

# POLICY BRIEF

## MAPPING OPPORTUNITIES AND TRENDS IN INDIA'S CARBON FINANCE MARKET



EARTH SUSTAINABILITY  
SOLUTIONS



## AUTHORS



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## WHO WE ARE

Earth Sustainability Solutions is a climate-focused organization dedicated to advancing global efforts toward sustainability and Net Zero targets. We specialize in climate financing, greenhouse gas accounting, carbon offsetting, and the generation of high-integrity carbon credits for both voluntary and compliance markets, as well as for bilateral and multilateral exchanges.

Our core areas of expertise include green carbon credits, sustainable technologies, and environmental project development. We support carbon quantification from diverse portfolios including energy, industries, transportation, agriculture, forestry, waste and other key sectors, ensuring alignment with international and national standards.

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## KEY MESSAGES

- Verra VCS and Gold Standard projects contribute ~5.5% of India's annual emission reductions, reinforcing the VCM's strategic climate role.
- Energy projects dominate India's VCM due to their scalability and strong verification methodologies.
- Regional participation is uneven, with projects concentrated in renewable-rich states; targeted incentives are needed to expand activity in underrepresented regions.
- AFOLU, waste, and transport sectors remain limited, highlighting the need for diversification through improved methodologies and financial support.
- Buyer preferences are shifting toward renewable and forestry credits that deliver both emission reductions and ecosystem co-benefits.
- Market activity is concentrated among a few large developers, underscoring the need for capacity building and financial access for smaller players.
- Kerala shows emerging potential, but participation is still limited and will require focused policy support, investment, and institutional strengthening

## INTRODUCTION

Carbon credit trading has become a vital mechanism for reducing global greenhouse gas (GHG) emissions. In India, it supports Paris Agreement goals to cut GDP emissions intensity by 45% by 2030, while addressing the dual challenge of rapid economic growth and climate risks such as rising temperatures, erratic monsoons, and sea-level rise. As the third-largest global emitter, contributing nearly 9% of total emissions, India's role in advancing low-carbon development is critical. To respond, the government has introduced policies such as the Energy Conservation (Amendment) Act, 2022 and the Green Credit Programme.

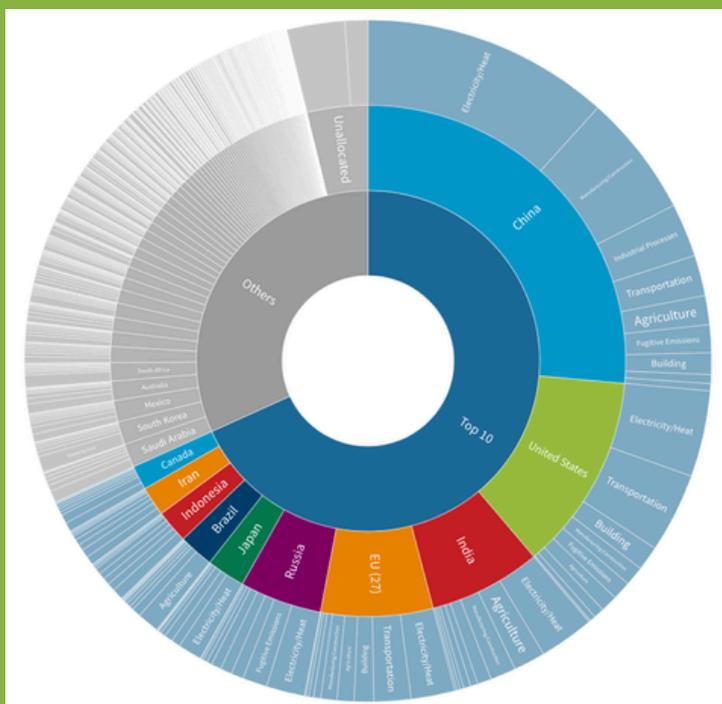


Fig 1: World's top 10 emitters contributed two third of global emission (Source:) WRI

Building on the Kyoto Protocol, the Paris Agreement's Article 6.4 established the Paris Agreement Crediting Mechanism (PACM), enabling UN-supervised credit transfers. Domestically, India has launched the Carbon Credit Trading Scheme (CCTS, 2023), formed the National Steering Committee for the Indian Carbon Market (NSCICM), and expanded voluntary participation through an Offset Mechanism. These initiatives, spanning renewable energy, green hydrogen, energy efficiency, methane recovery, and mangrove afforestation, highlight the growing role of Voluntary Carbon Markets (VCMs) in India's transition toward net-zero emissions.

## INDIA'S GROWING LEADERSHIP IN THE GLOBAL VOLUNTARY CARBON MARKET

India has become a major player in the global Voluntary Carbon Market, with 693 projects under Verra's Verified Carbon Standard (VCS) and 289 under the Gold Standard (GS). Covering sectors like renewable energy, forestry, waste management, and community development, these projects reflect India's growing commitment to climate mitigation. Backed by credible frameworks such as VCS and GS, India's expanding portfolio enhances transparency, attracts investment, and strengthens its position as a significant contributor to global carbon markets.



## METHODS

This study applied a mixed-methods approach to analyze India's VCM, with focus on Kerala. Registry data from Verra's VCS and the Gold Standard identified 693 and 289 certified projects (March 2025). Supplementary sources provided insights into trading patterns and market trends, while ArcGIS mapping highlighted sectoral and regional disparities. Kerala projects were further assessed against the state's Action Plan on Climate Change to examine localized implementation.

## FINDINGS

### 1. Market Concentration and Proponent Distribution

India's VCM shows a high concentration of projects among a few dominant players. EKI Energy Services Ltd. alone accounts for nearly 20% of Verra-registered initiatives, followed by Infinite Solutions (~5%), Enercon (India) Ltd., and GK Energy Marketers Pvt. Ltd. (each ~3%) (Figure 2).

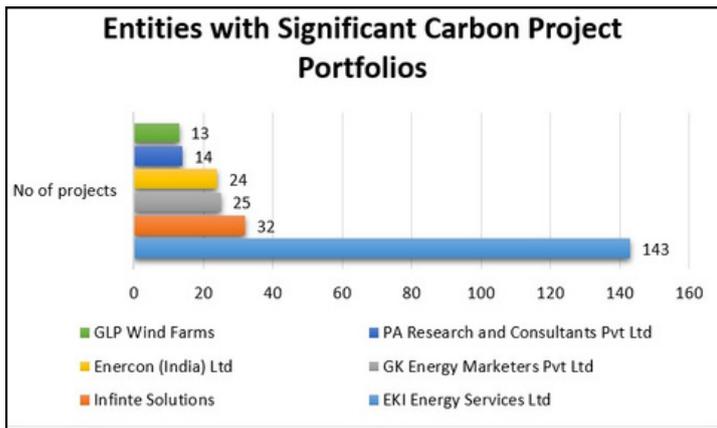


Fig 2: Major proponents in Verra registry contributing 5 and more projects in India

EKI has supported over 1,000 projects globally, spanning nature-based, energyefficiency, and community-based initiatives such as improved cookstoves, water filters, afforestation, and biogas systems demonstrating a diversified approach to climate mitigation.



### 2. Concentration and Market Dynamics in India's Voluntary Carbon Market

India's VCM is dominated by the energy sector (Fig 3), with 327 VCS projects generating over 105 million tonnes of CO<sub>2</sub> reductions annually. Under the Gold Standard, 198 of 289 projects focus on clean energy solutions like cookstoves and solar (Fig 4). AFOLU and waste sectors remain underrepresented due to financial and technical barriers.

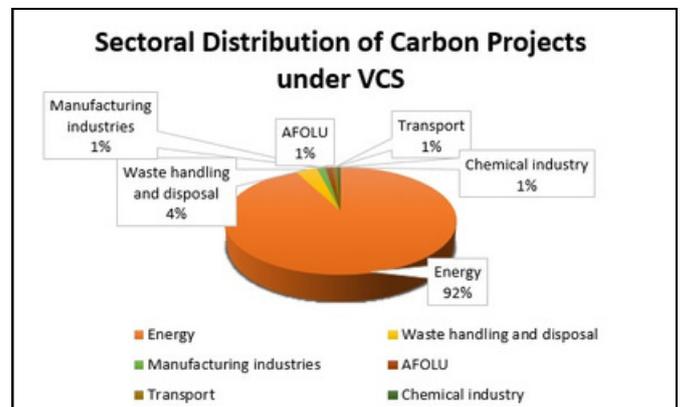


Fig 3: Sectoral distribution of carbon projects under VCS

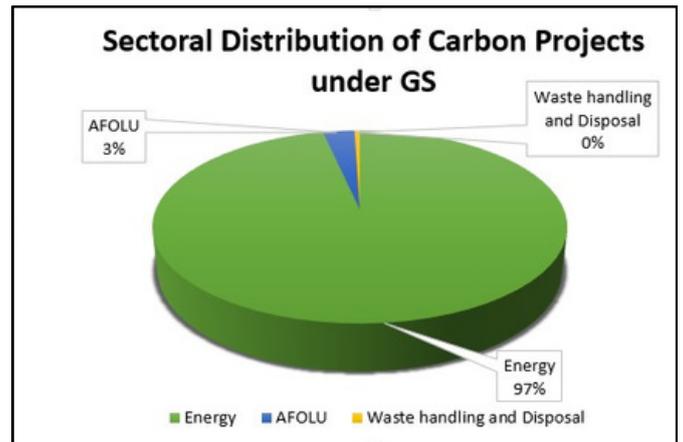


Fig 4: Sectoral distribution of carbon projects under GS

### 3. Aggregate Emission Reductions and Policy Implications

When aggregated, India's VCS and GS certified projects collectively account for an estimated 163.05 million tonnes of annual CO<sub>2</sub> emission reductions, representing approximately 5.51% of India's total GHG emissions (as reported in the Fourth Biennial Update Report, 2023).

Table 1: Estimated annual CO<sub>2</sub> emission reductions from certified projects under Verra and Gold Standard in India

Standard	Number of Projects	Estimated Annual CO <sub>2</sub> Emission Reductions (in metric tons)
Verra (VCS)	693	141,149,677.56
Gold Standard	289	21,899,383.58
Total	982	163,049,061.14

Verra VCS contributes the largest share due to its broad sectoral scope and large-scale energy projects, while the GS remains key for community-based, SDG-focused initiatives.

## SPATIAL DISTRIBUTION AND REGIONAL TRENDS

India's VCM is largely concentrated in renewable energy-rich states, with most VCS projects focused on wind, solar, and clean cooking, while AFOLU and waste sectors remain limited. GS projects are more geographically dispersed and community-oriented (Fig 5). Overall, the market shows a strong renewable energy bias and significant untapped potential in AFOLU, waste, and industrial decarbonization, highlighting the need for targeted policy and financial support.

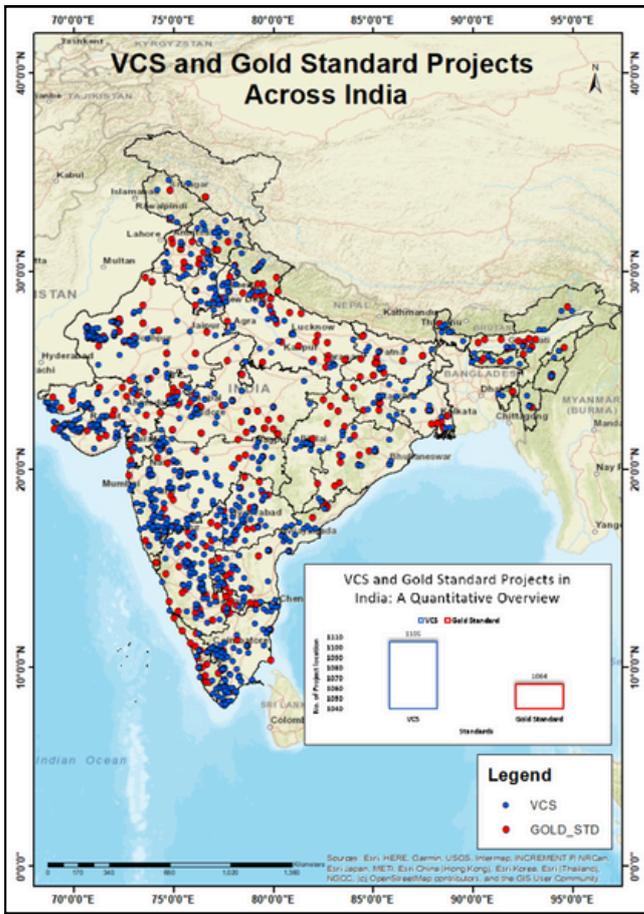


Fig 5: Geographic distribution of projects registered under VCS and GS in India.

## MAJOR BUYERS IN VOLUNTARY CARBON MARKET

Table 2 : Top five buyers in VCM

Company	Sector	Buyer/Seller
 Shell	Forestry, Land-Use, Energy	Buyer
 Microsoft	Forestry	Buyer
 Volkswagen	Energy, Forestry, Land Use	Buyer
M&S Marks & Spencer	Forestry, Energy	Buyer
 Amazon	Forestry, Agroforestry	Buyers and Sellers

In 2024, Shell retired 14.5 million carbon credits, largely from forestry and land-use projects, at an average price of USD 4.15 per credit, with additional retirements from renewable energy. This builds on the 20 million tonnes retired in 2023 and reflects Shell's continued progress toward its 2050 net-zero target.



In 2024, Microsoft retired 5.5 million carbon credits at an average price of USD 189, increasingly shifting from traditional renewable and forestry projects toward long-term carbon removals. Key purchases and investments including afforestation in India, soil carbon, and Direct Air Capture reflect a high-quality, future-focused offsetting strategy backed by over USD 760 million in climate investments.



## KERALA'S PARTICIPATION IN THE VOLUNTARY CARBON MARKET

Kerala's participation in the VCM remains modest with only six registered projects contributing roughly 229,000 tonnes of annual CO<sub>2</sub> reductions through wind, hydro and biogas initiatives.

The table highlights the state's limited yet emerging portfolio, along with institutional efforts such as EMC's Carbon Credit Cell and early low-carbon projects like the Kochi Water Metro. These developments indicate growing readiness for scaling climate action despite current structural constraints.

Table 3 : Kerala's portfolio in VCM

Category	Details
Total Registered Projects	6 projects
Standards	VCS (2 projects), GS (4 projects)
Project Types	Wind energy, Hydroelectric systems, Biogas systems
Estimated Annual CO <sub>2</sub> Reductions	228,969 tonnes
Notable Low-Carbon Initiatives	Biogas methane capture, Kochi Water Metro (22,800 tCO <sub>2</sub> reduction), Renewable-powered EV charging stations, Small hydro projects
Institutional Developments	Energy Management Centre (EMC) establishing a Carbon Credit Cell
Current Challenges	Low industrial emissions base, limited corporate awareness, weak carbon market capacity
Emerging Opportunities	Nature-based solutions, community-based carbon projects, renewable energy expansion

Table 4: List of organizations involved in carbon market mechanisms in Kerala and the corresponding sectors from which carbon credits are acquired

Organization	Sector
Biotech India – Thiruvananthapuram	Energy
Kochi water metro – Ernakulam	Transportation
Kerala State Electricity Board Ltd – Thiruvananthapuram	Energy
Energy management centre Kerala	Energy
Kairali Agriculture MSCS Ltd-Thrissur	Agriculture

## PROPOSED SOLUTIONS

**Diversify Project Sectors:** Expand policy and financial support for AFOLU, waste, and transport projects through improved MRV systems and innovative methodologies to reduce overdependence on energy-sector credits.

**Promote Regional Balance:** Provide targeted incentives and capacity-building for underrepresented northern and northeastern states to address regional disparities and strengthen investor confidence.

**Strengthen Carbon Portfolios:** Encourage pricing and incentive mechanisms that reward both rapid emission reductions (renewables) and long-term sequestration (forestry and land-use projects).

**Expand Participation:** Enhance institutional support, technical capacity, and access to low-carbon finance for states with low industrial footprints such as Kerala while promoting opportunities in blue carbon, sustainable agriculture, and SME-led aggregation models.

## CONCLUSION

India's Voluntary Carbon Market is rapidly evolving, demonstrating strong national leadership through large-scale renewable energy projects, robust participation in global standards, and increasing corporate engagement in carbon credit generation and retirement. While the market remains concentrated in specific sectors and regions, emerging efforts in AFOLU, waste management, and community-based initiatives signal a gradual diversification aligned with India's decarbonization goals. Kerala's limited but growing participation further illustrates the potential for expansion through targeted policy support, institutional capacity building, and investment in low-carbon solutions. Overall, the findings highlight significant opportunities to strengthen India's carbon market ecosystem and accelerate progress toward national and global climate commitment.

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