VCMI Voluntary Carbon Markets Integrity Initiative

WORKING PAPER

Vision and Principles

July 2021

vcmintegrity.org

ABOUT VCMI

The Voluntary Carbon Markets Integrity Initiative (VCMI) is a multistakeholder platform to drive credible, net zero aligned participation in voluntary carbon markets (VCMs). VCMI's goal is to ensure VCMs make a significant and meaningful contribution to climate action and limit global temperature from rising to 1.5°C above pre-industrial levels, while also supporting the achievement of the UN Sustainable Development Goals (SDGs).

Through consultation with stakeholders from civil society, the private sector, Indigenous Peoples, local communities, and governments, VCMI intends to develop and communicate guidance on how carbon credits can be voluntarily used and claimed by businesses and others as part of credible, net zero decarbonization strategies. It also engages countries to support development of strategies to access VCMs to drive ambitious climate mitigation.

The UK Government is supporting VCMI, as announced by COP26 President-Designate Alok Sharma at the Climate and Development Ministerial on 31 March 2021. To date, VCMI has been led by Meridian Institute, a US-based not-for-profit organization, and supported by consultants (hereafter referred to as the VCMI Consortium).

The VCMI Consortium's role is to refine the scope, governance and processes that will underpin VCMI in its future phases. The Initiative is co-funded by the Children's Investment Fund Foundation (CIFF) and the UK Department for Business, Energy and Industrial Strategy (BEIS).

Image: Kamiri sUnan plantation flores, Partnerships for Forests

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ABOUT THIS PAPER

This VCMI Working Paper is a product of the VCMI Consortium working in collaboration with staff from the VCMI funders. This paper has not been reviewed nor approved by the VCMI Steering Committee, which was being formed as the paper was being developed. The intent of the paper is to spur dialogue and an exchange of ideas to inform the development of VCMI guidance during the next phase of the VCMI process, which will be governed by the VCMI Steering Committee (which you can learn more about here).

If you would like to give feedback, please contact **vcmi@merid.org**

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I.
Introduction and Proposed Vision for VCMs

Introduction

Voluntary carbon markets (VCMs) provide an opportunity to raise critical finance for climate mitigation, nature protection and restoration at speed and scale. They can channel significant private sector finance over the next three decades into economies with high nature-based climate mitigation potential (most notably in low- and middle-income countries), as well as into other cost-effective mitigation options. They can also be a powerful tool for scaling finance for nature-based and technology-based greenhouse gas (GHG) removal solutions that may be needed to neutralize residual emissions from harder-to-abate sectors by mid-century.

But VCMs are at an inflection point. While the right deployment of transparent and standardized voluntary carbon markets can increase and accelerate climate action, there is a real risk that – without a market transition focused on both transparency and integrity – they may end up undermining the delivery of the Paris Agreement, despite the best intentions.

VCMI aims to coalesce stakeholders around a shared vision for high integrity VCMs and work together to realize this vision. There are many important initiatives operating in this space – VCMI is looking to connect, align, and amplify with those initiatives that share VCMI's vision for high integrity VCMs.

Climeworks operates machines that remove CO_2 from the air. This is Climeworks' newest direct air capture and storage plant in Hellisheidi, Iceland, scheduled to be commissioned in early September. The air-captured CO_2 is completely removed from the air by safely storing it underground.

Image: climeworks.com

Proposed Vision for VCMs

Having a clear and widely accepted vision of how a system should operate can be a powerful motivator of transformative change. Therefore, VCMI is seeking feedback on the following proposed vision for voluntary carbon markets, which we believe diverse stakeholders can rally behind.

PROPOSED VISION FOR VCMs

Voluntary carbon markets make a significant, measurable, and positive contribution to the transition of the global economy to a 1.5°C future. While also promoting inclusive, sustainable development in line with the United Nation's Sustainable Development Goals (SDGs).

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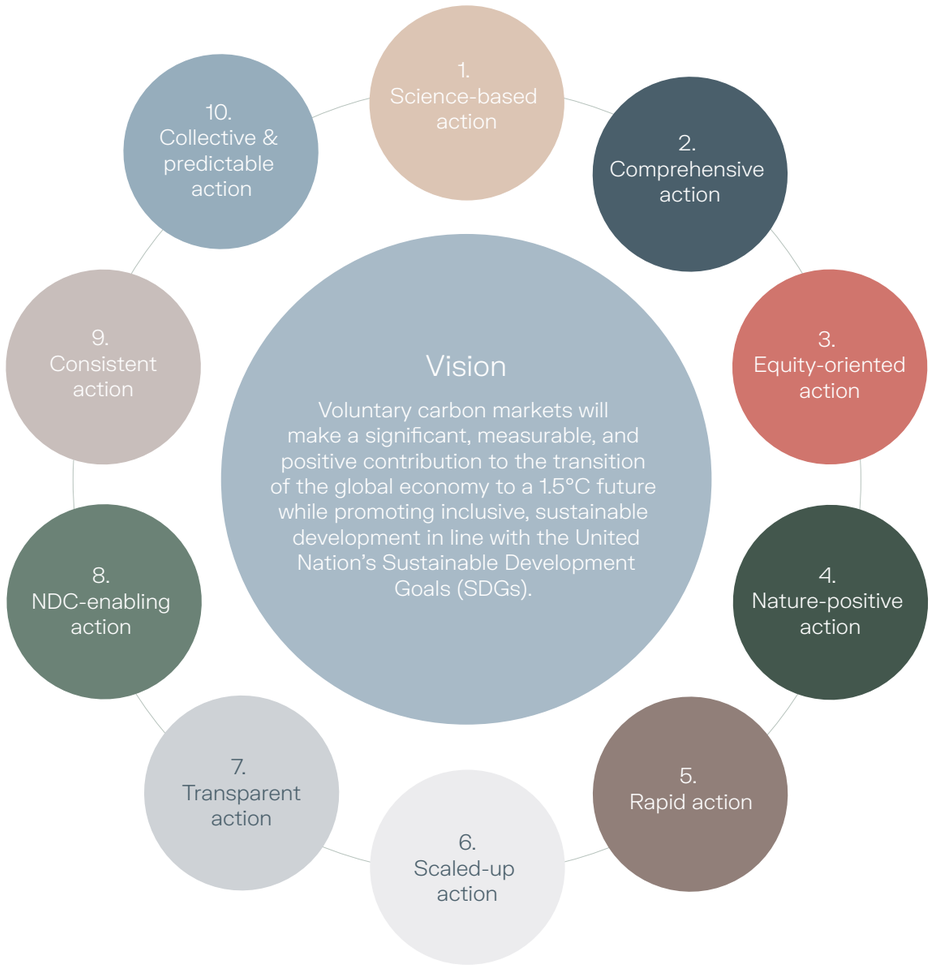
II.
Ten Principles for High Integrity and High Ambition Voluntary Corporate Climate Action

Ten Principles for High Integrity and High Ambition Voluntary Corporate Climate Action

With this vision for VCMs in mind, VCMI proposes ten principles for high integrity and high ambition voluntary corporate climate action. The principles relate to both the supply-side and demand-side of the voluntary corporate carbon market – i.e. in what context should businesses voluntarily purchase carbon credits and what are the standards for ensuring the carbon credits purchased by businesses are of high quality.

The principles are intended to guide private sector climate action. They also support our vision for voluntary carbon markets. They reflect input received during VCMI's initial consultation phase and build upon the excellent work of a number of organizations and initiatives including – but not limited to – the Science Based Targets initiative, the Science Based Targets Network, the Oxford Principles for Net Zero Aligned Carbon Offsetting, the Greenhouse Gas Protocol, the Climate Disclosure Standards Board, the Task Force on Climate-related Financial Disclosures, and Climate Action 100+.



PRINCIPLE 1: Science-based action

High integrity, high ambition private sector climate action is underpinned by the latest scientific consensus on safe upper limits for global warming. As such, the 1.5°C Paris target is the North Star. Companies align with the science-based mitigation hierarchy, which means **delivering emission reductions within their value chains (Scopes 1–3) is a first-order priority.** This entails the setting of short-term (e.g. 5 year), mid-term (e.g. 5–15 year) and long-term targets (up to mid-century). Different sectors may decarbonize at different trajectories that take into account the special features and conditions of the sector. Climate targets and roadmaps are regularly reviewed and adjusted in line with the latest scientific consensus on the safe upper limits for global warming.

Additional action to finance emissions reductions beyond the company value chain through use of carbon credits – for example, to compensate for as yet unabated or for historical emissions – is in line with best practice standards to ensure they deliver real and quantifiable mitigation. Companies can achieve this by, e.g., (a) applying accurate, conservative baselines, (b) ensuring additionality, (c) including measures to ensure permanence, (d) minimizing and account for leakage, and (e) ensuring to avoid double counting between companies. Purchase of carbon credits that finance the protection of nature – tropical forests in particular – is a first-order investment priority over the next 10–20 years since this represents one of the largest, most cost-effective mitigation levers in our toolbox and is critically underfunded, putting the Paris Agreement targets at risk.

As we near mid-century and we make progress on decarbonizing the economy and addressing deforestation and other land-use change, company carbon credit purchases are increasingly made up of emission-removal credits to ensure that any unabated emissions are removed in line with the requirements of the net zero global goal. Companies – particularly in harder-to-abate sectors – could start investing now in negative emission technologies (both natural and engineered) to bring down the cost of removing residual emissions from the atmosphere by mid-century.

In summary, high ambition companies would 1) abate emissions across their value chains in line with a 1.5°C pathway, 2) engage from today in the voluntary carbon market to finance additional climate mitigation to support the realization of the Paris Agreement temperature goals (prioritizing investments into tropical forest emission reductions over the next 10–20 years), and 3) ramp up investments into negative emission technologies (natural and engineered) to ensure that any residual emissions at their long-term net zero target date can be neutralized.

For further guidance regarding abatement and neutralization, companies may refer to the Science Based Targets initiative (SBTi).

Image: ©Technoserve, Partnerships for Forests

PRINCIPLE 2: Comprehensive action

Private sector climate targets and action are built upon accurate and complete GHG inventories in line with the requirements set out in the Greenhouse Gas Protocol (GHGP). This means companies include all relevant sources of Scope 1 and 2 emissions within their target boundaries, including emissions from land use and land-use change, and follow best practice guidance on inclusion of Scope 3 emissions within the target boundaries. For example, the SBTi requires that where relevant Scope 3 emissions make up 40% or more of total Scope 1, 2, and 3 emissions, at least two thirds of Scope 3 emissions should be included in the target.

In addition to the GHGP and the SBTi, the framework for action set forth by Climate Action 100+ provides a good starting point for VCMI's principle on "comprehensive action".

PRINCIPLE 3: Equity-oriented action

Private sector climate action is consistent with achievement of broader SDGs relating to, e.g. poverty reduction, human development, climate adaptation, food security, biodiversity, land restoration, etc. This means that abatement pathways are based on Intergovernmental Panel on Climate Change pathways that are aligned with the delivery of the SDGs – namely the Shared Socioeconomic Pathway (SSP1) with no or limited overshoot. Moreover, companies consider the impacts of transitioning to a lower-carbon business model on their workers and communities.

Involvement in VCMs builds on partnerships between lower and higher income countries. This involves paying a fair price for carbon credits to account for the costs project.

PRINCIPLE 4: Nature positive action

Private sector climate action in general, including in the context of VCMs, is aligned with the need to bend the curve on biodiversity and move toward a 'nature positive' state of recovery and renewal since accelerating climate change and the destruction of nature are the twin emergencies threatening humanity today. This means reducing and eventually eliminating nature-based emissions from company value chains by, for example, ensuring that there is no conversion of natural ecosystems.

PRINCIPLE 5: Rapid action

In line with the requirements of science, private sector action in the next 10 years is critical if we are to avert potential tipping points – for example, where carbon sinks turn into sources due to temperature rises. In recognition of this, businesses set and take action to realize both short-term targets (e.g. 5 years) as well as ambitious mid-term (e.g. 5–15 years) and longer-term targets (e.g. mid-century). Priorities in the short- to mid-term include (but are not limited to) the following:

- Ending deforestation and conversion of other natural ecosystems.
- Ending the sale of new fossil fuel boilers by 2025.
- Ensuring all new buildings are 'zero carbon ready' by 2030.
- Increasing renewable energy capacity by 4 times by 2030.
- Halting sales of new internal combustion engine passenger cars by 2035.
- Phasing out all unabated coal and oil power plants by 2040.

PRINCIPLE 6: Scaled-up action

Private finance is critical to delivering the Paris Agreement. Therefore, businesses must raise their ambition to make significant investments in climate mitigation outside their value chains as a supplement to within value-chain abatement investments (but not as a replacement). This can be achieved, for example, through supporting VCMs in countries where they operate, where they source commodities, or in countries which are covered by corporate supply chains more broadly.

In this way, VCMs have the potential to channel significant private sector finance over the next three decades into economies with high nature-based climate mitigation potential (most notably in low- and middle-income countries), as well as into other cost-effective mitigation options. This private sector finance is desperately needed – particularly for natural climate solutions, and more specifically, tropical forest protection. As an illustration of the potential scale of impact, if the Fortune Global 500 companies committed to compensating 100% of their unabated Scope 1 and 2 emissions by 2025, demand for carbon credits would reach ~5 $GtCO_2e$ in that year alone. At an illustrative price of $\$10/tCO_2e$, this would cost the Global 500 $25 billion – less than 0.1% of their total revenues and less than 1.5% of total profits.

PRINCIPLE 7: Transparent action

There is a wide discrepancy in terms of the scope and ambition of company 'net zero' targets – with different emission sources and gases included, different timelines, different emission reduction trajectories, and different approaches to compensation and use of carbon credits. Companies increase transparency about their approaches following criteria as set out in a recent article in Nature. Companies also implement the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) to effectively report on climate-related risks and opportunities to investors and other stakeholders. Once published, companies would also look to adopt the recommendations of the Task Force on Nature-related Financial Disclosures. Companies are also open and transparent about lessons learned as they take action on climate – i.e. what worked and what did not work.

High integrity and high ambition claims that relate to the purchase and use of carbon credits for voluntary purposes meet the following criteria:

a) Must be true and accurate.
b) Must be clear and relevant to their target audience.
c) Must be substantiated with objective, transparent, and up-to-date data.
d) Must avoid overstating the beneficial environmental impacts of the activities.
e) Must avoid creating a false impression or hiding trade-offs.
f) Must refer to voluntary actions or achievements that go beyond complying with existing legislation or standard business practice.

PRINCIPLE 8: NDC-enabling action

Companies accelerate national governments' efforts to raise the ambition of their Nationally Determined Contributions (NDCs) under the Paris Agreement, channeling long-term finance toward actions that achieve and enhance NDC implementation efforts. Companies inform governments of VCM projects and initiatives and align VCM activity with government policies. Companies also consider providing finance in support of strengthening governance and investments in creating national and subnational enabling environments, readiness, and implementation capacity. In addition to supporting NDCs, companies advocate for robust compliance markets and carbon-pricing mechanisms.

PRINCIPLE 9: Consistent action

While not directly relevant to VCMs, it is critical that companies ensure their lobbying efforts are not contrary to their commitments and that the powerful industry associations, broad-based business coalitions, and lobbying groups of which they are members act consistently with their company-specific commitments.

A good place to start for US-based companies is to adhere to the AAA Framework which sets out actions to execute a science-based climate policy agenda. Another useful resource is the Influence Map corporate climate lobbying platform, which provides clarity on and measurement of how companies influence climate change policy.

PRINCIPLE 10: Collective & predictable action

Achieving the goals of the Paris Agreement requires a collective effort. No company or country can achieve these goals on its own. There is evidence that collective climate action can lead to results where individual companies working in isolation have failed. For example, the Soy Moratorium in the Brazilian Amazon and the Africa Palm Oil Initiative have helped drive industry-wide shifts to reduce deforestation in their targeted regions.

In recognition of the power of collective action, companies work together with governments and NGOs from low-, middle- and high-income countries to act on climate change. Transitioning to a low-carbon, nature-positive future requires sustained, collective action across society. Regarding VCMs, this can be achieved by building predictability of future voluntary demand for carbon credits to give entities confidence to increase the supply of credits in the market. Companies can also pool resources to aggregate voluntary demand for carbon credits to increase certainty and help drive systemic change and meaningful action against the climate crisis.

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Image: Filippo Cesarini, Unsplash

III.
Annex A: Glossary of Key Terms

Annex A: Glossary of Key Terms

TERM	DEFINITION
Abatement	Measures that companies take to prevent, reduce, or eliminate sources of GHG emissions within their value chains.[1]
Additionality	A key characteristic of carbon credits, ensuring that carbon emissions are lower than if the project had not been implemented.[2]
Article 6	The voluntary cooperation mechanisms that will assist governments in implementing their NDCs as part of the Paris Agreement. They include Internationally Transferred Mitigation Outcomes (ITMOs) between governments, an international carbon market, and the use of development aid.[3] The rulebook for Article 6 is the only part of the Agreement that is yet to be finalized; eligibility of forest units is an open question.
Avoided emissions	Emission reductions that occur outside of a product's life-cycle or value chain, but as a result of the use of that product. Avoided emissions is a relative metric estimated by comparing the climate impacts of a given product, activity, or service against the climate impacts of a reference product, activity, or service.[4]
Baseline	The business-as-usual scenario the mitigation activity is compared against. The baseline must be robust and realistic. It runs the risk of being inflated to generate more credits.[5]
Cancellation of a carbon credit	The definitions of cancellation and retirement vary between carbon standards and programs. For the purposes of this work, cancellation refers to a situation in which the carbon credit is put out of circulation without being used towards any particular carbon neutrality or GHG reduction goal. On the other hand, retirement refers to a situation in which the carbon credit is directly used towards a carbon neutrality or GHG reduction goal. See also the definition of retirement of a carbon credit below.
Carbon credit	An emissions unit that is issued by a carbon crediting program and represents an emission reduction or removal of greenhouse gases. Carbon credits are uniquely serialized, issued, tracked, and cancelled by means of an electronic registry.[6]

TERM	DEFINITION
Carbon dioxide removal / greenhouse gas removal	Carbon dioxide removal (CDR) refers to the process of removing CO_2 from the atmosphere. Since this is the opposite of emissions, practices or technologies that remove CO_2 are often described as achieving "negative emissions". The process is sometimes referred to more broadly as greenhouse gas removal (GHGR) if it involves removing gases other than CO_2. There are two main types of CDR: either enhancing existing natural processes that remove carbon from the atmosphere (e.g. by increasing its uptake by trees, soil, or other "carbon sinks") or using chemical processes to, for example, capture CO_2 directly from the ambient air and store it elsewhere (e.g. underground). All CDR methods are at different stages of development and some are more conceptual than others, as they have not been tested at scale.[7]
Carbon neutrality	In the global context, carbon neutrality is the same as net zero carbon dioxide (CO_2) emissions which are achieved when anthropogenic CO_2 emissions are balanced globally by anthropogenic CO_2 removals over a specified period.[8] But in the sub-global context, companies can achieve carbon neutrality through purchase of carbon credits from activities that reduce, avoid or temporarily capture GHGs equivalent to the volume of all CO_2 emissions.[9]
Carbon offset	A carbon offset broadly refers to a reduction in GHG emissions – or an increase in carbon storage (e.g., through land restoration or the planting of trees) – that is used to compensate for emissions that occur elsewhere. A carbon credit that is being used for the purpose of offsetting is a transferrable instrument certified by governments or independent certification bodies to represent an emission reduction of one metric tonne of CO_2, or an equivalent amount of other GHGs.[10] VCMI recommends avoiding the conflation of offsets and carbon credits as carbon credits can be used for purposes other than offsetting, and offsetting can be accomplished through other mechanisms than purchasing carbon credits.
Carbon Standard / Carbon Standard Setting	The term carbon standard is often used to refer to an entity that develops and promulgates standards (i.e. methodologies, protocols, and requirements) that must be adhered to by project developers and applied third-party validators in order for a project to be issued a carbon credit. In this report, we have tried to distinguish between the entity – which we refer to as a carbon standard setting body or entity – and the standards that are promulgated by those entities. Carbon standard setting bodies are also often referred to as "carbon crediting entities" due to the fact they issue and maintain a registry of the carbon credits that they issue.

TERM	DEFINITION
Compensation	Measurable climate mitigation outcomes, resulting from actions outside of the value chain of a company that compensate for emissions that remain unabated within the value chain of a company.
Compliance market	A market for carbon offsets created by the need to comply with a regulatory act. Compliance markets include cap-and-trade domestic schemes[11] (e.g. European Union Emissions Trading Scheme, California cap-and-trade, Colombia's carbon tax) and sectoral schemes (e.g. Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).
Corresponding adjustment	Accounting rule to ensure that when countries trade carbon credits, the credit is counted towards the buyer's Nationally Determined Contribution under the Paris Agreement and detracted from the seller's Nationally Determined Contribution.[12]
Counterbalance	This is a term used by the World Resources Institute and the Science Based Target initiative in various materials.[13,14] In a WRI blog by Andrew Steer and Craig Hanson posted in April 2021 they state: *"We tentatively propose 'counterbalance' as a replacement for the word 'offset.' The latter implies a least-cost choice or equivalent reduction on the part of the emitter, while the former is intended to capture the notion of voluntary support to decarbonization outside an emitter's value chain, to complement aggressive reduction within the emitter's own Scope 1, 2 and 3 emissions. We are not insisting on this specific term: the terminology is less important than the substance."* [15]
Decarbonization	Measures that prevent the release of CO_2 emissions associated with electricity, industry, and transport.
Double counting	A situation in which a single greenhouse gas emission reduction or removal is counted more than once towards achieving climate change mitigation. Double counting can occur through double issuance, double use, and/or double claiming.
Double issuance	A situation in which more than one emissions unit or credit is issued for the same emissions or emission reductions. This leads to double counting if more than one of these emissions units or credits is counted towards achieving climate change mitigation. This can occur, for instance, when the same project is registered under two different carbon programs or twice under the same carbon program. This situation can lead to double issuance if carbon programs do not implement proper controls to ensure that, if a project is registered with more than one program, offset credits are cancelled by one program before offset credits are issued by another program for the same emission reductions or removals.

TERM	DEFINITION
Double use	A situation in which the same emissions unit or carbon credit is counted twice towards achieving climate change mitigation. This could, for example, occur if an entity would use a single emissions unit or carbon credit to fulfil two different purposes.
Double claiming	A situation in which the same emission reduction or removal is claimed by two different entities towards achieving climate change mitigation, e.g. once by the country in which the emission reduction or removal occurs, and once by the entity using an emissions unit or credit, such as an airline operator under CORSIA.
Hard to Abate Sectors	Economic sectors with relatively higher abatement costs than the rest of the economy. These include heavy industry sectors (cement, steel, chemicals) and heavy-duty transport (heavy-duty road transport, shipping, aviation).
Insetting	The term "insetting" has been used to refer to a company's efforts to prevent, reduce, or remove emissions within its own supply chain, but outside of its operational boundaries.[16] The Science Based Target initiative considers such insetting measures to be distinct from efforts to "neutralize" or "compensate", instead proposing that insetting measures are directly accounted for in a company's efforts to abate all of its supply chain emissions as it pursues its net zero target.[17] In 2015, the International Carbon Reduction and Offset Alliance (ICROA) defined insetting as "a carbon reduction project, verified by an offset standard, which occurs within a company's supply chain or supply chain communities". ICROA also formulated three best practices in the use of insetting as a management strategy. Firstly, to claim to be insetting and account for reduced or removed emissions accordingly, a company must invest financially in the development and maintenance of the insetting project. This project can be developed by the company, its suppliers, or third-party organizations. Secondly, the investment project must involve a supply-chain activity (i.e. involving the production or sourcing of raw materials, product transformation, or product transportation) and the supply chain community (all stakeholders with a direct link with the supply chain). Lastly, the activities covered must generate additional, unique, measurable, and verifiable emissions reductions.[19]
Internationally Transferable Mitigation Outcomes (ITMO)	Carbon credits provided under Article 6 of the Paris Agreement that can be transferred between countries as a means to meeting Nationally Determined Commitments (NDCs).[20]
Jurisdictional approach	A sub-national or national set of rules to create carbon assets from REDD+ activities. This includes a baseline, a national or subnational registry and potential rules for

TERM	DEFINITION
Jurisdictional approach *continued*	trading or seeking payments for results. Traditionally, results-based finance for REDD+ has been dependent on jurisdictional setups.[21] These minimize the risk of leakage, inflated baselines and double counting.
Leakage	Leakage occurs when a carbon offset project displaces emission-creating activities to outside the project boundary, rather than halting them in actual terms.[22]
Mitigation contribution	Refers to an approach in which companies either make a financial contribution to an emissions reduction or removal activity or they purchase carbon credits with the objective of contributing to climate change mitigation outside of their value chain. Such contributions or purchases currently may or may not be used for offsetting purposes. If they are used for offsetting purposes, there is substantial debate about whether they can simultaneously be used by host country to achieve its NDC (see double counting and double claiming above).
Nationally Determined Contributions (NDCs)	Climate mitigation and adaptation targets set by countries as part of the Paris Agreement developed at COP21 in 2015. NDCs constitute a commitment by each country to outline their climate plan post-2020.[23]
Natural climate solutions	Natural climate solutions (NCS) can be considered as a subset of nature based solutions with a specific focus on addressing climate change. NCS has been defined as "conservation, restoration, and/or improved land management actions to increase carbon storage and/or avoid greenhouse gas emissions across global forests, wetlands, grasslands, and agricultural lands." [24, 25]
Nature-based solutions	Nature based solutions (NBS) are actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.[26]
Nature positive	Nature-positive means halting and reversing nature loss by 2030, measured from a baseline of 2020. [27]
Negative emissions	Removal of greenhouse gases (GHGs) from the atmosphere by deliberate human activities, i.e. in addition to the removal that would occur via natural carbon cycle processes.

TERM	DEFINITION
Nesting	The integration of forest carbon projects into jurisdictional REDD+ programs, while allowing them to continue generating and trading carbon units outside the jurisdiction. Peru's market is an example of this approach.[28]
Net zero CO_2 emissions	Net zero carbon dioxide (CO_2) emissions are achieved when anthropogenic CO_2 emissions are balanced globally by anthropogenic CO_2 removals over a specified period. Net zero CO_2 emissions are also referred to as carbon neutrality.[29]
Net zero emissions	Net zero emissions are achieved when anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period. Where multiple greenhouse gases are involved, the quantification of net zero emissions depends on the climate metric chosen to compare emissions of different gases (such as global warming potential, global temperature change potential, and others, as well as the chosen time horizon).[30]
Neutralization	Measures that companies take to remove carbon from the atmosphere in order to counterbalance the impact of a source of emissions, within the value chain of the company, that remains unabated.[31] Or neutralize: Defined by the Oxford English Dictionary as "making (something) ineffective by applying an opposite force or effect." With respect to halting the accumulation of emissions in the atmosphere, neutralization of unabated emissions can only occur through negative emissions.[32]
No or limited overshoot of 1.5°C	Non-overshoot pathways described in the Intergovernmental Panel on Climate Change (IPCC) 1.5˚C special report are: "Pathways that stay below the stabilization level (concentration, forcing, or temperature) during the time horizon of interest (e.g. until 2100)." [33]
Offset / Offsetting	The act of compensating or cancelling out all, or a portion of, the GHG emissions released to the atmosphere through investments in activities that reduce or remove an equivalent amount of GHG emissions and which are located outside the boundaries of the organization or a particular product system. Such investments are often in the form of purchasing a carbon credit. Offsetting is effected by purchasing and retiring an amount of carbon credits equivalent to the volume of GHG emissions that is being compensated.[34,35]

TERM	DEFINITION
Offsetting as substitution	The act of purchasing carbon credits to be used as a substitute for within value chain emissions abatement without having a net zero abatement pathway in place.
Permanence	The capacity of reduced emissions not to re-enter the atmosphere. In practical terms, this means giving the buyer the confidence that declared emissions reductions will not be reversed by a future event (e.g. that the forest will be cut down).[36]
Project-based approach to REDD and REDD+	Carbon assets are generated based on an independently established baseline. Project-based approaches are seen to carry a higher risk of leakage, permanence, and inflated baselines. Independent standards, such as those developed by the Verra, Gold Standard or Planet Vivo, have developed leakage and permanence methodologies and continuously improve them.
REDD and REDD+	REDD refers to reducing emissions from deforestation and forest degradation;[37] REDD+ refers to reducing emissions from deforestation and forest degradation, and conservation of forest carbon stocks, sustainable management of forests, and enhancement of forest carbon stocks.[38] In 2013 the Warsaw Framework was formalized providing guidance to countries developing REDD+ plans, monitoring systems, baselines and safeguards. These guidelines are not intended to guide transactions.
Removals (or anthropogenic removals)	Anthropogenic removals refer to the withdrawal of GHGs from the atmosphere as a result of deliberate human activities. These include enhancing biological sinks of CO_2 and using chemical engineering to achieve long-term removal and storage.[39]
Representative concentration pathways (RCPs)	Scenarios that include time series of emissions and concentrations of the full suite of greenhouse gases (GHGs) and aerosols and chemically active gases, as well as land use/land cover.[40] The word representative signifies that each RCP provides only one of many possible scenarios that would lead to the specific radiative forcing characteristics. The term pathway emphasizes the fact that not only the long-term concentration levels but also the trajectory taken over time to reach that outcome are of interest.[41]
Residual emissions	Residual emissions are emissions sources that remain unabated by the time net zero is reached in 1.5°C mitigation pathways with low or no overshoot[42] The SBTi is exploring a range of approaches for determining residual emissions globally, by sector, and by activity, which will be included in the public consultation of Net Zero Guidance.[43]

TERM	DEFINITION
Retirement of carbon credits	"Retiring" a carbon credit describes the internal transfer of a unit to a retirement account. The owner of the carbon credit can claim to have reduced emissions and use those emissions to meet its climate commitments.[44]
Science-based targets	Targets that are in line with what the latest climate science says is necessary to meet the goals of the Paris Agreement – to limit global warming to well below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C.[45]
Shared socio-economic pathways (SSPs)	Shared socioeconomic pathways (SSPs) were developed to complement the RCPs with varying socioeconomic challenges to adaptation and mitigation.[46] Based on five narratives, the SSPs describe alternative socioeconomic futures in the absence of climate policy intervention, comprising sustainable development (SSP1), regional rivalry (SSP3), inequality (SSP4), fossil–fuelled development (SSP5) and middle-of-the-road development (SSP2).[47,48,49] The combination of SSP-based socioeconomic scenarios and representative concentration pathway (RCP)-based climate projections provides an integrative frame for climate impact and policy analysis.[50]
Validation and Verification Bodies (VVBs)	Independent organizations duly approved under a carbon standard provide validation of mitigation activities and verification of emission reductions. It may also include verification of other social and environmental co-benefits.
Value chain emissions	A company's Scope 1, 2, and 3 emissions as defined by the GHG Protocol accounting standard.[51]
Verified emissions reductions (VER)	Carbon offsets exchanged in the voluntary market usually certified through a voluntary certification process using a third-party independent standard.[52] The main certification standards include VCS, CCB, Gold Standard, Planet Vivo, and auditors include major firms.
Vintage	The year in which the carbon emission reduction took place. Given the verification process can take 2—3 years from the project inception, projects may generate credits for already-reduced emissions. Older vintage generally sells at a lower price.[53]
Voluntary Carbon Market	The voluntary carbon marketplace encompasses all transactions of carbon offsets that are not purchased with the intention to surrender into an active regulated carbon market. It does include offsets that are purchased with the intent to re-sell or retire to meet carbon neutral or other environmental claims.[54]

Endnotes

1. https://www.climateaction100.org/wp-content/uploads/2021/03/Climate-Action-100-Benchmark-I 1 ndicators-FINAL-3.12.pdf
2. https://sciencebasedtargets.org/resources/files/Sectoral-Decarbonization-Approach-Report.pdf
3. https://www.iea.org/reports/net zero-by-2050
4. https://www.foodandlandusecoalition.org/wp-content/uploads/2020/12/FOLU_Nature-for-Net zero_Report_Final.pdf
5. https://www.smithschool.ox.ac.uk/publications/reports/Oxford-Offsetting-Principles-2020.pdf
6. https://ghgprotocol.org corporate-standard
7. https://sciencebasedtargets.org/resources/files/SBTi-criteria.pdf
8. https://www.climateaction100.org/wp-content/uploads/2021/03/Climate-Action-100-Benchmark-Indicators-FINAL-3.12.pdf
9. https://www.ipcc.ch/sr15/
10. In alignment with the Global Goal for Nature initiative, we define this as halting and reversing nature loss by 2030, measured from a baseline of 2020: https://www.naturepositive.org/
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The Voluntary Carbon Markets Integrity Initiative (VCMI) is a multi-stakeholder platform to drive credible, net zero aligned participation in voluntary carbon markets (VCMs).

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