INFINITE
SOLUTIONS

Carbon Credit Project Handbook

Unlocking carbon credit opportunities across industries



About Report



The Carbon Credit Handbook serves as a practical reference for understanding the diverse landscape of carbon credit project development. It presents a broad overview of project types across key sectors, including renewable energy, energy efficiency, waste management, agriculture, forestry and other nature-based solutions, transportation, industrial processes, and carbon capture technologies. Designed for professionals, students and businesses this handbook aims to build foundational knowledge of carbon markets while highlighting the range of climate/carbon mitigation opportunities available across different industries.

Disclaimer

This handbook is for education purpose only and should not be considered financial, legal, or investment advice. Project descriptions are illustrative and may not fully align with the detailed requirements of global carbon standards or methodologies. Always refer to the applicable official framework before making decisions.

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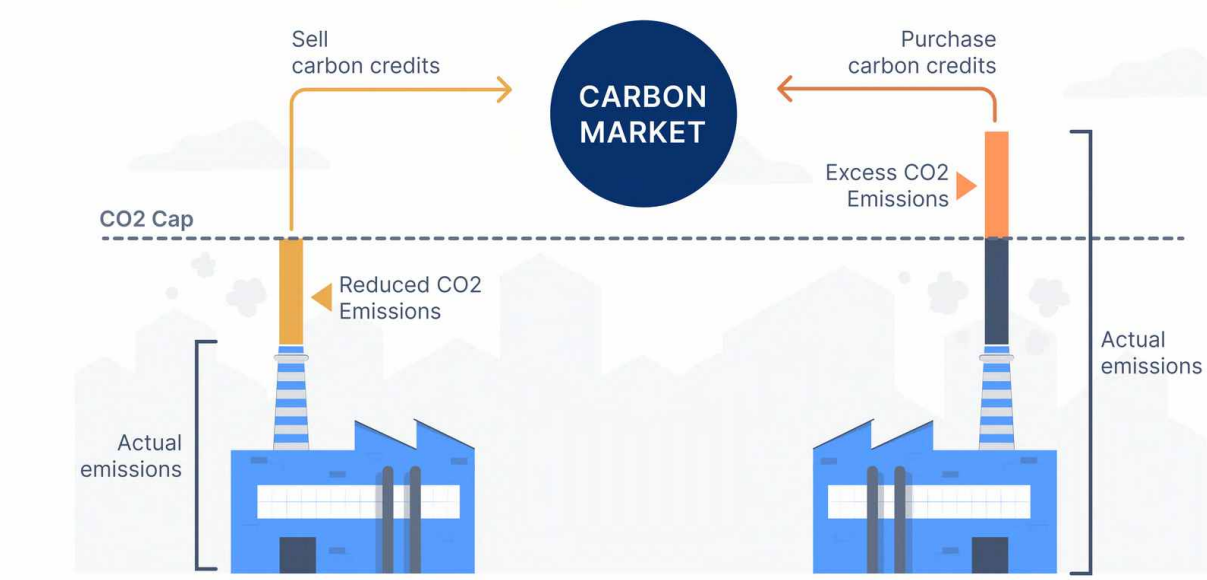
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What are Carbon Credits

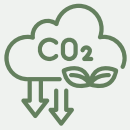
To address the climate crisis, nations worldwide have pledged ambitious targets aimed at cutting greenhouse gas (GHG) emissions. Turning these commitments into reality requires governments and private organizations to follow a structured climate-positive approach — measure, reduce, offset. In simple terms, managing an entity's carbon footprint starts with measurement, followed by developing emission-reduction strategies. Recent years have seen countries and companies making meaningful strides toward carbon neutrality. Yet as industries expand and economies grow, cutting emissions becomes increasingly challenging. In emission-heavy sectors like steel, aviation, and oil & gas, businesses face particular difficulty reducing emissions without major shifts to operations and business models. This challenge gave rise to what is now known as carbon offsetting. Carbon offsets — commonly referred to as carbon credits — are tradable rights or certificates tied to activities that reduce atmospheric carbon dioxide levels. Essentially, any activity that removes one tonne of CO_2 from the atmosphere in one location offsets the impact of one tonne emitted elsewhere. When an organization cannot avoid, cut, or remove emissions within its own operations, it instead funds external projects that remove emissions from the atmosphere on its behalf. Through participation in carbon markets, businesses can support projects focused on emission reduction, including renewable energy development, reforestation, and energy-efficient technology adoption.

The market for these credits continues to expand rapidly. The global voluntary carbon credit market was valued at approximately USD 5.3 billion in 2025 and is projected to grow to USD 7.4 billion in 2026, reaching an estimated USD 52.4 billion by 2033, reflecting a compound annual growth rate (CAGR) of around 32%. Bloomberg has separately reported that 2025 marked a record year for credit retirements and capital inflows, with over USD 10 billion committed to new carbon credit generation — three times the level seen in 2024.



Why carbon credits?

Carbon credits offer multiple benefits to the environment, businesses, and the economy at large.



Greenhouse Gas Emission Reduction

Cut greenhouse gas emissions via clean energy efficiency, and sustainable land-use.



Protection of Biodiversity and Ecosystems

Prioritise sustainable land-use and preserve biodiversity through habitat creation, soil improvement, and erosion prevention.



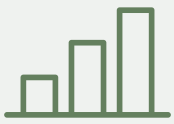
Support Sustainable Development Goals

Support the attainment of UN SDGs, particularly Climate Action (Goal 13) and Affordable Clean Energy (Goal 7).



Contribute to the Economy

They drive green economies, generate renewable jobs, and advance socio-economic progress in project areas.



Source for Additional Revenue

Offer financial rewards to encourage eco-friendly practices, fostering sustainable transitions across industries.

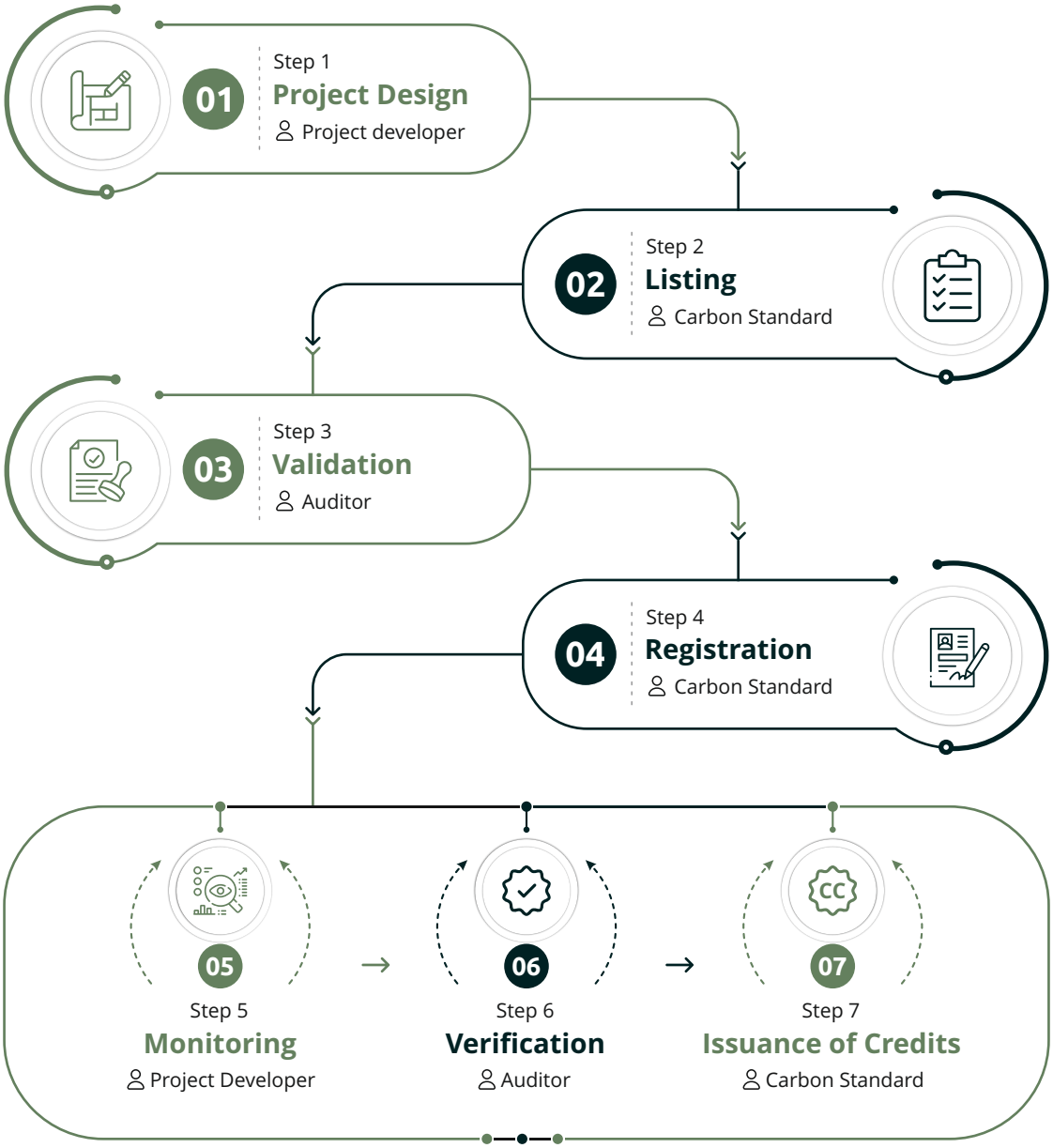


Mobilising Climate Finance

Acts as a means to leverage new private and public investment into projects that reduce greenhouse gas emissions.

How to generate carbon credits?

The carbon credit process begins with detailed project design documentation prepared by the project proponent or developer, laying out the methods used to achieve emission reductions. This documentation then goes through a listing stage, giving stakeholders visibility into the project. Next, an independent auditor — a Validation & Verification Body (VVB) — thoroughly assesses the project's emission reduction claims. Once validated, the project is registered under a recognized Carbon Standard, confirming it meets established emission reduction criteria. The project proponent then conducts ongoing monitoring to ensure emission reductions are sustained and properly documented. Finally, a Verification Body confirms the project's results, after which the Carbon Standard issues carbon credits, completing a dependable, incentive-driven system for tackling climate change.



Who can generate carbon credits?

Voluntary carbon markets operate on self-initiated action — demand in this space is driven by companies voluntarily committing to demonstrate low-carbon and sustainability efforts to shareholders and stakeholders. Credit approval and verification is handled by private organizations known as registries, which have established credibility for performing this essential function within the value chain. Carbon credits can originate from projects spanning various mechanisms and sectors. Avoidance/reduction credits are awarded for activities that prevent or lower potential emissions, spanning sectors like renewable energy (solar and wind among them), waste management (including composting and biogas efforts), and community-driven projects (such as distributing improved cookstoves). Removal credits, meanwhile, are awarded for activities like tree-planting initiatives and blue carbon projects that actively pull greenhouse gases out of the environment. This handbook was created to help businesses navigate the variety of projects found in the global voluntary carbon market.

Reduction/Avoidance Credits

Carbon credits issued against project acitivities that avoid/reduce potential GHG emissions

Technology-based

- Renewable energy
- Methane collection
- Industrial pollutants
- Household Devices/Energy efficiency

Nature-Based

- Avoided deforestation REDD+
- Wetland management
- No-till farming
- Methane from livestock

Removal Credits

Carbon credits issued against project activities that actively remove GHG emissions from the environment

Technology-Based

- Direct air capture
- Mineralisation
- Carbon capture and storage

Nature-Based

- Reforestation
- Afforestation Soil sequestration/Biochar
- Wetland restoration

Carbon Project Category

As noted earlier, carbon markets can be difficult to navigate, particularly for newcomers. Different carbon standards have established their own guidelines and terminology spanning numerous sectors and project types. This handbook offers a streamlined sectoral overview to help readers determine whether their business has any current or potential relevance to this space. Its core aim is to clarify various carbon project categories across sectors in a straightforward way, enabling readers to make an informed choice about whether to explore carbon markets further.

- Renewable Energy
- Community Based Projects
- Waste Management
- Agricultural Land Management
- Blue Carbon/Wetland
- Forestry
- Carbon Capture
- Transportation
- Manufacturing
- Grassland and Shrubland
- Industrial Energy Efficiency
- Chemical Process

Renewable Energy

Initiatives centered on capturing and utilizing clean power sources such as sunlight, wind, and flowing water for electricity generation not only reduce reliance on fossil fuels but serve a vital role in lowering greenhouse gas emissions.



SDGs impacted by this sector are:



Wind Power

Producing electricity from wind resources via turbine setups helps to reduce reliance on power generated using fossil fuel sources.

Solar Power

Employing solar photovoltaic (PV) technology, including rooftop panels and large-scale solar farms, allows for the generation of emission-free power.

Hydropower

Utilizing hydropower, which harnesses energy from flowing water, provides clean electricity generation, lessening reliance on fossil fuels.

Geothermal Energy

Tapping thermal energy beneath the Earth's surface, geothermal plants produce power and offer efficient heating/cooling solutions.

Battery Energy Storage System (BESS)

Storing surplus electricity in battery systems for later use, enhancing grid reliability, renewable integration, energy flexibility, and resilience.

Community Based Projects

Carbon credit initiatives led by local communities, encouraging sustainable practices while producing social and environmental co-benefits, such as biogas digester installation and improved cookstove distribution. These efforts lessen reliance on non-renewable energy and fossil fuels.



SDGs impacted by this sector are:



Improved Cookstoves Distribution

Rolling out initiatives that supply energy-efficient cookstoves to households, cutting carbon output and enhancing indoor air quality.

Water Purifier Distribution (Safe Drinking Water)

Providing water purification systems to communities to support access to clean drinking water. These activities introduce low-GHG water purification systems that supply safe drinking water.

Boreholes/Wells (Safe Drinking Water)

Setting up boreholes/wells (soil filtration for safe drinking water) that introduce low-GHG water purification systems, supplying safe drinking water and replacing water boiling that relies on non-renewable biomass or fossil fuels.

LED Lamps Distribution

Supplying energy-efficient LED lamps to replace conventional lighting sources such as kerosene lamps.

Household Biogas Construction

Building biogas units within households that convert organic waste into clean, renewable energy.



Solar Cookers Dissemination
Encouraging and distributing solar cookers that harness solar energy for cooking needs.



Solar Water Pump Installation
Setting up solar-powered pumps for irrigation or water supply — replacing traditional pumps that run on fossil fuels.



Solar Dryer Installation
Setting up solar dryers for drying crops or other materials, using solar energy to power the drying process.



Solar Water Heater Installation
Installing solar water heaters to supply hot water for homes or businesses, cutting dependence on carbon-heavy water heating approaches.

Waste Management

Carbon credit initiatives centered on cutting GHG emissions via aerobic and anaerobic waste treatment, recycling, methane capture and use from waste streams, and sustainable disposal practices.



SDGs impacted by this sector are:



Composting

Converting organic waste into nutrient-dense compost, lowering GHG emissions and boosting soil health.

Biogas

Cutting or replacing fossil fuel use by capturing and using methane from organic waste or biomass to generate energy.

Biomass Energy

Substituting fossil-fuel-based power sources with energy produced from biomass such as crop residues, energy crops, or organic waste.

Landfill Gas (LFG)

Capturing and using methane produced from decomposing landfill waste, cutting GHG emissions while tapping renewable energy.

Gasification (Synthetic gas)

Converting biomass or waste into synthetic gas (syngas) through high-heat processes, enabling clean energy generation.



Livestock Enteric Methane
Adopting improved feeding methods, techniques, and ingredients to cut enteric methane output from livestock.



Livestock Waste Management
Replacing or upgrading anaerobic manure management systems on livestock farms to recover and destroy methane via flaring/combustion or use the recovered methane for energy generation.



Wastewater Treatment
Adopting advanced treatment technologies while cutting methane and other GHG emissions from wastewater through biogas recovery.



Plastic Recycling
Building effective collection and recycling systems to keep plastic waste out of landfills and oceans.



Waste to Energy (Incineration)
Turning waste into energy through managed incineration to generate clean power or heat, cutting landfill volumes.



Refuse-Derived Fuel (RDF)
Processing and turning non-recyclable waste into fuel, cutting reliance on fossil fuels and landfill disposal.



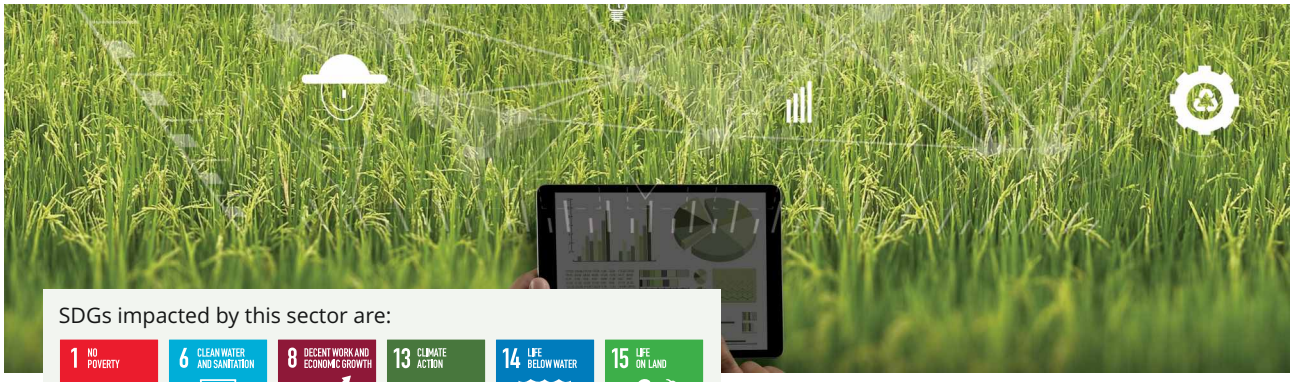
E-Waste
Adopting responsible recycling and resource recovery practices for electronic waste, reducing environmental harm and supporting a circular economy.



Recovery & Recycling of Materials
Initiatives that carry out recovery and recycling of metals, alloys, and minerals, replacing virgin material use and production, thereby cutting resource and energy use and avoiding related GHG emissions.

Agricultural
Land Management

Agricultural land management practices center on sustainable farming methods to capture carbon and cut emissions. Farmers can generate carbon credits by adopting practices such as agroforestry and organic farming. These initiatives help offset emissions produced by other sectors.



Afforestation, Reforestation and Revegetation (ARR)
Establishing, increasing, or restoring vegetative cover (forest or non-forest) through the planting, sowing, or human-assisted natural regeneration of woody vegetation.

Improve Fertilizer Application
Adopting accurate, efficient fertilizer application techniques enables farmers to actively cut greenhouse gas emissions and enhance soil health.

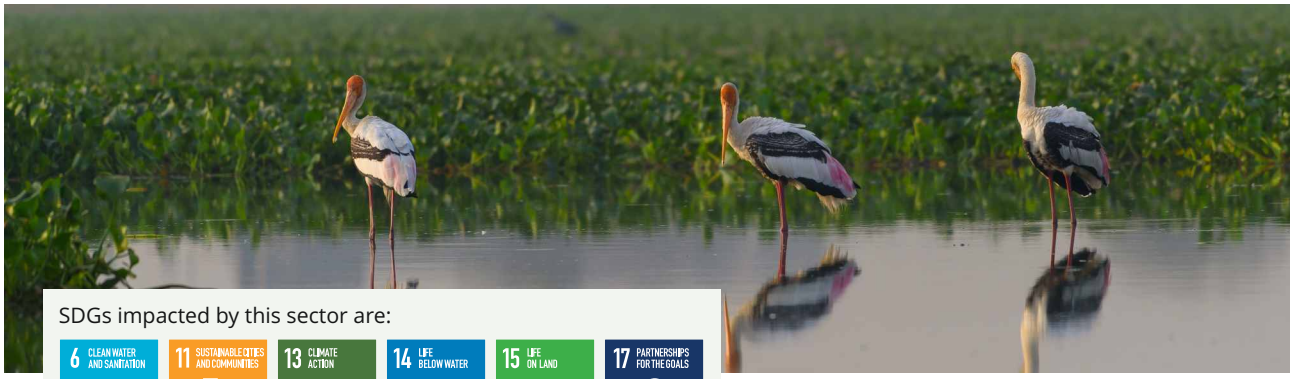
SOC (Soil Organic Carbon) /Reduce Tillage
Implementing water-efficient irrigation systems and stronger water management approaches that optimize resource use in agriculture.

Improve Crop Planting and Harvesting
Applying sustainable planting and harvesting methods such as crop rotation and well-timed harvesting to boost soil carbon capture.

Methane Reduction from Paddy Fields
Reducing methane emission from rice cultivation through alternative wetting and drying (AWD), aerobic cultivation, direct-seeded rice, and optimized water management.

Blue Carbon/ Wetland

Wetlands function as natural carbon reservoirs, absorbing and storing substantial quantities of carbon. Protecting and rehabilitating wetlands generates carbon credits by curbing carbon release and preserving habitats critical to numerous species. These efforts also deliver key ecosystem benefits such as flood mitigation and water filtration.



SDGs impacted by this sector are:





Restoring Wetland Ecosystems (RWE)/Mangrove Projects
Improving, establishing, and/or managing hydrological patterns, sediment flow, salinity levels, water quality, and/or native vegetation communities by mangrove plantation.



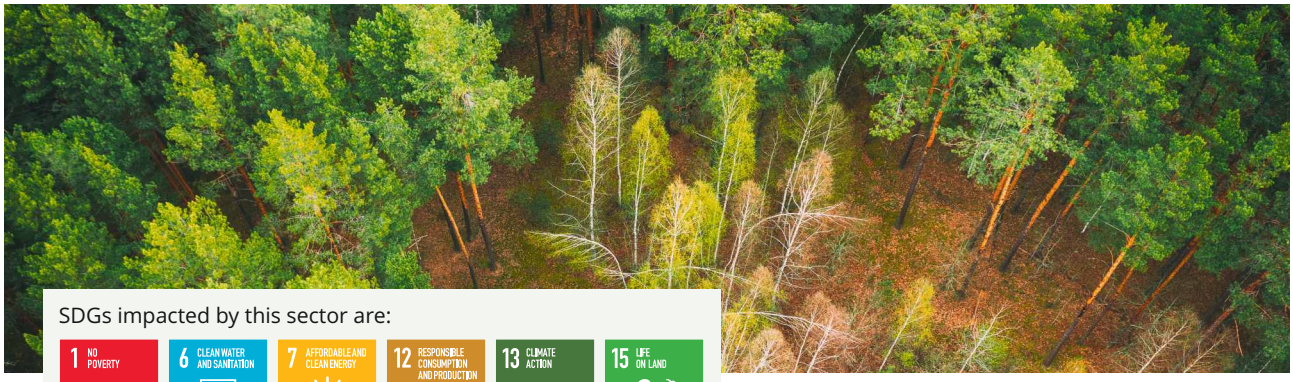
Avoiding Planned Wetland Degradation (APWD)
Preventing degradation of wetlands, or additional degradation in partly drained wetlands legally authorized and documented for conversion.



Avoiding Unplanned Wetland Degradation (AUWD)
Cutting GHG emissions by preventing unplanned wetland degradation, or further degradation in partially degraded wetlands.

Forestry

Forestry initiatives include efforts like afforestation and reforestation to draw down carbon dioxide via tree growth. Rehabilitating degraded forests and managing existing ones sustainably generates carbon credits, while supporting biodiversity protection and delivering valuable ecosystem benefits.



Reduced Impact Logging (RIL)
Shifting from standard logging methods to reduced-impact logging practices during timber harvest operations.

Logged to Protected Forest (LtPF)
Turning logged forests into protected areas by halting timber harvesting — safeguarding and growing biomass carbon reserves as the forest regenerates and/or matures. Tree removal for conservation purposes (such as clearing diseased trees) may still occur.

Extended Rotation Age / Cutting Cycle (ERA)
Lowering net GHG emissions in evenly aged managed forests by extending rotation periods or cutting cycles and building up carbon reserves.

Low-Productive to High-Productive Forest (LtHP)
Boosting carbon capture by transforming low-productivity forest land into high-productivity forest land.

Reduced Emissions from Deforestation and Degradation (REDD)
Lowering net GHG emissions through curbing deforestation and/or forest degradation.



Avoiding Planned Deforestation and/or Degradation (APDD)
Preventing or limiting deforestation or degradation on forest land legally authorized and documented for conversion. (Falls under REDD)



Avoiding Unplanned Deforestation and/or Degradation (AUDD)
Cutting net GHG emissions by halting deforestation and/or degradation of degraded-to-mature forests that would otherwise have occurred under any forest scenario. (Falls under REDD)

*Activities that reduce GHG emissions from unsanctioned forest degradation (e.g., illegal logging) are considered REDD activities. Activities that degrade wetlands to increase forest production are not eligible.

Carbon Capture

Emanating from Carbon Capture, Utilization, and Storage (CCUS) initiatives, these credits stand as a testament to environmental commitment. They symbolize CO_2 extraction and storage achievements, earned by fostering sustainable practices.



Biochar

Utilising pyrolysis or other processes to convert organic waste into biochar, a carbon-rich product that improves soil fertility and sequesters carbon.

Direct Air Carbon Capture and Storage (DACCS)

Captures CO_2 directly from ambient air using chemical/electrochemical sorbents or solvents, then stores it permanently underground.

Bioenergy with Carbon Capture and Storage (BECCS)

Captures CO_2 from combusting or decomposing biomass at industrial point sources, storing it durably for over 1,000 years.

Mineralization

Converts CO_2 into stable carbonate minerals via accelerated weathering reactions, storing carbon underground, at the surface, or in engineered systems.

Enhanced Rock Weathering (ERW)

Applies crushed silicate rock to agricultural land, accelerating natural mineral reactions that convert atmospheric CO_2 into stable carbonates.



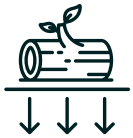
Carbonated Materials
Carbon-rich minerals formed by reacting CO_2 with rock or feedstocks, stored in open/closed systems or incorporated into built-environment concrete.



Bio-oil Geological Storage
Converts waste biomass into stable bio-oil, injected into subsurface geologic formations for permanent, durable carbon removal storage.



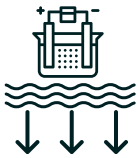
Biogenic Carbon Capture and Storage (BiCRS)
Captures biogenic CO_2 from industrial point sources (e.g., biomass power, biogas plants) and stores it with >1,000-year durability.



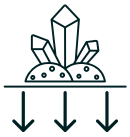
Biomass Geological Storage
Injects processed biomass into natural or engineered subsurface formations - aquifers, caverns, mines - for long-term atmospheric CO_2 sequestration.



Direct Ocean Capture (and Storage)
Removes CO_2 dissolved in seawater via engineered processes, returning decarbonized water while permanently storing captured carbon geologically.



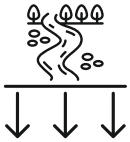
Electrolytic Seawater Mineralization
Uses electrochemical processes on seawater to enhance mineralization, permanently locking captured atmospheric carbon into stable mineral forms.



Open System Ex-situ Mineralization
Accelerates weathering of alkaline feedstocks (e.g., mine tailings) in open settings, absorbing atmospheric CO_2 into stable minerals.



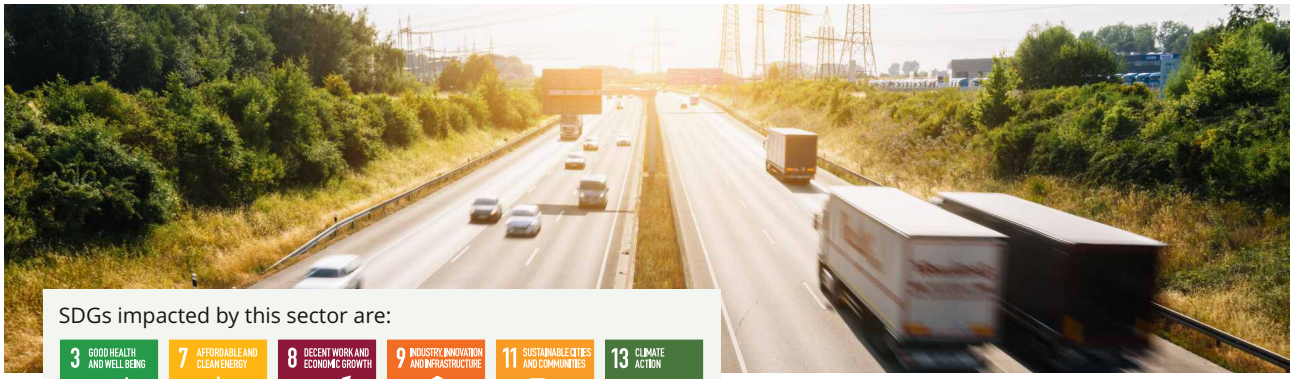
Ocean Alkalinity Enhancement from Coastal Outfalls
Increases seawater alkalinity via coastal outfall discharges, boosting the ocean's natural capacity to absorb atmospheric CO_2.



River Alkalinity Enhancement
Enhances river water alkalinity to increase natural CO_2 absorption and long-term storage as dissolved inorganic carbon.

Transportation

Centered on cutting emissions in the transport sector, these initiatives speed up electric vehicle uptake, strengthen public transit systems, and reduce the sector's overall environmental footprint, supporting cleaner urban mobility networks.



MRTS (Mass Rapid Transit System)
Supporting the expansion and efficient operation of high-capacity public transit networks like metro or light rail systems to advance sustainable urban mobility and reduce emissions.

BRTS (Bus Rapid Transit System)
Creating dedicated bus corridors, upgrading bus fleets, and streamlining operations to support efficient, environmentally sound public transit, leading to lower emissions.

Electric Vehicle (EVs)
Promoting the adoption of electric cars, trucks, and other vehicle types, which produce minimal to no tailpipe emissions compared with conventional fossil-fuel vehicles.

EV Charging Infrastructure
Expanding the availability and reach of electric vehicle charging stations. This effort supports broader EV adoption while ensuring easy access to charging through dedicated infrastructure.

Fuel Switch from Gasoline to Ethanol in Flex-Fuel Vehicles
GHG emission cuts achieved by replacing gasoline or gasoline blends with ethanol across commercial flex-fuel vehicle fleets.



Reduce Aviation's Non-CO_2

Technology-driven mitigation of atmospheric warming caused by aircraft contrail cirrus — ice-crystal clouds functioning as short-lived climate forcers (SLCFs).



Marine Fuels & Bio Bunkers

A standardized method to measure, verify, and certify GHG emission reductions from activities blending biofuels with fossil bunker fuels used in marine vessels.

Manufacturing

The manufacturing sector can generate carbon credits by embracing eco-conscious methods such as employing fly ash bricks, which carry a smaller carbon footprint during production, and through CO_2 utilization in concrete manufacturing, among other approaches.



SDGs impacted by this sector are:



Autoclaved Aerated Concrete AAC Blocks

Embracing energy-efficient brick manufacturing and adopting low-carbon fuels or renewable biomass through greater use of AAC blocks – substituting conventional red bricks effectively.

Fly Ash Bricks

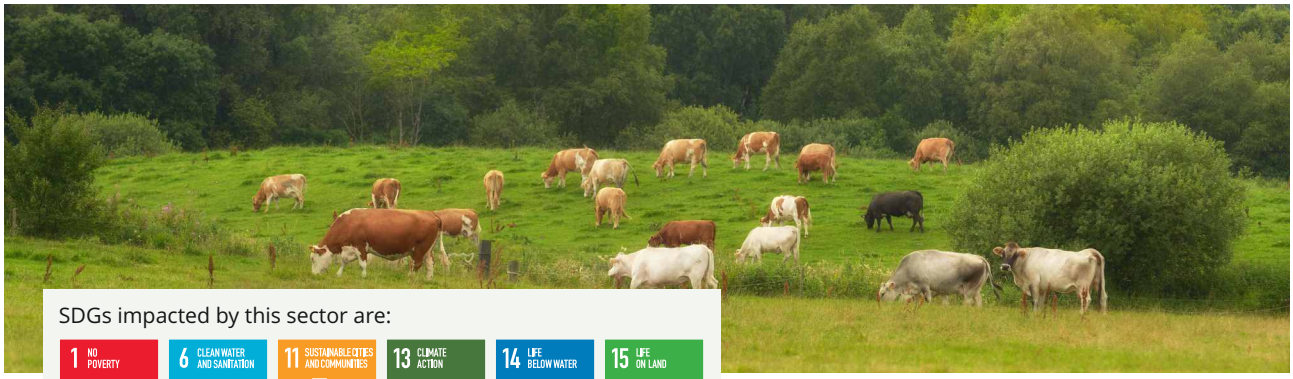
Embracing energy-efficient brick manufacturing through the use of fly ash bricks – a coal byproduct that helps reduce emissions linked to traditional red brick construction.

CO_2 Utilization in Concrete Production

Incorporating captured CO_2 into concrete manufacturing lowers GHG emissions by locking it in permanently and reducing its release into the atmosphere.

Grassland and Shrubland

Sustainably managing grasslands, through methods such as rotational grazing, can boost soil carbon storage and generate carbon credits. Encouraging climate-conscious grassland practices supports carbon removal from the atmosphere while sustaining healthy ecosystems and viable livestock farming.



SDGs impacted by this sector are:



Avoiding Planned Conversion of Grassland & Shrubland (APC)
Preventing the conversion of grasslands or shrublands that hold legal authorization and documentation for conversion.

Avoiding Unplanned Conversion of Grassland & Shrubland (AUC)
Preventing unplanned conversion of grasslands or shrublands.

Improved Grassland Management (IGM)
Boosting soil carbon storage, cutting N_2O output, and/or lowering CH4 emissions within grassland ecosystems.

Cropland and Grassland Land-use Conversions (CGLC)
Shifting cropland to grassland or grassland to cropland while lowering net GHG emissions through greater carbon storage, reduced N_2O output, and/or reduced CH_4 emissions.

Industrial
Energy Efficiency

Industrial energy efficiency initiatives focus on adopting technologies and methods designed to lower energy use and greenhouse gas output within industrial operations. These efforts not only support progress toward emission reduction goals but also generate cost benefits and strengthen competitive positioning for companies.



SDGs impacted by this sector are:



Process Improvement
Improving the efficiency and performance of industrial operations to lower energy usage and reduce the generation of waste heat.

Fuel Switching
Adopting fuel switching entails substituting high-carbon fuel sources with lower-carbon substitutes.

Waste Heat Recovery
Recovering and repurposing industrial waste heat to improve energy efficiency, reduce fuel consumption, and maximize resource utilization.

Cogeneration and Combined Heat and Power (CHP)
Generating electricity and heat concurrently from a single energy source, improving energy use efficiency, cutting emissions, and supporting sustainable power generation.

Jet Engine Washing
Cutting GHG emissions through improved jet engine performance. Washing jet engines removes buildup and boosts engine efficiency.

Efficient Desalination Plant
Energy-efficient reverse osmosis (RO) water desalination facilities, partly or entirely run on onsite renewable electrical/thermal energy.

Chemical Process

Efforts aimed at cutting emissions across the chemical industry seek to reduce greenhouse gas output stemming from chemical manufacturing operations. Through the adoption of forward-thinking methods, these initiatives support more environmentally responsible industrial practices, helping the sector move toward sustainability benchmarks while shrinking its overall carbon impact.



SDGs impacted by this sector are:





Fugitive Emissions From Chemical Processes

Curbing fugitive emissions arising from chemical operations by adopting practices aimed at limiting greenhouse gas leakage (like carbon dioxide) that occurs during manufacturing processes.



Methane Capture From Chemical Processes

Adopting methods to capture and prevent the escape of methane, a powerful greenhouse gas, throughout industrial processes.



Ozone-Depleting Substances (ODSs)

Tackling ozone-depleting substances through the gradual elimination of production and usage of compounds such as chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) that damage the ozone layer.



Green Ammonia Production

Cut or eliminate greenhouse gas (GHG) output from ammonia producing by substituting fossil-fuel-heavy traditional methods with low-emission approaches.

About
Infinite Solutions

Infinite Solutions is a leading global consulting firm specializing in carbon markets, sustainability, and climate solutions. Headquartered in Indore, India, with an international presence in Dubai, UAE (Meydan Free Zone), the company supports businesses, governments, and institutions in accelerating their net-zero transition through practical, science-based climate strategies.

With over a decade of experience, Infinite Solutions delivers end-to-end advisory and implementation services across carbon markets, enabling organizations to generate measurable environmental impact while strengthening long-term business resilience. Its expertise spans carbon credit project development, sustainability consulting, climate finance, emissions reduction, and environmental compliance.

Our Impact



100+
Ongoing Projects

Associated with
200+ Buyers Across the Globe

500+ Project Executed Across 23 Countries

35+ Million Carbon Credit Traded Across 25 Countries

Driven by innovation, technical excellence, and a commitment to sustainable development, Infinite Solutions continues to help organizations transform climate ambition into measurable outcomes.



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