Opportunities and challenges in participating in the voluntary carbon market

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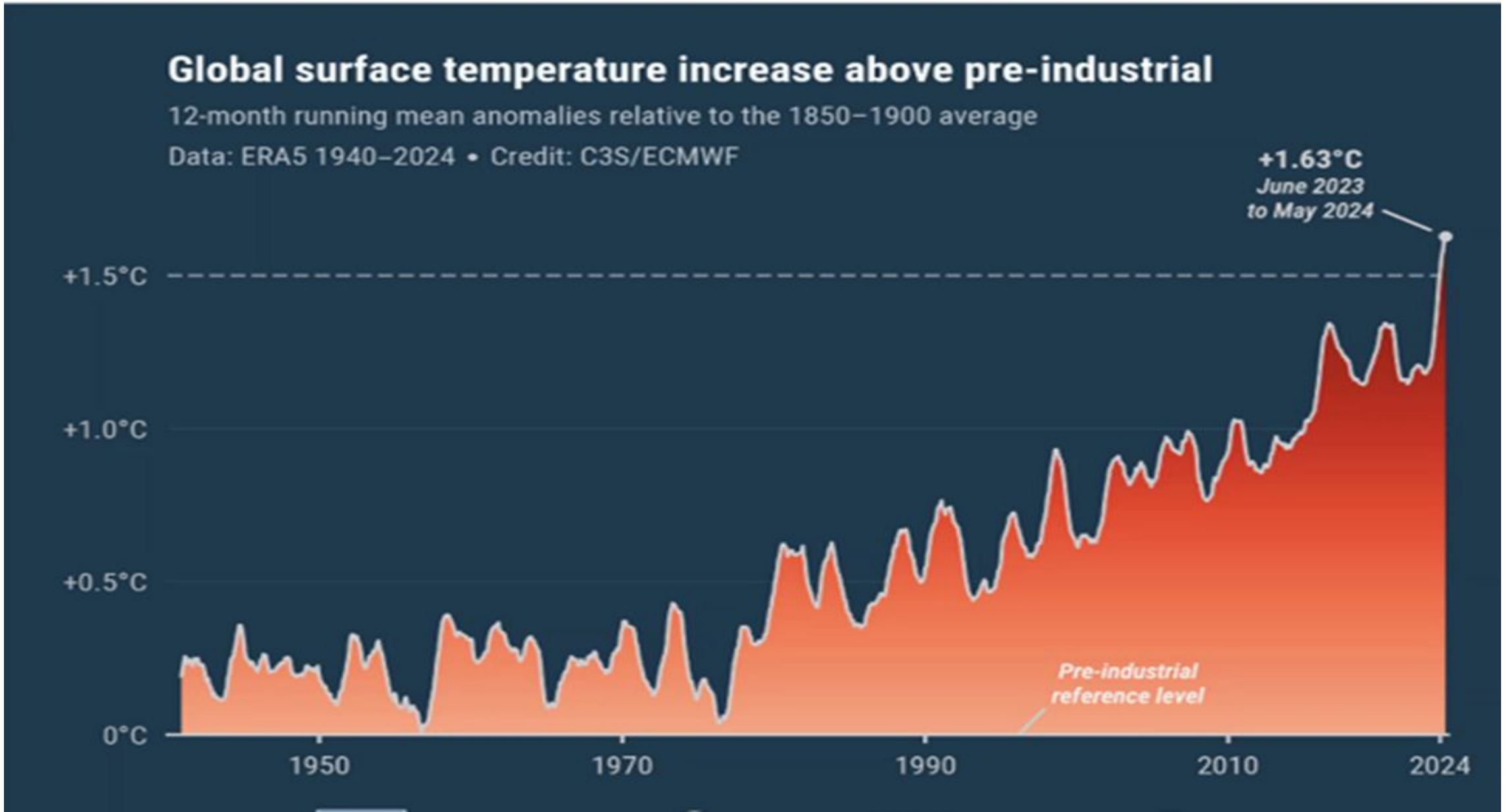
July 29, 2025

Content

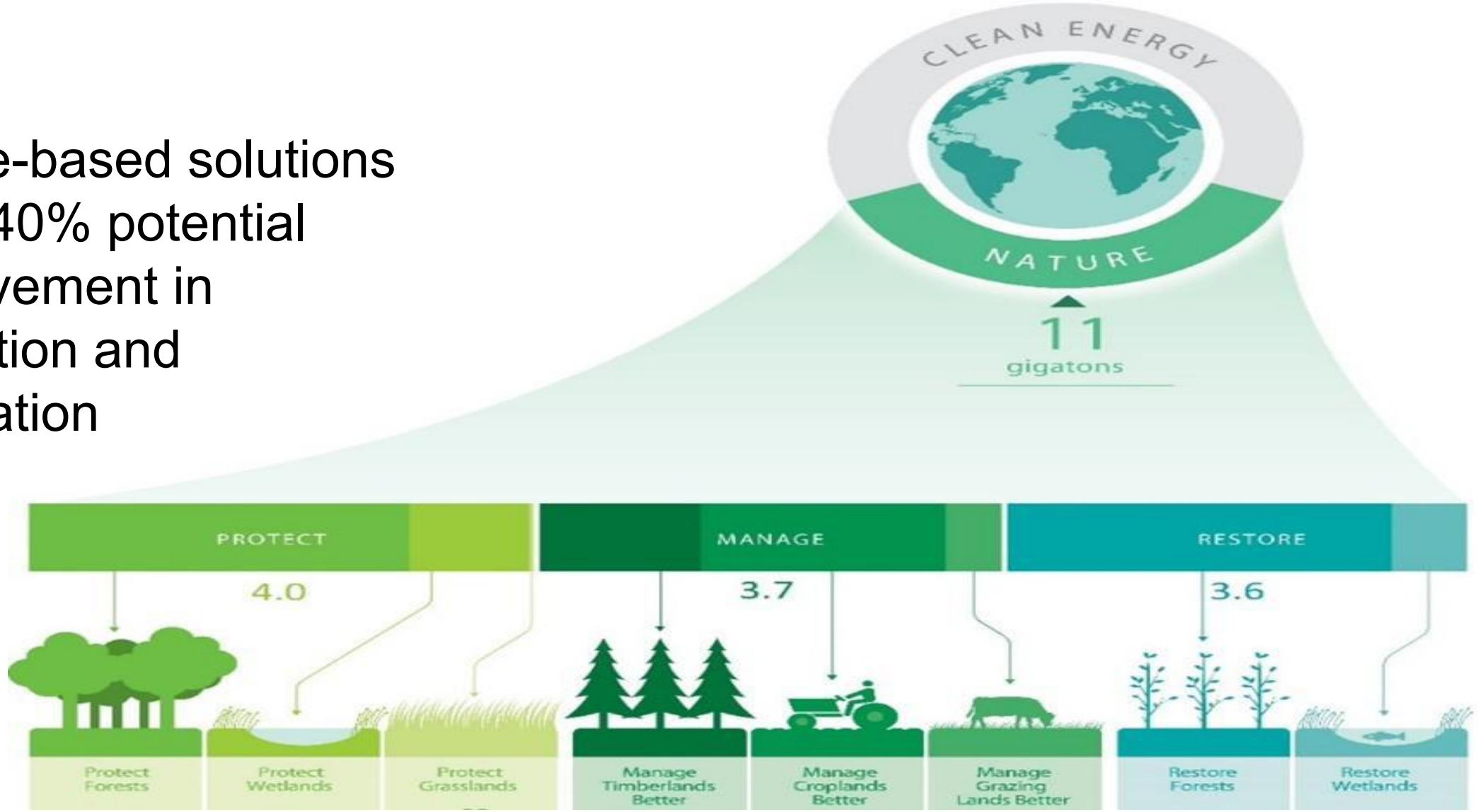
- General Overview of the Voluntary Carbon Market
- Project Implementation Opportunities and Basic Requirements
- Examples of Previous Projects and Lessons Learned

Why was the voluntary carbon market needed?



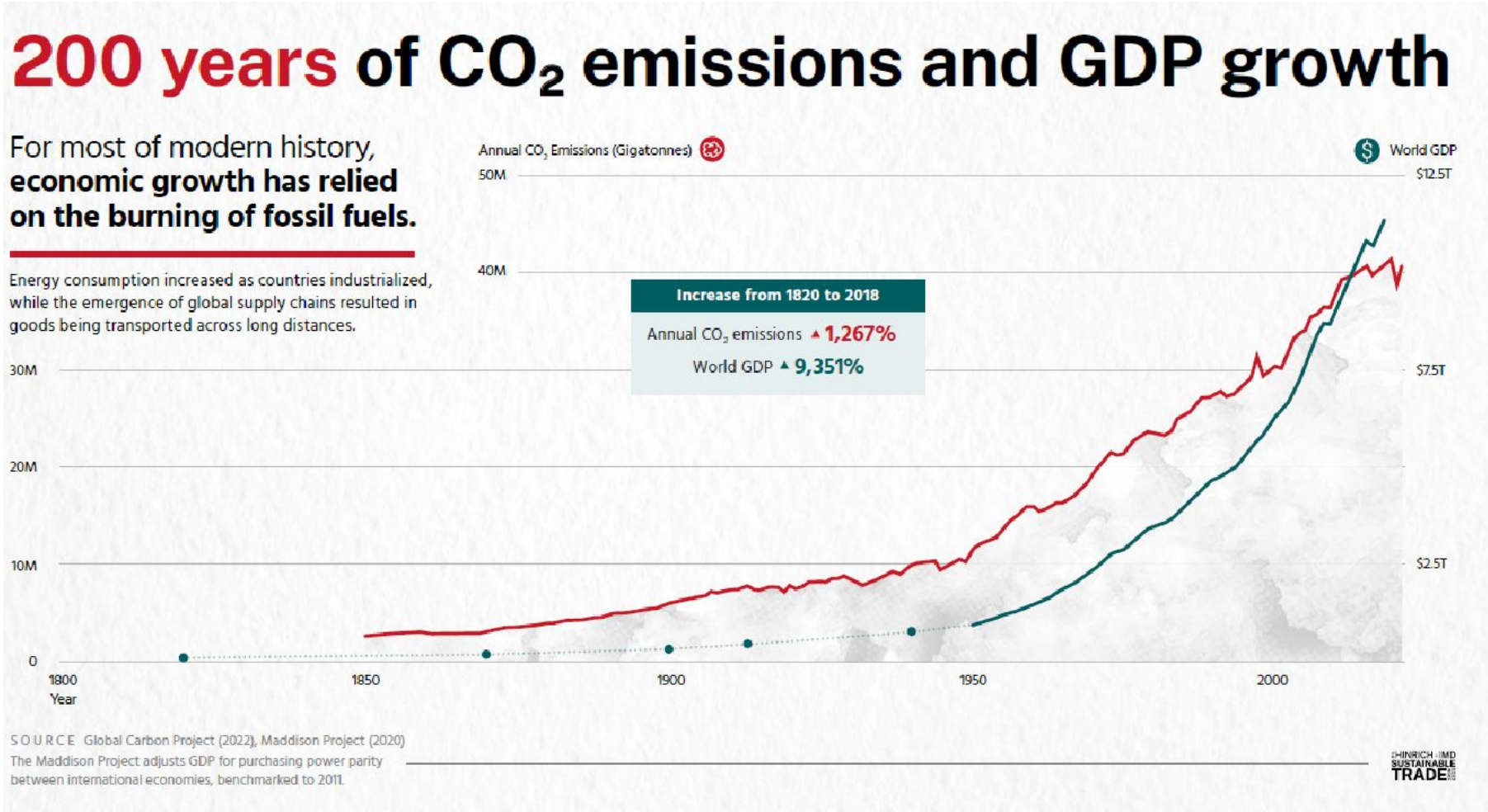
Why was the voluntary carbon market needed?

- Nature-based solutions = 30–40% potential improvement in mitigation and adaptation



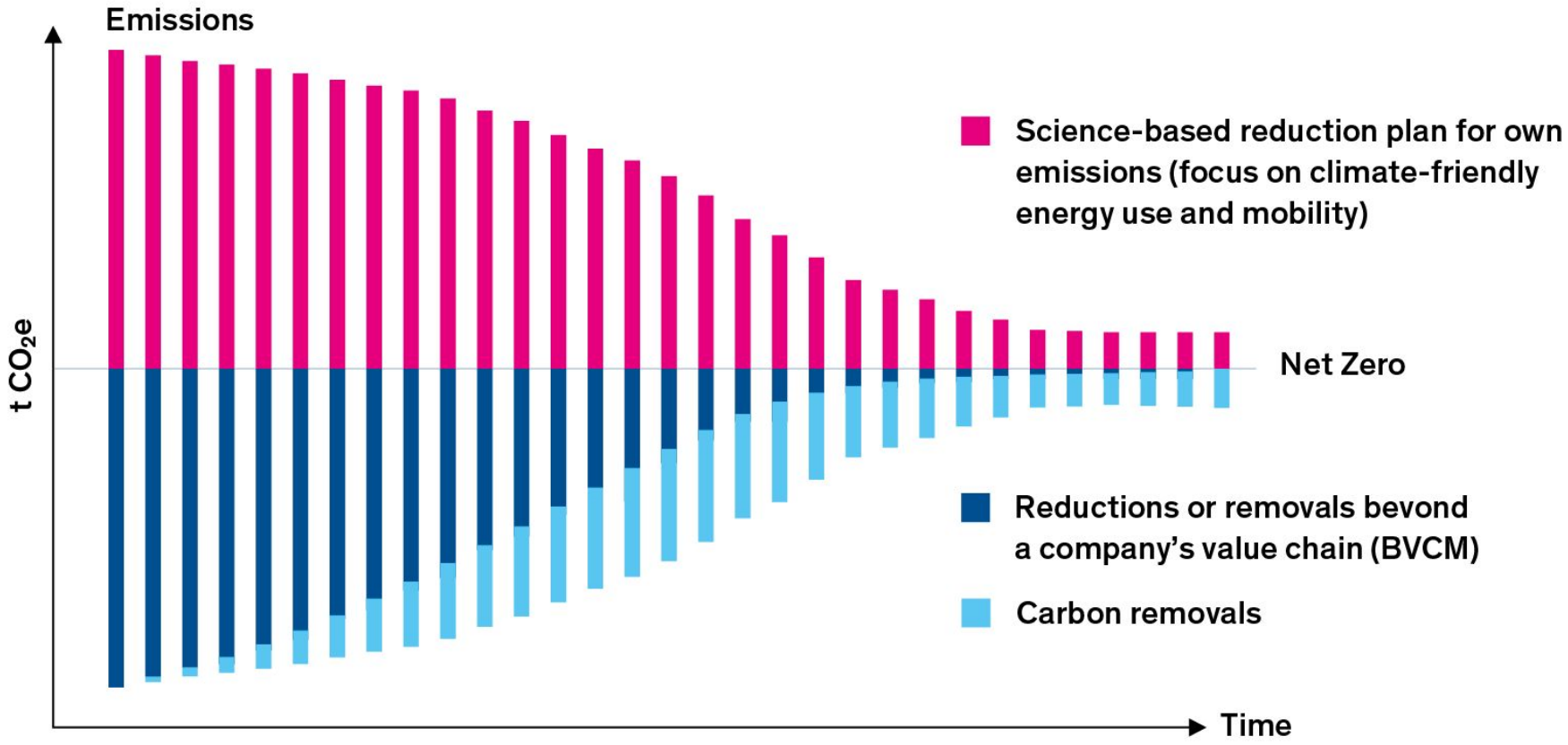
Why was the voluntary carbon market needed?

- Directly related to industrialization

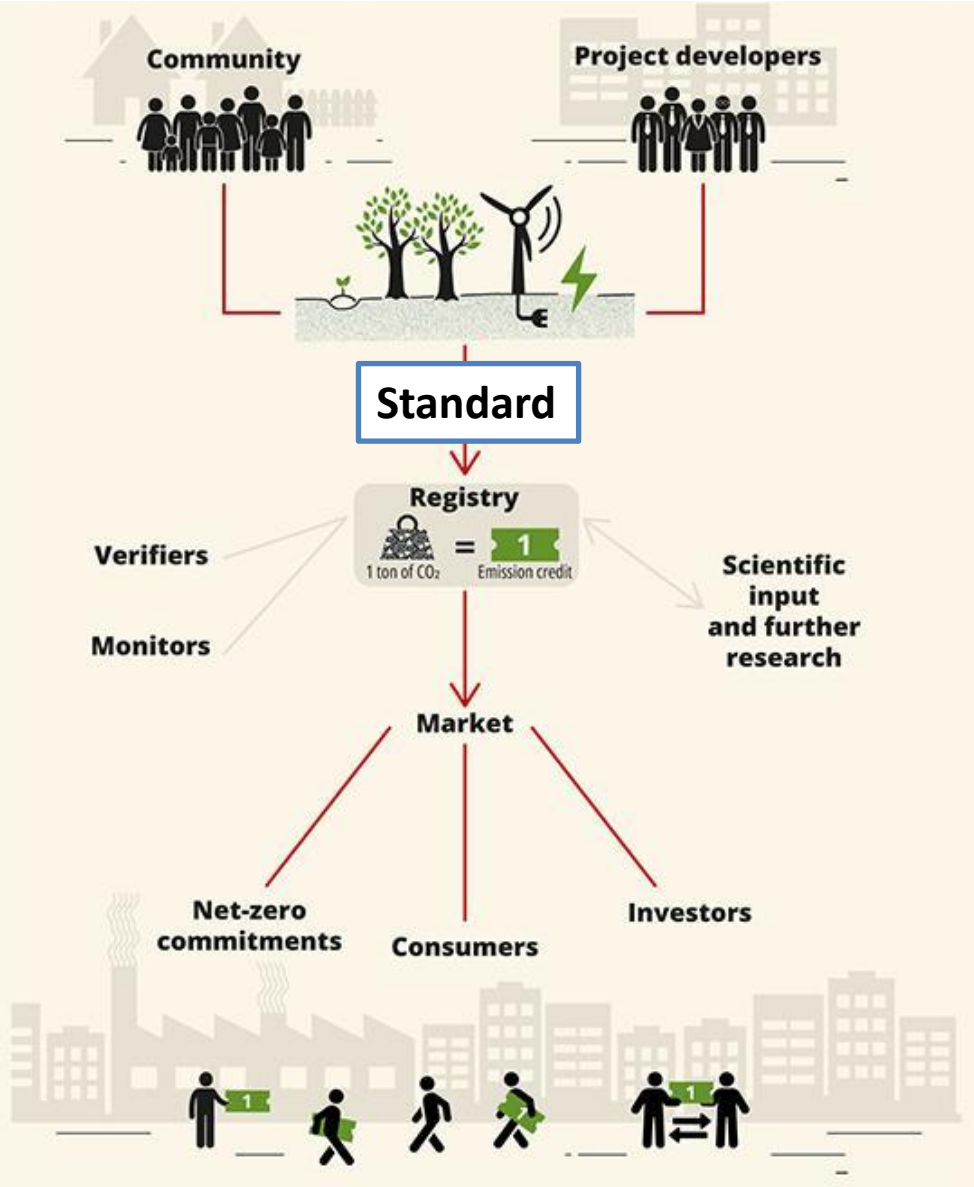


Why was the voluntary carbon market needed?

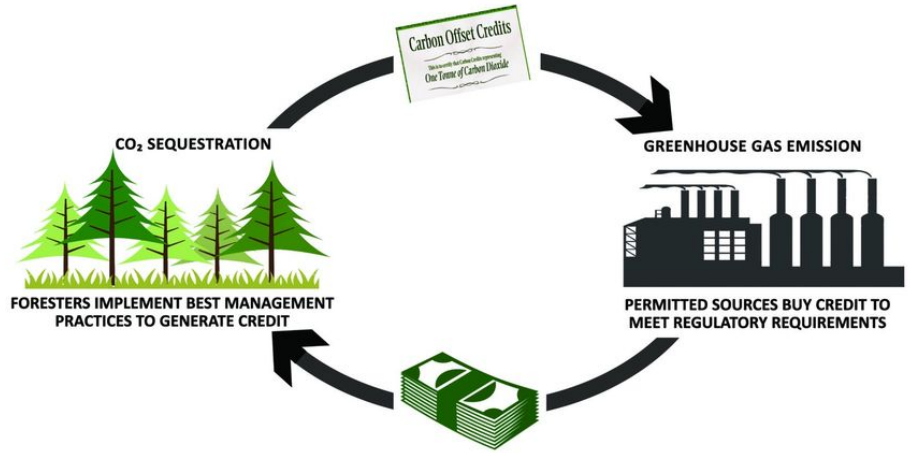
High integrity carbon credits can accelerate the transition to Net Zero



Operating principles of the voluntary carbon market

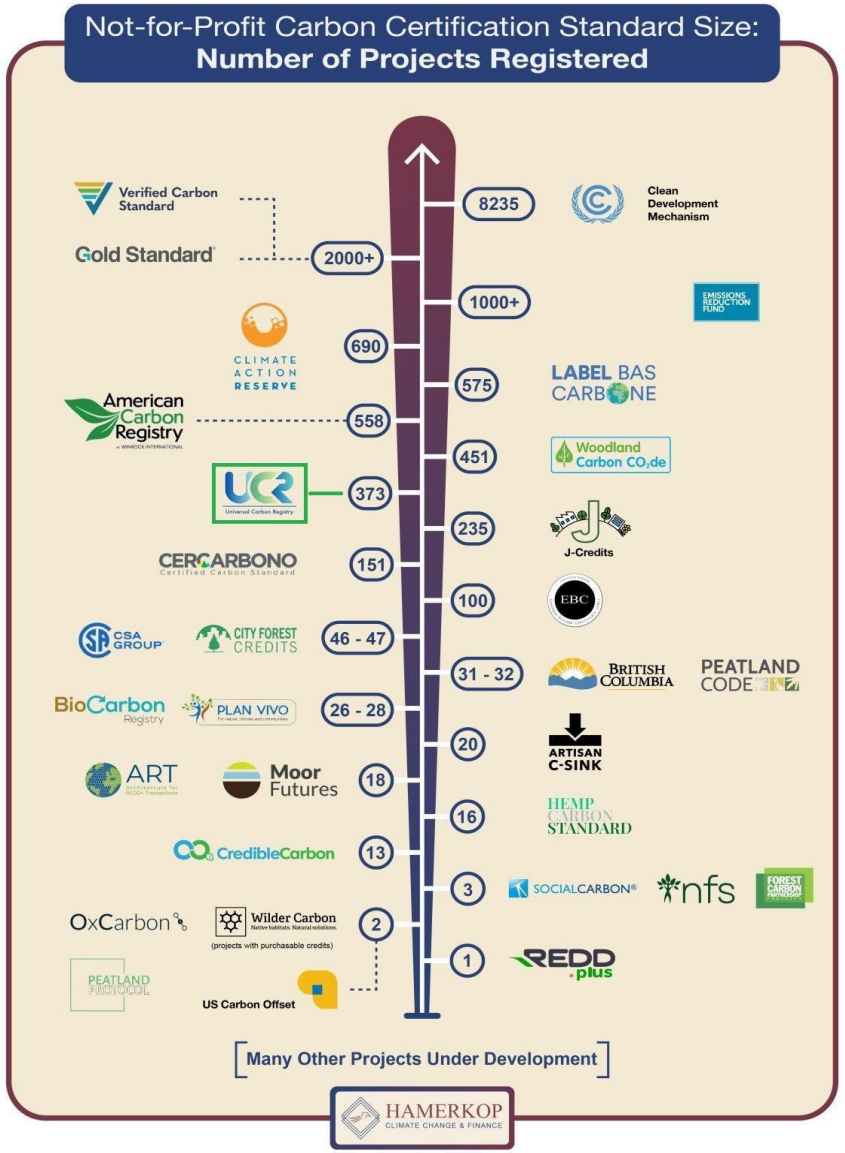


- Local communities and landowners
- Project developers and credit holders
- Standards (e.g., Verra)
- Validation and verification bodies
- Issuance and certification of credits
- Buyers, often large industrial companies



Voluntary market standards

- Verra (VCS): the most widely used standard
- Gold Standard: delivers co-benefits, especially for local communities
- Plan Vivo: community- and cooperative-based standard
- ART/TREES, VCS JNR: jurisdictional REDD+ standards



Project types

VOLUNTARY CARBON MARKET

Reduction/Avoidance Credits

Carbon Credits that represent reduced or avoided emissions

Technology Based

- Renewable Energy
- Methane Collection
- Industrial Pollutant
- Household Devices

Nature Based

- Avoided Deforestation
- Wetland Management
- No-till Farming
- Methane from Lifestock

Removal Credits

Carbon Credits that represent captured/removed emissions

Technology Based

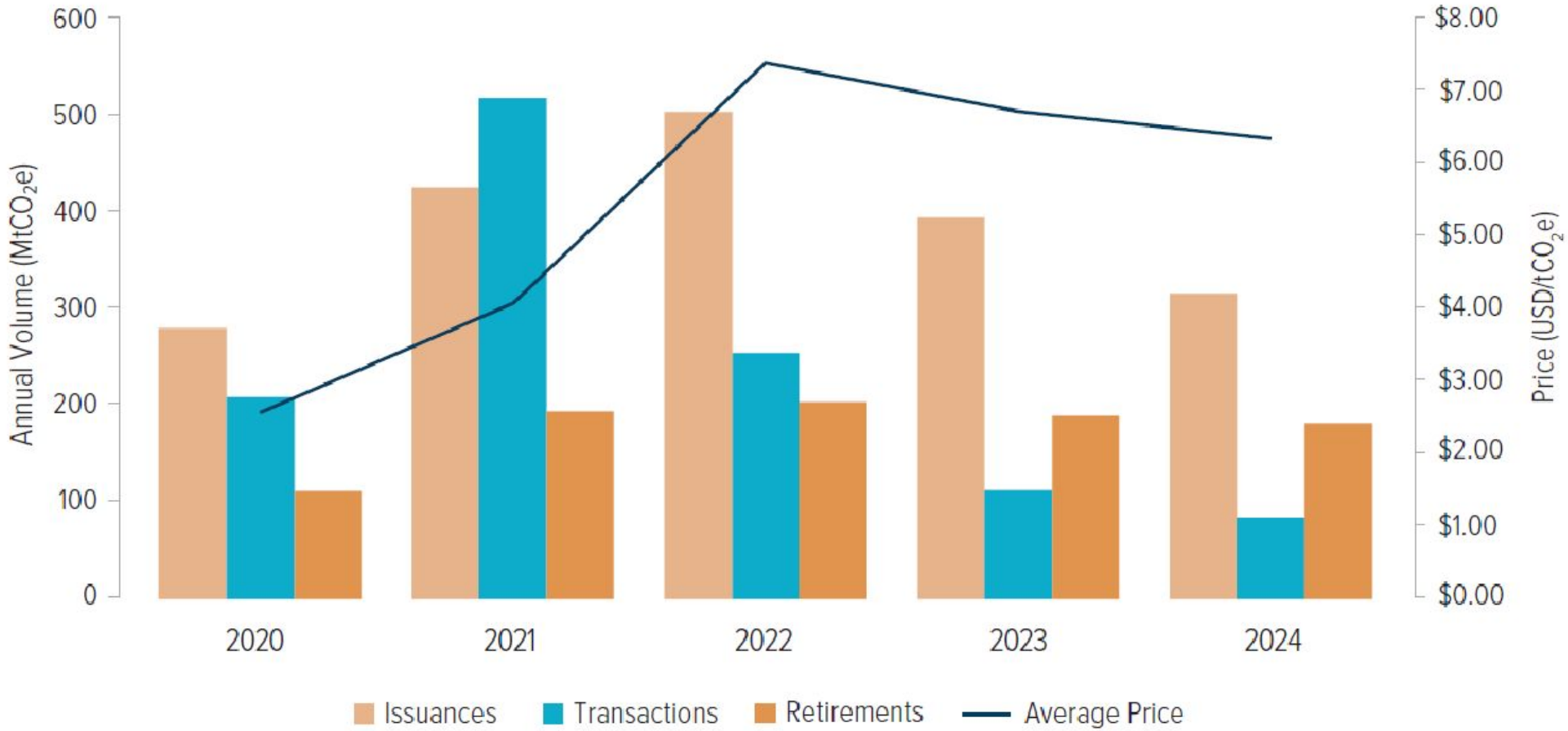
- Direct Air Capture
- Mineralisation
- Carbon Capture and Storage

Nature Based

- Reforestation
- Afforestation
- Soil Sequestration
- Wetland Restoration

Market price

Figure 1. Overview of Voluntary Carbon Market Issuances, Transactions, Retirements, and Average Price, 2020-2024

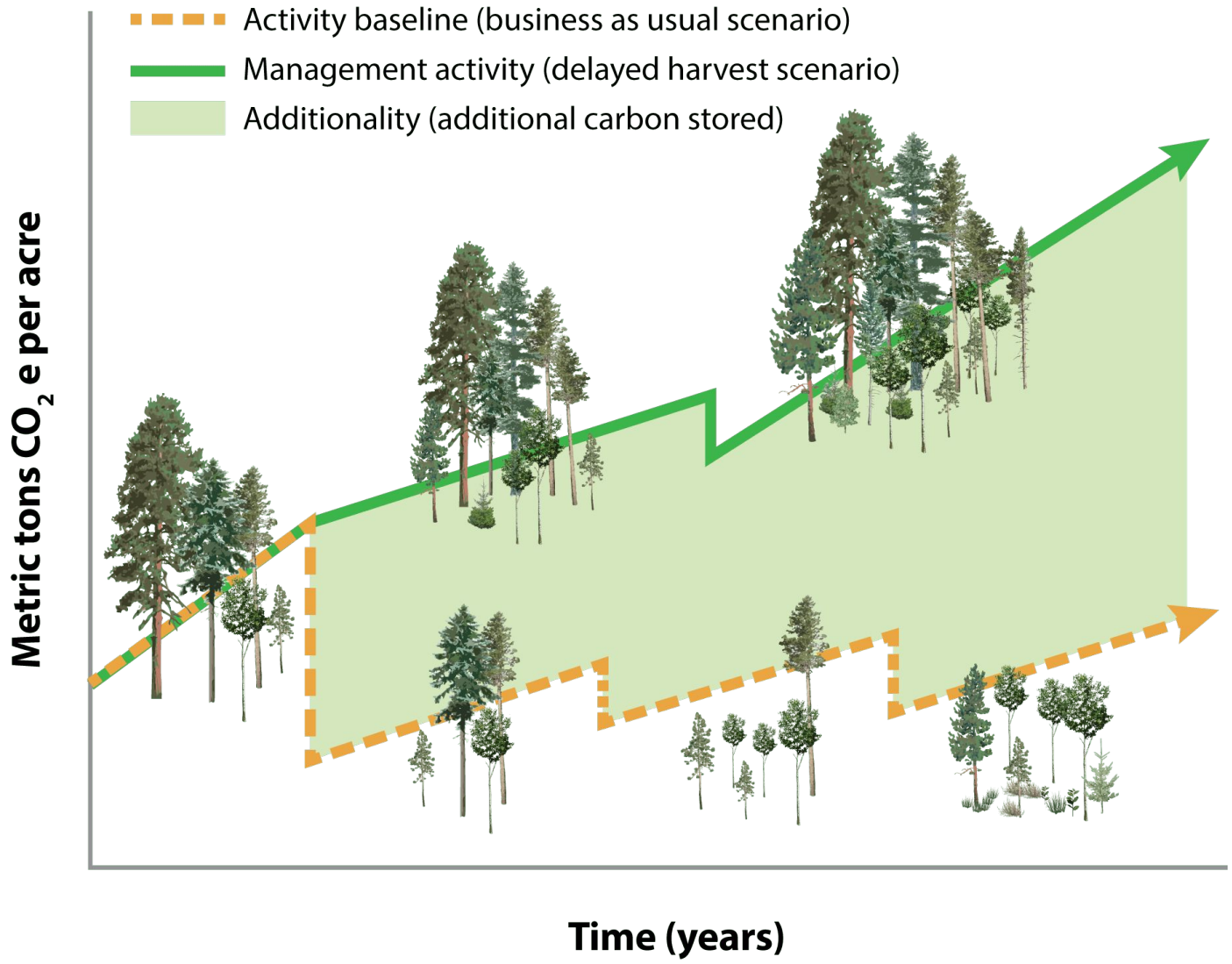


Price variation depending on project type

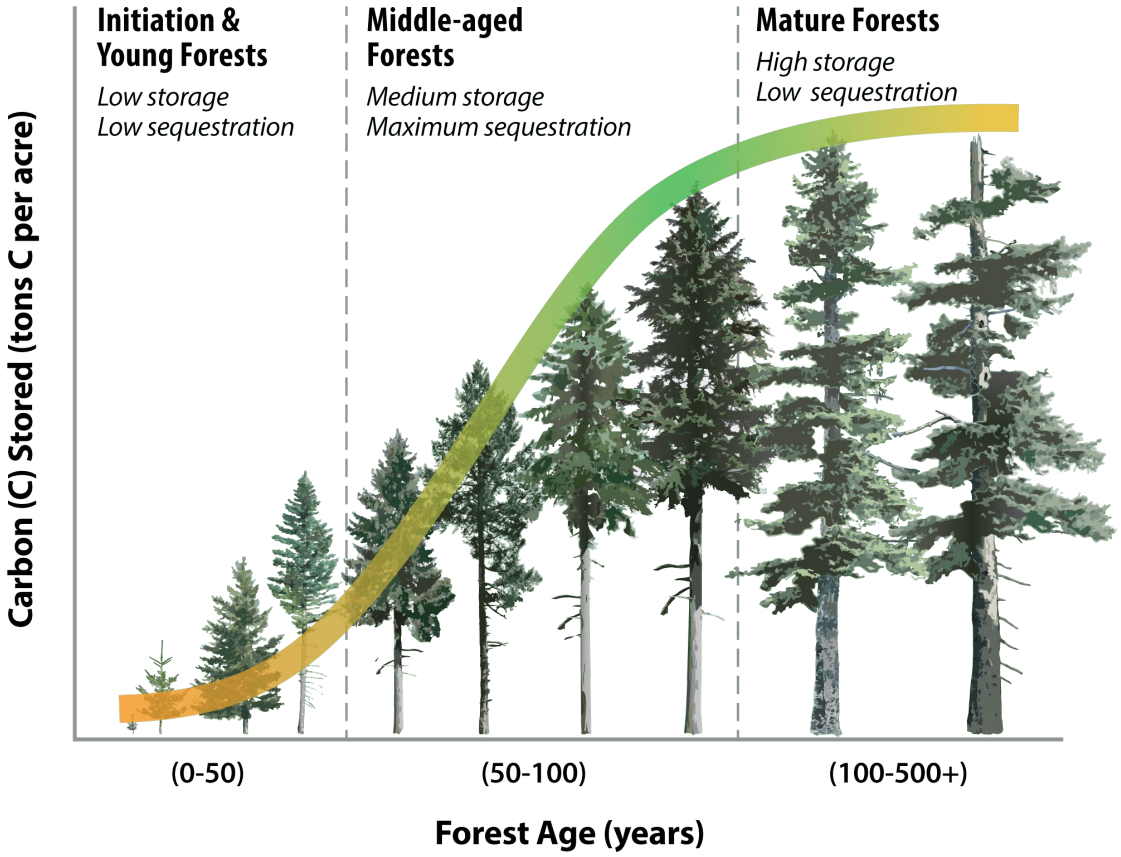
Table 4. VCM Transaction Volumes, Values, and Prices by Forestry and Land Use Project Types, 2023-2024

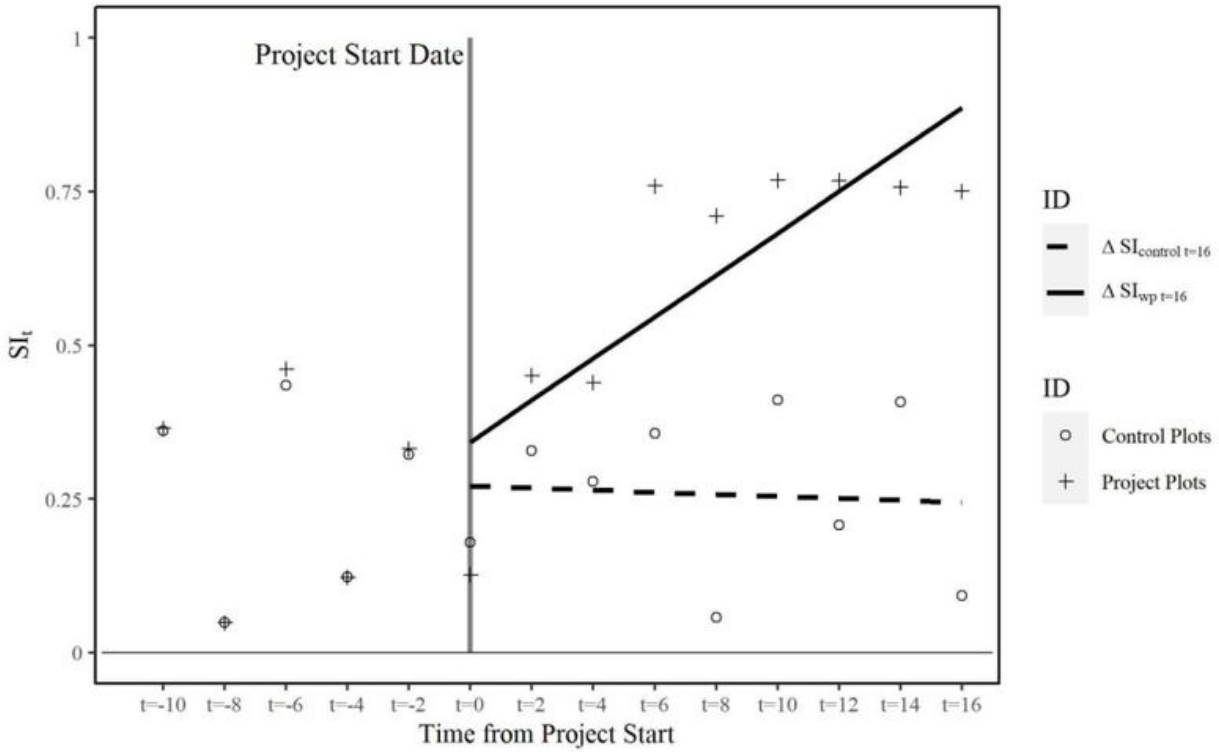
	2023			2024			Percent Change		
Project Cluster	Volume ($MtCO_2e$)	Value (USD)	Price (USD)	Volume ($MtCO_2e$)	Value (USD)	Price (USD)	Volume	Value	Price
REDD+	28.2	$222.3M	$7.87	13.6	$82.1M	$6.03	-52%	-63%	-23%
Improved Forest Management (IFM)	2.6	$41.9M	$16.2	8.8	$132.3M	$14.97	242%	216%	-8%
Afforestation-Reforestation and Revegetation (ARR)	4.8	$82.4M	$17.15	3.8	$77.7M	$20.44	-21%	-6%	19%
Agroforestry	0.7	$8.1M	$11.58	0.6	$8.3M	$14.11	-17%	1%	22%
Blue Carbon	0.4	$3.2M	$8.33	0.2	$5.2M	$29.72	-54%	64%	257%

Sustainable Forest Management (SFM)



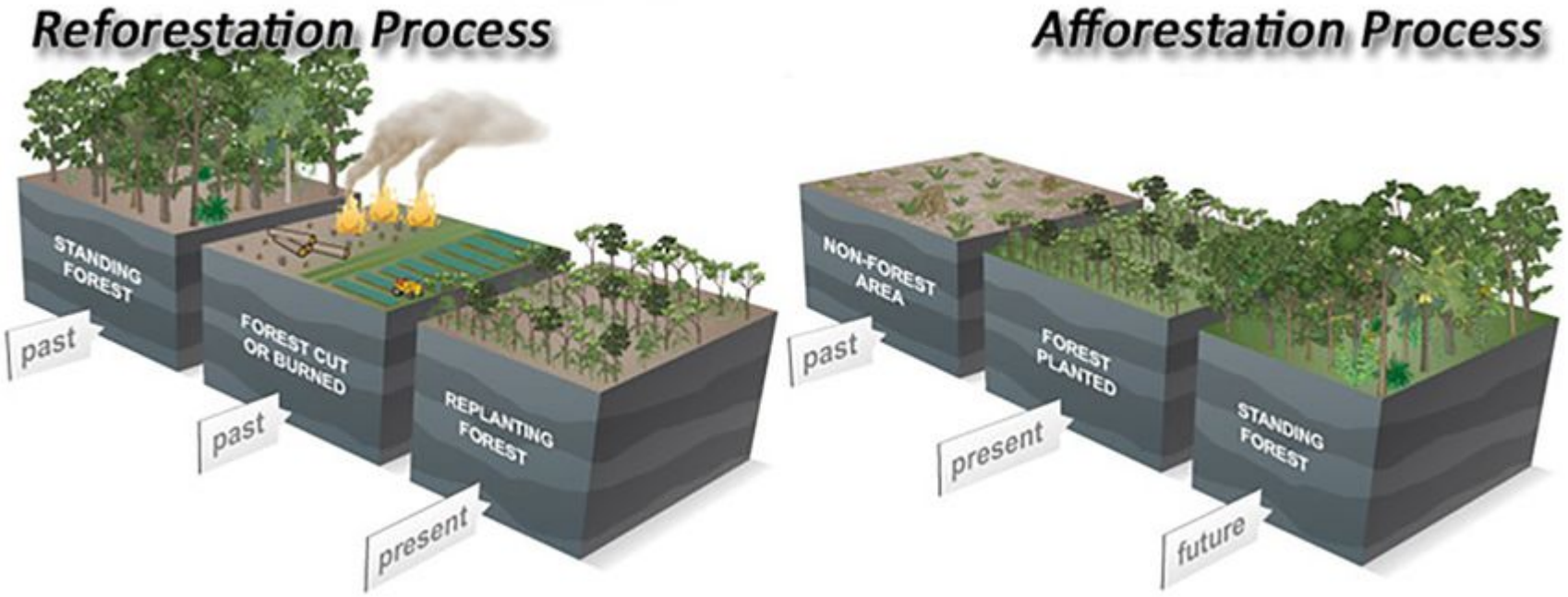
Afforestation, Reforestation





VCS Methodology VM0047 and ARR Carbon Projects

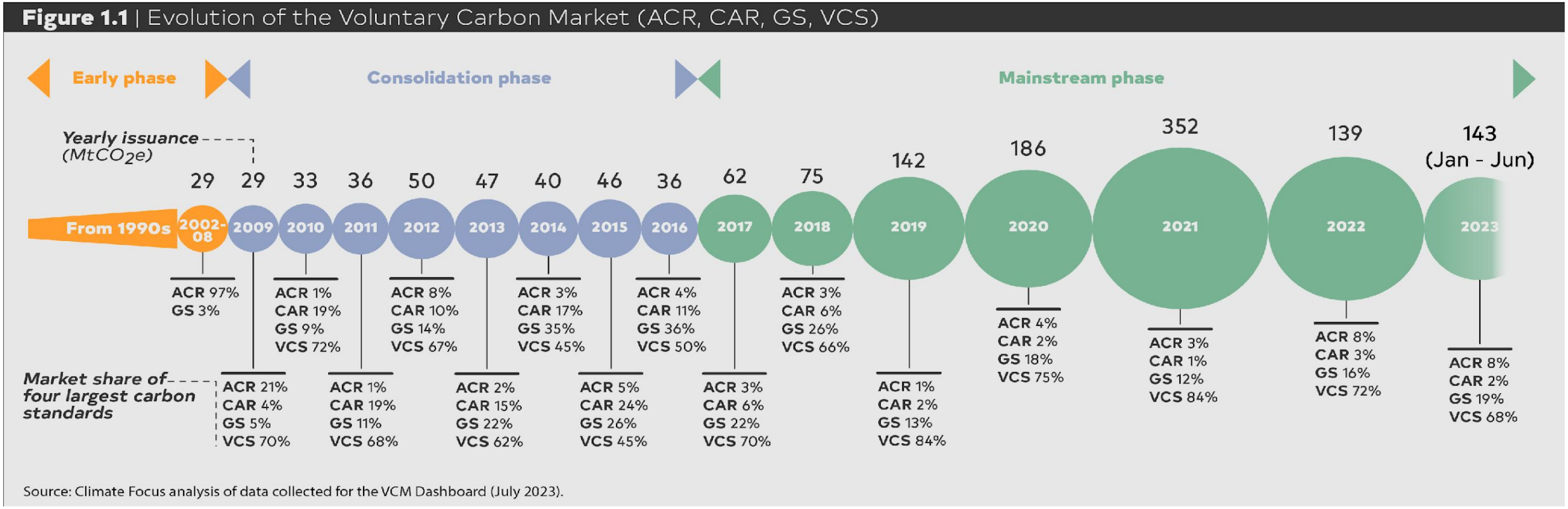
Key difference



Revegetation: activities that increase carbon stocks through establishing or augmenting vegetation on land that doesn't meet the definitions of afforestation or reforestation

VERRA Historical Development (VCS)

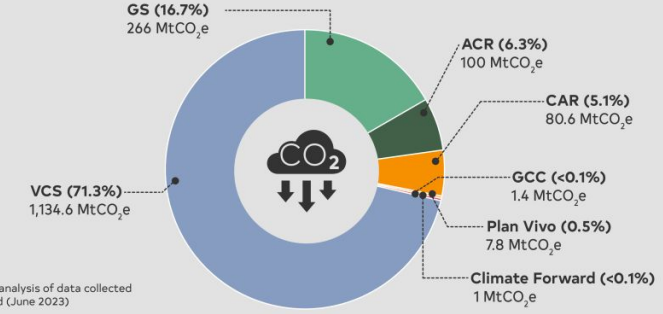
Figure 1.1 | Evolution of the Voluntary Carbon Market (ACR, CAR, GS, VCS)



Source: Climate Focus analysis of data collected for the VCM Dashboard (July 2023).

Verified Carbon Standard
A VERRA STANDARD

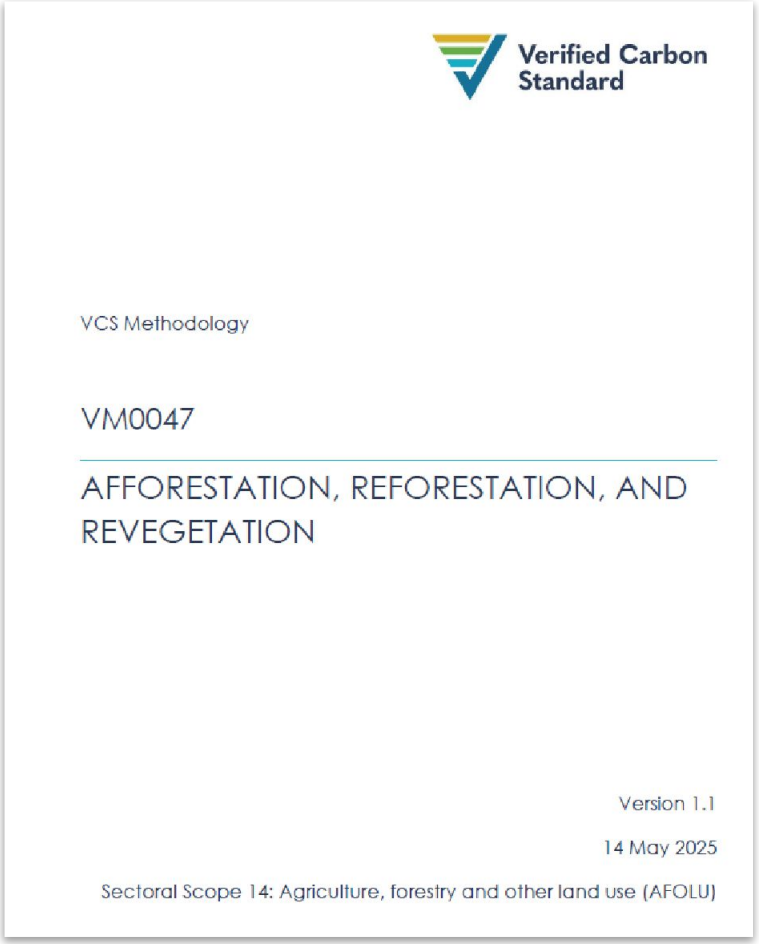
Figure 7.2 | Share of credits in issued in the VCM by leading carbon standards



What is VM0047?

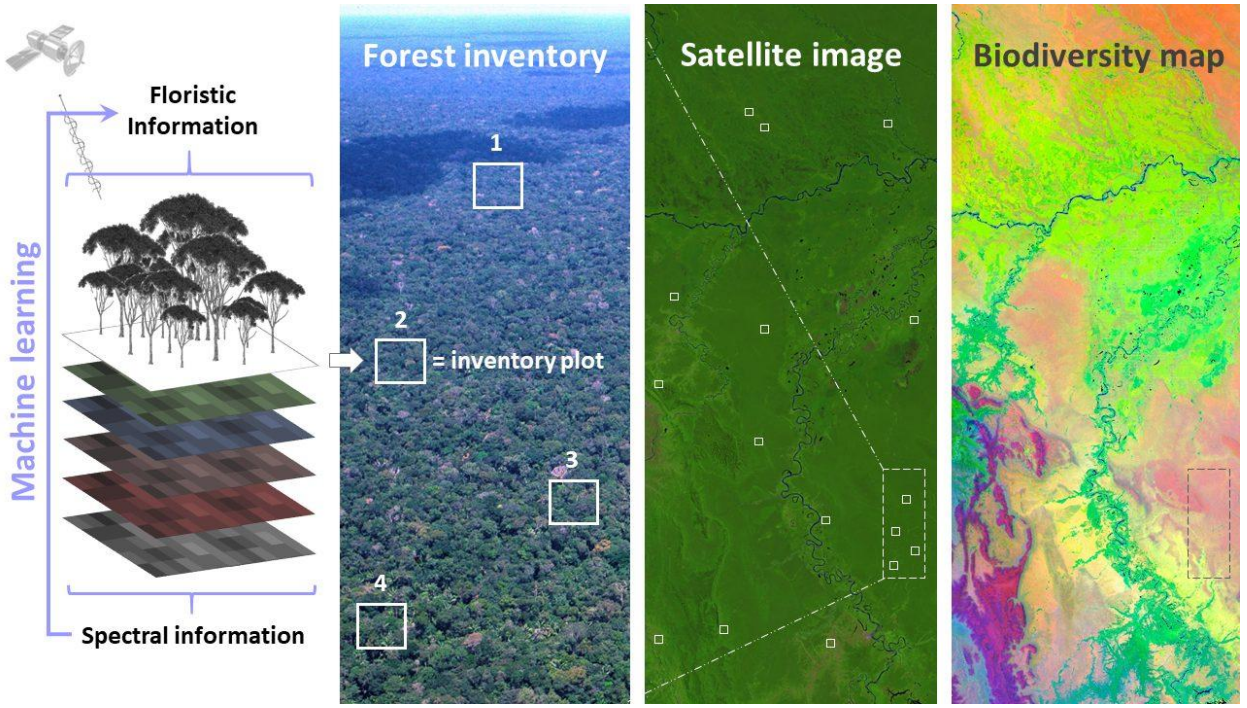
- Carbon Standard

- Designed for afforestation and rehabilitation projects.
- Measures the carbon sequestration achieved by establishing or restoring vegetation cover, or by increasing forest carbon stocks.
- Regular updates are applied (AR-ACM0003 and AR-AMS0007)



Why is VM0047 important?

- Ensure reliable carbon accounting
- Establish dynamic baselines and utilize remote sensing



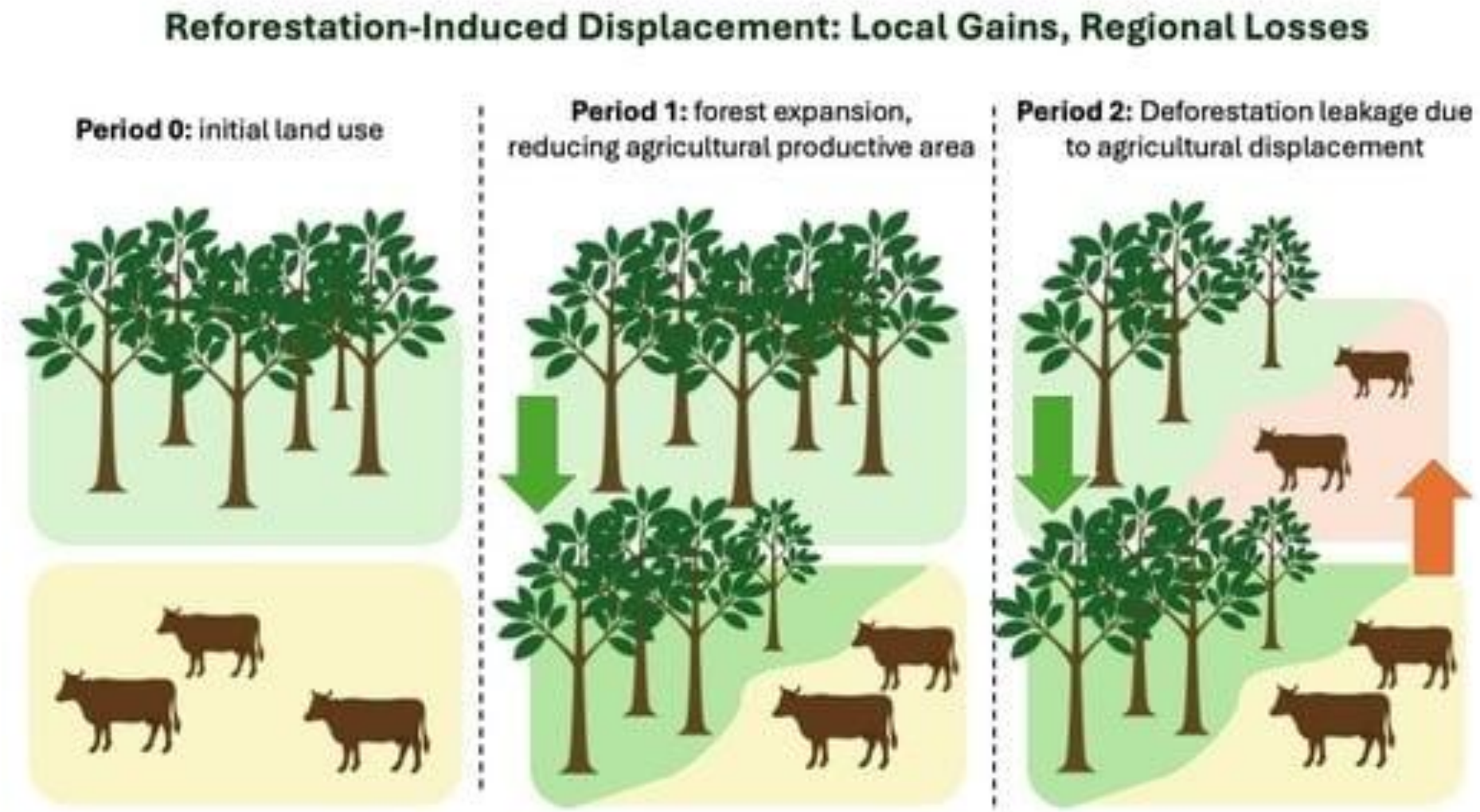
Baseline requirements

1. The project activities aim to increase vegetation cover.
2. Both area-based and survey-based methods are used together.
3. Specific requirements apply to the lands included in the project.
4. Verification must be conducted at the start of project implementation:

   a) The date when site preparation activities began;

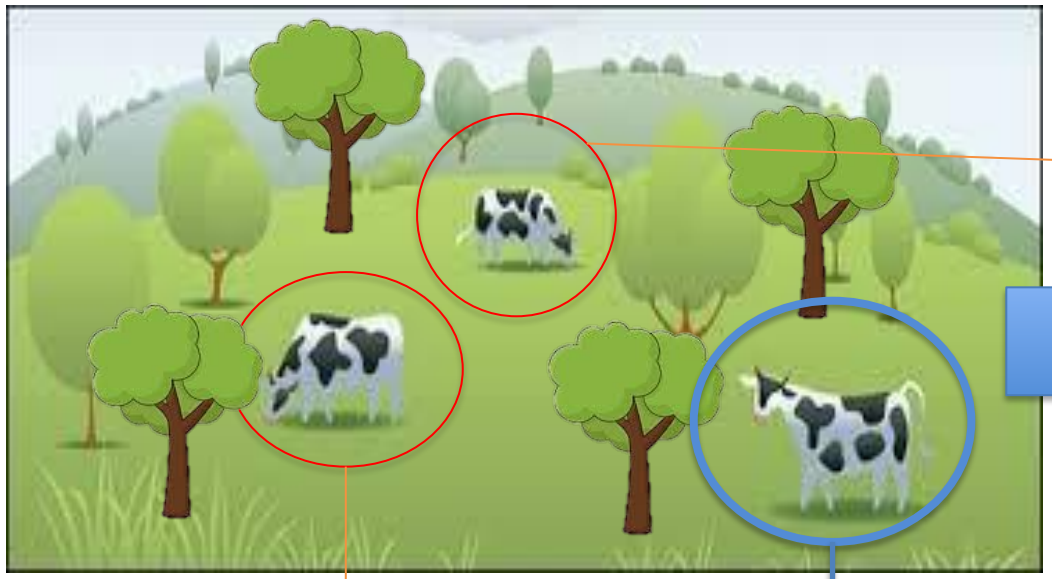
   b) The date of land-use change.
5. If the project is implemented on organic soils or wetlands, the relevant standards must be applied.

Project loss / Leakage

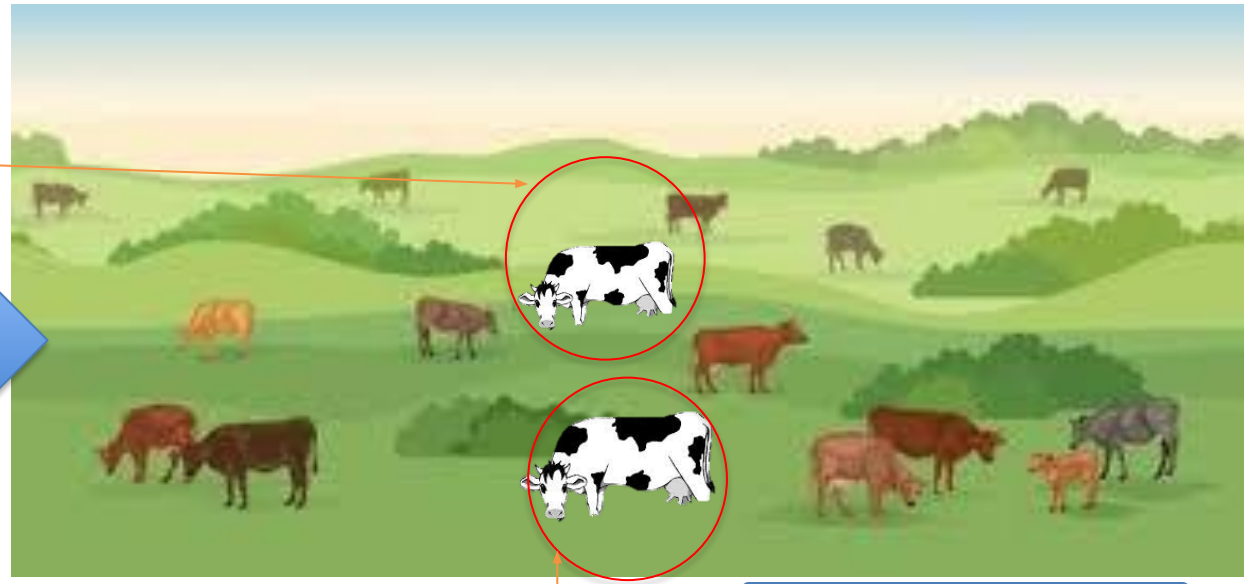


How to calculate the leakage?

Project area



leakage mitigation areas



$$l_{j,t} = MAX\ (FP_{j,t} - LM_{j,t}, 0)$$

New Land Brought into Production

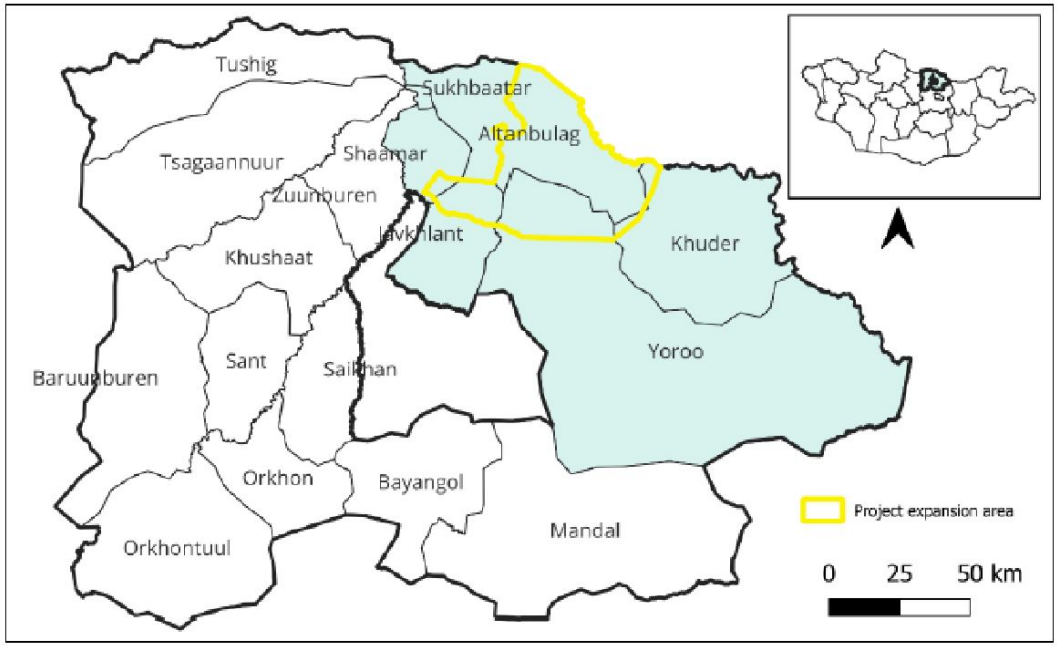
Examples from Mongolia

Verified Carbon Standard

BOREAL CARBON – PROJECT GAMMA I

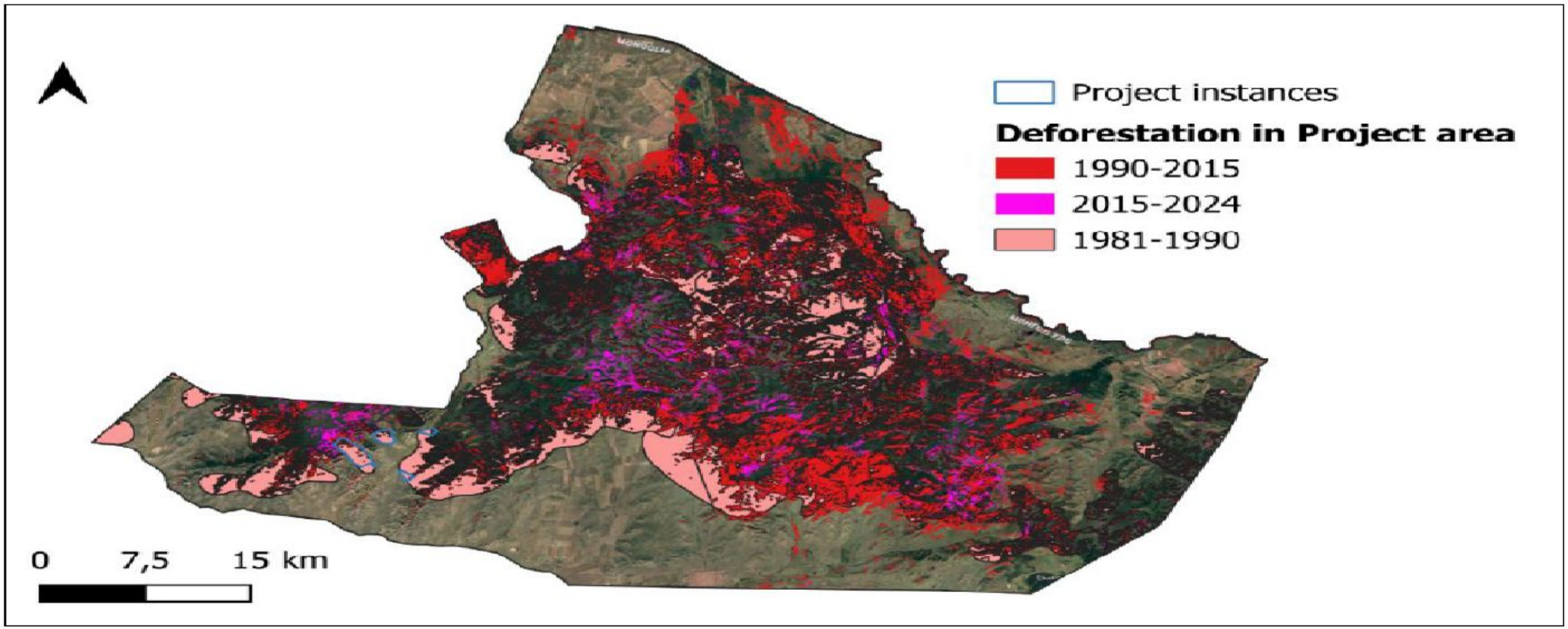
Project title	Boreal Carbon – Project Gamma I
Project ID	5446
Crediting period	01-May-2025 to 30-April-2065
Original date of issue	15-02-2025
Most recent date of issue	15-02-2025
Version	1.0
***VCS Standard* Version**	VCS Standard v4.7
Prepared by	Boreal Carbon Forestry III 20 Cecil Street, #05-03 Plus Singapore, 049705 Jessica Vardy jessicavardy@borealcompany.com

Figure 7 Project location in Selenge (large picture) and Mongolia (small picture)



Northeastern part of the Selenge Province (aimag), in the soums of Yoroo, Javkhlant, Altanbulag, Shaamar and Khuder.

Figure 5 Deforested area inside project expansion area



Source: Landsat 5, Landsat 8 and Forest cover map 1981 (Forestry Department of the Mongolian Government)

1.5.1 Grouped project design

New project activity instances will be eligible to join the project if they meet the following criteria:

1	Satisfy the applicability criteria described in the VCS Methodology for Afforestation, Reforestation and Revegetation Projects (VM0047), ensuring that the project activities qualify as afforestation, reforestation or revegetation and do not occur in organic soils, wetlands or tidal wetlands.
2	Are located on land covered by a "Cooperation and Stability Agreement" (CSA) with the local government granting Nomgon Forestry the concession to plant and manage the land for at least 60 years.
3	Are located in Selenge Aimag within the project zone.
4	Are previously deforested.
5	Are suitable for reforestation from a biological and geophysical perspective.
6	Have additionality characteristics consistent with initial instances for the specified project activity and geographic area and tree planting is not mandated nor required by any law, statute, or other systematically applied regulatory framework.
7	Are subject to the baseline scenario determined in the project description for the specified project activity (native tree plantation) and specified geographic area.
8	Have consistent financial, technical, and common practices as the initial instances.

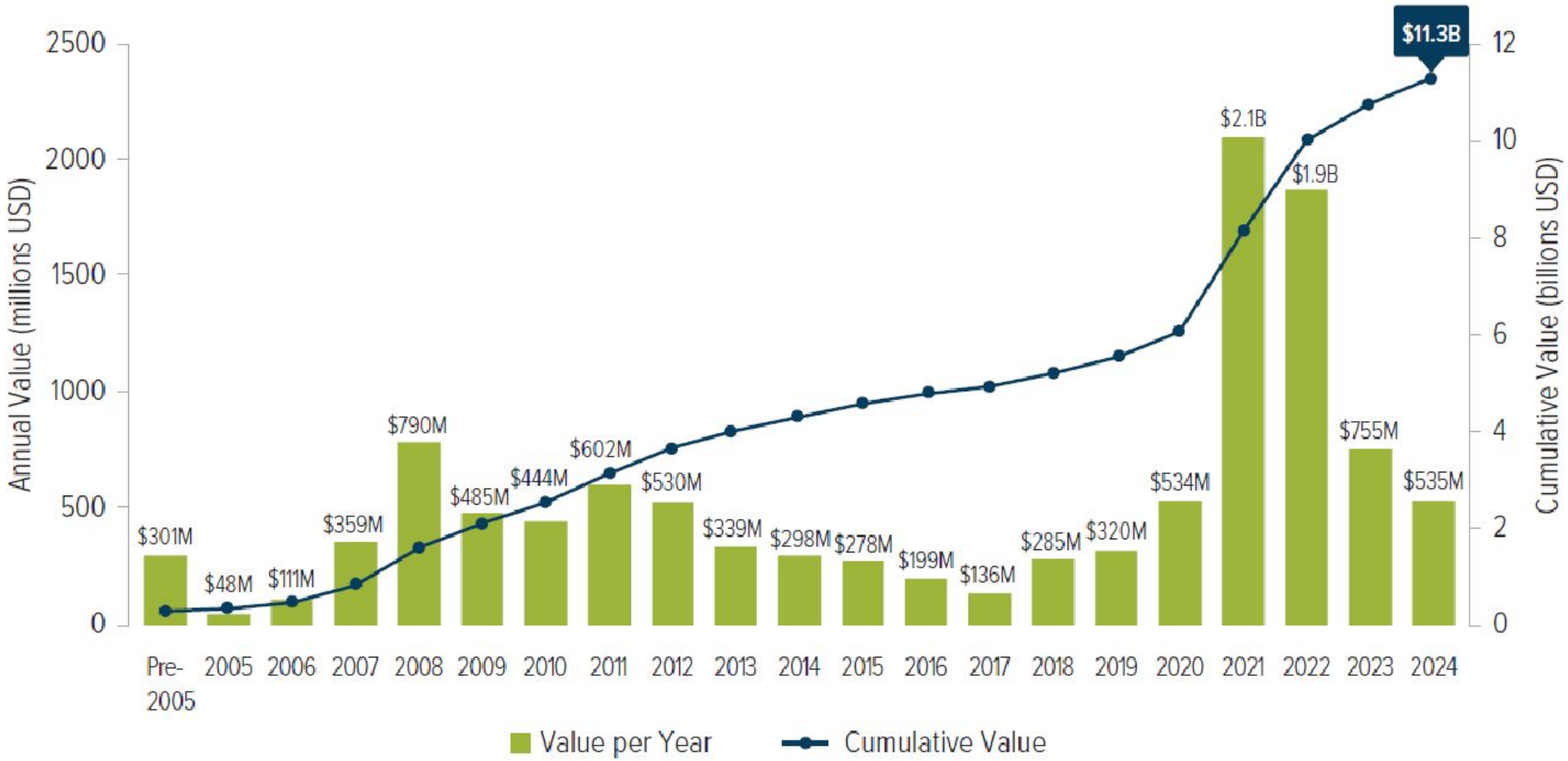
Land tenure verification

- It is stated that the Nomon Forestry company has obtained the land for special use for up to 60 years under the project.

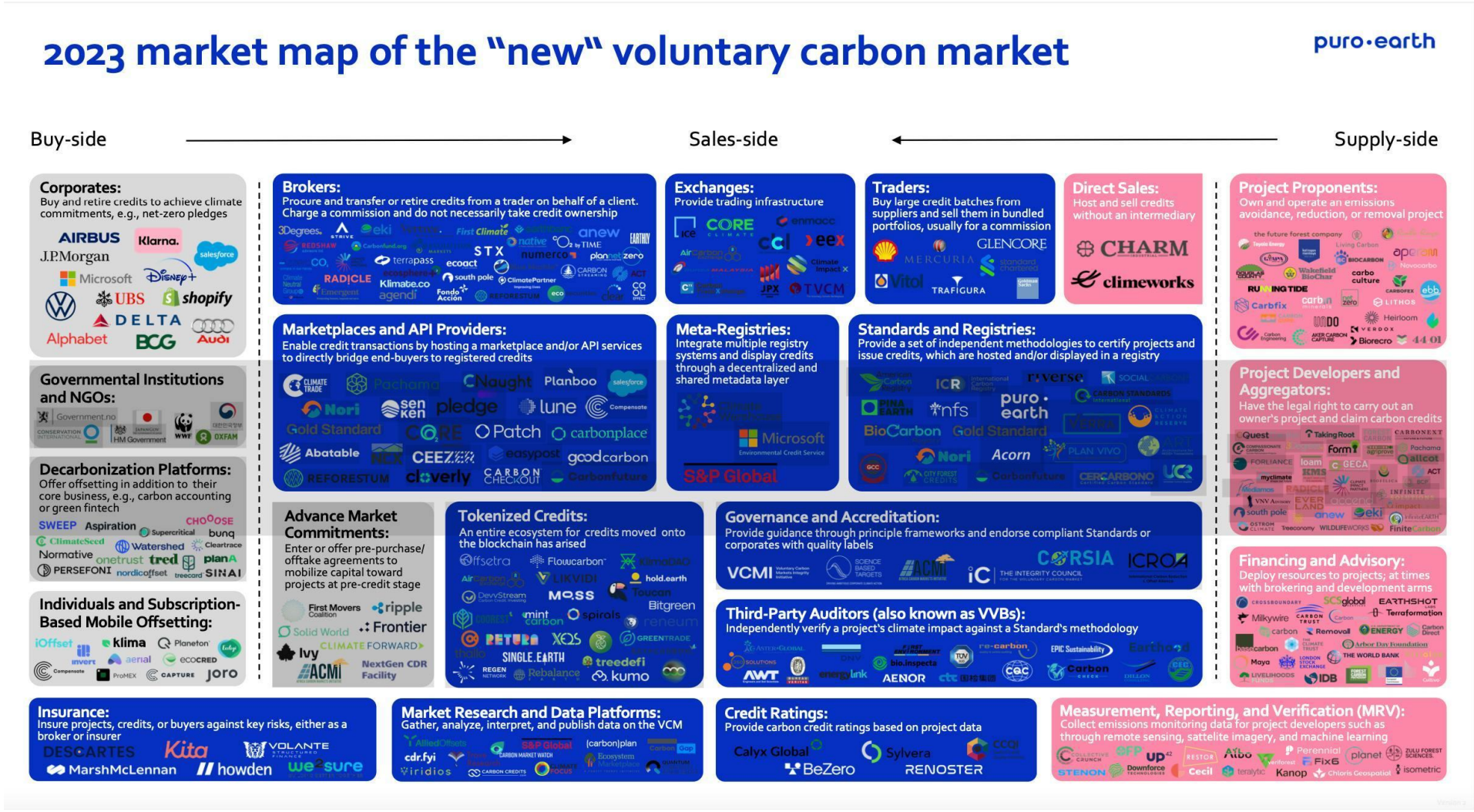
Total estimated ERRs during the first or fixed crediting period	3 904 000
Total number of years	40
Average annual ERRs	97 600

Prices and demand are steadily increasing

Figure 2. Voluntary Carbon Market Size by Value of Traded Carbon Credits, pre-2005 to 2024



Prices and demand are steadily increasing



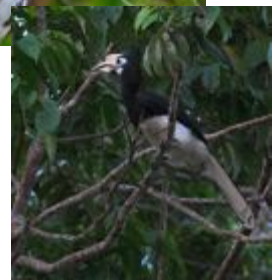
Lesson 5: It has a positive impact on biodiversity and restores ecosystems (locally)









Local residents can fully benefit from it

- Establish a benefit-sharing agreement
- Provide land tenure verification to local residents

Criteria	Current Regulations	New Required Laws and Regulations	How to include?
Non forest has existed in the area in the past 10 years.	At present, there are no specific laws or regulatory provisions.	Incorporate into the newly developed forest carbon regulation	It should be specified that the land has not been forested in the last 10 years.
he land is not peatland. It does not overlap with urban settlements. It does not affect cultural heritage sites. It does not overlap with agricultural land. It does not overlap with protected areas.	According to the Law on Forests, a "forest stand" is defined in Article 3.1.1 as a forested area, including land within a forest that is not fully covered by trees but has the necessary area for forest expansion. Based on this definition, areas not fully covered by forest, areas used for timber harvesting, affected by pests or fire, and areas within 100 meters from the forest edge are included.	Include in the updated Forest Law a clear definition of land with forest fund areas. This will allow projects to be implemented on degraded forests or areas suitable for afforestation. As a result, projects can be carried out in areas that do not overlap with water bodies, wetlands, urban settlements, cultural heritage sites, agricultural lands, or protected areas.	A "forest" is an area of 0.5 hectares or more, where trees or shrubs capable of reaching at least 5 meters in height cover more than 10% of the area, and which has ecological and geographical characteristics supporting the interdependent existence of plants and animals. "Land with forest fund" refers to areas with forests, trees, or shrubs, including forest gaps, clearings, areas used for timber harvesting, areas affected by forest or steppe fires, pests, or diseases, land required for forest expansion, tree nurseries, land within 100 meters from the forest edge, areas where forest restoration has been carried out, firebreaks, and areas occupied by planted forests.
It does not negatively impact the livelihoods of local communities.		To be included in the newly developed forest carbon regulation	The regulation should specify that projects aimed at increasing forest carbon stocks or establishing plantation forests must not have negative impacts on the livelihoods of local communities, ensuring the participation of cooperatives.

Alignment with international treaties and conventions		To be incorporated into the newly developed forest carbon regulation	Determine alignment with sustainable development goals and development policies
Land tenure verification	According to Article 4.4.2 of the Law on Forests, based on the proposals of the Citizens' Representatives' Hural at the sum (district) level and the Citizens' Khural at the bag/khoroo (subdistrict) level, certain parts of the forest fund can be allocated, under contract, to forest cooperatives, enterprises, or organizations for ownership and use for a specified period, under certain conditions. However, the law does not specify the exact duration.	Include in the Forest Law provisions to allow forest cooperatives to hold land under long-term contracts, up to 60 years. It is also necessary to include in the Law on Land Fees provisions for exemptions or reductions for areas held under forest cooperative agreements.	It is necessary to specify that the Citizens' Representatives' Hural at the sum (district) level discusses and decides on allocating certain parts of the forest fund to forest cooperatives. Based on this decision, the governor of the sum or district shall enter into contracts and issue certificates granting forest fund areas for 15 to 60 years.
Forest carbon database	Currently, Article 6.1 of the Law on Forests requires that the central government authority responsible for forestry maintain a national forest information system containing comprehensive data on forest conditions, area coverage, resources, composition, assessments, changes, and measures for forest protection, utilization, and restoration. However, it does not include provisions for calculating or registering forest carbon stocks.	It is required that forest carbon stocks be calculated and recorded in the national forest information system.	Measurement, assessment, verification, reporting, and trading of forest carbon stocks shall be regulated by the Forest Carbon Market Regulation. This regulation is to be developed by the Forest Authority and approved by the central government authority. The Forest Law should include these provisions and require that forest carbon stocks be recorded in the national forest information system.

Under the Law on Land Fees

According to Article 7.5 of the Law on Land Fees, the land fees for citizens, enterprises, and organizations operating in areas with forest funds and water reserve protection zones, in accordance with relevant laws and contracts, are calculated at twice the rate of nearby national or local urban zones.

It is necessary to include in Article 8 of the same law a provision that exempts land fees for cases where the land is held for the purposes of forest fund protection, restoration, plantation forest establishment, or increasing forest carbon stocks, in line with the procedure set out in Article 4.10 of the Forest Law.

This is because the purpose of the Law on Land Fees is to regulate the relationship whereby citizens, enterprises, and organizations pay fees for the possession and use of state-owned land, and the collection of such fees into the budget. Activities such as afforestation, forest restoration, plantation forest establishment, and sustainable forest management contribute to ecosystem restoration and protection; therefore, it is appropriate to provide for land fee exemptions in such cases.

Thank you for your attention