 5 years since planting.*

The Green Credit Programme (GCP), initiated in 2023 by the Indian government's Ministry of Environment, Forest and Climate Change (MoEFCC), is a mechanism designed to provide compliance and voluntary restoration options and opportunities across a range of sectors. The programme was developed in part to provide project opportunities for companies of certain sizes, who under the country's 2013 Companies Act are required to invest 2% of profits in corporate social responsibility sectors such as environment, health, and education. To date, MoEFCC has only issued detailed guidelines for tree planting in degraded forest areas, but the programme may expand to include water conservation, sustainable agriculture, and biodiversity. The replanting programme is administered by the Indian Council of Forestry Research and Education (ICFRE), a body within the Ministry.

The Government of India has stated that the objectives of the GCP are (1) to establish a land bank platform that allows State Forest Departments to register degraded forest lands under their jurisdiction and (2) to encourage a wide spectrum of stakeholders (public sector, NGOs, private companies, philanthropies, and individuals or groups of individuals) to select plantation blocks from the land bank platform and implement planting projects.

At the national level, ICFRE develops methodologies to calculate green credits, issues green credits that follow the prescribed methodologies and standards, and manages a web-based online trading platform where credits can be traded. At the state level, the Forest Departments/Forest Development Corporations coordinate and monitor the restoration of degraded forest lands. At the district level, the Divisional Forest Officer/Deputy Conservator of Forests facilitates the activities of the Green Credit Applicant (GCA) i.e., the project developer. The programme states that any person or entity can generate credits.

The district Forest Departments select parcels of land greater than 5 hectares that are "under the control and management" of the Forest Departments of the States and Union Territories (UTs) and that are "degraded" and "suitable for restoration". The Forest Departments upload the parcels to the centralised system, which are then verified by the state Forest Departments. Protected areas are not eligible for the programme. Once approved, the land parcels are available for GCAs to select for restoration. Restoration activities can include "soil and moisture conservation measures, fencing, assisting natural regeneration, removal of invasive alien species, fire prevention, temporary nurseries, etc." Only native species can be planted.

The online GCP platform currently has over 20,000 hectares registered for eco-restoration, primarily in the state of Madhya Pradesh. Roughly half of these (11,000 hectares) have been selected for projects. The portal also shows the entities that have already selected blocks, including large energy and industrial companies operating in the country, such as Indian Oil and the Power Grid Corporation of India.

Once the project is at least 5 years post-planting and the tree canopy is at least 40%, GCAs apply to the Forest Departments for green credits issuance. One green credit is given for each new tree greater than 5 years old within a project that has a canopy density exceeding 40%. The green credits can be exchanged once. This can be done to (1) meet compensatory afforestation compliance requirements for converting forest to non-forest land under the Van (Sanrakshan Evam Samvardhan) Adhiniyam 1980 law, (2) meet corporate social responsibility or ESG requirements, and (3) meet other rules that require planting trees. The credits cannot be used more than once and cannot be transferred except between a holding company and its subsidiaries.

New South Wales Biodiversity Offsets Scheme (Compliance compensation)

Overview: *In New South Wales, the subnational government is supporting the transition from a voluntary compensation to a compliance compensation framework, known as the Biodiversity Offsets Scheme (BOS), which allows credits to be used to compensate for residual impacts. The BOS reflects substantial government involvement in design, regulation and administration of the compensation framework.*

The state of New South Wales in Australia established a voluntary compensation framework through the Threatened Species Conservation Act in 1995. This framework involved assessment of impacts on biodiversity at development sites and gains at compensation sites through the BioBanking Assessment Method, which generated BioBanking credits to offset impacts.

The New South Wales government subsequently introduced a further suite of law, regulation and strategy to combat nature loss. The Biodiversity Conservation Act 2016 and the Biodiversity Conservation Regulation 2017 replaced BioBanking with a mandatory Biodiversity Offsets Scheme (BOS). The BOS system follows the mitigation hierarchy and no net loss principle. Developers with compensation requirements can either pay into the Biodiversity Conservation Fund (administered by the Biodiversity Conservation Trust as an in-lieu fee programme through which it secures required offsets on behalf of the project developer) or purchase credits.

Two types of credits are recognised under the BOS: (1) ecosystem credits, which measure ecosystems, specifically threatened ecological communities and threatened species' habitats and (2) species credits, which measure the threatened species found at a location. Credit generation is determined by the baseline biodiversity condition of the site and the management actions conducted on it. Landowners can generate both types of credits.

Key aspects of this framework include:

- The **2018 Biodiversity Conservation Investment Strategy** sets social, environmental, and economic targets for 5-20 years and prioritises private lands for investments in conservation.
- The New South Wales government committed funding (over AUD $350 million) for five years to fund the **Biodiversity Conservation Trust** to implement conservation on private lands.
- The New South Wales government supported development of a **Biodiversity Values Map** to identify areas that trigger the BOS. Areas of Outstanding Biodiversity Value are included in the map.
- The state government supports development of credits through accrediting and publishing information on assessors; providing the **Biodiversity Assessment Method**, a consistent and standardised methodology for assessing impacts and credits for biodiversity that assessors must follow; and establishing Biodiversity Stewardship Agreements under the 2016 Biodiversity Conservation Act (i.e., legal agreements between landowners and the government that specify the area of land the agreement applies to, the number and type(s) of biodiversity credits created, the payment schedule, and the management plan).
- The Biodiversity Stewardship Payments Fund and **Total Fund Deposit** are requirements under the BOS to ensure that management actions lead to biodiversity gains reflected in the credits issued. The instrument functions as a long-term endowment to ensure biodiversity gains on credit sites.
- The New South Wales government allocated over AUD $100 million to establish the **Biodiversity Credits Supply Fund**, a revolving fund housed in the Department of Climate Change, Energy, the Environment, and Water (DCCEEW).[8] Through the Fund, the government purchases credits based on forecasted demand from infrastructure development and other projects that meet BOS thresholds and then sells the credits to project proponents who need them. Through providing a guaranteed source of purchase for credits, the Fund seeks to derisk credit supply and encourage more landowners to develop credit projects on their properties.
- The state government hosts **public registries** that provide information on credit supply, demand, transactions and retirements, and prices. A public register for Accredited Assessors is also available.
- In 2024, the New South Wales government passed the **Biodiversity Conservation Amendment (Biodiversity Offsets Scheme) Act 2024** which required the BOS to achieve net gain and strengthened the mitigation hierarchy by including it in the Act.

The Government of New South Wales estimated growth in the total value of BOS credit trades from AUD $63 million in 2021-22 to AUD $105.1 million in 2022-23 (**NSW Government 2024**).

[8] In a revolving fund, proceeds are cycled back into the fund to be made available for future investments/loans.

SANParks Biodiversity Offset Bank (Compliance compensation & voluntary contribution)

Overview: *South Africa's SANParks Biodiversity Offset Bank is the first bank established under the government's 2023 National Biodiversity Offset Guideline. Under this model, South African National Parks, an organisation that manages South Africa's national parks and operates as part of the Department of Forestry, Fisheries and the Environment (DFFE), is pre-acquiring land around existing national parks and generating credits that reflect land management activities and additional land protection. SANParks both provides the land on which the credit is generated and sells the credit to potential buyers.*

In June 2023, the South African government's Department of Forestry, Fisheries and the Environment released the **National Biodiversity Offset Guideline** under section 24J of the **National Environment Management Act (NEMA) of 1998**. The Guideline built upon and provided guidance additional to the **Environmental Impact Assessment (EIA) regulations** released in 2014. The National Biodiversity Offset Guideline establishes how offsets are assessed, designed, implemented and regulated through the competent authority. It explicitly recognises that offsets may be delivered through "third-party implementation mechanisms" including through "biodiversity offset banks". The Offset Guideline focuses on ecosystems as the primary unit for offset requirements to align with EIA regulations. Offset implementation is guided by an ecosystem classification system, a classification for threats to ecosystems, and specific ecosystem protection targets.

The Guideline requires a Biodiversity Offset Implementation Agreement, a legally binding agreement between the holder of an environmental authorisation and a third-party or parties who implement the offset. The Guideline is not legally binding but rather must be considered as part of the process that the competent authority follows to grant permits ("environmental authorisation") to project developers with impacts that require compensation.

The SANParks Biodiversity Offset Bank is the first operational mechanism under the Offset Guideline. Credits generated by the Bank reflect 1 ha of an ecosystem type protected for 30 years and aim to expand South Africa's National Parks system according to the SANParks expansion plan. In determining which parcels to acquire for offset purposes, SANParks conducts a strategic assessment of ecosystems with development pressures now or in the future and where developers may require offsets.

The Biodiversity Offset Bank is designed to sell to both the compliance and voluntary markets, though how this operates in the latter case is yet to be determined. The Bank maintains an internal ledger to record credit transactions.

3.4. Emerging initiatives

A selection of "emerging initiatives" is shown below, to give an indication of broader government-led activities to establish or pilot nature credit frameworks. While we have sought to provide a comprehensive mapping of emerging approaches, it does not purport to be exhaustive. We look forward to further consultation in the coming months with a diversity of actors to understand more about the schemes listed here, as well as others for which detailed information was not available or which we were not able to locate within the timeframe of this project.

Argentina

A pilot is underway in Misiones Province in which the provincial government is exploring methods to bring more funding to conservation and restoration of the Atlantic Forest. Implementation of nature credit projects at the subnational level in Argentina stems from the high level of jurisdictional control that provinces in the country have over natural resource management. Misiones Province, in particular, has a number of enabling factors including sustained political support for environmental conservation and prior experience with climate finance through REDD+. Integrating biodiversity credits into carbon projects is one area of research within the pilot. Further activities include the establishment of monitoring, reporting and verification (MRV) methodologies, legal assurances, and high integrity principles for social and environmental outcomes.

Chile

In March 2025, the Chilean government published its Business Action Plan on Biodiversity, the first of its kind in Latin America. This collaborative effort between the Government of Chile and the business community seeks to guide companies in incorporating biodiversity into their operations and support the country to achieve its biodiversity targets. In October 2025, the Government of Chile approved a framework for a voluntary biodiversity credit programme in the country.

European Union (EU)

In 2024, the EU established the Nature Restoration Regulation, a part of the EU's Biodiversity Strategy for 2030. The Regulation sets binding targets for pollinator species and ecosystems and requires EU member states to develop and submit National Restoration Plans detailing the activities they will undertake to meet those targets. Each member state is required to contribute to restoration of at least 20% of degraded land by 2030, with increasing requirements for restoration of habitats from 2030 to 2050.

These legal requirements have spearheaded action among member states, including the EU's release of its Roadmap towards Nature Credits, which aims to support the development of voluntary nature credit markets in line with high integrity principles. The Roadmap is currently in the public consultation phase. The EU is establishing an expert group to guide the development of the Roadmap and EU pilots are now underway in Estonia, France and Peru.

France

In France, two regional governments (Grand-Est and Auvergne-Rhône-Alpes) are collaborating with public and private partners to design a local voluntary framework for biodiversity credits. The project's objective is to design an operational framework that could inform a regional voluntary contribution biodiversity credit mechanism in 2027. Current activities include developing methods for estimating biodiversity gains. A pilot will be implemented in 2026 to determine the operational framework and to conduct stakeholder training and capacity building. The pilot is intentionally exploring potential synergies with the SNCRR framework.

Guyana

Guyana's Environmental Protection Agency announced a biodiversity credit framework in the Rupununi region at the 2025 Global Biodiversity Alliance Summit held in Georgetown.[9] Through this initiative, Guyana is allocating funding towards framework development, including testing and validation of six biodiversity monitoring methods: acoustic sensors, bird counts, camera traps, eDNA, fish stock assessments, and traditional ecological knowledge.

Peru

The Government of Peru is considering biodiversity credits in both the compliance and voluntary spaces. Peru is implementing a voluntary biodiversity credit framework pilot project for habitat banking through a collaborative effort involving the national government. The pilot will inform the potential use of habitat banks for environmental compliance compensation in Peru, as well as considering how the banks could be integrated into existing mechanisms, such as the country's payments for ecosystem services programme.

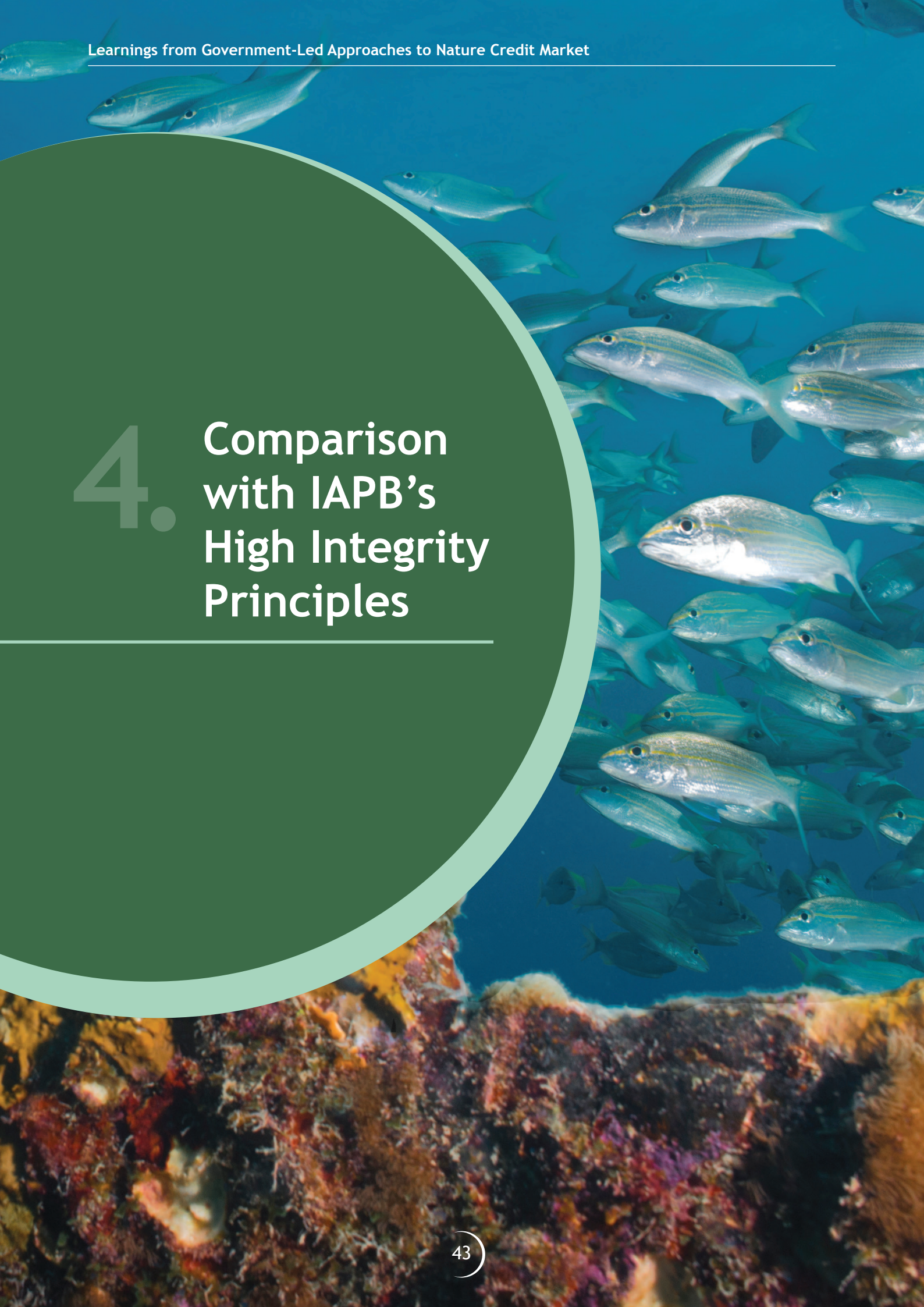
[9] https://guyanatimesgy.com/2025-global-biodiversity-alliance-summit-epa-launches-innovative-bio-credit-plan-to-protect-rupununi-biodiversity/ and https://globalbiodiversityalliance.org/wp-content/uploads/2025/07/Draft-2030-ACTION-PLAN-for-CommentsJuly2025.pdf.

Scotland

The Scottish government has recently embarked on a process of developing a voluntary nature market framework, known as the "Ecosystem Restoration Code" (ERC). The ERC owes its origins to (i) the Scottish government's 2022 National Strategy for Economic Transformation, which articulated commitments to restore Scotland's natural capital and established a market for responsible investment in natural capital, and (ii) the 2024 Natural Capital Market Framework, which defined Scotland's principles for responsible investment in natural capital and set out several key proposals for increasing responsible private investment, of which the ERC was one.

In October 2025, the Scottish government published a paper describing the results and analysis of a programme of stakeholder engagement on proposals for the ERC undertaken during the summer of 2025 (**Scottish Government, 2025**). This paper describes a "route-map" of priorities for the final stages of the Scottish government's current ERC phase, which is expected to conclude in January 2026. The output from this phase is likely to be a "competent model" for the ERC that would be subject to further tests and piloting in 2026.

The ERC is intended to adopt an ecosystem approach and a metric that accounts for ecosystem functions through an Ecosystem Condition Index (ECI). Due to the majority (90%) of Scottish landholdings being under 200 ha, the ERC may allow aggregation of smaller parcels into one project, as the ECI is intended to work at scales over 200 ha.



4. Comparison with IAPB's High Integrity Principles

4. Comparison with IAPB's High Integrity Principles

National and subnational government-led nature credit frameworks, including policies, regulations and/or guidance, were also mined for information on how they integrate the 21 High-Level Principles (HLPs) outlined in IAPB's Framework.

The publication of the Framework at CBD COP16 in October 2024 post-dates the development of many of these schemes, some of which are decades old. The focus of this comparative analysis, therefore, was to highlight where and how existing schemes include explicit requirements for each of the HLPs, not to make specific recommendations on how government-led schemes can be brought into closer alignment with them.

The High-Level Principles were the product of collaboration between the International Advisory Panel on Biodiversity Credits, the Biodiversity Credit Alliance (BCA) and the World Economic Forum (WEF). By working together, the organisations sought to bring coherence to and establish guiderails for credible, scalable biodiversity credit markets that recognised calls from market actors for greater clarity around market rules and protocols. They were developed through an extensive consultation process and drew on the latest available literature and a wide-ranging desk review of existing standards and guidelines.

IAPB's Framework grouped the 21 High-Level Principles into three overarching themes:

- **Verified outcomes for nature:** Rigorous measurement, validation and verification to ensure all credits deliver robust outcomes.
- **Equity and fairness for people:** "No harm" approach, generating meaningful, equitable benefits. Respecting the rights of Indigenous Peoples and local communities. Ensuring their inclusion as active market actors and supporting their leadership and ownership within the system.
- **Good governance for markets:** Transparent and sound governance across the system, at macro-level and project-level implementation.

These were further sub-divided into seven sub-sections (Lifecycle, Criteria, Validation, Rights, Inclusion and rewards, Transparency and Accountability), under which the Framework provided guidance for market actors on detailed aspects. These seven sub-groups are retained in the analysis below.

A few points should be noted about how this comparison was performed:

- It is primarily based on **textual** analysis of key documents relating to nature credit frameworks, such as legislation, regulations and guidance. Where possible, it has been informed by interviews with experts and key stakeholders in countries;

- Only operational nature credit frameworks for which sufficient information was available in English have been included. Certificate programmes, frameworks in development, and frameworks without sufficient information were not included. Based on these criteria, **14** nature credit frameworks - out of the 19 identified in the landscape mapping - were assessed;
- The extent of coverage of certain HLPs within documents is not necessarily an accurate reflection of the level of adherence to that HLP in practice i.e., where there is limited or no mention in framework documents, this may not equate to limited or no implementation of that principle in actuality;
- Where framework documentation does not contain explicit reference to a certain principle, this may be due to the fact that it is already provided for under other existing legislation. For instance, consultation with IPs and LCs may not be required in framework guidance but may already be enshrined in legislation elsewhere. Undertaking such a survey of broader legislation was outside the scope of this enquiry;
- The analysis reflects a snapshot in time of an ever-evolving policy landscape and, while it is a useful source of information, it is not exhaustive.

4.1. Verified outcomes for nature

4.1.1 Lifecycle

HLP 1: Defined biodiversity objectives and activity type. The fourteen (14) frameworks included in the HLP mapping all indicate the biodiversity objective of the framework and eligible credit activity types. All (14) of the frameworks permit credit generation from restoration activities, and most (~9) allow multiple interventions in addition to restoration (e.g., land protection, enhancement) for credit generation.

HLP 2: Demand integrity and the mitigation hierarchy. Eleven (11) of the frameworks include the mitigation hierarchy and no net loss principles in legislation and guidance. These frameworks include both compliance compensation and voluntary contribution frameworks. Some voluntary frameworks do not appear to require the mitigation hierarchy.

HLP 3: Credit issuance and tracking. All (14) frameworks have existing or planned systems for credit issuance and tracking. Planned systems are associated with some relatively new frameworks. Credit issuance is determined by framework rules and assessment methods, and tracking via government-established registries.

HLP 4: Ex ante and ex post credits. There is significant variation in how frameworks approach ex ante and ex post issuance of credits. At least one (1) allows for credits to be allocated before habitat enhancement activities are undertaken. A further one (1) framework allows habitat banks to sell credits ahead of producing environmental gains, as soon as it has secured approval. Two (2) permit a combination, but highlight that ex post issuance can help to increase the likelihood that promised gains are achieved. Seven (7) frameworks seem to allow credits to be generated only after activities (or a proportion of activities) have been implemented and verified, or once projects are likely

to result in the biodiversity outcome. Some frameworks also include specific requirements that prevent credits purchased from being used for offset purposes until gains have been realised. Three (3) frameworks do not have clear guidance on whether credit issuance takes place ex ante or ex post.

4.1.2 Criteria

HLP 5: Additionality. All (14) frameworks have provisions for additionality. The most common concept of additionality in the landscape map is regulatory additionality (12 frameworks), whereby additionality requires that credit-related activities are not already required by law or regulation. At least three (3) frameworks also require a form of financial additionality in which public funding is not available or utilised for the credit project in question. A fourth framework issues credits in proportion to the amount of non-public funding received by the project. Where restoration activities are the basis of credit generation, gains are measured from initial or baseline conditions to calculate the additional ecological benefits of project interventions.

HLP 6: Baselines. At least twelve (12) of the frameworks require scientifically robust baseline measurement of ecosystem condition. Two (2) frameworks that are protection-focused appear to use a baseline of the pre-project protected status of the land.

HLP 7: Durability. The frameworks included in the analysis had a range of durability requirements from one year to perpetuity, with 5, 10, 20 and 30 year time periods in between. Most frameworks (~12) require at least 20 years of durability of biodiversity outcomes, with some calling for outcomes to be maintained for 30 years (5 frameworks) or in perpetuity (4 frameworks). One (1) framework allows project developers to specify whether outcomes will be durable for 25 or 100 years.

It is important to note that the shorter durability requirements for the outcomes generated by credits (in the case of the 1- and 5-year durability requirements) are included in frameworks where the land on which the credit is generated is already permanently protected.

HLP 8: Leakage. There was broad consensus among the interviewees we spoke to that prevention of leakage is a key criterion for a high integrity market that can deliver net benefits to biodiversity. However, they noted that leakage is notoriously difficult to assess and prevent. The landscape and watershed-scale approaches encouraged by some credit frameworks are a practical attempt to reduce leakage (e.g., where offsets are usable within the specific geography of the impacted area) but none of the frameworks contained leakage assessment criteria or requirements.

4.1.3 Validation

HLP 9: Monitoring, reporting and verification. All (14) frameworks have a monitoring and reporting requirement contained in framework documentation. Where specific frequency requirements for monitoring are included, these vary from every six months (1 framework) to annually (at least 4 frameworks) to a minimum 5 years (at least 3 frameworks), with some frameworks explicitly noting that monitoring requirements should be sensitive to the conservation actions undertaken in the credit project. For verification, frameworks employ site visits by government officials, local monitoring committees, and third-parties.

HLP 10: Third-party audits. (Note that a government may be considered a third-party for transactions in which it is neither the buyer nor seller of credits.) At least eight (8) frameworks indicate that the government has a role in validating and verifying project activities and/or outcomes. Of these, two (2) frameworks indicate that the government conducts validation and verification alongside other third-parties. At least four (4) frameworks require that credit project developers engage accredited third-parties for site assessment and verification, while one (1) framework notes that the government will contract third-parties to conduct certification and validation.

4.2. Equity and fairness for peoples

In general, frameworks did not have detailed information on high integrity principles relating to Indigenous Peoples (IPs). In some cases, however, this is because the country in question may not have Indigenous Peoples within its borders. Similarly, many frameworks are not specific on what constitutes a local community (LC), nor do they include explicit additional provisions relevant to integration and inclusion of LCs.

This study was unable to conduct a deep dive into IPs and LCs' inclusion and rights protections under government-led nature credit frameworks. This is a critical area deserving of focused research and we recommend that future work be conducted (led by or co-designed with IP and LC representatives) to understand the opportunities and challenges that national and subnational nature credit frameworks present to Indigenous and local communities, in order to assess how these frameworks can deliver better, more equitable outcomes for local nature stewards.

4.2.1 Rights

HLP 11: Legal and customary land and water rights. All (14) frameworks contained within the landscape map included requirements for project developers to have legal rights to credit project areas, either through direct ownership, easement-like structures, or contractual mechanisms. Rights discussed are most commonly private property rights. Two (2) frameworks generate credits on government-owned land, precluding the need to confirm private property rights.

HLP 12: Respecting human rights and the rights of Indigenous Peoples. At least four (4) frameworks discuss IPs and LCs within framework documentation. We did not locate explicit mention of IPs and LCs' rights in the remaining frameworks included in this assessment.

HLP 13: Free, prior and informed consent. We did not locate explicit mention or inclusion of FPIC in the framework documents surveyed in this assessment.

4.2.2 Inclusion and rewards

HLP 14: Indigenous Peoples and local communities' involvement in governance. Inclusion of IPs and LCs in governance at all stages of the credit project lifecycle is not explicitly included in the documentation of any of the assessed frameworks. At least two (2) frameworks recommend consultation with IPs where Indigenous lands are present in the project area. In another framework, while requirements for Tribal consultations are not explicitly built into framework guidance, they are required by broader national legislation. At least four (4) frameworks require public consultation processes to be carried out during the lifecycle of the project, but IPs and LCs are not explicitly mentioned as part of this (although IPs and LCs may, of course, be engaged in consultative processes in practice).

HLP 15: No harm. The study found at least three (3) frameworks that referenced no harm-related principles. (Other frameworks may still include measures to avoid and minimise harm, particularly to IPs and LCs, even if they are not labelled explicitly as such, and no harm mechanisms may be implemented at the project level.)

HLP 16: Benefit sharing. The study did not find explicit reference to benefit sharing mechanisms in the frameworks included in this assessment. (However, frameworks may still include measures to share benefits with IPs and LCs, even if they are not labelled explicitly as such, and benefit sharing may be implemented at the project level.)

HLP 17: Grievance mechanism. The study did not find explicit reference to grievance mechanisms in the frameworks included in this assessment. At least nine (9) frameworks discuss dispute resolution options, sometimes through private contract legal provisions. (However, frameworks may still include grievance measures, even if they are not labelled explicitly as such. Grievance mechanisms may also be provided for in other national or subnational legislation and/or implemented at the project level.)

4.3. Good governance for markets

4.3.1 Transparency

HLP 18: Transparent governance structure. In ten (10) frameworks, governments host publicly accessible, online registries and websites that collate information on aspects of frameworks' operation, including numbers of credits generated and sold/retired. Guidance documents and rules are also available on these websites. Two (2) other frameworks have online platforms in development. The remaining two (2) do not have any national, publicly accessible platforms. In one case, this is partly because of the devolved nature of framework implementation at the subnational level.

4.3.2 Accountability

HLP 19: Data sovereignty. Two (2) frameworks discussed data sovereignty explicitly. One (1) of these frameworks requires consent of IP data and knowledge in project design and implementation.

HLP 20: Alignment with frameworks. Nine (9) frameworks reference state, national, or global conservation goals. The remaining five (5) frameworks may also be able to contribute to biodiversity goals but do not appear to be explicitly tied to them.

HLP 21: Tradability. Most (at least 9) of the assessed frameworks do not allow for secondary trading, for instance, by stipulating that credits must be retired after one use. One (1) framework allows for secondary trading, and four (4) frameworks are unclear on whether they do or will allow secondary trading.

4.4. Concluding thoughts

The analysis identified that aspects of high integrity (as outlined in IAPB's Framework) are addressed to varying degrees across the frameworks assessed.

Lifecycle (HLPs 1-4) and Transparency (HLP 18) principles were well addressed. Most frameworks include the mitigation hierarchy and no net loss principles, and have existing or planned systems for credit issuance and tracking. Most governments host publicly accessible, online registries and websites that make available guidance, methodologies and data on credits generated/sold/retired.

Criteria (HLPs 5-8) and Validation (HLPs 9-10) principles were moderately addressed. Most frameworks include provisions for additionality and durability, but other elements like leakage are largely omitted. Similarly, all frameworks include monitoring, reporting and verification requirements but the frequency of these varies widely, ranging from every six months to at least once every 5 years.

There was weaker integration of Rights (HLPs 11-13), Inclusion and rewards (HLPs 14-17) and Accountability (19-21) principles across the frameworks analysed. While property rights are frequently mentioned in framework documents, most frameworks do not have explicit safeguards and protections in place to uphold IPs and LCs' land, water and human rights. "No harm" protocols, benefit sharing and free, prior and informed consent are conspicuously absent from many of the frameworks. Data sovereignty, especially for IPs and LCs, is only addressed by a limited number of frameworks.

5. Learnings

5. Learnings

The landscape mapping and interviews with country experts, including government officials, representatives of IPs and LCs and others, yielded learnings on the diverse ways that nature credit markets have been or are being developed in jurisdictions around the world.

Learnings covered a range of areas such as first-hand experiences from planning, designing and implementing nature credit markets in practice, how government-led schemes aim to tackle issues of high integrity, and what actions may be needed at different stages of market development. A selection of the most important of these learnings is presented below, to support policymakers and others to learn from experiences to date and consider how to apply them in their own nature credit journeys. Learnings have been grouped into five sections, based on the thematic categories of IAPB's Framework.

Market landscape

1. **Some governments have chosen to link nature credit frameworks to explicit national biodiversity targets like 30x30.** Some governments told us that they are actively considering the potential that nature credits may have in delivering national biodiversity targets, including 30x30. We interviewed one government that informed us of their intention to release a specific protect/conserve methodology to help in meeting their 30x30 target, which will identify specific priority areas for conservation. In another case, the government has already achieved 20% on its designated conservation sites and is seeking to generate the additional 10% through its nature certificate scheme.
2. **Legislation may vary widely at the national and subnational level, prompting governments to consider how they can harmonise processes for market actors.** Particularly in federated states where decision-making on many areas is decentralised, different legislation may be in place at both the national and state level. The proliferation of legislation and guidance may be challenging for companies to navigate, including the process they must follow to obtain environmental licences. Some countries informed us that they are addressing these challenges by developing a more centralised, harmonised system to ensure consistency across multiple subnational entities.
3. **Some governments are actively considering the interplay between voluntary and compliance markets.** Different governments are at different stages in their thinking on this topic. Some permit the use of habitat banks for both compliance and voluntary purposes, in order to build on existing demand for compliance credits and open up avenues for prospective buyers to purchase credits on a voluntary basis. For other governments, the interplay of these markets poses unanswered questions, including whether demand will be fragmented, how they can support project developers to sell to both markets, and how existing voluntary credit schemes may be adapted to service offsets (as some of them currently lack the rules in place for offsets, including for aspects like ecological equivalence).

4. **Governments reported that nature credit markets are already stimulating the creation of new job opportunities.** Country experts highlighted that, with the emergence of new biodiversity monitoring approaches and credit projects, new career opportunities are opening up, including for young people and local communities, to perform ecosystem assessments, bird counting and other related activities. Nature credit schemes create jobs for local communities and their members who may be employed as forest rangers and taught technical skills such as data collection. This may be reflected in a higher price or premium for credits, which takes into account the cost of community monitoring activities.
5. **For many respondents, nature credits are one of a range of tools being pursued to finance nature conservation and restoration.** In many jurisdictions, officials are considering a multiplicity of approaches for mobilising private financial flows to close the biodiversity finance gap. One interviewee noted that any instrument that can unlock private sector investment was of interest to them and underscored the need for credits not to be a substitute for other, well-established kinds of financing, including traditional aid and public finance. On the other hand, some governments may prefer to use existing policy tools, such as ILF funds, if it is too complex and costly to set up a nature credit framework.
6. **Nature credits are being deployed across a diversity of sectors in different jurisdictions.** In some countries, nature credit frameworks have been designed to address particularly nature-harmful sectors such as intensive agriculture. Elsewhere, construction, mining and other extractive industries may be the main targets of such a scheme, particularly where gaps in existing legislation have allowed them to persistently degrade high-value ecosystems. On the other hand, some countries spoke of the need to balance environmental factors with competing priorities, particularly economic growth and the desire to speed up infrastructure development, which may lead to a relaxation of EIA requirements. They stressed the need for compensatory measures to be simple and efficient, with a clear, streamlined process for companies to follow.

Insights from carbon credit markets

7. **Existing knowledge of and experience with other market-based schemes like carbon credits have supported governments in developing nature markets.** The similarities between carbon and nature markets mean that, where carbon markets already exist, these may provide a useful template for the establishment of nature credit markets. (Although governments also noted that the two are not alike in crucial respects and for this reason parallels should not be overstated.) Some officials reported that valuable lessons have already been taken from carbon credit markets and applied to the development of nature credit frameworks. Examples of aligning the two types of market include: putting in place similar sets of requirements, including on aspects like permanence and reversals, to minimise confusion for market actors; aligning project-level methodologies (such as environmental planting to generate carbon credits, and replanting to generate nature credits); and repurposing existing infrastructure such as registries.

Use cases for biodiversity credits

8. **Governments noted challenges in implementing like-for-like ecological equivalence, including a lack of flexibility in offsetting within the same type of ecosystem.** In some jurisdictions, existing legislation requires that compensation takes place within the same ecosystem. While acknowledging the need for rigorous safeguards in how offsetting is conducted, some country officials we spoke to explained the constraints of this approach on the basis that inflexible ecosystem equivalence rules may be tricky for companies to comply with, particularly if there is a lack of available credits within the same ecosystem. They highlighted that other regimes allow for more flexible compensation, including offsetting damages to a less valuable ecosystem by restoring a higher-value ecosystem/biodiversity hotspot, and which allow for interchangeability of ecosystems based on national priorities.
9. **Advance mitigation instruments are used by some governments to create a ready supply of usable credits.** Third-party advance mitigation via habitat banking allows for offsets to be generated ahead of environmental impacts. Officials we spoke to noted that advance mitigation has a range of benefits, including that it may provide a more cost efficient, guaranteed source of credits. "Proactive" offsetting of this sort can streamline the mitigation process for project proponents, including by reducing the amount of time it takes to secure authorisation for offsetting and find a suitable source of offsets. In some cases, the government or the local authorities are seeking to develop offset banks in areas where they predict high development pressure will arise (e.g., where renewable energy installations may be built in the future).
10. **Some government-led schemes may express a preference for mitigation banking over other kinds of compensation, including permittee-responsible.** This already exists in some countries, where governments state a regulatory preference for banking rather than via in-lieu fee or permittee-responsible mitigation. Other governments expressed a similar (non-formal) preference for mitigation banking on the grounds that banks may be monitored more regularly, their performance may be clearly detailed in an annual report, and gains are relatively easy to create on a large scale. By comparison, some officials said it could be risky for the permittee to purchase credits from a non-banking compensation provider, as these entities may not be subject to the same government supervision and may come with higher exposure to greenwashing risks.
11. **Governments highlighted the potential for compensation schemes to introduce perverse incentives, unless care is taken to enforce EIAs effectively.** In many countries where no net loss or net gain regulation exists, this is accompanied by EIA (environmental impact assessment) laws which require certain projects to assess their environmental impacts before they may go ahead. Failure to undertake an EIA or implement it appropriately may be met with a fine. In some countries, however, officials noted that companies may prefer to face a fine, which may cost $10,000, rather than pay for the EIA and associated compensation, which may cost upwards of $10 million.

12. **Transfer of liability from permittees to project developers was regarded as a key enabling factor.** Lack of liability transfer (whereby responsibility for conserving/restoring a given area is transferred from the permittee to the habitat or mitigation bank) was highlighted as an obstacle to some government-led schemes securing more buyers. In such instances, liability for managing a piece of land for the predefined timespan (e.g., 30 years) may still reside with the permittee, even in cases where they are using an offset bank. Officials we spoke to highlighted that they are exploring ways to make regulations more flexible to allow for responsibility to be delegated to habitat banks, thus reducing the burden on companies, many of which may lack the required expertise to discharge offsetting duties themselves.

Scaling up demand

13. **Compliance constitutes the major demand driver in many jurisdictions, although corporate drivers such as disclosure and ESG interests are also important.** Officials underscored the importance of strong legal obligations in stimulating demand, particularly for compensatory mitigation. Indeed, some noted that, without clear compliance levers, governments may struggle to generate sufficient demand for credits. Where credits are sold primarily to voluntary buyers, risk mitigation, ESG concerns, and disclosure requirements were named as key drivers of demand. Governments are exploring a range of approaches to scaling demand, ranging from testing corporates' motivations for purchasing credits through private sector-led pilots, to developing a range of methodologies that enable different types of projects.
14. **Frameworks must be designed with a view to long-term resilience and ability to withstand changes in political administration.** There was widespread consensus among interviewees on the need for strong and sustained political leadership in shaping nature credit frameworks. In some countries, however, changes in administration have led to existing frameworks being challenged or suffering funding cuts. Changes of administration may also result in a loss of technical personnel and institutional knowledge, which may cause setbacks to scheme rollout. Policy uncertainty may send mixed signals to investors and damage scheme credibility. While respondents reflected that there is no simple fix to these challenges, securing long-term funding emerged as a key consideration, both to get government-led schemes off the ground and ensure their continued operation.

Guidance for market actors

15. **Lack of data on land titling and land ownership was identified by governments as a major obstacle, in relation to public and private land, and particularly where lands and resources belong to IPs and LCs.** The need for equitable benefit sharing and recognition of IPs and LCs in nature credit market design was consistently highlighted across the interviews we conducted. However, many countries have found this challenging to implement in practice. Officials we spoke to noted that many local communities do not have titles to their lands, and where they lack the

appropriate title, they cannot access the benefits flowing from the project. Elsewhere, officials reported that they had struggled with uneven distribution of benefits, with some instances where funds were fraudulently redirected and were not received by IPs and LCs. One approach that governments are exploring is to develop national maps to show not just where critical and endangered areas are, but to acknowledge who the rights-holders are in any given case.

16. **Establishing baseline ecological data was a first step for many of the governments we spoke to.** Where standardised national biodiversity baselines are not present, this may represent a major hurdle to governments wishing to develop nature credit schemes. Establishing a national biodiversity footprint or inventory gives government visibility of which areas are already protected and which may be in greater need of protection. Officials told us that these can be useful tools for identifying ecosystems which are underfunded and/or insufficiently covered by their protected areas framework, and as such may be prioritised for funding generated by nature credits and credit markets.
17. **There was widespread agreement on the need for greater coordination between ministries and investment in capacity building.** One key challenge that was noted by multiple interviewees was the difficulty of breaking down silos between government ministries and promoting better cross-coordination of efforts. This was felt to be particularly important for the effective integration and interoperability of nature credits with existing carbon markets. Where there is limited coordination, documentation may not be made available to project applicants. In some cases, governments told us that they lack the capacity for effective monitoring and enforcement. This may mean that only 3%-5% of authorised developments have compliance checks performed, and if non-compliance is detected there may not be the resources to hold the developer accountable. A lack of institutional capacity may lead to significant delays in the approval of state licences or sign-off on investors' compensation plans to use credits from banks.
18. **Different branches of government may be involved in overseeing scheme regulation and administration.** In many cases, the national or state conservation agency, environment management agency or forestry department (or similar) is responsible for administering the credit scheme. Elsewhere, however, it may be the task of local and urban planning authorities to approve compensation plans and issue environmental licences. The need for data held by local authorities to be better integrated into a single, central registry or database was widely noted. In one country, we heard that the nature market regulator also administers the national carbon credit scheme, which allows best practices and lessons learned from the carbon markets to be more easily taken onboard.

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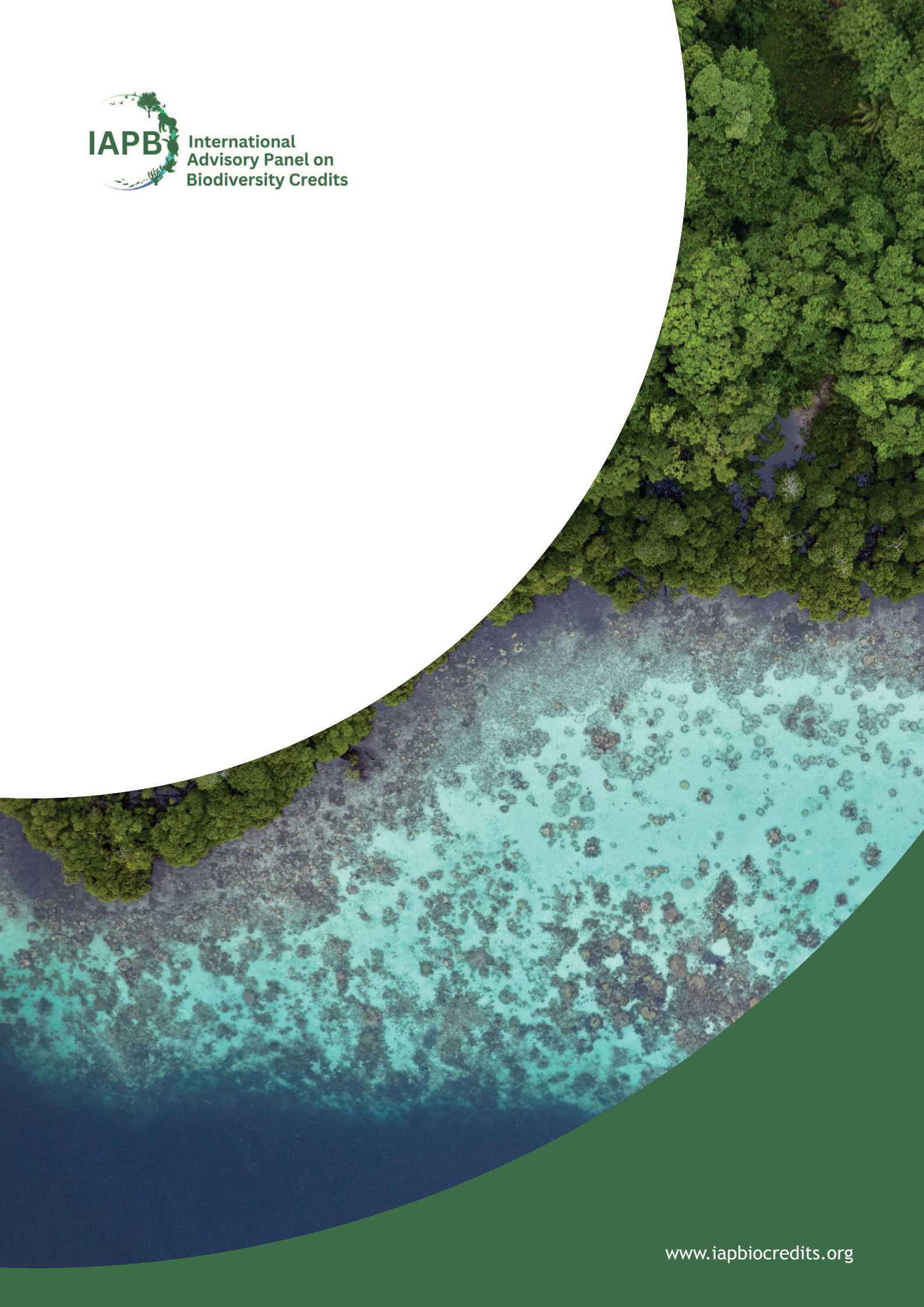
IAPB International Advisory Panel on Biodiversity Credits



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