PATHWAYS TO DAIRY NET ZERO.

Term	Definition	Source	See also	Comments
Abatement	*GHG removals* by *sinks* and/or reduction in *GHG emissions* by *sources*		Mitigation (synonym)	Some users restrict “abatement” to emission reductions only.
Above-ground biomass	All *biomass* of living vegetation, both woody and herbaceous, above the soil surface including stems, stumps, branches, bark, seeds, and foliage.	IPCC, 2006	*Below- ground biomass*	
Accounting	(In the UNFCCC and associated processes)"the rules for comparing net GHG emissions with commitments for Annex I Parties under the Kyoto Protocol. Recently, the definition has been broadened to mean calculating ‘debits’ and ‘credits’ with reference to a specified target, such as the NDCs under the Paris Agreement."General usage:Outside the UNFCCC, GHG accounting is sometimes applied to estimating and reporting GHG emissions and GHG removals without reference to a target. This is called national inventory reporting in the UNFCCC context.	UNFCCC, 2003	*Reporting*	
Activity data	Quantitative measure of the level of a human activity, taking place during a given time period, that results in GHG emissions or GHG removals.Example: litres of fuel used; tonnes of urea applied; numbers of livestock and their liveweight gainActivity data are multiplied by the relevant emissions factor to quantify the GHG emissions or GHG removals generated by a company or country.			

Additionality, Additional	Additionality (of a mitigation activity): the quality of being additionalAdditional (of mitigation): in excess of mitigation that would occur in the absence of the associated policy intervention, activity or projectAdditionality is one of several key criteria used to ensure the environmental integrity of offsets: an additionality test is applied in emissions trading schemes to ensure that credits are not earned for mitigation that would have happened in the absence of the scheme. Under the Emissions Reduction Fund additionality is assessed through the “newness requirement”.	Adapted from IPCC, 2022a,	*Offset*	Additionality is relevant to projects that generate carbon credits. It is not applicable to company –level inventory *reporting* , which aims to quantify *GHG emission* and *removals* for which a company has responsibility.
Agriculture, forestry and other land use AFOLU	Sectoral category used in the 2006 *IPCC* Guidelines which includes the *GHG emissions* and *GHG removals* from the Agriculture sector and LULUCF (Land Use, Land Use Change and Forestry) sector, which were treated separately in earlier IPCC Guidelines.			Under SBTi this sector is called FLAG: Forest, land and agriculture
Allocation	In *life cycle assessment* : A procedure used to assign emissions to multiple co-products from a process. Some common bases for allocation include mass, economic value, protein and energy.		*Life cycle assessment*	
Anthropogenic	caused or influenced by people, either directly or indirectly.The UNFCCC is focussed on quantifying and managing anthropogenic GHG emissions andGHG removals.			
Approach	Under the UNFCCC and associated policy processes: The conceptual framework for estimating GHG emissions and GHG removals in inventories. The approach specifies the system boundary, defining which emissions and removals are to be reported or accounted by each Party.The approach defines WHAT is being estimated and reported in an inventory and by WHOM (determined by the system boundary), while the method describes HOW the reported values are derived, that is, the techniques used in estimation.	UNFCCC,2003	*Method*	This project aims to develop a common *approach* to GHG *accounting* , rather than a common *method* .
Baseline	A reference that provides the basis for comparison. The baseline can be performance in a specified past year or time period, or a projection of future performance under “business as usual”. The latter is also referred to as a dynamic or forward baseline, or counterfactual. A baseline can be a benchmark, such as industry average or best practice, such as in a baseline-and-credit *emissions trading* scheme, or the *Safeguard Mechanism* .			

Below-ground biomass	(In national inventory reporting, with refence to the carbon pools included in the Land Use Land Use Change and Forestry sector):Living vegetation below the soil surface, that is, plant rootsIn practice, fine roots of <2mm are usually included in the soil organic matter pool, due to difficulties in separating them from soil.		*Above-ground biomass*	
Biochar	stable, carbon-rich material produced by heating *biomass* in an oxygen-limited environment. Biochar is distinguished from charcoal by its application: biochar is used as a soil amendment. Biochar has been shown to improve soil functions and reduce *GHG emissions* . Biochar is recognised as a *carbon dioxide removal* method. Biochar carbon persists for hundreds to thousands of years in soil. Carbon dioxide removal through biochar is less prone to reversal than carbon dioxide removal through afforestation/reforestation and *soil carbon sequestration* .	IPCC, 2022a, IPCC, 2022b		
Biogenic carbon	*Carbon* that is contained in or derived from *biomass* .			
Biogenic carbon emissions	Carbon released as carbon dioxide or methane from combustion or decomposition of biomass or biobased products.Biogenic carbon emitted as CO2 from non-woody biomass, and removals by non-woody vegetation, are excluded from national inventory reporting, and are commonly excluded in company-level inventories, emissions trading and carbon neutrality schemes.Biogenic carbon emissions from woody biomass are included in national inventory reporting, but are sometimes excluded in LCA, such as when supplied from a sustainably-managed plantation, on the basis that if forest carbon stocks are stable there is no net emission. Biogenic carbon emissions may be reported separately, and several standards			
Biogenic methane	Carbon released from *biomass* as methane. This includes methane released by enteric fermentation and from manure, rice production, organic soils, landfills, and combustion of biomass.			Biogenic methane is given a lower GWP100 than fossil methane in some contexts, but a single value for fossil and biogenic methane is used in *national inventory reporting* , and in this project.

Biomass	Organic material excluding material that is fossilised or embedded in geological formations.Biomass includes living and dead organic matter, e.g. trees, crops, grasses, tree litter, algae, animals, manure and waste of biological origin.Carbon comprises about 50% of the dry mass of biomass.In some contexts, including national inventory reporting, biomass refers to the mass of organic material in a specific area, expressed as dry weight.	ISO, 2018; IPCC, 2022a		
Carbon	A chemical element with the symbol C. In the context of climate change, carbon often refers to carbon dioxide, or to all greenhouse gases			The inconsistent and ambiguous use of carbon to sometimes refer to C, or CO2 or all GHGs can cause confusion. In this project we use carbon when referring to the element, CO2 when referring to carbon dioxide, and GHG, or CO2e when referring to all greenhouse gases.
Carbon credit	Tradeable certificate representing one tonne of carbon dioxide equivalents (CO2e) inGHG emission reductions or GHG removals. Carbon credits are generated by abatement projects, and quantified relative to abaseline. Carbon credit schemes commonly apply integrity criteria to ensure that the abatement is genuine, for example, ensuring additionality and permanence, avoiding double-counting and leakage.Carbon credits are commonly purchased to offset GHG emission of the purchasing entity.	ISO, 2022	*Offset*	
Carbon dioxide (CO_2)	A naturally occurring greenhouse gas, that is also a by-product of burning fossil fuels (such as oil, gas and coal), of burning *biomass* , of land use changes and of industrial processes (e.g., cement production). It is the principal *anthropogenic greenhouse gas* that affects the Earth's radiative balance. It is the reference gas against which other GHGs are measured and therefore has a *Global Warming Potential* (GWP) of 1.	IPCC, 2022a		
Carbon dioxide equivalent (CO_2e)	unit for comparing the radiative forcing of a GHG to that of carbon dioxideThe carbon dioxide equivalent is calculated as the mass of a given GHG multiplied by itsglobal warming potential	ISO, 2022		

Carbon dioxide removal	*Anthropogenic* activities that remove *carbon dioxide* from the atmosphere and durably store it in geological, terrestrial or ocean *reservoirs* , or in products. CDR methods include afforestation, reforestation, *biochar* , bioenergy with carbon dioxide capture and storage (BECCS), *soil carbon sequestration* , enhanced weathering, direct air carbon capture and storage (DACCS), ocean alkalinisation and ocean fertilisation.	IPCC, 2022a	*Carbon sequestration*	Synonym: Negative emissions technology.
Carbon footprint	Sum of GHG emissions minus GHG removals of the subject expressed as carbon dioxide equivalents (CO2e). The subject could be a product or an organisation. Where the subject is an organisation, such as a company, the carbon footprint often includes indirect emissions also known as scope 2 and scope 3 emissions. Where the subject is a product, the carbon footprint includes the emissions and removals across the product life cycle.	Modified from ISO, 2022		Sometimes applied to *carbon dioxide* only, rather than all *greenhouse gases* .
Carbon negative, carbon positive	Condition in which net CO2 emissions are negative or positive, respectively. These terms are sometimes used to suggest that an activity, organisation or product has a positive or negative impact on the climate, respectively. These terms are ambiguous and used inconsistently. For example, sometimes carbon positive is used to refer to the desirable situation in which net emissions are negative. Sometimes these terms refer to all GHGs rather than just to CO2.IPCC definition: Condition in which anthropogenic carbon dioxide (CO2) emissionsassociated with a subject are balanced by anthropogenic CO2 removals.Common usage e.g. Climate Active, ISO Carbon neutrality standard: Condition in which anthropogenic GHG emissions associated with a subject are balanced by anthropogenic GHG removals. Achieving carbon neutrality commonly involves offsetting residual emissions through the purchase of carbon credits to counterbalance residual emissions. The subject can be an entity such as a country, an organisation, a district or a commodity, or an activity such as a service or an event.For a company: Carbon neutrality assessment includes the emissions and removals, over a specified period, for which the company has direct control, and may also include "scope 3" emissions and other indirect emissions, as specified by the relevant scheme.For a product: Carbon neutrality is assessed over the life cycle of the product, although the use phase and disposal are sometimes excluded.			

Carbon neutral	For a country, state or local government: Carbon neutrality is assessed on a territorial basis, including direct emissions and removals occurring within the territory, over a specified period.	IPCC, 2022a	Net zero CO2 emissions; GHGneutrality	Note that “carbon neutrality” is often used as a synonym for GHG neutrality but the definitions put forward by IPCC make the distinction clear. Carbon neutral certification under the Climate Active program includes all greenhouse gases. The term ’carbon neutral’ typically refers to the footprint perspective, which includes both emissions and removals outside the direct sphere of influence of the reporting entity, and neutrality is achieved through the purchase of carbon credits, to counterbalance residual (net) emissions.
Carbon sequestration	The process of removing carbon from the atmosphere and transferring it to a carbon pool such as vegetation, soil, ocean or geological formation. Carbon can be sequestered through natural and anthropogenic processes.In national inventory reporting and many other contexts the carbon uptake by annual plants and herbaceous perennial plants , such as grasses, is excluded because it is usually returned to atmosphere within a short period (<10 years, often <1 year).	IPCC, 2022a	*Carbon dioxide removal* ; *Sink;*	
Carbon stock	The mass of carbon in a carbon pool. Carbon stock in vegetation and or soil is often expressed as mass per unit area.For soil carbon stock, it is also necessary to specify the depth; commonly soil carbon stock is expressed to 30cm, the default depth in the IPCC guidelines for national inventory reporting. Sometimes soil carbon stock is expressed per mass of soil, to take into account differences in soil bulk density that can confuse assessment of change in soil carbon stock.The change in carbon stock over a period indicates the CO2 emissions or removals from the pool. A decline in carbon stock indicates an emission; an increase in carbon stock indicates a removal.			
Carbon trading	See *emissions trading*			
CO_2 equivalent	See *carbon dioxide equivalent*			

Decarbonisation	Actions to reduce GHG emissions from human activities. Commonly applied at sectoral level, especially the energy sector, or to the whole economy of a country, or globally.			
Direct emissions	*GHG emissions* from sources owned or controlled by the reporting entity. Agricultural examples include GHG emissions from burning diesel in farm machinery, the release of N2O from bacteria breaking down crop residues or N fertilisers. Also called Scope 1 emissions.	ISO, 2022;	Scope 1 (synonym) Contrast: *Indirect emissions*	Synonym: Scope 1 emissions Note that in national inventory reporting (e.g. NGGI) the terms direct and indirect are used differently. For example, in the context of agricultural nitrous oxide (N2O) emissions, direct emissions of N2O refer to N2O emitted from the site of N application, and indirect N2O results from N volatilised as ammonia or translocated by leaching and runoff, that is converted to N2O elsewhere.
Embedded emissions	Life cycle GHG *emissions* associated with the production of a product. Usually considers all life cycle stages prior to use by the consumer, that is, emissions from raw material acquisition, processing and transport, minus *carbon* sequestered.			Synonym: Embodied emissions
Emissions factor	A [representative value] [coefficient] that quantifies the GHG emissions or removals per unit of an activity.	IPCC, 2022		
Emissions intensity	The quantity of emissions per unit of production.			
	Emissions intensity can be expressed per unit of total mass, mass of protein or energy, or dollar value of production.			
Emissions trading	Buying and selling *carbon credits* generated by activities that reduce *GHG emissions* or achieve *GHG removals* .			Also referred to as carbon trading
Functional unit	In life cycle assessment: unit of production used as a reference that reflects the function of a product or service			

Global warming potential	An index measuring the radiative forcing following an emission of a unit mass of a GHG, accumulated over a chosen time horizon, relative to that of the reference substance, carbon dioxide (CO2). The GWP represents the combined effect of the differing times that GHGs remain in the atmosphere and their different effectiveness in causing radiative forcing, that is, in heating the Earth's atmosphere. GWP is measured in units of carbon dioxide equivalents (CO2e). The most common time horizon is 100 years (GWP100).Parties to the UNFCCC have agreed to use GWP100 values from the IPCC's Fifth Assessment Report (AR5) or GWP100 values from a subsequent IPCC Assessment Report to report aggregate emissions and removals of GHGs under the Paris Agreement. In addition, parties may use other metrics to report supplemental information on aggregate emissions and removals of GHGs.	IPCC, 2022a	*Greenhouse gas emission metric*	
Greenhouse gas GHG	Gaseous constituent of the atmosphere, either natural or anthropogenic, that absorbs and emits radiation at specific wavelengths within the spectrum of radiation emitted by the Earth's surface, by the atmosphere itself, and by clouds. This property causes the greenhouse effect. Water vapour (H2O), carbon dioxide (CO2), nitrous oxide (N2O), methane (CH4) and ozone (O3) are the primary GHGs in the Earth's atmosphere. Human-made GHGs include sulphur hexafluoride (SF6), hydrofluorocarbons (HFCs), chlorofluorocarbons (CFCs) and perfluorocarbons (PFCs). Emissions of CO2, methane, nitrous oxide, HFCs, nitrogen trifluoride, PFCs and sulphur hexafluoride are reported under the UNFCCC and aggregated into carbon dioxide equivalents (CO2e) using global warming potentials (GWPs). Water vapour and ozone, which are anthropogenic as well as natural greenhouse gases, are not included in reporting under the UNFCCC. GHGs differ in their radiative efficiency (potency as a GHG) and their atmospheric lifetime.			
Greenhouse gas account	Chart of accounts that reports the inventory of GHG emissions, detailing the emissions and removals of each GHG, from each source and sink process, over a specified period. GHG accounts usually report emissions and removals over a period of one year. For agricultural systems, that are often subject to wide annual variation, the data are often derived by averaging over a period of five or ten years.			
Greenhouse gas emission	release of a *GHG* into the atmosphere. GHG emissions result from a GHG *source* .	ISO, 2022	*source*	

Greenhouse gas management hierarchy	Priority order of actions to achieve carbon neutrality: 1. Reduce GHG emissions 2. Remove CO2 by implementing carbon dioxide removal methods 3. Offset residual emissions through purchase of carbon credits			
Greenhouse gas emission metric	A simplified relationship used to quantify the effect of emitting a unit mass of a givenA simplified relationship used to quantify the effect of emitting a unit mass of a given GHG on a specified measure of climate change. A relative GHG emission metric expresses the effect from one gas relative to the effect of emitting a unit mass of a reference GHG on the same measure of climate change. There are multiple emission metrics, and the most appropriate metric depends on the application. GHG emission metrics differ with respect to (i) the key measure of climate change they consider, (ii) whether they consider climate outcomes for a specified point in time or integrated over a specified time horizon, (iii) the time horizon over which the metric is applied, (iv) whether they apply to a single emission pulse, emissions sustained over a period of time, or a combination of both, and (v) whether they consider the climate effect from an emission compared to the absence of that emission or compared to a reference emissions level or climate state. Most relative GHG emission metrics (such as the global warming potential (GWP), global temperature change potential (GTP), global damage potential, and GWP*), use carbon dioxide (CO2) as the reference gas. Emissions of non-CO2 gases, when expressed using such metrics, are expressed in carbon dioxide equivalents (CO2e). A metric that establishes equivalence regarding one key measure of the climate system response to emissions does not imply equivalence regarding other key measures. The most common GHG emission metric used is the GWP100, that is, the global warming potential assessed over a 100-year time horizon. This is the metric used for national inventory reporting. Under the Paris Rulebook UNFCCC parties have agreed to use GWP100 values from the IPCC fifth assessment report (AR5) or GWP100 values from a subsequent IPCC Assessment Report as the GHG emissions metric used to report aggregate emissions and removals of GHGs. In addition, parties may use other metrics to report supplemental information on aggregate emissions and removals of GHGs.	IPCC, 2022a	*Global warming potential*	
Greenhouse gas footprint	See *carbon footprint*			

Greenhouse gas neutrality	Condition in which anthropogenic GHG emissions associated with a subject are balanced by anthropogenic GHG removals. The subject can be an entity such as a country, an organisation, a district or a commodity, or an activity such as a service or an event.Condition in which anthropogenic GHG emissions associated with a subject are balanced by anthropogenic GHG removals. The subject can be an entity such as a country, an organisation, a district or a commodity, or an activity such as a service or an event. Achieving greenhouse gas neutrality often relies on the supplementary use of offsetting to balance residual emissions. For a company: GHG neutrality assessment includes the GHG emissions and removals, over a specified period, for which the company has direct control, and may also include indirect emissions ("scope 3" emissions), as specified by the relevant scheme. For a product: GHG neutrality is assessed over the life cycle of the product. For a country, state or local government: GHG neutrality is assessed on a territorial basis, including direct GHG emissions and removals occurring within the territory, over a specified period. The term net zero GHG is more commonly applied to the territorial perspective. The quantification of GHG emissions and removals depends on the GHG emission metric chosen to compare emissions and removals of different gases, as well as the time horizon chosen for that metric. Greenhouse gas neutrality and net zero greenhouse gas emissions are overlapping concepts. At a global scale, greenhouse gas neutrality and net zero greenhouse gas emissions are equivalent. At sub-global scales, net zero GHG emissions is generally applied to emissions and removals under direct control or territorial responsibility of the reporting entity, while GHG neutrality generally includes emissions and removals within and beyond the direct control or territorial responsibility of the reporting entity. Rules specified by GHG neutrality certification schemes for quantification of GHG emissions and removals have a significant influence on the achievement of GHG neutrality.	Adapted from IPCC, 2022a	*Carbon neutrality,Greenhouse gas emission metric,Net zero GHG emissions*	This IPCC definition, which explicitly refers to all GHGs, is applied to the term “carbon neutrality” in some initiatives, such *as Climate Active* and the ISO standard on carbon neutrality.
Greenhouse gas Protocol	An initiative of the World Resources Institute and the World Business Council on Sustainable Development that provides standards, guidance and tools for quantifying organisation-level GHG inventories			
Greenhouse gas removal	Withdrawal of a *GHG* from the atmosphere by a *sink*	ISO, 2022		

Indirect emissions	*GHG emissions that are a consequence of the organisation's activities, but that arise from GHG sources that are not owned or controlled by the organisation.Indirect emissions occur upstream and/or downstream of the farm, across the value chain, and include emissions from manufacture of inputs such as fertiliser, and from processing of products, such as abattoir operations or milling.Indirect emissions also include emissions outside the value chain that are induced by change in demand for (or supply of) products produced or sourced by the organisation.*	ISO, 2022	Scope 3	Scope 3 emissions are indirect emissions that occur within the value chain. Scope 3 excludes indirect emissions resulting from market-mediated effects.
Insetting	Emissions reduction or *carbon sequestration* through management of GHG *sources* and GHG *sinks* within the value chain the reporting entity. Insetting occurs when a company *offsets* its emissions using *abatement* occurring within its own value chain.		*Offset*	
Inventory boundary	(for *reporting* or *accounting*): Boundary specifying which *GHG emission* s and *GHG removal* s are accounted and reported by the organisation. GHG accounting and reporting boundaries can have several dimensions, i.e. organizational, operational, geographic, business unit, and target boundaries.	Adapted from GHG Protocol		
Inter-governmental Panel on Climate Change	An intergovernmental body of the United Nations established in 1988 to provide scientific information on *anthropogenic* climate change, including the impacts and risks, and possible response options. The IPCC does not conduct original research but rather undertakes periodic, systematic reviews of published literature. IPCC reports are prepared by thousands of scientists and other experts who volunteer to assess the science related to climate change. The IPCC is governed by its member states through an elected bureau of scientists, who select the authors for each report from nominations received from governments and observer organisations. The IPCC periodically produces assessment reports and also produces Special Reports within each assessment cycle. The IPCC also produces Guidelines for preparation of national greenhouse gas inventories.			
Kyoto Protocol	A legally-binding instrument made under the UNFCCC, adopted at the third meeting of the convention (COP 3) in 1997. The Kyoto Protocol obliged developed countries (known as 'Annex I Parties') to meet *GHG emission* targets. It entered into force in 2005. The first Kyoto Protocol commitment period ran from 2008 to 2012, and the second from 2013- 2020.		*UNFCCC,*	

Land use, land use change and forestry	Inventory sector in which GHG emissions and GHG removals due to land clearing, afforestation and reforestation, forest management, establishing plantations or tree crops, controlled burning and wildfire, and CO2 emissions and removals due to changes in soil carbon stocks in forest and agricultural land are reported.			
Land use change	Change in land use category, such as conversion from forest to cropland or grassland. Land use change can cause GHG emissions, such as through land clearing, or removals, such as though reforestation.Direct land use change is land use change that occurs on land owned or controlled by the organisation, due to the activities of the organisation.Indirect land use change is land use change that occurs outside the value chain, that is induced by change in demand for (or supply of) products produced or sourced by the organisation.			Land use change that occurs on land outside the ownership or control of the organisation, but within the value chain is classed as direct land use change in some schemes (e.g. draft GHG Protocol land sector and removals guidance), and indirect in others.
Leakage	An increase in emissions that results indirectly from mitigation actions. Leakage can include increased *GHG emissions* upstream or downstream in the value chain (such as increased emissions from fertiliser production if a landholder applies more fertiliser to lift pasture growth to sequester more *soil carbon*), or through market-mediated effects (such as land clearing triggered by converting land use from food production to biofuel production or adoption of lower-intensity production practices to boost soil carbon, known as indirect land use change)			
Life cycle assessment	Compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle.Life cycle refers to “cradle-to-grave”: the consecutive and interlinked stages, from raw material acquisition or generation from natural resources to final disposal or recycling. In LCA of farm products, partial LCA is common, often covering cradle to farm gate.	ISO 14044		
Mass Balance	Mass balance is a chain of custody approach that allows tracking the net amount of sustainable materials as they move through a system or supply chain and ensures an appropriate allocation of these materials to the finished goods based on auditable bookkeeping			

Methane (CH4)	A potent *greenhouse gas* with short atmospheric lifetime. Methane is the major constituent of natural gas. Livestock production and paddy rice are significant methane sources. Methane is produced naturally when organic matter decays under anaerobic conditions, such as in wetlands. Under future global warming, there is potential for increased methane emissions from thawing permafrost, wetlands and sub-sea gas hydrates. Methane is classed as a short-lived climate pollutant.	Adapted from IPCC, 2022a		
Method	In the UNFCCC: refers to the procedures for measurement and estimation of GHG emissions and removals.In contrast, the approach defines WHAT is being estimated and reported in an inventory and by WHOM (determined by the system boundary), while the method describes HOW the reported values are derived, that is, the techniques used in estimation.	UNFCCC,	*Approach*	
Metric	See *greenhouse gas emission metric*			
Mitigation	*GHG removals* by *sinks* and/or reduction in *GHG emissions* by *sources*		Synonym:	Some users restrict mitigation to emissions reduction only
Monitoring, Reporting and Verification	Procedures for quantification, documentation and independent evaluation of GHG inventories, in the context of *national inventory reporting* , *emissions trading* and *carbon/GHG neutrality* claims.			
Nationally determined contribution NDC	(Under the *UNFCCC*) National plans that specify a party's self-determined target for GHG emissions reduction under the Paris Agreement, and describe how it intends to meet the target, and to assess progress.			
Negative emissions technology	See *Carbon dioxide removal*			
Net GHG emissions	*GHG emissions* minus *GHG removals*			
Net zero CO2 emissions	Condition in which anthropogenic carbon dioxide (CO2) emissions are balanced by	IPCC, 2022a		

Net zero GHG emissions	Condition in which GHG emissions are balanced by GHG removals over a specified period. For a company: Net zero GHG assessment includes the GHG emissions and removals, over a specified period, for which the company has direct control, and may also include indirect emissions ("scope 3" emissions), as determined by the relevant scheme. The term GHG neutrality is also applied to the company perspective, with the same meaning. For a country, state or local government: Net zero GHG is assessed on a territorial basis, including GHG emissions and removals occurring within the territory, over a specified period. The quantification of net zero GHG emissions depends on the GHG emission metric chosen to compare emissions and removals of different gases, as well as the time horizon chosen for that metric. GHG neutrality and net zero GHG emissions are overlapping concepts. See GHG neutrality for explanation of the differences.	IPCC, 2022a		
Nitrous oxide (N2O)	A long-lived, potent *greenhouse gas* . Agriculture is the major *anthropogenic* source, particularly from use of organic and chemical nitrogen fertilisers, decomposition of biomass residues, livestock urine and manure management. Nitrous oxide is also produced naturally, especially from microbial activity in soils in warm wet environments, as a component of the nitrogen cycle.			
Offset	A reduction, avoidance or removal of a unit of greenhouse gas (GHG) emissions by one entity, used by another entity to counterbalance a unit of GHG emissions by that other entity. Offsets are usually represented by a carbon credit that has been retired or cancelled in a register by or on behalf of the entity to counterbalance its residual GHG emissions. Generation of carbon credits and use of offsets are commonly subject to rules and environmental integrity criteria intended to ensure that offsets achieve their stated mitigation outcome. Relevant criteria include additionality, the avoidance of double counting, double-claiming and leakage, use of appropriate baselines, and permanence or measures to address impermanence.	IPCC, 2022a; ISO, 2022		
Offsetting	counterbalancing *residual emissions* by retiring or cancelling a *carbon credit* (s) in a public registry		Insetting	
Paris Agreement	Legally binding international treaty on climate change made under the *UNFCCC* . It was adopted by 196 Parties at UNFCCC COP 21 in Paris, in 2015 and entered into force in 2016. Its goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels.		*UNFCCC,*	

Payments for ecosystem services (PES)	Arrangements through which the beneficiaries of environmental services such as catchment protection, habitat conservation and *carbon sequestration* , reward those whose lands provide these services with subsidies or market payments.			
Permanence	In *carbon credit* schemes: refers to measures applied to manage the risk of reversal of *carbon dioxide removals* , such as requirements to maintain sequestered carbon in vegetation or soil pools for 100 years.		*Carbon credit Offset*	
Pool	see *Reservoir*			Synonym: reservoir
Removal	See *Greenhouse gas removal*			
Reporting	Under the UNFCCC and associated processes: The action of providing the results of the estimation of emissions and removals to the UNFCCC in a standardized manner. This refers to the national inventory report, submitted by parties to the UNFCCC. IPCC Guidelines specify methods and approaches for reporting and accounting.	UNFCCC, 2003	*Accounting*	
Reservoir	*Carbon dioxide removal involves a sink process, that transfers CO2 from the atmosphere to a reservoir.*	UNFCCC, 1992		Synonym: pool
Residual emissions	*GHG emissions* that remain after *mitigation* actions by the organisation are taken into account.			
Residue	An output of a production system that has a use but not an economic value. An example of a residue is manure which has no economic value at the farm gate without further processing but has subsequent use as a fertiliser. In life cycle assessment, a residue is not a waste; waste is defined as an output that has neither an economic value nor any other type of use. In legislation, such as environmental protection, residues are sometimes defined and treated as wastes.	ISO, 2006;		
Science-based targets initiative (SBTi)	Initiative that aims to support companies to set GHG emission reduction and net zero targets in line with climate science and Paris Agreement goals. The SBTi is a partnership between CDP, the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF).			

Scope 1,2,3 emissions	Terminology developed by the Greenhouse Gas Protocol and now adopted broadly, including in National Greenhouse and Energy Reporting (NGER) documentation.Scope 1 emissions: direct emissions arising from sources within the control of thereporting organisation.Scope 2 emissions: indirect emissions from the generation of purchased or acquired electricity, steam, heating or cooling consumed by the reporting organisation.For farms, this is predominantly electricity use.Scope 3 emissions: indirect emissions other than scope 2 emissions that occur within the value chain as a consequence of the organisation's activities. For farms, scope 3 emissions are the pre-farm and post-farm emissions, such as from manufacture of urea and herbicides, processing in abattoirs, and refrigerated transport of produce.Scope 3 emissions are not reported under the NGER scheme. Scope 3 emissions are included in consumption-based accounting, that seeks to capture the climate impacts of the manufacture of imported goods.			
Sequester, sequestration	See *carbon sequestration*			
Sink	A process, activity or mechanism that removes a *GHG* , an aerosol or a precursor to a GHG from the atmosphere. A *pool* (*reservoir*) is a sink for atmospheric carbon if, during a given period, more *carbon* is moving into it than is flowing out. Forests and agricultural lands are reservoirs: they can be either a *source* or a sink. A forest is a sink if there is net flow of *greenhouse gas* es into the aggregated forest pools (sum of living *biomass* , litter and soil pools), and it is a source if there is a net flow of GHG to the atmosphere from the aggregated pools.	UNFCCC, 1992 IPCC, 2022a	*Source*	
Short Lived Climate Pollutant	*Greenhouse gases and other chemically reactive compounds with short (relative to carbon dioxide) atmospheric lifetimes (from hours to about two decades) that directly or indirectly affect radiative forcing. Direct SLCPs include methane (CH4), ozone (O3), and black carbon (soot).*	Adapted from IPCC, 2022		Short lived climate forcer, although this is a broader term that also includes compounds that cause cooling
Soil carbon	*Carbon* present in the soil carbon pool. Soil carbon usually refers to soil organic carbon. Soil organic carbon is derived from *biomass* , such as leaf litter, dead roots and manure. Carbon constitutes about 50% of the dry mass of soil organic matter.			Soil organic carbon is often abbreviated as SOC.

Soil carbon sequestration	Land management changes undertaken to increase the *soil organic carbon* content, resulting in a net removal of *carbon dioxide* from the atmosphere. Practices include zero tillage combined with stubble retention; modified grazing/pasture management; ponding to increase moisture retention. Soil carbon sequestration is recognised as a carbon dioxide removal (CDR) method.	IPCC, 2022a		Also known as soil carbon management
Soil organic carbon	See *soil carbon*			
Source	A process, activity or mechanism that releases a *GHG* , an aerosol or a precursor to a GHG into the atmosphere. Forests and agricultural lands are reservoirs: they can be either a source or a sink. A forest is a sink if there is net flow of greenhouse gases into the aggregated forest pools (sum of living biomass, litter and soil pools), and it is a source if there is a net flow of GHG to the atmosphere from the aggregated pools	UNFCCC, 1992	*Sink*	
Supply Shed	Supply Shed has been broadly defined as a group of suppliers in a specifically defined market (e.g., at a national or sub-national level) providing functionally equivalent goods or services (commodities) that can be demonstrated to be within the company's supply chain.			
Sustainability Framework: principle criteria, Strategic Intent and indicators	A scheme designed to support sustainable management, comprising a hierarchy of principles, criteria and indicators, focussing on outcomes rather than prescriptive guidance on practices to be applied.A scheme designed to support sustainable management, comprising 11 criteria covering the three pilars of sustainability (social, economic and environmental) each with a strategic intent and indicators, focussing on outcomes rather than prescriptive guidance on practices to be applied. 'Strategic Intents' are fundamental statements about a desired outcome, that are universally applicable. 'Criteria' are the topic area that are considered when identifying material challenges. 'Indicators' are the measurable states (at a global level) which allow the assessment and monitoring of progress at an aggregated level globally. In addition to the global indicators organizations must also consider appropriate local targets and associated performance monitoring metrics, specific to local needs.			

System boundary	In *life cycle assessment* : Boundary that specifies which activities are included in the system under study. The system could refer to a product or an organisation, and the boundary could be defined on the basis of area (territorial boundary, as applied in *national inventory reporting*), financial or management control (for organisations) or influence (such as a product life cycle, which includes effects upstream and downstream of production, on cradle-to-grave, or cradle-to-farm gate basis). The system boundary defines which *GHG emissions* and *removals* associated with an organisation or product are included in the assessment.	Adapted from ISO, 2020	*Inventory boundary*	
System expansion	In *life cycle assessment* : An approach that can be used to separately quantify the environmental impacts of one co-product amongst multiple co-products from a production process, as an alternative to *allocation* . All emissions are assigned to the determining product, but a credit is also applied for avoided emissions from the beneficial use of co-products.		*Allocation*	
United Nations Framework Convention on Climate Change UNFCCC	International treaty that aims to achieve the stabilization of *greenhouse gas* concentrations in the atmosphere at a level that would prevent dangerous interference with the climate system. One of the three “Rio Conventions” (the others being the Convention on Biological Diversity (CBD) and the United Nations Convention to Combat Desertification, the latter addressing land degradation in the drylands)			

PATHWAYS TO DAIRY NET ZERO.

Glossary or Common Usage Example	Term	Description
	Greenhouse gases (ghg)	In our dairy production chain the most relevant greenhouse gases are CO_2 (carbon dioxide) / CH4 (methane) / N_2O (Nitrous oxide). These are released during our entire production, processing and logistics process. See Q3
Example	**So whats the difference between CO_2 and greenhouse gases (GHG)?**	CO_2 is one of the greenhouse gases. The other GHG are 'calculated' as a form of CO_2. We call that 'CO_2 equivalents' / CO_2-eq.
Example	**Which GHG do we see at the farm?**	CO_2: This greenhouse gas accounts for most of the emissions at dairy farms, for example through the consumption of electricity and diesel fuel
		CH_4: Cows release methane (CH_4) via their manure. Although these emissions are lower than the CO2 levels, they have a greater effect on global warming. In terms of warming, a single kilogramme of CH_4 is equal to 34 kilogrammes of CO_2.
		N_2O: Nitrous oxide (N_2O) is released when manure is injected into the soil. Here, too, the level is lower than CO_2 emissions, but it has a greater impact on the greenhouse effect. In terms of warming, a single kilogramme of N_20 is equal to 298 kilogrammes of CO_2.
Example	**What is carbon neutrality or net zero?**	Intergovernmental Panel on Climate Change (IPCC): carbon neutrality, or net zero CO_2 emissions, is when CO_2 emissions are balanced by CO_2 removed from the atmosphere over a specific period. For instance: One company's activities emit 10 CO_2 and it removes 10 CO_2 leaves 0 CO_2 (10-10=0).

		Carbon neutral is often used to communicate the balance of GHG Emissions ($CO_{2\ equivalents}$) and removals, not only CO_2.
		In this context it could also be phrased as "Climate Neutral".
Example	**What's the difference with climate neutral?**	Carbon neutral is often used when actually climate neutral is meant. It is a similar concept of carbon neutrality but always regarding the balance of all GHG emissions and removals.
		Therefore, Climate neutral in fact goes further than carbon neutral. It refers to the emission and mitigation of all greenhouse gases – not just carbon
		Due to the controversial misleading that this terminology implies, at RFC the use of "Climate Neutral" or similar terminology for communication purposes should always be align with the responsible departments (Corporate sustainability, Regulatory Affairs and Public Affairs) for climate claims.
Example	**6. How do you become carbon neutral**	Human activity currently leads to more greenhouse gas emissions in the atmosphere than can be removed.
		Therefore: reduce emissions and increase removal
		To become carbon neutral
		· Remove more, for the long term. So planting a tree and cutting a tree isn't a long-term fix (but not cutting and only planting trees can be).
		· Reduce: Emit less, forever. So gradually balance can return between emission & removal.
Glossary	**Carbon sequestration**	Removing CO_2 from the atmosphere and then storing it is
		known as carbon sequestration.
		It is a kind of 'long-term storage' of greenhouse gases (at least 20 years). Since this long-term storage generally is done by nature (e.g. in trees, in soil) this links our 'Better climate' priority to our 'Better nature' priority.
		So if we contribute by having more & diverse life on land (e.g. more flowers, more herb rich grasses, more shrubs), for longer and let the soil rest a bit more so also more insects can thrive, the soil and plants can absorb / store (more).

Example	**How can we prove or certify lower emissions?**	Both the emission and reduction as well as potential compensation needs to be proven.
Example	**What is offsetting?**	According to The GHG Protocol , offsets are discrete as GHG reductions used to compensate for (i.e., offset) GHG emissions elsewhere (i.e. outside its value chain), for example to meet a voluntary or mandatory GHG target or cap.
		In other words, Carbon offsetting allows you to balance out your climate impact and compensate for the emissions you produce by reducing CO2 outside of your value chain. For instance: you take an airplane and compensate for that emission by purchasing an offset representing an en emission uptake (like trees) or reduction (like renewable energy development)
Example	**What is insetting?**	This is about creating carbon reduction projects inside your value chain in order to balancing out the greenhouse gas emissions within your value chain. For instance: if a farmer has a cow emitting a certain amount of methane and this same farmer is growing extra trees or has good agricultural practices representing the absorption of a same amount, the emission is insetted. Our value chain is broader than that, so it is also allowed to be further away from that source.
Example	**What is GHG Emission Reduction?**	It is the result of mitigation activities that promote the decrease of GHG emissions, resulting in a lower footprint.
Example	**What are the practical differences between Insetting and offsetting projects?**	Insetting is by definition inside your value chain, i.e., under the company's influence to be monitored and evaluated, giving material advantages when compared to offsetting projects. In this way, insetting provides the following advantages when compared to offsetting : It provides reliable information about the quality of the emission reduction project, supports financially and technically our own value chain for implementing GHG projects, aggregates more value to our product, and reduces the risk of future greenwashing accusations.

Example	**Can we claim the reduction when we use certified emissions for compensation?**	No, in order to avoid double counting, when we claim the certified emission for compensation of the emissions of one product or client, we cannot claim it again as a GHG reduction in our GHG disclosure reports. It is highly important to be transparent in the reallocation of our emission reductions. That is why we must decide which projects are going to be used as compensation or as reduction, never at the same time.
Example	**What is carbon removal? And carbon avoidance?**	Carbon dioxide removal refers to the process of removing CO2 from the atmosphere and durably storing it in geological, terrestrial, or ocean reservoirs, or in products
		Examples of this type of project are mitigation activities that promote reforestation or the increment of organic carbon in the soil through good agricultural practices.
		This category includes mitigation activities where the release of GHG emissions into the atmosphere is reduced or avoided.
		Examples of this kind of project are mitigation activities with Feed additives, manure manure-digesters, fuel switching projects, etc.
Example	**ETS pricing. What is it?**	ETS stands for Emission Trading System. This is a system from the EU as part of its climate policies to reduce industrial greenhouse gas emissions cost effectively. This is about actual legal rights to emit.
		How?
		ETS has set a ‘cap’ in 2005 on the total amount of ghg companies may emit each year (it is a legislative obligation). See it as a sort of a legislative ceiling. This ceiling will be lowered throughout the (coming) years.
		For what / whom?
		Currently this counts for energy intensive industries and aviation. This is connected to for instance production locations and installations, not to animal emission, transport, etc, but the scope might be broadened in the future.
		How much?
		A fixed number of allowances to emit are issued. This is the currency of the ETS market.

		If a company does not have enough allowance (e.g. your allowance is 5 and you emit 7): you need to cut your emission or buy extra allowances from another emitter. If you have more allowance than you emit: you can keep them for another year or sell them.
		This has led to a global trade in these allowances and due to the scarcity to an increase in the pricing. And the scarcity will grow because the 'ceiling' will be lowered continuously.
		In the Netherlands, as part of the climate agreement, from 2021 there will also be an extra levy on top. Firstly with limited costs, but with a cap on allowance. The ceilings and allowances will be lowered from 2023 on. Pricing will evolve from € 5,- in 2021 to € 125-150,- in 2030.
		The Supply Chain emission targets are in line with these reductions so we can limit the carbon costs. This does ask for extra investments and reductions in order to achieve the targets, with focus on ETS locations (since not all locations apply).
Glossary	**Carbon footprint**	The amount of GHG released into the atmosphere as a result of an activity. i.e., a product emission since its row material production up to its final disposal.
Glossary	**Certified Emission Reductions**	A unit of emission reduction that can be allocated or traded usually in tones of CO2eq.
Glossary	**Climate Neutrality/Carbon neutral**	It is achieved when GHG emissions are balanced by GHG removals and reductions over a specified period by human activities
Glossary	**Emission avoidance**	The release of GHG emissions into the atmosphere is avoided through a project or intervention when compared with business as usual. i.e., feed additives to the cows and manure mono-digesters.
Glossary	**Emission Reduction**	It is the result of mitigation activities that promote GHG emission Removal or Avoidance
Glossary	**Emission removal**	The uptake of CO2 and storage of carbon in biological sinks. i.e. reforestation projects and carbon soil sequestration.
Glossary	**Greenhouse gas (GHG)**	Gases that are potentializing global worming. Mainly: carbon dioxide; methane; nitrous oxide; hydrofluorocarbons; perfluorocarbons; and sulphur hexafluoride.

Glossary	**Insetting Compensation (allocation)**	Action taken with insetting certified emission reductions to allocate them to a product or client in order to promote the neutralization of part or the overall product's emission.
Glossary	**Insetting**	It is the mitigation projects and actions promoted in our value chain towards GHG reduction.
Glossary	**Offsetting**	Offsets are discrete certified emission reductions used to compensate for GHG emissions elsewhere.
Glossary	**Value chain**	All of the upstream and downstream activities associated with one company
Glossary	**Greenhouse gas (GHG)**	The greenhouse effect is a warming of Earth´s surface and the air above it. It is caused by gases in the air that "trap" energy from the sun. These gases are called greenhouse gases. The most relevant GHG emitted by the dairy sector are carbon dioxide (CO-2), methane, nitrogen dioxide.
Glossary	**GHG Emission Reduction**	It is the result of mitigation activities that promote the decrease of GHG emissions, resulting in a lower footprint.
Glossary	**Carbon footprint**	The amount of carbon dioxide released into the atmosphere as a result of the activities of a particular individual, organization or country. Very often this term is used to introduce the idea of GHG footprint.
Glossary	**Compensation (Offsetting)**	GHG emissions that have been reduced, avoided or captured through projects that are verified according to credible standards. Each offset or Certified emission reduction units is equivalent to one metric ton of carbon dioxide equivalent (CO2e) and may be used to compensate for (i.e., offset) GHG emissions elsewhere or allocate them
Glossary	**Insetting**	It is the mitigation projects and actions promoted in our value chain towards GHG reduction.
Glossary	**Certification (Certified Emission Reduction)**	It is the quantification and posterior accreditation (i.e. endorsement) of a regulatory entity regarding GHG emission reductions from GHG mitigation project, resulting in certified emission reduction units in metric tons of CO2eq.

Glossary	**Insetting Compensation (allocation)**	Action taken with insetting certified emission reductions to allocate them to a product or client in order to promote the neutralization of part or the overall product's emission.
Glossary	**Double counting**	Two or more reporting companies take ownership of the same emissions reductions or counting twice for the same reduction in a footprint report.
Glossary	**Carbon removal**	Removing CO_2 from the atmosphere and then storing it is known as carbon sequestration.
Glossary	**Carbon avoidance**	The release of GHG emissions into the atmosphere is avoided through a project or intervention when compared with business as usual.
Glossary	**Carbon Net Zero**	It is achieved when CO2 emissions are balanced by CO2 removals over a specified period by human activities. Net zero CO2 emissions are also referred to as carbon neutrality.
Glossary	**Carbon Neutrality**	Same as Net Zero Carbon Emissions. It is also often used to express the Climate neutral idea.
Glossary	**Net zero**	Same as climate Neutrality.
Glossary	**Climate Neutrality**	means achieving a balance between emissions and removals of GHGs from the atmosphere
Glossary	**Value chain**	All of the upstream and downstream activities associated with the operations of the reporting company, including the use of sold products by consumers and the end-of-life treatment of sold products after consumer use
Glossary	**Scope 1 emissions**	Emissions from operations that are owned or controlled by the reporting company
Glossary	**Scope 2 emissions**	Emissions from the generation of purchased or acquired electricity, steam, heating or cooling consumed by the reporting company
Glossary	**Scope 3 emissions**	All indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.

Glossary	**Abatement**	[From SBTI Net Zero Standard] Measures that companies take to prevent, reduce, or eliminate sources of GHG emissions within their value chains. Examples include reduc- ing energy use, switching to renewable energy, and retiring high-emitting assets.
Glossary	**Additionality**	[Adapted from the Nordic Code for Voluntary Use of Carbon Credits] At the time of the decision to implement a mitigation activity, the outcomes of such an activity would not have occurred due to the absence of the incentives created by the carbon related revenues.
Glossary	**Allocation**	[Adapted from GHG Protocol Scope 3 Standard] The process of assigning the GHG emissions profile of a system (e.g., production unit, quantity of goods) to the various outputs of the system based on physical or economic data specific to the studied sys- tem (including its socio-economic and geographical scales).
Glossary	**Assurance**	[From GHG Protocol Scope 3 Standard] The level of confidence that the inventory and report are complete, accurate, consistent, transparent, relevant, and without material misstatements.
Glossary	**Attribution**	The process of assigning a GHG emissions profile from a studied system (e.g., pro- duction unit, quantity of goods) amongst organisations based on certificates of GHG attributes, which enables the faster scaling of investment in impact through the use of market-based mechanisms. Note that the term may be used interchangeably with “as- signment”.
Glossary	**Audit trail**	[Adapted from GHG Protocol Scope 3 Standard] Organised and transparent historical records documenting how the GHG inventory was compiled.
Glossary	**Baseline**	[Adapted from GHG Protocol Scope 3 Standard] A hypothetical scenario for emissions that is predicted or assumed to occur in the absence of the incentives created by the carbon credits and their associated mitigation activities, while holding all other factors constant.

Glossary	**Beyond value chain**	of BVCM include, but are not limited to: forestry, e.g., Jurisdictional REDD+; conser- vation projects, e.g., peatland or mangrove protection/regeneration; energy efficiency, e.g., cookstove projects; methane destruction, e.g., landfill gas projects; renewable en- ergy, e.g., solar/wind/biogas; industrial gases, e.g., N2O destruction at nitric acid facili- ties; scale-up of CDR technologies, e.g., direct Air Capture (DAC) and storage.
Glossary	**Carbon credit**	[From the Nordic Code for Voluntary Use of Carbon Credits] A carbon credit is a tradable financial instrument that is issued by a carbon crediting programme and that represents a verified GHG mitigation outcome of one metric tonne of carbon dioxide equivalent, calculated as the difference between the baseline and activity emissions. Carbon cred- its are uniquely serialised, issued, tracked, and retired or cancelled by means of an elec- tronic carbon registry operated by an administrative body such as the administrator of a carbon crediting programme.
Glossary	**Carbon crediting**	to be issued by best in class carbon crediting programmes that meet such as ICVCM's CCPs.
Glossary	**Carbon dioxide**	[From Intergovernmental Panel on Climate Change (IPCC)] A naturally occurring gas, CO2 is also a by-product of burning fossil fuels (such as oil, gas, and coal), of burning biomass, of land-use changes (LUC), and of industrial processes (e.g., cement produc- tion). It is the principal anthropogenic greenhouse gas (GHG) that affects the Earth's radiative balance. It is the reference gas against which other GHGs are measured and therefore has a global warming potential (GWP) of 1.
Glossary	**Carbon neutrality**	[From the United Nations Framework Convention on Climate Change (UNFCC)] "Cli- mate neutrality" refers to the idea of achieving Net Zero greenhouse gas emissions by balancing those emissions so they are equal to (or less than) the emissions that are re- moved through the planet's natural absorption; in basic terms it means reducing emis- sions through climate action. Carbon neutrality is also referred to as "Net Zero CO2 emissions".

Glossary	**Carbon registry**	[From the Nordic Code for Voluntary Use of Carbon Credits] A database for tracking the issuance, transfers, and use of carbon credits.
Glossary	**Causality**	[From VCI 1.1 Guidance] Causality is the demonstration that an investment (or other equivalent action) of a company or group of companies acting collectively is what caused the Intervention to happen. Causality does not guarantee rights to be able to issue or re- tire carbon credits for other purposes from an intervention. This depends on the require- ments of the issuing body, which may not necessarily align directly with this definition. This definition was strengthened by the SBTi FLAG guidance and method addendum published in November 2022: “A company claiming to follow this guidance must show that they have contributed to the upkeep and continuation of the carbon farming Inter- vention. The company should ensure no double claiming of causality is done.”
Glossary	**Chain of Custody**	[From ISEAL CoC Models and Definitions] The custodial sequence that occurs as ownership or control of the material supply is transferred from one custodian to another in the supply chain’.
Glossary		Documenting Chain of Custody describes the list of all organisations in the supply chain that take ownership or control of a product during production, processing, shipping and retail (physically and/or administratively).
Glossary	**Climate change targets**	[From the Intergovernmental Panel on Climate Change (IPCC)] A human Intervention to reduce emissions or enhance the sinks of greenhouse gases.
Glossary	**Corporate climate**	[From SBTI Net Zero Standard] Goals set by a corporation to reduce the corporation’s impact on the climate. Targets may include a variety of climate forcers across different corporate activities (i.e., operations, value chain, products) and may use emission sabatement or neutralisation.

Glossary	**Cradle-to-gate**	[Adapted from GHG Protocol Scope 3 Standard] Cradle-to-gate is a partial life cycle inventory, including all emissions and removals from material acquisition through to when the intermediate product leaves the reporting company's gate (typically immedi- ately after production) and excluding final product use and end-of-life.
Glossary	**Decarbonisation**	[From SBTI Net Zero Standard] The process by which CO2 emissions associated with electricity, industry, and transport are reduced or eliminated.
Glossary	**Double claiming**	[From the Nordic Code for Voluntary Use of Carbon Credits] A situation in which the same mitigation outcome is claimed by more than one different actor (member of the same value chain or not), e.g., once by an organisation sourcing from a Supply Shed (the organisation reports lower emissions or higher removals for the purpose of demonstrat- ing achievement of a mitigation target or goal), and once by an actor using a certificate from a low GHG certification scheme implemented in the same Supply Shed.
Glossary	**Double counting**	[From the Nordic Code for Voluntary Use of Carbon Credits] A situation in which a miti- gation outcome is counted more than once. Double counting can occur through double issuance of impact units, double use and/or double claiming.
Glossary	**Double issuance**	[From the Nordic Code for Voluntary Use of Carbon Credits] A situation in which more than one impact unit is issued for the same mitigation outcome. This can occur when the same mitigation activity is registered under two different programmes or twice un- der the same programme.
Glossary	**Double use**	[From the Nordic Code for Voluntary Use of Carbon Credits] A situation in which the same mitigation outcome is counted more than once towards achieving climate change mitigation. This could, for example, occur if an actor used a single impact unit to fulfil two different purposes.

Glossary	**Economic allocation**	[From GHG Protocol Scope 3 Standard] Allocating the emissions of an activity based on the market value of each output/product. For example, input and output data might be allocated between co-products in proportion to the economic value of the products.
Glossary	**Emissions (or GHG) inventories**	[From SBTI Net Zero Standard] According to the GHG Protocol, a “quantified list of an organisation’s GHG emissions and sources”. Emissions inventories typically include emissions in Scopes 1, 2, and 3.
Glossary	**Emissions Factor**	A factor that converts activity data into GHG emissions data (e.g., kg CO2eq emitted per litre of fuel consumed, kg CO2eq emitted per kilometre travelled, etc.). Emission factors can be calculated for input processes. The emission factor of an input process represents the global warming potential of this process expressed in kg CO2eq. By ex- tension, the emission factor of a product system link is the sum of the emission factors of the related input processes weighted by their demand for this product system link.
Glossary	**Environmental integrity**	[From SBTI Net Zero Standard] In the context of markets for mitigation outcomes, environmental integrity means that market-based cooperation must not lead to an in- crease in global net GHG emissions compared with the scenario where market-based instruments are not used.
Glossary	**Extrapolated data**	[From GHG Protocol Scope 3 Standard]: Data from a similar process or activity that is used as a stand-in for the given process or activity and has been customised to be more representative of the given process or activity.
Glossary	**Final product**	[From GHG Protocol Scope 3 Standard] Goods and services that are consumed by the end user in their current form, without further processing, transformation, or inclusion in another product. Final products include not only products consumed by end consum- ers, but also products consumed by businesses in the current form (e.g., capital goods) and products sold to retailers for resale to end consumers (e.g., consumer products).

Glossary	**First-party assurance**	[From GHG Protocol Scope 3 Standard] Person(s) from within the reporting compa- ny, but independent of the GHG inventory process, that conduct(s) internal assurance. (Also known as “self-” or “internal-assurance.”)
Glossary	**Functional and Service Equivalence**	Functional and Service Equivalence refers to an equivalent type and level of activity of goods or services provided between the Intervention and the baseline scenario. Goods and services of similar enough type and equal quality that can deliver the same level of service and therefore serve the same market segment at a national or sub-national level.
Glossary	**GHG Protocol Guidance**	Corpus of standards published on the GHG Protocol website as of January 2023.
Glossary	**Impact layer**	An impact layer is a step in a good’s value chain. It can be a production step, a transfor- mation step, a transport, etc.
Glossary	**Impact Unit**	Absolute reduction/removal (in tonnes CO2e) that results from a delta between emis- sion factors of the baseline and project scenario of an Intervention multiplied by the amount that has been impacted by the Intervention.
Glossary	**Interfacing**	Interfacing of ISO 14064-1 and ISO 14064-2 approaches for GHG inventory and mod- elling aims at maximising the intelligence derivable from available data. This is achieved though the inclusion of highly specific primary data into datasets composed mainly of secondary/inaccurate data. The primary data collection is used to assess the mitigation outcomes derived from an Intervention.
Glossary	**Intervention**	[From VCI 1.1 Guidance] An umbrella term for any action that introduces a change to a Scope 3 activity. This could include a new technology, practice, or supply change (for example, to a different product input or sourcing location) to reduce or remove emissions. An Intervention may include changes to several activities that reduce or sequester emissions in different ways and that may or may not be included within the Scope 3 Inventory. An Intervention can consist of one or several activities of the same or different type following the same validation and verification cycle.

Glossary	**Intervention Accounting**	[From GHG Protocol LSRG draft] Intervention accounting (also known as project accounting methods) is an assessment of the GHG emissions of actions relative to coun- terfactual baseline scenarios (conditions most likely to occur in the absence of the action) or other performance standards.
Glossary	**Intervention baseline**	The business-as-usual scenario most likely to take place in the absence of the Intervention. The baseline should represent the immediate supply chain of the relevant goods or services, or within a reasonable timeframe (i.e., where data is available and where the situation can be accurately verified) of the implementation of the Interven- tion. The baseline should account for the condition as close to reality and as consistent with the accounting for the post-Intervention state as is feasible.
Glossary	**Intervention investor**	A stakeholder that has potential rights to claim for reporting within a Scope 3 boundary or issue carbon credits for sale to offset buyers.
Glossary	**Inventory accounting**	Inventory accounting is used to calculate and report annual GHG emissions from sourc- es (and removals by sinks, if applicable) within the reporting entity's inventory bound- ary. GHG inventories reflect direct (Scope 1) and indirect emissions (Scope 2 and 3), where progress is tracked relative to a historic base year or period.
Glossary	**Insetting**	There are multiple definitions for the term "insetting" and no standardisations, which makes it difficult to give a clear determination of what can and can't be included within Scope 3 reductions.
Glossary	**Level of assurance**	The degree of confidence stakeholders can have over the information in the inventory report.

Glossary	**Limited level of assurance**	[From ISO 14064-3] In the context of verification of projects, a limited level of assurance means that the verification risk is higher than in the case of a reasonable level of assurance, that the nature, timing, and extent of evidence gathering activities is deliberately less than for a reasonable level of assurance but still results in assurance that is meaningful to intended users. This results in a negative opinion, e.g., “Based on the process and procedures conducted, there is no evidence that the GHG statement is not materially correct and is not a fair representation of GHG data and information.”
Glossary	**MRV**	Effective mitigation of climate change requires a clear understanding of greenhouse gas emissions and their sources, and regular monitoring of mitigation strategies and their impacts. The practice of “MRV,” integrates three independent-but-related processes of measurement or monitoring (M), reporting (R), and verification (V).
Glossary	**Mitigation outcome**	[From the Nordic Code for Voluntary Use of Carbon Credits] Emission reductions and removals are jointly referred to as mitigation outcomes.
Glossary	**Offsetting**	[From the Nordic Code for Voluntary Use of Carbon Credits] Offsetting refers to the voluntary use of High-Integrity Carbon Credits and the claiming of the associated mit- igation outcome exclusively for counterbalancing an equivalent amount of GHG emis- sions attributed to an actor, product, or service within its boundary or value chain, such that the combined contribution of these High-Integrity Carbon Credits and emissions to global net GHG emissions is zero.
Glossary	**Removal (CDR)**	[From SBTI Net Zero Standard] Measures taken by companies to sequester CO2 within or outside the value chain in order to permanently remove it from the atmosphere and durably store it in geological, terrestrial, or ocean reservoirs, or in products. The remov- als are either nature-based, geological, or a hybrid.

Glossary	**Representativeness**	The principle of representativeness implies the variability in GHG models and reflects the degree of GHG data accuracy, that can be drawn about a population based on a sample. It provides the basis for a conservative approach in GHG accounting.
Glossary	**Stranded asset**	[From the Intergovernmental Panel on Climate Change (IPCC)] Stranded assets are “Assets exposed to devaluations or conversion to ‘liabilities’ because of unanticipated changes in their initially expected revenues due to innovations and/or evolutions of the business context, including changes in public regulations at the domestic and interna- tional levels.”
Glossary	**Supply Shed**	[From VCI 1.1 Guidance] Supply Shed has been broadly defined as a group of suppliers in a specifically defined market (e.g., at a national or sub-national level) providing func- tionally equivalent goods or services (commodities) that can be demonstrated to be within the company’s supply chain.
Glossary	**Theory of Change (ToC)**	The Theory of Change of an Intervention depicts the causal pathways from outputs through outcomes via intermediate states towards impact. A Theory of Change is a method that explains how a given Intervention, or set of Interventions, is expected to lead to a specific change in emissions due to anthropogenic activities, drawing on a causal analysis based on available evidence, respecting of the environmental integrity definition, with an adequate level of assurance.
Glossary	**Uncertainty**	In general, uncertainty relates to the imperfection in data inputs (from inventory ac- counting and modelling efforts) used to estimate emission levels. The GHG Protocol defines uncertainty as twofold: (1) Quantitative definition: Measurement that charac- terises the dispersion of values that could reasonably be attributed to a parameter. (2) Qualitative definition: A general and imprecise term that refers to the lack of certainty in data and methodology choices, such as the application of non-representative factors or methods, incomplete data on sources and sinks, lack of transparency etc.

Glossary	**Validation**	[From the Nordic Code for Voluntary Use of Carbon Credits] In the context of carbon crediting programmes, validation refers to an assessment by a competent third-party entity of a mitigation activity requesting registration, against relevant criteria under a carbon crediting programme.
Glossary	**Verification**	[From the Nordic Code for Voluntary Use of Carbon Credits] In the context of car- bon crediting programmes, verification is the periodic independent review and ex-post determination by a competent third-party entity of the request to issue carbon cred- its against monitored mitigation outcomes generated by a mitigation activity during a specific monitoring period, in line with relevant criteria under a carbon crediting pro- gramme.
Glossary	**Reforestation**	Reforestation is the regrowth of forests after a temporary (<10 years) condition with less than 10% canopy cover due to human-induced or natural perturbations.
Glossary	**Scenario**	A description of how the future may unfold based on “if-then” propositions. Scenarios typically include an initial socioeconomic situation and a description of the key driving forces and future changes in emissions, temperature or other climate change-related variables.
Glossary	**Scope 1 emissions**	Emissions from operations owned or controlled by the reporting company.
Glossary	**Scope 2 emissions**	Emissions from the generation of purchased or acquired electricity, steam, heating or cooling consumed by the reporting company.
Glossary	**Scope 3 emissions**	All indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.
Glossary	**Statistical land use change (sLUC)**	sLUC is a measure of recent carbon stock loss due to land conversion, related to a specific land use, within an area or jurisdiction. sLUC can serve as a proxy for dLUC where specific sourcing lands are unknown, similar to how emissions factors are used across much of scope 3 accounting.

Glossary	**Supply chain**	A supply chain is the entire system of processes and resources required to produce and sell a product from start to finish, typically starting with raw materials and ending with the customer in possession of the product.
Glossary	**Uncertainty**	A cognitive state of incomplete knowledge that can result from a lack of information or from disagreement about what is known or even knowable.
Glossary	**IMAGE model**	IMAGE is an integrated assessment model framework that simulates global and regional environmental consequences of changes in human activities.
Glossary	**Indirect land use change (iLUC)**	Indirect land use change (iLUC) occurs outside the area of focus as a consequence of change in use or management of land within the area of focus. iLUC is often mediated by markets or driven by policy shifts in land use that cannot be directly attributed to land-use management decisions of individuals or groups. From the perspective of a company, iLUC is defined as a recent carbon stock loss (i.e., previous 20 years) due to land conversion on lands not owned or controlled by the company or in its supply chain, induced by a change in demand for products produced or sourced by the company.
Glossary	**Integrated assessment models (IAM)**	Models that seek to combine knowledge from multiple disciplines in the form of equations and/or algorithms in order to explore complex environmental problems. As such, they describe the full chain of climate change, from production of greenhouse gases to atmospheric responses. This necessarily includes relevant links and feedbacks between socioeconomic and biophysical processes.
Glossary	**Intensity convergence**	Method used to calculate emissions intensity targets based on the principle of converging to a sector-wide physical emissions intensity in a future year of a mitigation pathway.
Glossary	**Land use change (LUC)**	Land use change (LUC) is a transformation from one land use category (e.g., cropland, grassland, forest/woodland, urban/industrial, wetland/tundra) to another category (e.g., transformation from natural forest to cropland).

Glossary	**Natural forest**	A forest that is a natural ecosystem. Natural forests possess many or most of the characteristics of a forest native to the given site, including species composition, structure and ecological function. Natural forests include primary forests that have not been subject to major human impacts in recent history and regenerated (second-growth) forests that were subject to major impacts in the past (for instance by agriculture, livestock raising, tree plantations or intensive logging) but where the main causes of impact have ceased or greatly diminished and the ecosystem has recovered much of the species composition, structure and ecological function of prior or other contemporary natural ecosystems. (See Accountability Framework initiative.)
Glossary	**Non-LUC emissions**	All emissions, excluding those related to LUC.
Glossary	**Conversion**	Change of a natural ecosystem to another land use or profound change in a natural ecosystem's species composition, structure or function. Deforestation is one form of conversion (conversion of natural forests). Conversion includes severe degradation or the introduction of management practices that result in a substantial and sustained change in the ecosystem's former species composition, structure or function. Change to natural ecosystems that meets this definition is considered to be conversion regardless of its legality.
Glossary	**Deforestation**	Loss of natural forest as a result of 1) conversion to agriculture or other non-forest land use, 2) conversion to a tree plantation, or 3) severe and sustained degradation.
Glossary	**Degradation**	Changes within a natural ecosystem that significantly and negatively affect its species composition, structure and/or function and reduce the ecosystem's capacity to supply products, support biodiversity and/or deliver ecosystem services.
Glossary	**Direct land use change (dLUC)**	Direct land use change (dLUC) occurs when a new land use displaces a different former land use. From the perspective of a company, dLUC is defined as a recent (previous 20 years) carbon stock loss due to land conversion directly on the area of land under consideration.

Glossary	**Forest**	Accountability Framework initiative (AFi) defines forest as land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10% or trees able to reach these thresholds *in situ* . It does not include land that is predominantly under agricultural or other land use. Forest includes natural forests and tree plantations. For the purpose of implementing “o deforestation” supply chain commitments, the focus is on preventing the conversion of natural forests.
Glossary	**Forest, Land and Agriculture (FLAG)**	Forest, land and agriculture (FLAG) designates the SBTi Forest Land and Agriculture project, sectors, methodologies and targets. The terms *FLAG-related emissions* and *AFOLU emissions* are used interchangeably in this document.
Glossary	**Forest restoration**	The process of assisting the recovery of a forest (natural or managed), as well as its associated conservation values, which has been degraded or damaged but is still above 10% canopy cover.
Glossary	**Abatement**	Measures companies take to prevent, reduce or eliminate sources of GHG emissions within their value chain.
Glossary	**Absolute contraction**	Method used to calculate absolute emissions reduction targets that requires organizations to reduce annual emissions by an amount consistent with underlying mitigation pathways.
Glossary	**Agriculture, forestry and other land use (AFOLU)**	Common terminology in the scientific community for what is also called the land sector and FLAG in the case of the SBTi. The AFOLU category combines the LULUCF (land use, land use change and forestry) and agriculture sectors.
Glossary	**Bioenergy**	Energy derived from any form of biomass, such as recently living organisms or their metabolic by-products.
Glossary	**Bioenergy and carbon dioxide capture and storage (BECCS)**	The application of carbon dioxide capture and storage (CCS) technology to bioenergy conversion processes.
Glossary	**Biogenic CO_2 emissions**	CO2 emissions resulting from the combustion or biodegradation of other losses from, biogenic carbon pools to the atmosphere.
Glossary	**Biogenic CO_2 removals**	CO2 removals resulting from atmospheric CO2 transferred via biological sinks to storage in biogenic carbon pools.

Glossary	**Biomass**	Organic material both aboveground and belowground, and both living and dead, e.g., trees, crops, grasses, tree litter and roots. Biomass includes the pool definition for above- and belowground biomass.
Glossary	**Carbon stock**	The quantity of carbon in a “pool,” meaning a reservoir or system, which has the capacity to accumulate or release carbon.