Introduction to Carbon & Water Credits and its Benefits

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Introduction

- Climate change is a global challenge that requires urgent action
- Main cause of Climate Change – Global Warming is the increase of GHG and Carbon Dioxide (CO_2) in the atmosphere
- We will discuss strategies to combat climate change through carbon & water credits
- We will also discuss the benefits for businesses to promote a sustainable future

What is Climate Change

Climate change is caused by human activities that release greenhouse gases into the atmosphere

These activities are such as burning fossil fuels, deforestation etc.

These gases trap heat from the sun and cause the Earth's temperature to rise.

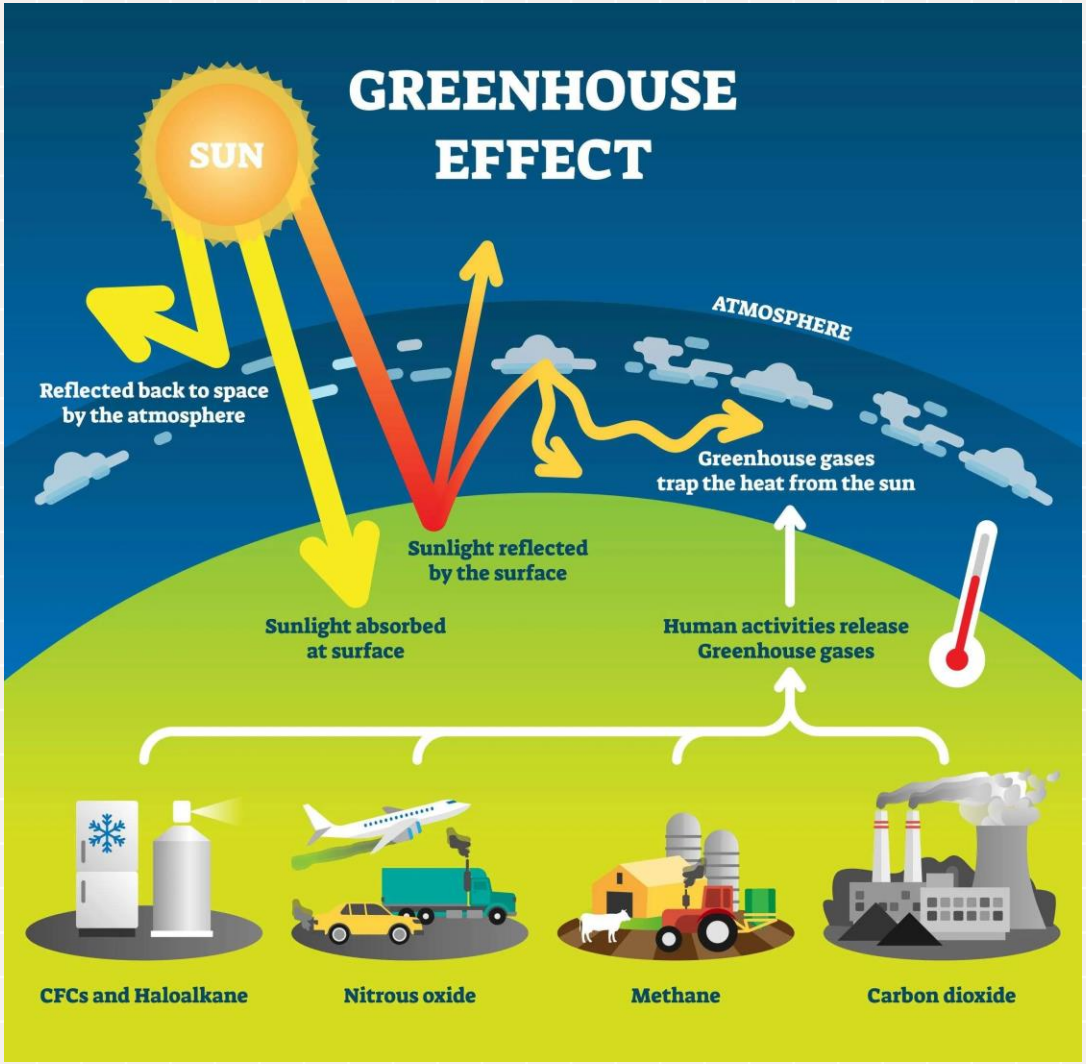
This warming is causing changes in weather patterns, sea levels, and ecosystems around the world.

Understanding Greenhouse Gas Emissions

Greenhouse gases trap heat in the Earth's atmosphere and contribute to climate change

Carbon dioxide (CO_2)is the most prevalent greenhouse gas, but others like methane and nitrous oxide also have significant impacts

Understanding the sources and impacts of greenhouse gas emissions is key to mitigating climate change


GREENHOUSE EFFECT
SUN
ATMOSPHERE
Reflected back to space by the atmosphere
Greenhouse gases trap the heat from the sun
Sunlight reflected by the surface
Sunlight absorbed at surface
Human activities release Greenhouse gases
CFCs and Haloalkane
Nitrous oxide
Methane
Carbon dioxide

Understanding Carbon Dioxide Emissions

CO_2 is most prevalent greenhouse gas (@75%) that traps heat in the atmosphere and contributes to global warming

The burning of fossil fuels, deforestation, and industrial processes are the main sources of CO_2 emissions

It is important to understand the sources and impacts of CO_2 emissions to develop effective reduction strategies

Mitigation Strategies

These are actions taken to reduce greenhouse gas emissions and slow the rate of climate change

These strategies include renewable energy, energy efficiency, and carbon pricing

Mitigation is essential to avoid the worst impacts of climate change

Adaptation Strategies

1	• These are actions taken to adapt to the impacts of climate change that are already happening.
2	• These strategies include building sea walls, developing drought-resistant crops, and improving water management
3	• Adaptation is essential to reduce the risks of climate change impacts

Carbon Reduction Strategies

There are many strategies for reducing CO_2 emissions

These are but not limited to energy efficiency, renewable energy, and carbon capture and storage

These strategies can be implemented on an individual or organizational level and can help mitigate climate change

What are Carbon Credits

- Carbon credits represent a unit of greenhouse gas emissions reduced or removed from the atmosphere
- Typically measured in metric tons of carbon dioxide equivalent (CO_2e)
- They are permits that allow countries, companies, or individuals to emit a certain amount of carbon dioxide or other greenhouse gases.
- They can be bought and sold on carbon markets to help reduce emissions
- They incentivize sustainable practices and help fund projects that reduce emissions
- It can help reduce the carbon footprint of companies and individuals, while also supporting sustainable development projects in developing countries

Types of Carbon Credits

There are two main types of carbon credits:

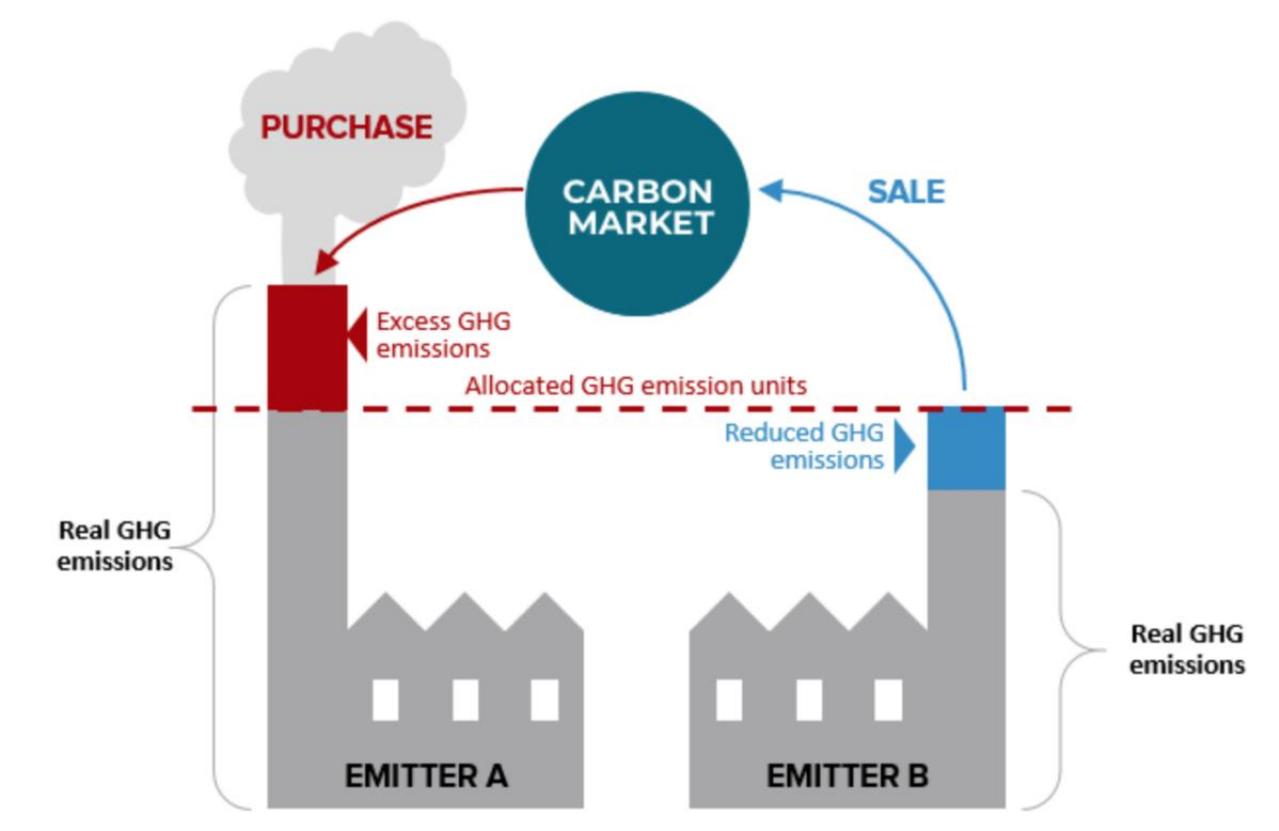
Compliance credits and Voluntary credits

Compliance credits are issued by governments to meet emissions reduction targets

Voluntary credits are purchased by companies or individuals to offset their emissions

Both types play a role in advancing sustainable solutions

Cap and Trade

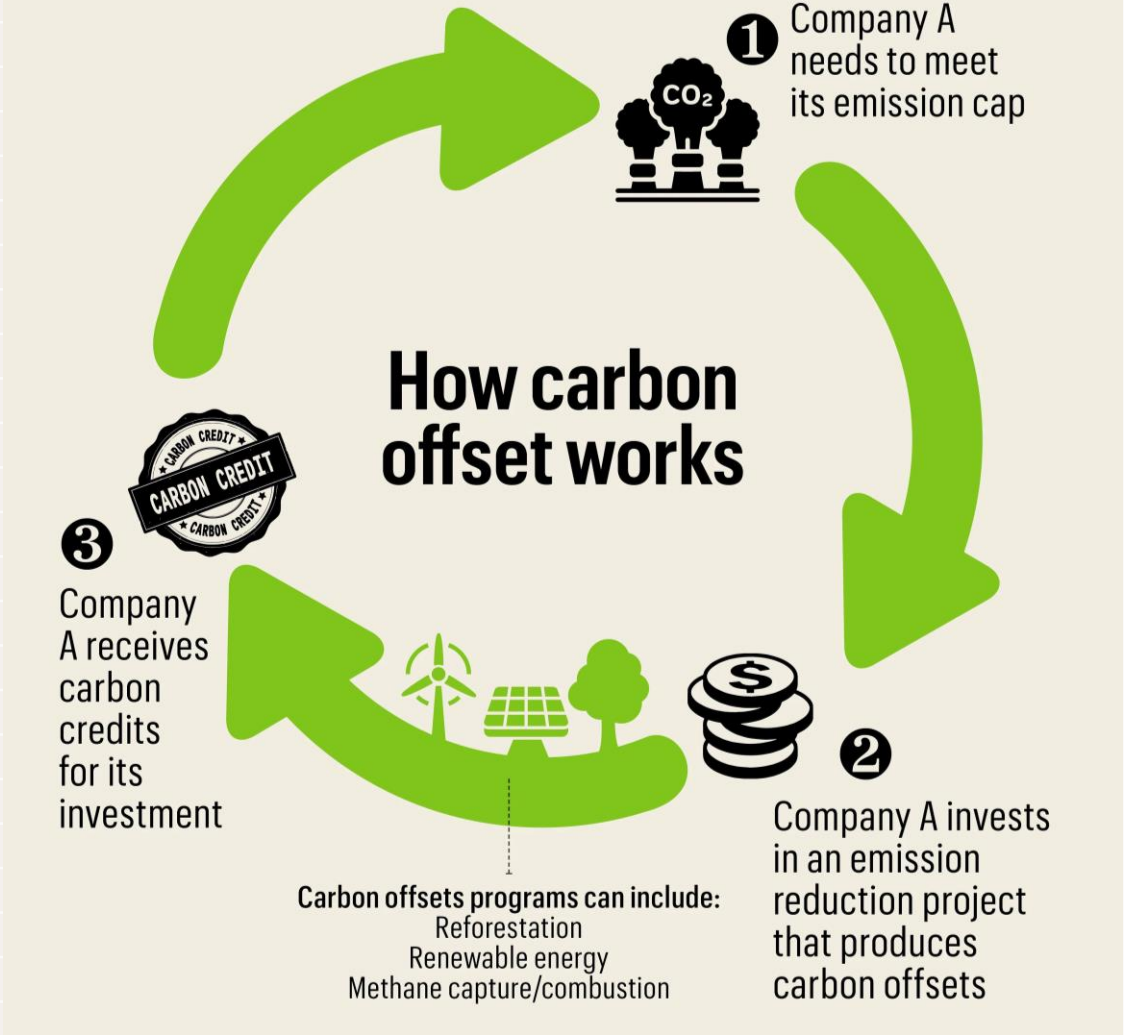


Carbon Offsetting

Carbon Offsetting

- It is the process of compensating for one's carbon footprint by purchasing carbon credits.
- This can be done through voluntary or compliance markets.
- It can help individuals and organizations take responsibility for their emissions and support sustainable practices.

How carbon offset works



Key Differences

Carbon Credits

- ✓ Tradeable permits to emit CO_2
- ✓ Government and Regulatory bodies create them to limit emissions by an industry or sector (mandatory cap-and-trade)
- ✓ Companies that emit less than their alloted amount can sell unused credits to companies that emit more
- ✓ Creates financial incentive for companies to reduce their emissions

Carbon Offsets

- ✓ Projects that reduce or remove GHG from the atmosphere
- ✓ Projects include afforestation, renewable energy, improving energy efficiency etc.
- ✓ Carbon Offsets are voluntary in nature and more accessible
- ✓ When a carbon offset is purchased, it is essentially paying to someone else to reduce emissions.

CC vs CO Comparision

	Carbon Credits	Carbon Offsets
	Tradeable Compliance Certificates that represent the right to emit One MT of CO_2	Projects that reduce or remove GHG from the atmosphere
	Created by Government or Regulatory Bodies	Created by anyone
	Subject to Government Verification Standards	Private Verification Standards
	More Regulated than Carbon Offsets	Less regulated than Carbon Credits
	More expensive than Carbon Offsets	Less expensive than Carbon Credits
	Less flexible than Carbon Offsets	More flexible than Carbon Credits

Carbon Footprinting

Carbon Footprinting

- It is the process of measuring and analyzing one's greenhouse gas emissions
- This can be done on an individual or organizational level
- It can help identify areas for emissions reduction and support sustainable practices

Carbon Capture and Storage

- Carbon capture and storage (CCS) is a technology that captures CO_2 emissions
- CO_2 is captured from power plants and other industrial processes and is stored underground
- CCS can help reduce greenhouse gas emissions from fossil fuel use
- It also faces challenges such as high costs and potential environmental risks

Carbon Market Overview

Carbon markets are platforms where carbon credits are bought and sold

Two main types of carbon markets are cap-and-trade and offset markets

Cap-and-trade markets set a limit on emissions and allow companies to trade credits

Offset markets allow companies or individuals to purchase credits to offset their emissions

Carbon Credit Pricing

- It is a policy tool that puts a price on CO_2 emissions
- Pricing can take the form of a carbon tax or a cap-and-trade system
- Prices can vary depending on the market and the type of credit
- Compliance credits are typically more expensive than voluntary credits
- Prices can fluctuate based on supply and demand
- The Paris Agreement has also had an impact on carbon credit pricing
- Pricing can help promote a market-based approach to reducing CO_2 emissions and encourage innovation

Carbon Credit Standards

There are several standards for carbon credits like the Gold Standard, Verified Carbon Standard, and Climate, Community & Biodiversity Standards

These standards ensure that carbon credits are real, additional, and verifiable.

Carbon Credit Certification

Carbon credits must be certified by a third-party to ensure their integrity and credibility

Certification involves verifying the additionality and realness of the project, as well as the sustainability of the project's co-benefits

Risks and Challenges of Carbon Credits

- Carbon credits can face risks and challenges, such as fraud and double counting.
- There can also be uncertainty around the effectiveness of carbon credits in reducing emissions.
- It is important to verify the integrity of carbon credits before purchasing.

Carbon Credits – Future / Market Trends

- ✓ Carbon credits play a key role in the transition to a low-carbon economy
- ✓ The expansion of carbon markets and the increased demand for sustainable development projects could drive the growth of the market
- ✓ Further due to the emergence of new standards and certification schemes, and the impact of global policies there is opportunity for the market to grow

Impact on Water Resources

Climate change is also affecting water resources around the world

Some regions experiencing more severe droughts and others experiencing more frequent floods

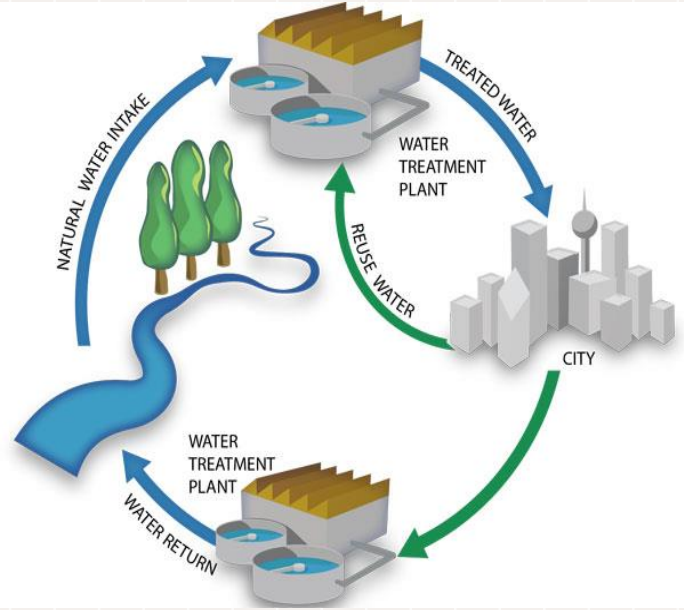
This has significant impacts on agriculture, water supply, and biodiversity

Results into irregular pure water supply

What are Water Credits

Water Credits introduced to encourage efforts to save or recycle or treat & recycle water

Every 1000 liters of water saved or recycled or treated & recycled and is put to a "**Gainful End Use**" is recognised and rewarded as one credit



1000 litres water = 1 water credit

Eligibility

1

Project must be currently operational

2

Credits can be requested only from 2014 onwards

3

Should be within the scope of registrar

Eligibility – Scopes

1

Measures which enhances the sustainable yield in areas where the aquifer has depleted

2

Measures for conservation and storage of unutilized water for future requirements

3

Measures that improve the quality of existing ground water through dilution with rainwater runoff

4

Measures that remove bacteriological and other impurities from seawater*, sewage & waste water or unutilized water so that water is suitable for re-use and/or recycling

5

Conservation measures taken to recycle and/or reuse water, spent wash, wastewater etc. across or within specific industrial processes and systems, within the same site or location of the project. Recycled wastewater used in off-site landscaping, gardening or tree plantations/forests activity are also eligible.

*Desalination plants using seawater are eligible only if the project activity is powered by renewable energy systems and clear documentation and practices on brine management and scientific data is provided during registration indicating no net harm to the local marine ecosystem.

Procedural Steps

Owner appoints Aggregator

Aggregator prepares Project Report

Aggregator submits the Project Report to Registrar and gets the project registered

After assessment and review, Registrar approves project for Verification

Aggregator in consultation with Owner appoints Verifier

Verifier verifies the project, prepares and submits verification report to Registry

On receipt valid verification document/report, the Registry issues Credits

Credits can be traded on exchange platforms

The project has to be registered for a particular year or years (as the case may be) and the credits are issued for that time period after completion of procedure. For every subsequent time period (year or years), the project has to be registered and verified again to earn credits.

Benefits to Business

- ✓ Encourages to take small steps towards sustainability targets & be sustainable businesses in long run
- ✓ Sense of contributing towards United Nations 17 SDGs
- ✓ Able to contribute towards Climate Change Mitigation
- ✓ **Efforts made by businesses are incentivised**
- ✓ **Able to conserve a most valuable resource – Water (and save / earn money too)**
- ✓ Initiatives taken for water conservation shall fetch credentials and an edge over the competition
- ✓ Being carbon / water negative or neutral is difficult but by offsetting or generating the credits themselves helps to gain carbon / water neutrality
- ✓ Since the credits issued through an independent, transparent and fool proof verification and certification process, the businesses can get themselves certified for CO_2 reduction and/or saving or recycling or treating & recycling water, which otherwise was not recognized and can give a competitive advantage
- ✓ **Financial incentives as the credits can be traded on trading exchange platforms or bi-laterally as required.**

Challenges and Opportunities

Challenges

Reducing carbon dioxide emissions is a complex challenge that requires a coordinated and sustained effort.

These include economic interests, lack of public awareness and support, and technological and infrastructure challenges.

Opportunities

Addressing climate change presents opportunities for innovation and economic growth

By transitioning to a low-carbon economy, we can create new jobs and industries while also protecting the planet

The Role of Governments

Governments play a crucial role in reducing carbon dioxide emissions

Can formulate and implement policies and regulations to reduce greenhouse gas emissions and to support adaptation efforts

Can formulate and implement policies and regulations to promote renewable energy, energy efficiency, and sustainable practices

Can also provide funding for research and development to promote innovation and create new opportunities for sustainable growth and address climate change

International Cooperation / Agreements

Climate change is a global challenge that requires international cooperation

The United Nations Framework Convention on Climate Change (UNFCCC) is an international treaty that aims to prevent human interference with the climate system.

International agreements, such as the Paris Agreement, are important for coordinating global efforts to address climate change

The Paris Agreement aims to keep global warming below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit it to 1.5 degrees Celsius

Many countries have committed to reducing their greenhouse gas emissions under this agreement

The Role of Businesses

- Businesses play an important role in addressing climate change by reducing their own greenhouse gas emissions and investing in renewable energy and other sustainable practices
- Many businesses are also advocating for policy change to support a transition to a low-carbon economy
- Businesses can invest in renewable energy sources, improve energy efficiency, and reduce waste and be sustainable
- Businesses can also promote sustainable practices throughout their supply chains and engage with stakeholders to promote a sustainable future

Conclusion

- Carbon/Water credits are valuable & powerful Market Based Instruments for incentivizing sustainable practices and mitigating climate change as against Command & Control Regime
- While there are risks and challenges, the growth of the credit market and the demand for sustainable development projects suggest a bright future for credits
- However, they are not a silver bullet and must be used in conjunction with other strategies

Thanks!

Do you have any questions?

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