

**1.** Overview

**2.** Evolution of the Carbon Market and Carbon Credit Concept

**3.** India's Clean Energy Transition Scenario

**4.** Government Policy Landscape & Carbon Credit Trading Scheme

**5.** Impacts of Carbon Trading

**6.** Concerns Related to Carbon Trading in India

**7.** Legal Framework to Support India's Carbon Market

**8.** Climate Financing and Investment Scenario

**9.** Conclusion

**10.** Expert's Insight



# ANALYSIS REPORT

ON

## Indian Carbon Market

November 2023 Edition



## Overview

The idea of the Carbon Market in India was announced through the **Energy Conservation (Amendment) Act, 2022** to sync India's energy transition landscape with the **UN Climate Change Conference agenda known as COP26**. The overall aim is to substitute the use of fossil fuels with alternate non-fossil fuel sources like biomass, green ammonia, bioethanol, and green hydrogen as energy and raw materials.

The Carbon Market is essentially an instrument of the trading system where Carbon Credits can be bought and sold. **A tradable Carbon Credit is equal to 1 tonne of carbon dioxide or any other GHG of an equivalent amount removed, reduced, or sequestered from the environment.** The development of ICM (Indian Carbon Market) has been envisaged to **establish a framework for controlling GHG emissions in India through the trading of Carbon Credit Certificates (CCCs) among designated entities.** With this vision, the **Carbon Credit Certificates Scheme under the joint efforts of the Ministry of Power, Bureau of Energy Efficiency, and Ministry of Environment, Forest & Climate Change has been launched.**

There are 2 types of Carbon Markets globally i.e. Compliance Markets and Voluntary Markets. The Compliance Market is created by the policies at the regional, national, and/or international level and is regulated officially. The Voluntary Markets are created at the national or international level referring to the buying, selling, or issuing of Carbon Credits voluntarily. The implementation of the ICM will give rise to a healthy and competitive market by encouraging acceptance of low-cost alternates driven through the latest technology and finance that will support viable projects generating Carbon Credits in India to support the green growth of the Indian economy.



Source: <https://beeindia.gov.in/sites/default/files/publications/files/NCM%20Final.pdf>

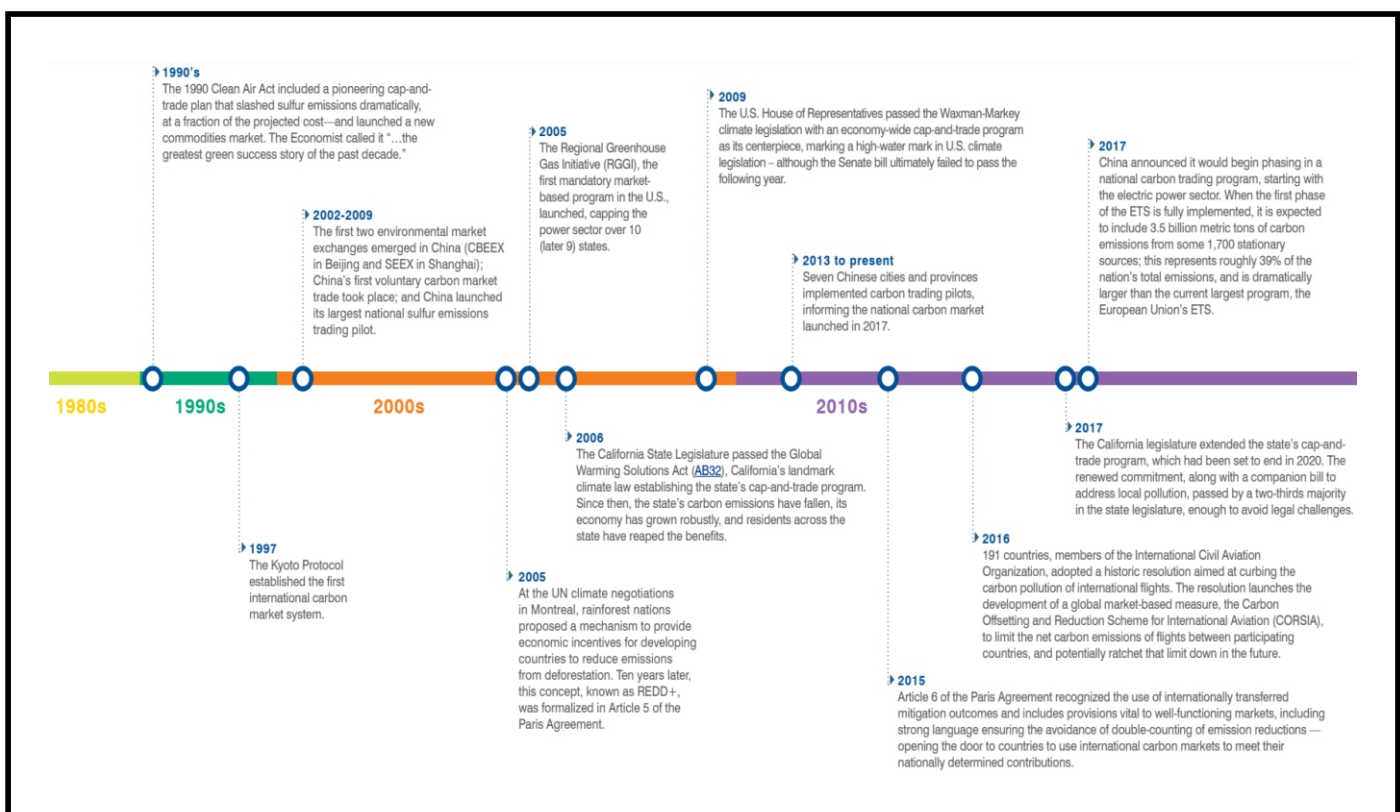


Source: [https://www.forbesindia.com/media/images/2023/Nov/img\\_221701\\_carbontrading.jpg](https://www.forbesindia.com/media/images/2023/Nov/img_221701_carbontrading.jpg)

# Evolution of the Carbon Market and Carbon Credit Concept

The carbon market is valuable and constantly growing. The world between the 1980s and 1990s witnessed a significant change in the climate and the underlined risks involved with it. **A global effort was brought into action to address climate change by reducing carbon emissions and related greenhouse gases through the UNFCCC Framework.**

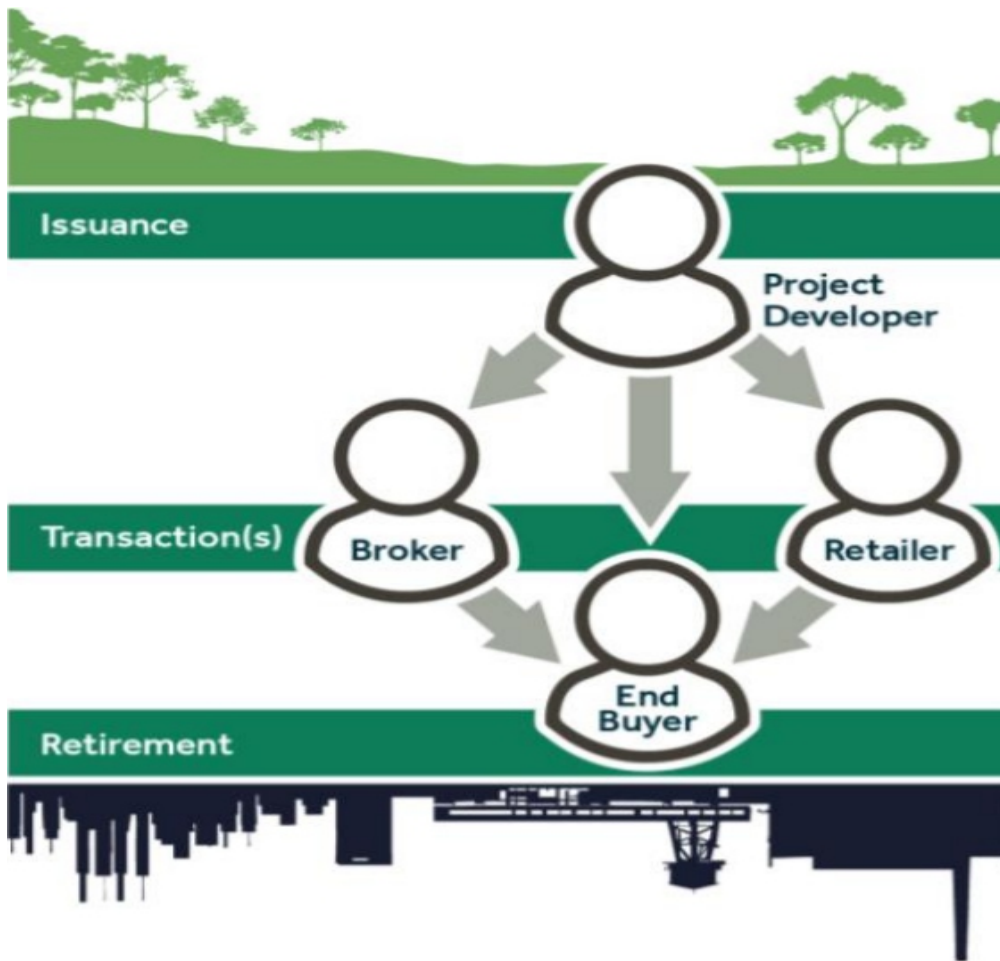
## Evolution of the Carbon Market



Source: [https://www.edf.org/sites/default/files/documents/EDF\\_Carbon\\_Market\\_Timeline.pdf](https://www.edf.org/sites/default/files/documents/EDF_Carbon_Market_Timeline.pdf)

India is a well-versed member of diverse international conventions that led to the introduction of a carbon market and successfully assisted in the reduction of carbon dioxide or similar greenhouse gases by having a limit on emissions known as carbon credit. The **carbon was termed as a tradeable entity under the earlier UNFCCC framework**, which was later ratified in the 2015, Paris Climate Agreement. Under this, a country is authorized to sell or transfer the surplus carbon credits to another country or any institution/organization that doesn't possess sufficient carbon credits to limit global emissions, and each country is responsible for its action to meet climate change guidelines. The introduction of the Carbon Trade Certificate enhances trading among nations assuring GHG emission control globally.

## Carbon Credit: Life Cycle

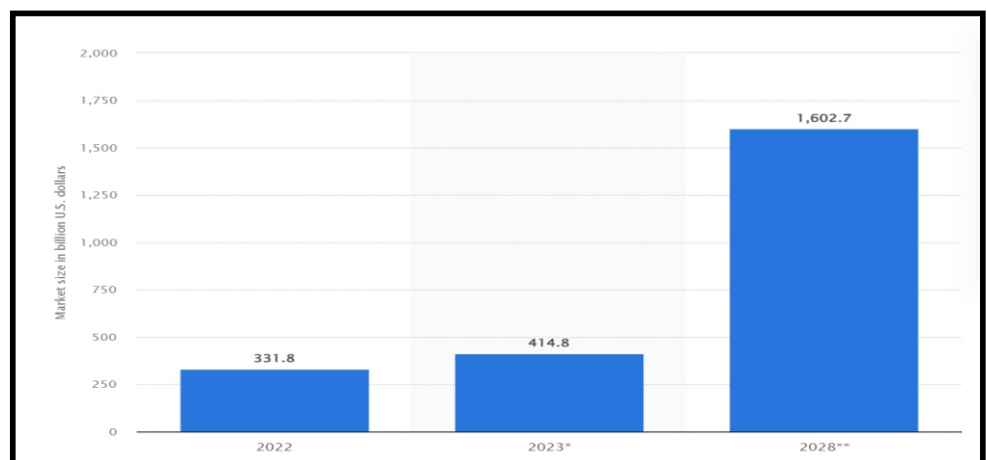


Carbon Credit trading is implemented via a distributed system in which different private players can interchange Carbon Credit Certificates. **From 2010 to 2022, India supplied 35.94 million Carbon Credits enabling its trading at national and international levels.** The Energy Conservation (Amendment) Act of 2022, has set up the first specifications for India's national carbon market with the ambition of playing a key role in the carbon market globally.

Source: <https://beeindia.gov.in/sites/default/files/publications/files/NCM%20Final.pdf>

India has enormous potential for developing high-quality Carbon Credits for trading at the mass level witnessing significant socio-economic advantage with the help of diverse ground-level initiatives under the commitment made towards COP26 in its Nationally Determined Contributions (NDCs).

## Global Carbon Credit Market Size (in billion US\$)



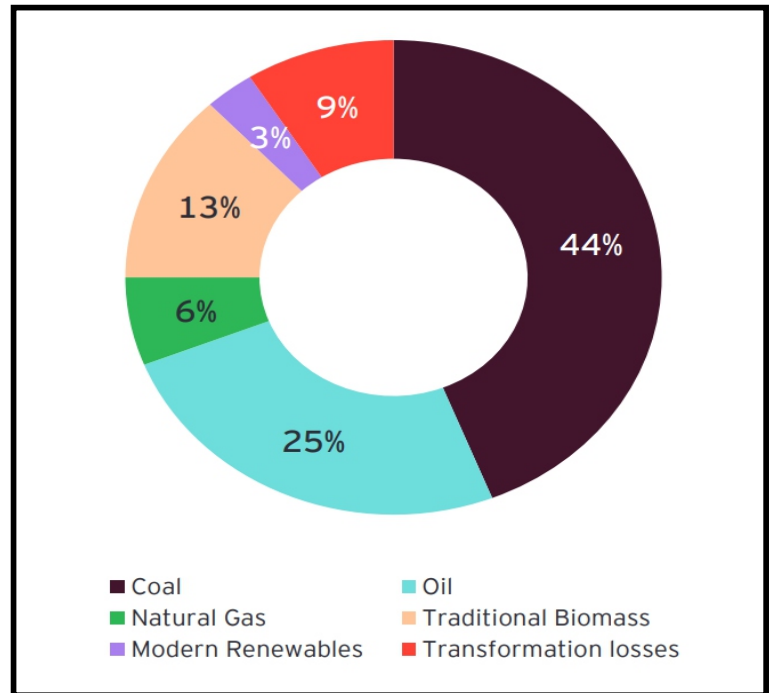
Source: [https://www.statista.com/statistics/1399837/global-carbon-offset-credit-market-size/?utm\\_source=Blog&kw=&crmtag=adwords&gclid=Cj0KCQiAuqKqBhDxARIsAFZELmJUA5CFUjnbc7sy9cF2fiLvQL6kMTPEdwM\\_JEs44BOOMONfIoHo-8waAmjDEALw\\_wcB](https://www.statista.com/statistics/1399837/global-carbon-offset-credit-market-size/?utm_source=Blog&kw=&crmtag=adwords&gclid=Cj0KCQiAuqKqBhDxARIsAFZELmJUA5CFUjnbc7sy9cF2fiLvQL6kMTPEdwM_JEs44BOOMONfIoHo-8waAmjDEALw_wcB)

# India's Clean Energy Transition Scenario

Climate change is threatening the existence of life on Earth and making life a little bit more challenging with every passing year. The primary cause behind it is the use of fossil fuels that aggravate the climate change crisis. **Fossil fuels are responsible for more than 75% of global GHG emissions and around 90% of total CO<sub>2</sub> emissions.**

India is participating in the global clean energy transition through its government-supported initiatives for the promotion of renewable energy sources such as solar, biomass, green Hydrogen, etc in its current energy mix. To achieve it in mission mode, the country has to develop new energy frameworks that could limit carbonisation to boost economic development and serve as a blueprint for other developing countries for sustainable green growth.

## Primary Energy Mix (2020)



Source: [https://assets.ey.com/content/dam/ey-sites/ey-com/en\\_in/news/2022/06/ey-accelerating-indias-clean-energy.pdf?download](https://assets.ey.com/content/dam/ey-sites/ey-com/en_in/news/2022/06/ey-accelerating-indias-clean-energy.pdf?download)

## 10 Key Solutions Needed to Mitigate Climate Change

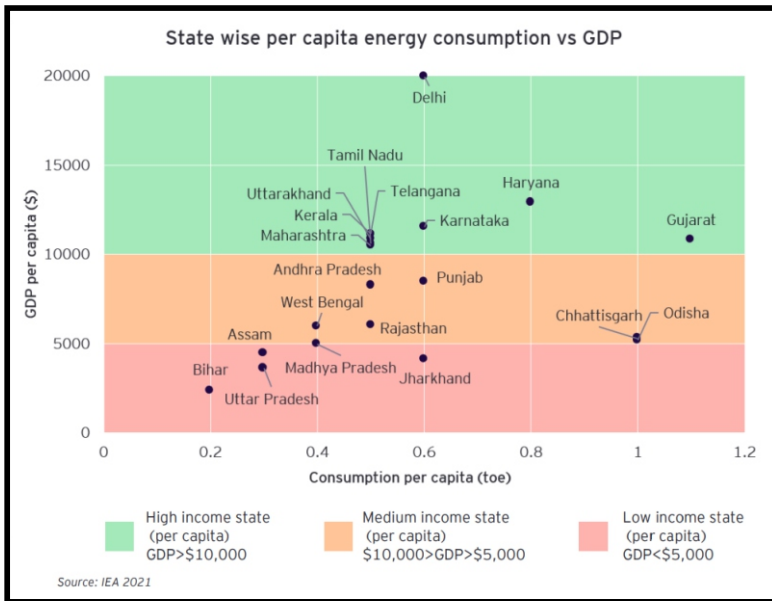
- 1.** **RETIRE** coal plants
- 2.** **INVEST** in clean energy & efficiency
- 3.** **RETROFIT** and **DECARBONIZE** buildings
- 4.** **DECARBONIZE** cement, steel & plastics
- 5.** **SHIFT** to electric vehicles
- 6.** **INCREASE** public transport, biking and walking
- 7.** **DECARBONIZE** aviation and shipping
- 8.** **HALT** deforestation & **RESTORE** degraded lands
- 9.** **REDUCE** food loss and waste and **IMPROVE** agricultural practices
- 10.** **EAT** more plants & less meat

Source: IPCC AR6.  
23/03/19

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**Being home to the largest population, India is the 3rd largest energy-consuming country in the world.** Ever since 2000, energy consumption in India has doubled due to rising levels of income and rapid urbanization. 80% of the total energy requirement of the country is still fulfilled with fossil fuel sources, and poses a challenge to India's clean energy transition.

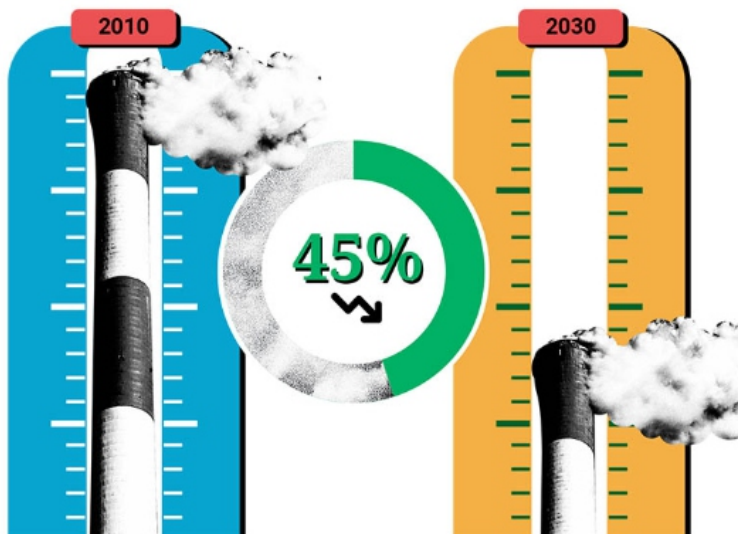
Source: <https://www.wri.org/insights/net-zero-ghg-emissions-questions-answered>



The Ministry of Environment, Forest and Climate Change (MoEFCC) announced the clean energy transition in India as part of India's updated NDC. India is finding a way forward to revolutionize its renewable energy sector to achieve the target of 500GW energy capacity from non-fossil fuel, reduction in overall carbon emissions by 1 Million Tonnes, and plan to meet 50% of the energy consumption of the country from various possible renewable energy sources by 2030 as committed under India's updated NDC. It will also help in the realization of the target of net zero emissions in the country by 2070. The PLI scheme is another initiative by GoI to boost the production of feedstock for RE.

Source: [https://assets.ey.com/content/dam/ey-sites/ey-com/en\\_in/news/2022/06/ey-accelerating-indias-clean-energy.pdf?download](https://assets.ey.com/content/dam/ey-sites/ey-com/en_in/news/2022/06/ey-accelerating-indias-clean-energy.pdf?download)

### Net Zero Commitment under the Paris Agreement



#### 2030

To keep warming to 1.5 degrees, countries must cut emissions by at least 45 per cent compared to 2010 levels.

The clean energy transition is playing a big role in forming a multi-dimensional presence in the global energy landscape in the shadow of evolved technology boosting the green growth of the Indian economy with the help of progressive policies ensuring dominance over fossil fuels to tackle climate change and global warming on priority.

Source: <https://www.un.org/en/climatechange/net-zero-coalition>

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# Government Policy Landscape & Carbon Credit Trading Scheme

The GoI has introduced a well-drafted policy and strategy for reduction in GHG emissions aiming for the net zero target made under the Paris Agreement 2015 and working towards minimizing the threat of global warming by addressing the climate change scenario.

## Carbon Credit Trading Scheme 2023: Highlights

The CCTS is based on the prevailing PAT (Perform, Achieve and Trade) framework having potential for reducing GHG emissions.

The energy efficiency targets in CCTS are measured as reductions/tonne of greenhouse gas emissions.

CCTS focuses on GHG emissions arising from aluminum casting producing CO<sub>2</sub> and PFCs excluding other GHG emissions like Nitrous oxide and Methane.

The targets and emission standards for different industries will be announced by the Union Ministry of Environment, Forest and Climate Change.

The CCTS compliance cycle is annually driven and expected to start from FY 2024-25 and credits are verified and issued after the 2nd/3rd quarter.

It works on the baseline and credit system in which emission intensity decides the target.

The success of this scheme is driven by the verification, monitoring and reporting framework, and 3rd party agencies will be empaneled for licensing.

The Ministry of Power has officially announced the Carbon Credit Trading Scheme (CCTS) 2023 in association with the BEE (Bureau of Energy Efficiency). The ministry has been assigned to prepare administrative strategies related to the development of the Indian Carbon Market (ICM) that will make way to assist decarbonization of the Indian economy.

### Key Features of CCTS

Carbon Credit Trading

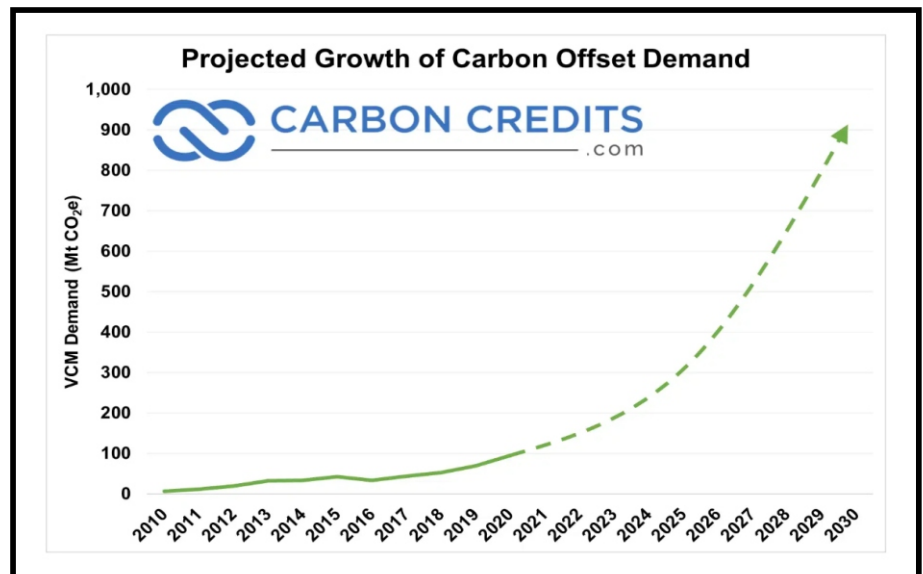
Obligation to use non-fossil sources of energy

Energy conservation code for buildings

Standards for vehicles and vessels

Expansion in Composition of the governing council of BEE

They highlighted the development of the **National Steering Committee for the Indian Carbon Market (NSCICM)** to create pioneered low GHG emissions solutions targeting the industrial sector that accounts for 20% of overall GHG emissions. It will parallelly support the Nationally Determined Contributions (NDC) to the UN Framework Convention on Climate Change aiming 45% GHG reduction intensity of GDP by 2030.



Source: <https://carboncredits.com/the-impact-of-carbon-credits-on-renewable-energy-development/>

Under the CCTS scheme, the transfer of carbon credits has also been mentioned explicitly as they can be sold to various entities in the form of Carbon Credit Certificates (CCC).

### List of Entities Eligible for CCC Purchase



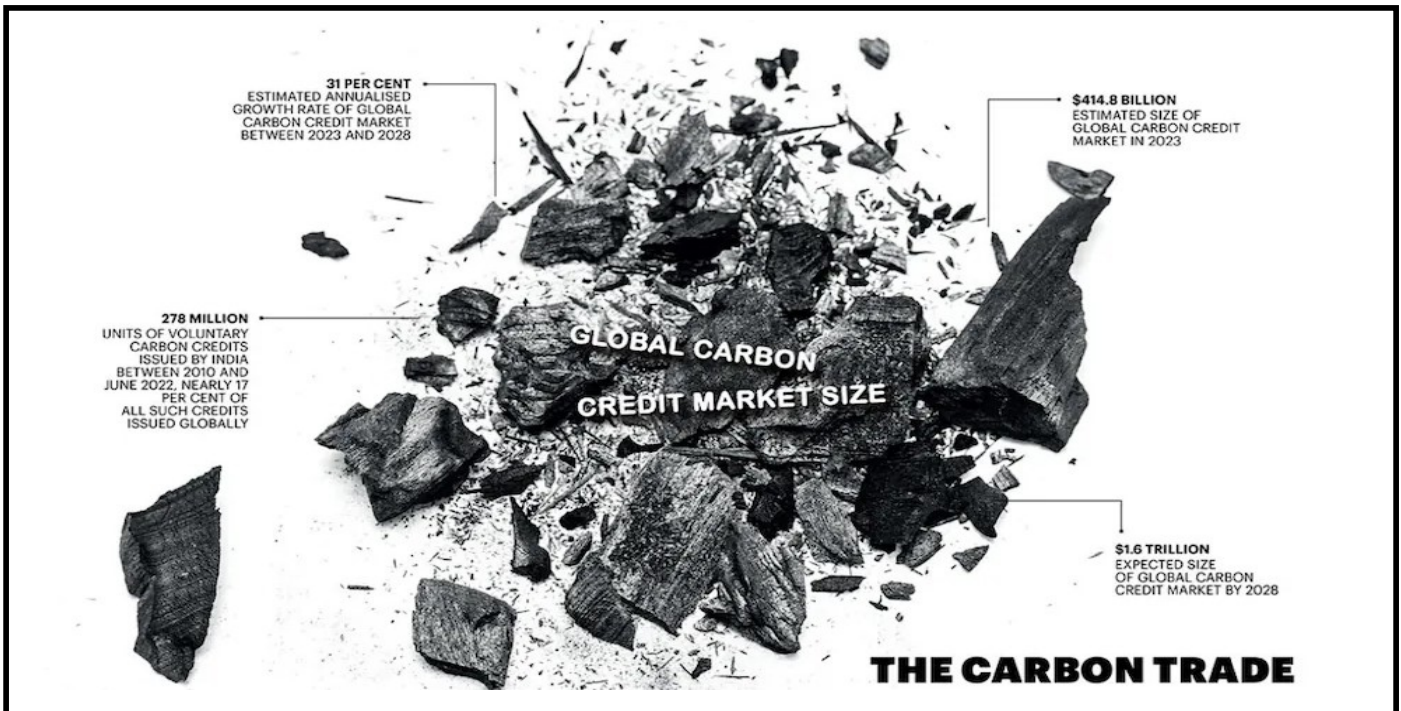
The ICM is in the early stages of its growth in India and therefore policies and schemes are being developed to achieve transparency. A regulatory framework with the creation of the technical council for diverse industrial sectors to follow international best practices will also work positively to shape the future of ICM over time.





# Impacts of Carbon Trading

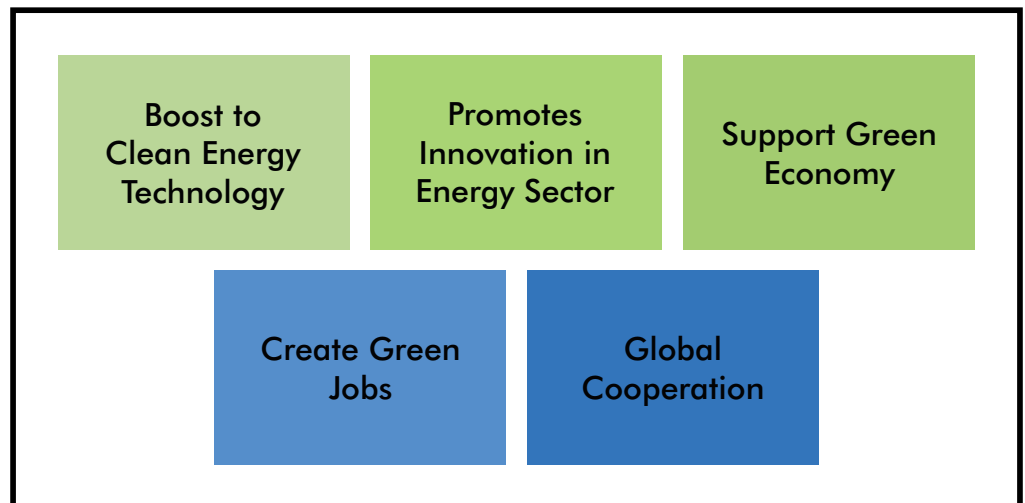
Carbon trading is specially designed to limit the emission of CO<sub>2</sub> or GHG gases globally and address the worsening scenario related to climate change. The process is market-driven and **works on the idea of 'cap and trade'** in which the government or regulatory body puts a cap or limit on the overall emission by a country.



Source: <https://www.businesstoday.in/magazine/drive/story/how-carbon-credits-can-help-india-reach-its-net-zero-goals-385533-2023-06-14>

Internationally, the revenue generated by Carbon Trading among entities is invested in R&D to develop innovative solutions to enrich India's energy quest to meet its global commitments. This will further add up more green jobs providing additional socio-economic strength to the country.

## Impacts Generated by Carbon Trading



It promotes the economic stability of the country by raising profits earned by selling carbon credits and re-investing to reinforce the development of clean energy technology through the promotion of innovation. The exchange of carbon credits internationally strengthens the relationship to combat emissions and climate change.

## How do Organisations earn Carbon Credits?

One carbon credit certification is the equivalent of one metric ton of CO<sub>2</sub>. Organizations earn carbon credits in three major ways.



### Avoid

Projects that avoid emitting greenhouse gases altogether

Ex: Reducing emissions from real estate



### Reduce

Projects that decrease the volume of greenhouse gases emitted or reduce demand for energy

Ex: Building wind farms, developing energy efficient building



### Remove

Projects that eliminate greenhouse gases directly from the atmosphere

Ex: Afforestation, reforestation, and wetland management

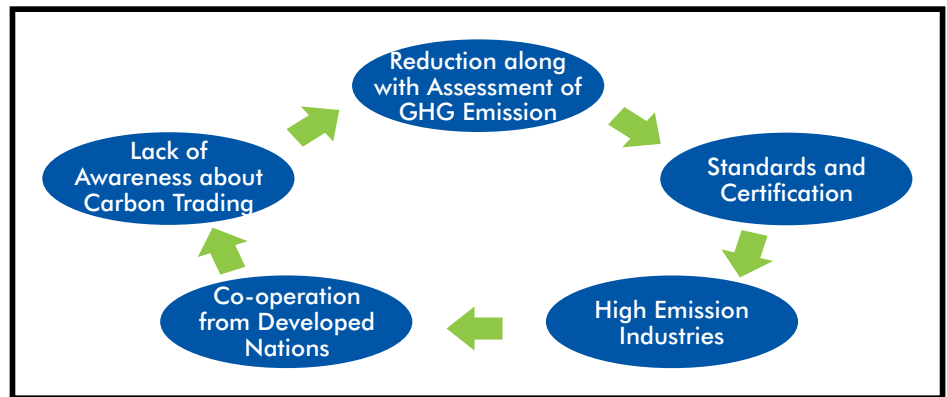
Source: <https://www.geeksforgeeks.org/carbon-market/>

The Indian Carbon Trading Market is trying to develop technology-enabled innovative solutions powered by the promotion of R&D in its early stage to become a global leader in the energy security landscape. The Government of India is working towards playing an instrumental role in the development of international energy dynamics with a strong geopolitical presence that can benefit the overall green growth of the country at a faster pace.

# Concerns Related to Carbon Trading in India

Carbon Trading was introduced to realise sustainable green growth in the energy sector promoting clean energy usage and prioritising reduction of GHG emissions. Besides several advantages, Carbon Trading has various challenges seeking attention to witness its eternal potential.

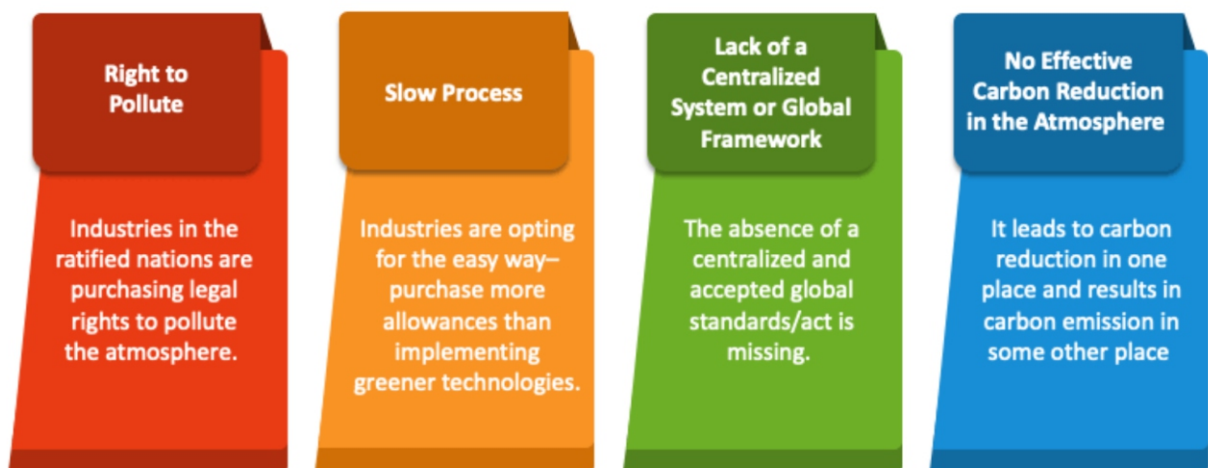
## Challenges in Carbon Trading in India



The country lacks well-structured standards and certifications for carbon credits. High-emission industries receive extra credits under carbon trading and receive the right to pollute in the name of low-emitters. Still, many industries are not aware of the benefits of Carbon Credits thus unable to participate in reduction programs and generate credits. Rich countries capable of buying credits don't invest in low-emission programs for sustainability, and defeat climate change initiatives.

## CARBON EMISSION TRADING

### Disadvantages of Carbon Trading



Source: <https://www.collidu.com/presentation-carbon-emission-trading>

Carbon trading promises an enormous scope and sustainable future provided it overcomes all the challenges underlined by fair policies, guidelines, and regulations announced by the national government to achieve its designated objective in letter and spirit.

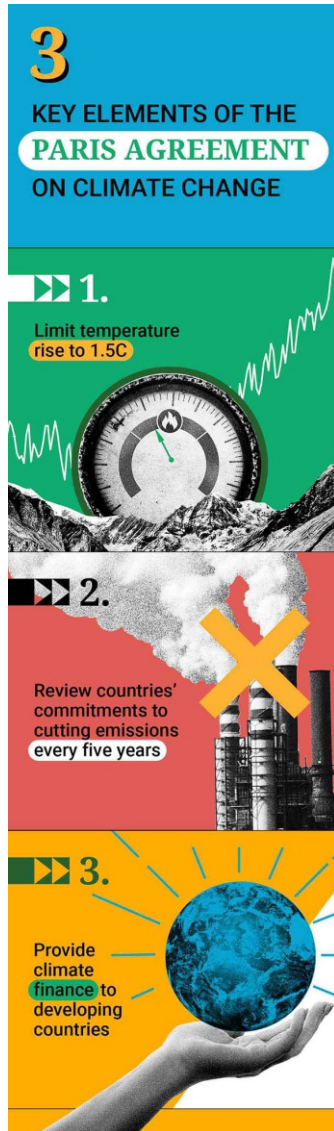
# Legal Framework to Support India's Carbon Market

India has set its course for the implementation of the CCTS Scheme from 2023-24 and to serve the purpose along with achieving the targets set under India's updated NDC, the Government of India amended the Energy Conservation Act, 2001. **The Energy Conservation (Amendment) Act, 2022 under Section 14AA has given the power of regulating the CCTS scheme as well as the issuance of CCC to the Ministry of Power, Government of India w.e.f. 1st January 2023.**

But as the scope of the carbon market spread across various sectors and its transfer among authorized entities have multifacet cross-sectoral impacts, **an effective legal framework for the carbon trading market, carbon credit pricing, and transfer mechanism** along with close monitoring and regularization will remain a challenge.



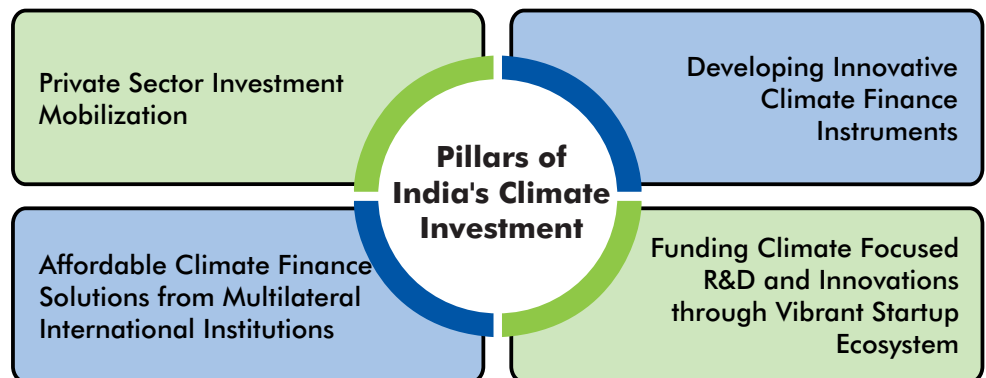
# Climate Financing & Investment Scenario



Source: <https://www.un.org/en/climatechange/paris-agreement>

The global carbon credit market is increasing at a rapid rate and is expected to touch the mark of US\$ 100 billion by 2030. India is advocating for Common but differentiated Responsibility in the UNFCCC framework. This has made a clear call for climate finance from developed nations towards developing/emerging economies to support their fight against climate change.

India has raised the requirement of US\$ 1 trillion under climate financing to significantly make emission cuts by 2030 and achieve the emission reduction targets set under its NDC. India occupied a 17% share of total voluntary carbon credits in the global carbon market between 2010 to 2022.



The US\$ 100 billion/year climate finance fund from developed countries has still not been allocated to the developing countries to cope with their commitment related to GHG emissions. In that case, India is looking aggressively to mobilize private sector investment and partnerships with international financial institutions such as the World Bank, Asian Development Bank, etc to prioritize their clean energy transition. It will strengthen the Indian carbon market and support capital requirements to counter the major threat of climate change to support life on Earth.

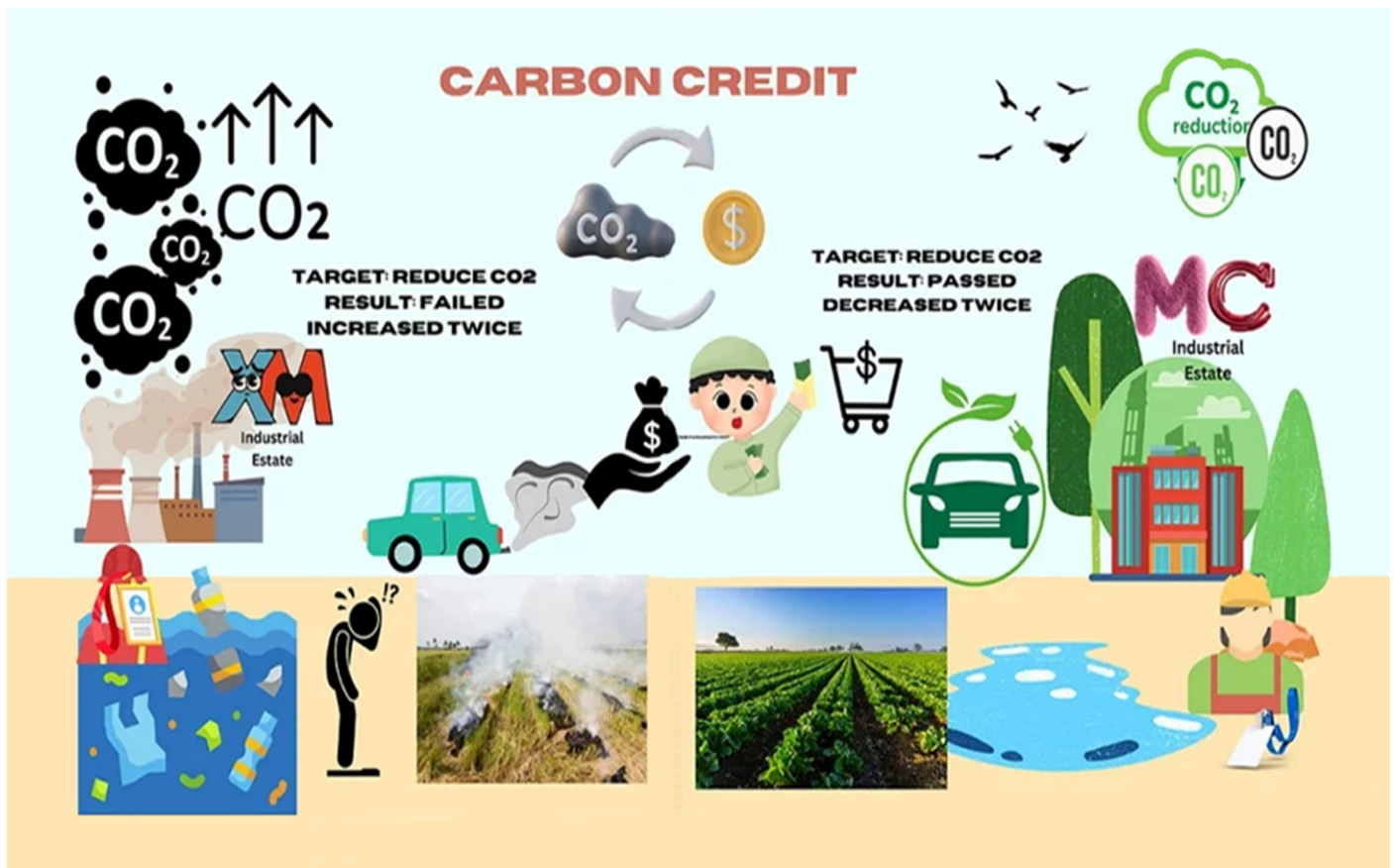
## How AG Group Can Be a Help

To achieve net zero targets and receive expert aid for developing your carbon credit projects [Click Here](#)

## Conclusion

The GoI to cope with the emission reduction, net zero, and climate change along with the productive industrial upliftment to support the economic growth of the country has found the Carbon Credit Trading Scheme (CCTS) as the prime source of doing business to support green growth. Universal acceptance of the drafted policies indicates carbon trading business to reached new heights in the business fraternity claiming top priority in India. The upward trend in selling/purchase of carbon credit and its trading ensures a bright future for this industry on the global as well as domestic markets.

India has a vast scope for emission reduction. Being a developing nation promoting the carbon trading business found a big way in the country's economy. As per the World Bank, the Indian carbon trading market is growing despite many challenges. To witness consistent and growing carbon trading to boost the financial portfolio in the ICM market it needs well-structured and formulated policies whose implementation will reduce emissions, and generate additional carbon credits that support the economical and effective way of achieving net zero pathways for India across the sectors of the economy.



## Expert's Insight

We need to figure out how to build a market for these Voluntary Carbon Credits so that they can find their values. You need to monetize them, and of course, we also need to create a healthy market going forward because India is producing such carbon credits every year. It is difficult to quantify but it is estimated to be worth US\$ 150 million.

**Mr Sriram Krishnan**  
**Chief Business Development Officer**  
**National Stock Exchange, India**



# Resources

1. <https://pib.gov.in/PressReleasePage.aspx?PRID=1923458>
2. <https://climatepromise.undp.org/newsandstories/whatarethecarbonmarketsandwhyaretheyimportant#:~:text=In%20a%20nutshell%20C%20carbon%20markets,or%20reduce%20greenhouse%20gas%20emissions>
3. <https://beeindia.gov.in/sites/default/files/publications/files/NCM%20Final.pdf>
4. <https://media.rff.org/documents/RFF-DP-12-51.pdf>
5. <https://www.iea.org/commentaries/india-s-clean-energy-transition-is-rapidly-underway-benefiting-the-entire-world>
6. <https://energy.economictimes.indiatimes.com/news/renewable/why-energy-transition-is-a-great-opportunity-for-indian-talent/103655087>
7. <https://www.businesstoday.in/opinion/columns/story/global-energy-transition-heres-how-india-can-lead-the-way-394896-2023-08-21>
8. <https://energy.economictimes.indiatimes.com/news/renewable/indias-carbon-credit-trading-scheme-2023-how-is-the-industry-reacting-to-it/101662053>
9. <https://carboncredits.com/carbon-credits-and-the-role-of-governments/>
10. <https://www.thehindu.com/news/national/telangana/carbon-credit-trading-scheme-comes-into-being-to-reduce-ghg-emissions/article67060248.ece>
11. <https://www.downtoearth.org.in/news/climate-change/carbon-credit-and-trading-scheme-for-indian-carbon-market-to-be-amended-soon-92492>
12. <https://newsonair.gov.in/News?title=Ministry-of-Power-and-Ministry-of-Environment-to-develop-Carbon-Credit-Trading-Scheme-for-Decarbonisation&id=460788>
13. [https://powermin.gov.in/sites/default/files/The\\_Energy\\_Conservation\\_Amendment\\_Act\\_2022\\_0.pdf](https://powermin.gov.in/sites/default/files/The_Energy_Conservation_Amendment_Act_2022_0.pdf)
14. <https://climatepromise.undp.org/news-and-stories/what-are-carbon-markets-and-why-are-they-important>
15. <https://www.downtoearth.org.in/news/climate-change/due-credit-the-indian-voluntary-carbon-market-is-growing-exponentially-92091>
16. <https://www.thehindubusinessline.com/economy/india-prepares-own-carbon-trading-system-and-decarbonisation-measures-to-counter-eus-cbam/article67212862.ece>
17. <https://www.businesstoday.in/magazine/drive/story/how-carbon-credits-can-help-india-reach-its-net-zero-goals-385533-2023-06-14>
18. <https://www.forbesindia.com/article/isbinsight/carbon-credits-indias-ethical-environmental-trading-and-global-climate-challenge/89387/1#:~:text=Challenges%20in%20Establishing%20a%20Vibrant,supply%20and%20demand%20is%20crucial>
19. <https://www.linkedin.com/pulse/carbon-credit-projects-india-challenges-opportunities-vashishtha>
20. <https://www.ubs.com/global/en/investmentbank/infocus/2023/carbonmarkets.html#:~:text=One%20of%20the%20main%20challenges,are%20truly%20reducing%20their%20emissions>
21. <https://energy.economictimes.indiatimes.com/news/renewable/carbon-credit-understanding-the-concept-its-evolution-and-implications/99064759>
22. <https://www.cseindia.org/market-for-carbon-trade-growing-says-expert-11571>
23. <https://carnegieindia.org/2023/03/16/comprehensive-framework-for-india-s-climate-finance-strategy-pub-89270>
24. <https://unfccc.int/topics/introduction-to-climate-finance>
25. <https://climatenexus.org/climate-change-news/common-but-differentiated-responsibilities-and-respective-capabilities-cbdr-rc/>
26. <https://www.iea.org/reports/implementing-effective-emissions-trading-systems/conclusions>
27. <https://extension.psu.edu/understandingcarboncreditsandoffsets#:~:text=Conclusion,a%20financial%20benefit%20in%20return>
28. <https://www.livemint.com/opinion/online-views/a-carbon-market-that-suits-india-would-help-fight-climate-change-11660579520004.html>
29. <https://www.caluniv.ac.in/dj/BS-Journal/vol-31-32/Carbon.pdf>
30. <https://economictimes.indiatimes.com/markets/stocks/news/nse-explores-carbon-credit-market-introducing-electricity-derivatives/articleshow/101430965.cms>



# AG GROUP



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Electric Vehicle  
Traffic Management

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Power & Renewable Energy  
Infrastructure: Highway/Tunnels

### Environmental

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Irrigation  
Agriculture  
Animal Husbandry  
Horticulture & Forestry

### Social & Public Sector

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Tourism  
Education  
Healthcare

### Sustainability

ESG  
SDG  
Carbon Credit  
Climate Change



Chennai



Delhi



Gurugram



Guwahati



Hyderabad



Imphal