PRIMUS PARTNERS®
Solutions for **Tomorrow**

Carbon as Capital

India's **$1.7 Billion** Carbon Footprint Management Market and Its Path to Global Leadership

Foreword

India's climate journey is anchored in the ambitious Panchamrit commitments, which aim to achieve 500 GW of non-fossil capacity by 2030, meet 50% of energy needs from renewables, cut carbon emissions by one billion tonnes, reduce emissions intensity by 45%, and achieve net zero by 2070. These pledges are more than just climate targets; they are a signal to businesses, investors, and citizens that India is determined to chart a sustainable growth pathway.

In this context, carbon accounting has become the bedrock of credibility and competitiveness. The ability to measure, verify, and disclose emissions across the value chain is no longer optional. It is central to how enterprises align with national priorities,comply with evolving frameworks such as BRSR Core, and respond to global mechanisms like the EU's CBAM. At the same time, robust carbon accounting unlocks tangible business value, including access to green finance, stronger investor confidence, and an enhanced reputation in an increasingly sustainability-conscious market.

Our survey reveals the duality of the moment. Nearly half of companies struggle with Scope 3 emissions, and many remain dependent on spreadsheets or ERP extensions.Yet early movers adopting AI- and IoT-enabled platforms are already realizing benefits: improved accuracy, operational savings, and sustainability-linked capital. The message is clear—businesses that act now will not only meet compliance requirements but also define new models of growth for a low-carbon future.

This is the moment to reframe climate action from cost to opportunity. By embedding digital carbon management systems and integrating climate data into strategic decision- making, enterprises can turn the Panchamrit vision into a corporate reality. The choices we make today in measurement, disclosure, and innovation will determine whether India's growth story is also the world's sustainability story.

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Executive Summary

Carbon accounting has moved from the margins of corporate responsibility to the center of business strategy. With global greenhouse gas emissions required to fall by 43% by 2030 to meet the 1.5°C goal—and atmospheric CO_2 levels already at a record 420 ppm—regulators, investors, and customers are demanding accountability that spans the entire value chain. For most companies, Scope 3 emissions account for over 70% of their total footprint, and in sectors such as aviation, this figure rises to over 90%.

Our Carbon Reporting Readiness survey highlights the gap between ambition and readiness: nearly 50% of firms find Scope 3 reporting highly challenging, 47% cite limited expertise, and 44% point to tool costs as a barrier. Most still rely on ERP extensions (31.6%) or spreadsheets (24.6%), while only 10.5% use AI or automation.This leaves carbon reporting fragmented and compliance-driven rather than strategic. Yet, technology is changing the equation.

New-age platforms leverage AI, IoT and MRV systems to deliver up to 95% greater accuracy, 70% fewer errors, and 50% faster reporting cycles, while enabling firms to benchmark performance, model net-zero pathways, and unlock financing opportunities.

The business case is already evident. 60% of firms surveyed report stronger customer trust, and 47% note an improvement in investor confidence. More than half rated the business value of carbon reporting 4 or 5 out of 5, signaling its evolution from a regulatory obligation into a source of competitive advantage.

As India pursues its 2070 net zero goal and introduces mandatory components in schemes like the Carbon Credit Trading Scheme, carbon accounting will become the backbone of corporate resilience. Companies that embrace credible measurement, transparent reporting, and digital innovation today will not only meet disclosure mandates but also secure capital, build trust, and lead in the global low-carbon transition.

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Framing the Challenge –
Carbon Emissions Across the Value Chain

Carbon emissions reporting has moved from the margins of corporate responsibility to the center of business strategy. The world today is at a turning point: according to the Intergovernmental Panel on Climate Change (IPCC), global greenhouse gas emissions must decline by 43% by 2030 (from 2019 levels) to keep warming within 1.5°C.

Yet, emissions continue to rise, with 2023 marking one of the hottest years ever recorded. These scientific realities have pushed governments, investors, and citizens to demand accountability from businesses, not only for their direct emissions but across their entire value chain. Over the past three decades, global agreements, business frameworks, and regulatory mandates have steadily reshaped what it means for companies to be accountable.

Understanding GHG Emissions – What They Are

To understand why carbon emissions reporting has become a business imperative, one must understand the basics of greenhouse gases and why they matter. Greenhouse gases (GHGs) such as carbon dioxide(CO_2), methane (CH_4) and nitrous oxide (N_2O) are naturally present in Earth's atmosphere.

They trap heat, maintaining a stable climate that makes life possible. But when human activity, particularly industrial production, fossil fuel use, deforestation, and intensive agriculture, adds excessive amounts of these gases, the balance is disrupted. The result is global warming and climate instability.

The scale of the issue is alarming. According to World Meteorological Organisation, atmospheric CO_2 concentrations in 2023 reached 420 parts per million, the highest in at least 800,000 years. The Intergovernmental Panel on Climate Change (IPCC) has made it clear that without sharp and sustained reductions in GHG emissions, global temperatures are on track to rise by 2.7°C by the end of the century. Seeing the rise the 1.5°C threshold set in the Paris Agreement.

The consequences of rising sea levels, extreme weather, resource scarcity, and economic losses are already being felt in supply chains, agricultural yields, and insurance costs.

In the mid-20th century, with Charles Keeling's continuous CO_2 measurements at Mauna Loa (known as the Keeling Curve), that evidence of human-driven increases became undeniable.
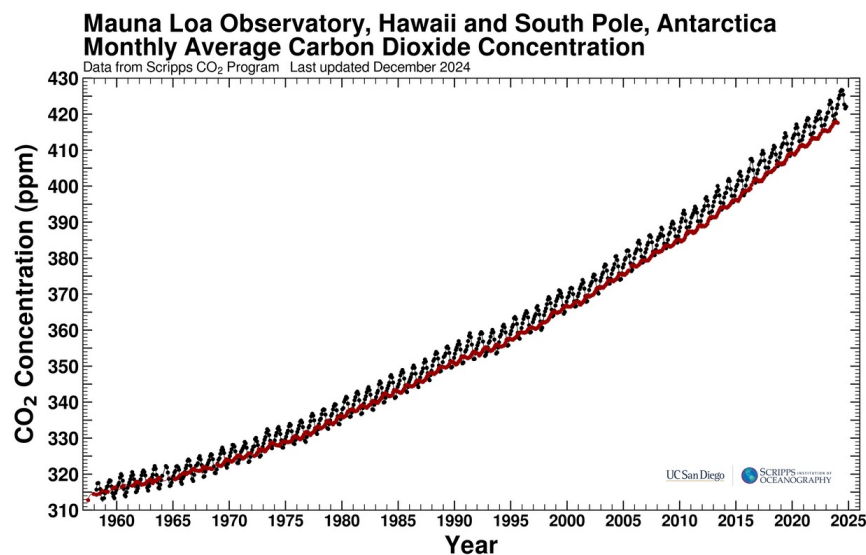

Figure 1: Human activity has caused a significant increase in prevalence of carbon dioxide in the atmosphere, shown here in Parts Per Million. Source: Scripps Institution of Oceanography

1.2 Need for Carbon Emissions Reporting

The journey began in 1992 at the Earth Summit in Rio De Janeiro, where governments signed the United Nations Framework Convention on Climate Change (UNFCCC), the first treaty explicitly addressing humanity's climate impact. This established annual Conference of Parties (COP) meetings to address greenhouse gas proliferation.

In 1997, the Kyoto Protocol introduced the concept that nations must take responsibility for their greenhouse gas emissions. Though aimed at governments, it established that emissions could no longer be ignored.

By the early 2000s, this principle extended to corporations. The Carbon Disclosure Project (CDP) launched in 2000, offering investors a platform to question companies about emissions. In 2001, the Greenhouse Gas Protocol provided businesses with standardized measurement methods, creating modern carbon accounting's foundation.

When the Kyoto Protocol took effect in 2005, global climate commitments became real.The 2009 Copenhagen Accord fell short but highlighted that emission reductions required business participation, not just government action.

By the early 2020s, the voluntary era had clearly ended. The urgency sharpened again in 2021 at COP26 in Glasgow, where world leaders reaffirmed the 1.5°C goal and pushed for greater transparency.

In India, the journey of disclosures around climate change began with the Business Responsibility Reports (BRR) introduced by the Securities and Exchange Board of India in 2009. The new Business Responsibility and Sustainability Reporting (BRSR) requirements are more closely aligned with global frameworks like TCFD. BRSR Core, a subset of the larger BRSR, is now mandatory for the largest listed corporations in the country with a compliance net that is expanding each year.

Now, standing in 2025, the world is on the cusp of convergence. The EU, US, UK, India, among others, are moving toward mandatory climate disclosures. For companies, this means emissions reporting has evolved from an optional gesture of goodwill into a baseline expectation of doing business. What began as intergovernmental agreements in the late 1990s has matured into a global system where transparency, accountability, and emissions data are woven into the fabric of corporate strategy.

For businesses today, understanding GHG emissions is no longer just a scientific endeavour; it's a core strategic imperative. Regulators now require companies to account for emissions not only from their own operations and purchased energy, but also from their supply chains, logistics, product use, and end-of-life.

Moreover, emissions are no longer just an environmental issue they are also a financial and reputational one. Investors managing trillions of dollars in assets are screening portfolios for climate risks. Consumers are scrutinizing brands for authenticity, while employees increasingly want to work for organizations that take sustainability seriously.

In short, greenhouse gases matter because they increasingly define the boundary between business resilience and vulnerability. Understanding them is not only the foundation for credible reporting but also the starting point for competitive strategy in a world where climate and commerce are inseparable.

Greenhouse Gas Emission By Sector

The figure below details out the sector wise global greenhouse gas emisisons. This figure stood at 49.4 billion tonnes of CO2e in 2016.
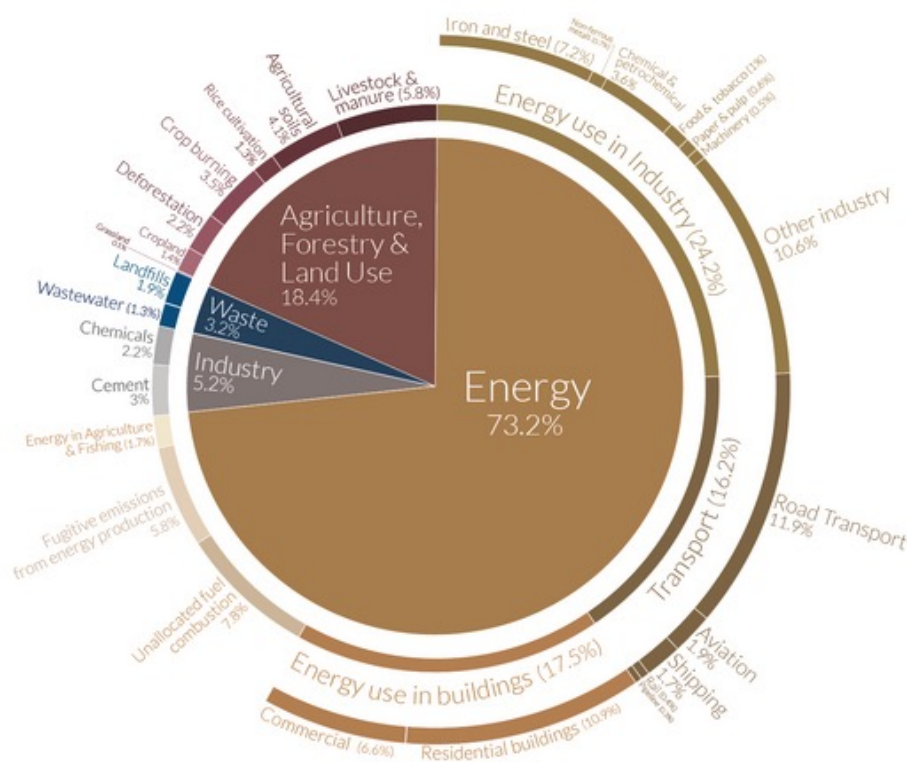

Figure 2: Global greenhouse gas emissions by sector call out the role that corporations operating in key industries like energy generation, transport, cement, steel and chemicals play in global climate mitigation

1.3 Mapping Carbon across the value chain – The New Frontier

If the past two decades have taught businesses that climate risk is not confined to a company's own operations. It is embedded in every supplier contract, every shipment and even in the way customers use and dispose of those products. Value chain visibility, once treated as a sustainability add-on, is becoming a necessity.

The data is clear. According to the CDP (formerly Carbon Disclosure Project), supply chain emissions are on average 11.4 times higher than a company's direct operational emissions (CDP). For consumer goods, retail, and automotive companies, Scope 3 is not just the largest category, it is the defining one In India, regulators are strengthening ESG disclosures for the value chain as well - SEBI's BRSR Core mandates the top listed companies to assess value chain partners. This extends accountability beyond direct operations, increasing supply chain transparency.

Concurrently, the EU's Carbon Border Adjustment Mechanism (CBAM) impacts Indian exporters of carbon-intensive goods, requiring emissions.

The push for value chain visibility goes beyond risk avoidance to uncover opportunities. Companies mapping supply chains often find efficiencies such as reducing waste, cutting energy costs, or adopting circular models. Without this visibility, companies face price shocks, resource scarcity, and reputational risks.

Transparency also builds credibility, especially as greenwashing scrutiny intensifies. Scope 3 disclosure is now a key test of genuine climate commitment. In essence, value chain visibility is no longer just best practice but a business imperative, offering competitive advantage, regulatory resilience, investor trust, and innovation, while those delaying risk falling behind in a landscape demanding full transparency.
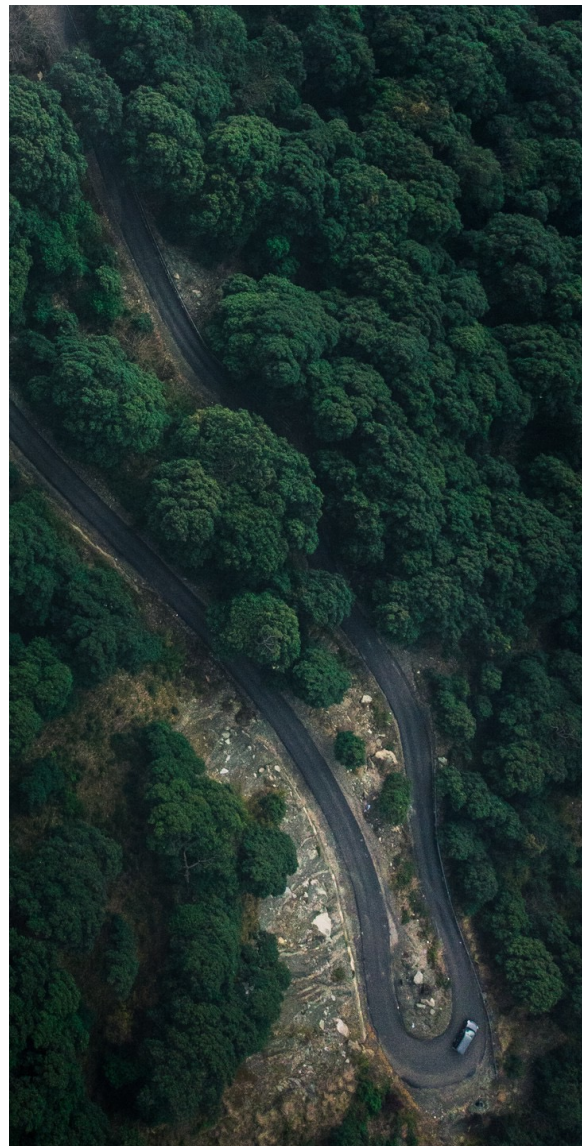
02

Frameworks for Action – Measuring, Verifying, and Reporting

As businesses move from compliance to strategy, the next question is inevitable: which frameworks should guide reporting and decision-making? The landscape of sustainability disclosure is complex, but at the same time, also converging. There are broadly three kinds of frameworks that an organization can follow -

◎ Benchmark, such as the CDP (Carbon Disclosure Project), these include structured elements for scoring which create consistency and comparability across industries.

◎ Regulatory, such as India's BRSR Core, which are mandatory ESG disclosures that companies need to comply with but may not include a scoring angle.

◎ Voluntary, such as the GRI (Global Reporting Initiative), which provide flexible guidelines and allow companies to customize their reporting basis their industry and strategic needs. These allow companies to compare themselves to their peers.

We will discuss 3 frameworks - BRSR, CSRD, and GRI, as they emerge as anchors for companies navigating climate accountability.

Framework	Measurement Basis	Scoring Mechanism	Key Indicators
BRSR - Business Responsibility and Sustainability Reporting (India)	Based on 9 ESG principles, split into Essential (mandatory) and Leadership (voluntary) indicators	Companies respond to ~140 questions (98 essential, 42 leadership). Companies are scored based on their disclosures and bucketed by the level of maturity they have achieved in their actions.	GHG emissions, energy usage,Governance structure,employee well-being,diversity, supply chain disclosures, waste management.
CSRD - Corporate Sustainability Reporting Directive (European Union)	Driven by European Sustainability Reporting Standards (ESRS), ~1,100 disclosure requirements across environmental, social, and governance pillars.	Reports subject to limited assurance initially, scaling to reasonable assurance by 2028. Compliance is binary (meets/does not meet disclosure obligations).	Climate risks, biodiversity, workforce diversity, board oversight, double materiality assessment, sustainable finance taxonomy alignment.
GRI - Global Reporting Initiative (Global)	Principles-based, focused on relevance to stakeholders. Reporting standards organized into Universal, Sector, and Topic-specific standards.	Not scored; companies self-report and disclose alignment with GRI standards. Widely used for comparability and transparency.	Materiality disclosures, community impact, labor practices, anti-corruption measures, water & waste data, value chain impacts.

Table 1: Key ESG compliance frameworks

Frameworks like the Global Reporting Initiative (GRI) remain the most widely used global sustainability reporting framework. With origins dating back to the 1990s, GRI is now adopted by over 14,000 organizations across more than 100 countries.

In India, the Business Responsibility and Sustainability Report (BRSR) are undergoing a transition from a voluntary disclosure to an obligation (as BRSR Core) that is being rolled out in a phase wise manner to cover the top 1,000 listed firms in the country by FY 2026-27. Under the BRSR Core, starting 2024-25companies need to give detailed disclosures of climate, water, waste, and governance metrics for comparability and transparency including for their upward and downward value chains backed by a third-party assessment.

Across the globe, Europe has raised the bar with the Corporate Sustainability Reporting Directive (CSRD). It expands the number of companies required to report up to nearly 50,000, compared to just 11,000 under the previous norms, bringing both EU-based and non-EU firms (with significant EU activity) into scope. Under CSRD, disclosures must meet the robust European Sustainability Reporting Standards (ESRS), and companies must seek third-party assurance even in their first reporting year.

As organizations seek to align with these diverse ESG frameworks, understanding how to effectively adopt and implement them becomes critical. The next section outlines the key steps an organization must follow – from establishing a baseline, segmenting their emissions and setting up verifications and assurances

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2.1 Establishing a credible carbon baseline

Contemporary corporate and even national climate commitments frequently include ambitious targets such as "net zero by 2040" or "carbon neutral by 2050." However, these declarations lack credibility without establishing a comprehensive carbon baseline that serves as the foundational reference point for measuring progress and validating achievement of stated objectives. A credible carbon baseline functions as the essential measurement framework that enables organizations to track emissions reductions over time.

Regulators, investors, and consumers increasingly evaluate companies based on their ability to provide transparent documentation of baseline emissions, interim progress, and target achievement. Without this foundational measurement framework, corporate climate commitments lack the credibility and substantiation required for effective stakeholder engagement and regulatory compliance.
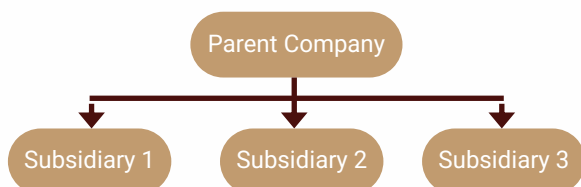
The baseline development process includes analyzing information from multiple data sources. Organizations typically utilize activity data including fuel consumption, electricity usage, and transportation metrics, combined with internationally recognized emission factors (scientifically backed coefficients used to calculate the emission of any given activity such as using a generator or driving a car) published by institutions such as the IPCC. Increasingly, companies rely on digital platforms integrated with established frameworks including BRSR and GRI to enhance measurement precision and reporting consistency.
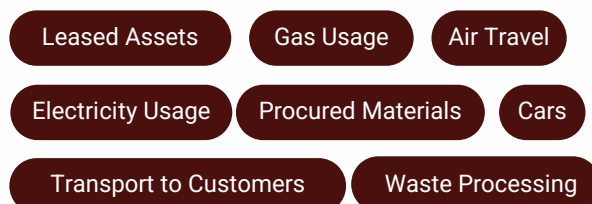
2.2 Defining Your Carbon Footprint: Setting Organizational and Operational Boundaries

Before an organization begins measuring its carbon emissions, there are two key fundamental questions it must answer:

◎ Which parts of the business to be included while accounting for carbon emissions

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                    Parent Company
                          |
        ┌─────────────────┼─────────────────┐
        ↓                 ↓                 ↓
   Subsidiary 1      Subsidiary 2      Subsidiary 3
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◎ Which types of emissions to be counted

Leased Assets   Gas Usage   Air Travel

Electricity Usage   Procured Materials   Cars

Transport to Customers   Waste Processing

These decisions form the foundation of carbon accounting by establishing clear organizational and operational boundaries.These boundaries ensure consistency, prevent double-counting, and enable meaningful comparisons over time. Getting these boundaries right from the start is crucial, as they will guide subsequent data collection, calculation, and reporting efforts throughout the organization's carbon accounting journey.

2.3   Organizational Boundaries: Defining the Organization's scope

Organizational boundaries determine which operations, facilities, and business units a company should include when calculating its greenhouse gas emissions inventory. This decision directly impacts the completeness and accuracy of your carbon footprint assessment.

Organizations must choose between two primary approaches when setting organizational boundaries:

◎ Equity Share Approach: Under this method, a company accounts for greenhouse gas emissions based on its ownership percentage in each operation. If the organization owns 60% of a joint venture facility, it will include 60% of that facility's emissions in its inventory. This approach reflects economic interest and is particularly relevant for companies with diverse ownership structures across their operations.

◎ Control Approach: This method focuses on operational authority rather than ownership percentages. Companies include 100% of emissions from operations where they have either financial control (ability to direct operating and financial decisions) or operational control (authority to implement operating policies). Even with minority ownership, if the organization controls operation

The selection between these approaches depends on the organization's structure, reporting objectives,and stakeholder needs. Companies with significant joint ventures or partnerships may find the equity share approach provides better representation of their environmental impact proportional to their investment. Organizations with diverse operational responsibilities across their portfolio might prefer the control approach as it better reflects their ability to influence emission reduction strategies.

2.4 Operational Boundaries: Categorizing the emissions

Once organizational boundaries are established, companies must define their operational boundaries by identifying which emissions sources to include and how to categorize them. a framework established by the Greenhouse Gas Protocol that divides greenhouse gas emissions into three distinct scopes based on operational control and proximity to business activities.

◎ **Scope 1** encompasses direct emissions from sources owned or controlled by the organization, including fuel combustion in company vehicles, on-site energy generation, and process emissions from manufacturing operations.

◎ **Scope 2** captures indirect emissions from purchased electricity, steam, heating, and cooling consumed by the company but generated elsewhere.

◎ **Scope 3** represents the most comprehensive and complex category, encompassing all other indirect emissions associated with the organization's upstream and downstream activities—from supplier operations and business travel to product use and end-of-life disposal.
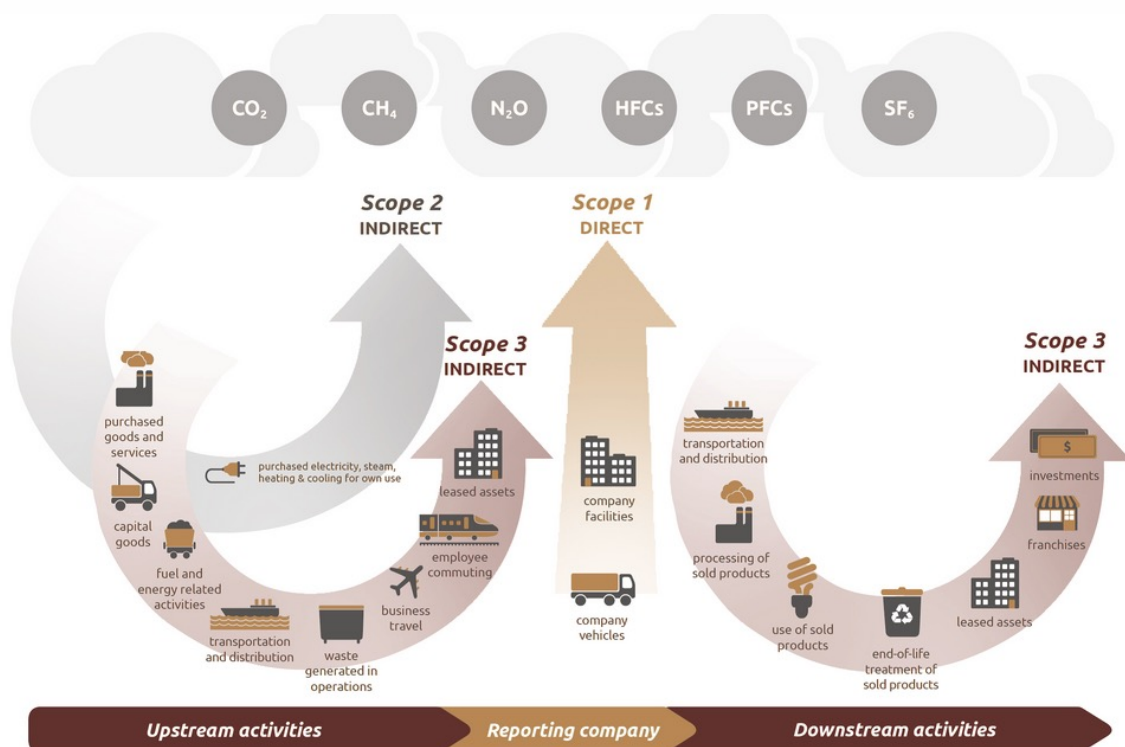

Figure 3: Scopes of Emissions

For many companies, Scope 3 makes up more than 70% of their total footprint.

This three-scope framework provides organizations with a structured methodology to identify, measure and manage their complete carbon footprint, enabling comprehensive climate strategies that address emissions both within direct operational control and across the broader value chain where most corporate emissions typically reside.

Diving deeper, Scope 1 and 2 are hard to measure, but are at least within the organization's control. But scope 3 focuses on supplier practices, customer behavior, logistics networks, and even waste management systems you'll never see firsthand. It's complicated, and yet unavoidable. Investors and regulators now expect companies to account for it as leaving Scope 3 out leaves the majority of the emissions unaccounted for.

This is the reason why the movement towards comprehensive value chain reporting is gaining momentum. Frameworks like the GHG Protocol (the backbone of carbon accounting), the Science Based Targets initiative (SBTi), and disclosure mandates under the CSRD in Europe make Scope 3 visibility a requirement, not an option; something that is being replicated by SEBI's BRSR Core in India.
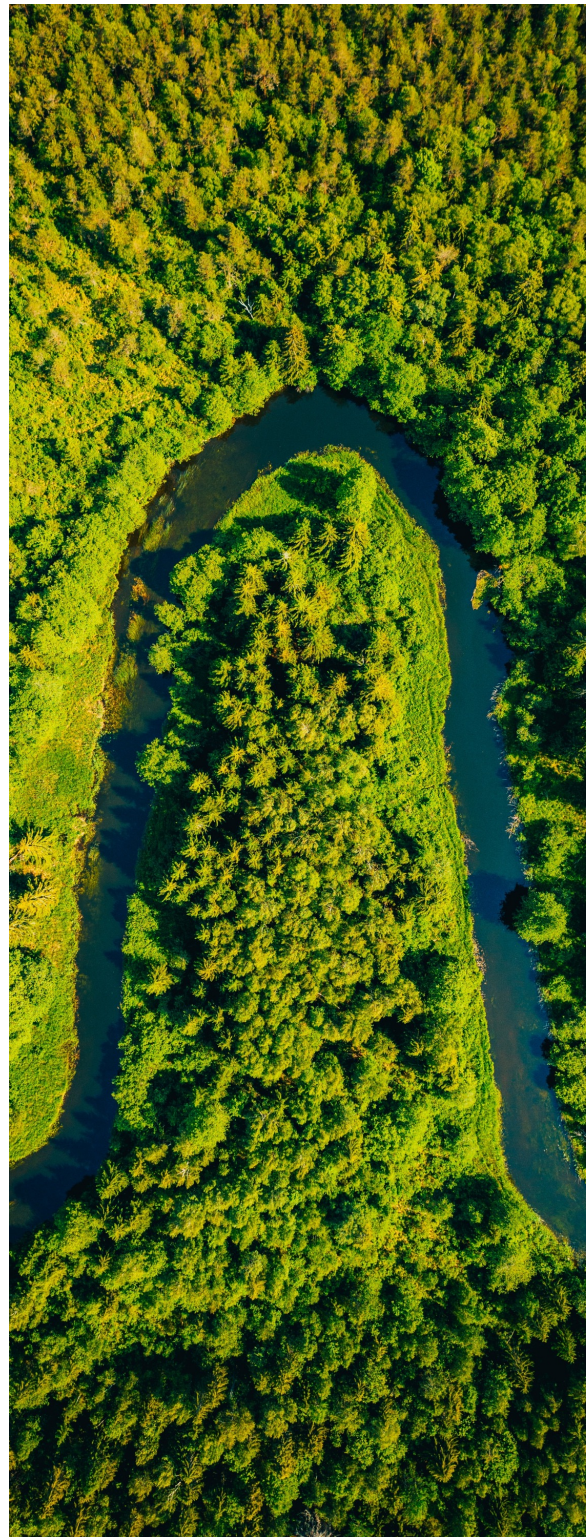
03

Technology as an Enabler – The Digital Transformation of Carbon Reporting

For organizations having taken the foundational decisions around carbon disclosures, the next frontier is scale and efficiency. Today's leading enterprises are increasingly deploying automation, artificial intelligence (AI), Internet of Things (IoT), and blockchain to move beyond manual, fragmented processes.These technologies provide the digital infrastructure required to integrate carbon data collection, real-time measurement, automated reporting, and independent verification into a seamless system.

For enterprises, this digital transformation can reorganize carbon reporting from a regulatory obligation into a strategic lever. By embedding technology, organizations unlock new dimensions of efficiency, transparency, and competitiveness—ensuring that compliance processes are streamlined while future-proofing operations in a carbon-constrained economy.

The case for technology becomes even clearer when viewed against persistent industry challenges, fragmented data systems, reliance on manual reporting, ever-changing standards, and limited verification capabilities. Technology is not just a facilitator; it is the critical enabler that bridges these gaps and allows carbon reporting to operate at the speed and scale demanded by today's markets and regulators.

3.1 Challenges Across the Carbon Lifecycle

For most companies, the central challenge is not whether to report carbon emissions, but rather how to report credibly, consistently, and cost-effectively. The pain points are not confined to one stage but extend across the value chain.Our Carbon Reporting Readiness Survey highlights the realities organizations face when building credible carbon accounting systems. The findings reveal three interlinked dimensions: persistent challenges, current digital maturity, and enabling conditions for scale.

Survey Findings: Key Challenges

Organizations cite limited internal expertise (47.4%), high cost of tools (43.9%), and lack of reliable data (42.1%) as the top barriers. A third struggle with Scope 3 complexity (33.3%), while others point to verification hurdles (36.8%) and insufficient leadership buy-in (28.1%). Together, these highlight the structural issues slowing adoption.

Scope 3 Complexity as a Critical Barrier

When asked to rate the difficulty of Scope 3 accounting relative to Scope 1 and 2, nearly 50% rated it highly or extremely challenging (scores 4 & 5). Only a minority considered it manageable.
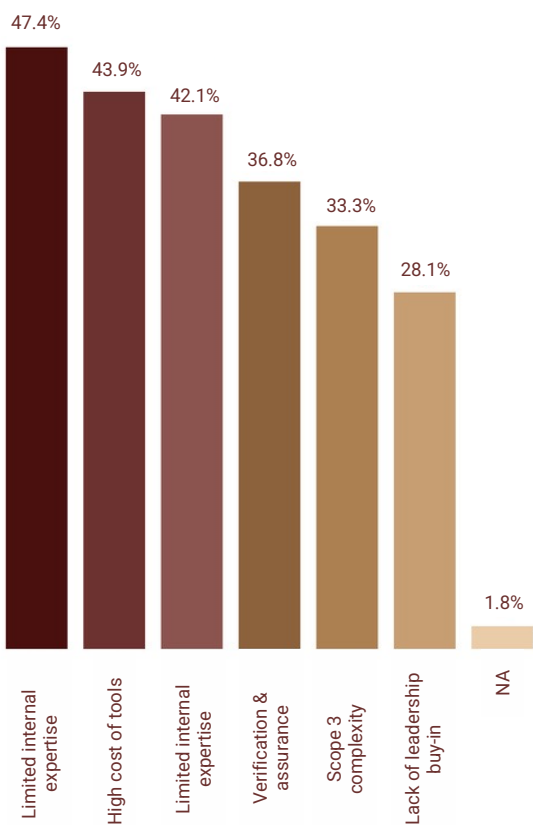
Figure 4: Biggest Challenges in Carbon Reporting

Figure 5: Scope 3 Complexity Rating

Insight:

Carbon reporting is constrained as much by organizational capability and data credibility as by access to technology. Without addressing these pain points, firms remain locked in a compliance mode rather than a strategic one.

Insight:

Scope 3 is the defining test of credibility. For most firms, upstream and downstream visibility remains the biggest blind spot, underscoring the need for advanced tools and supplier engagement strategies.

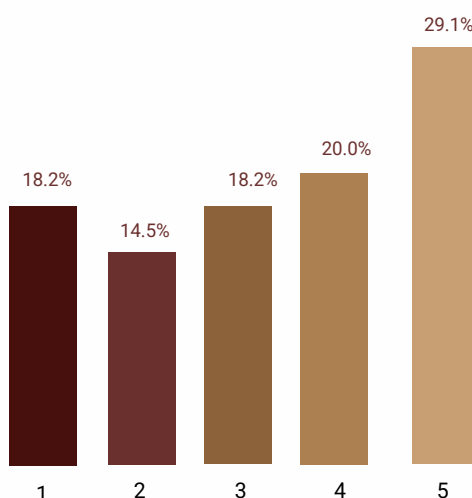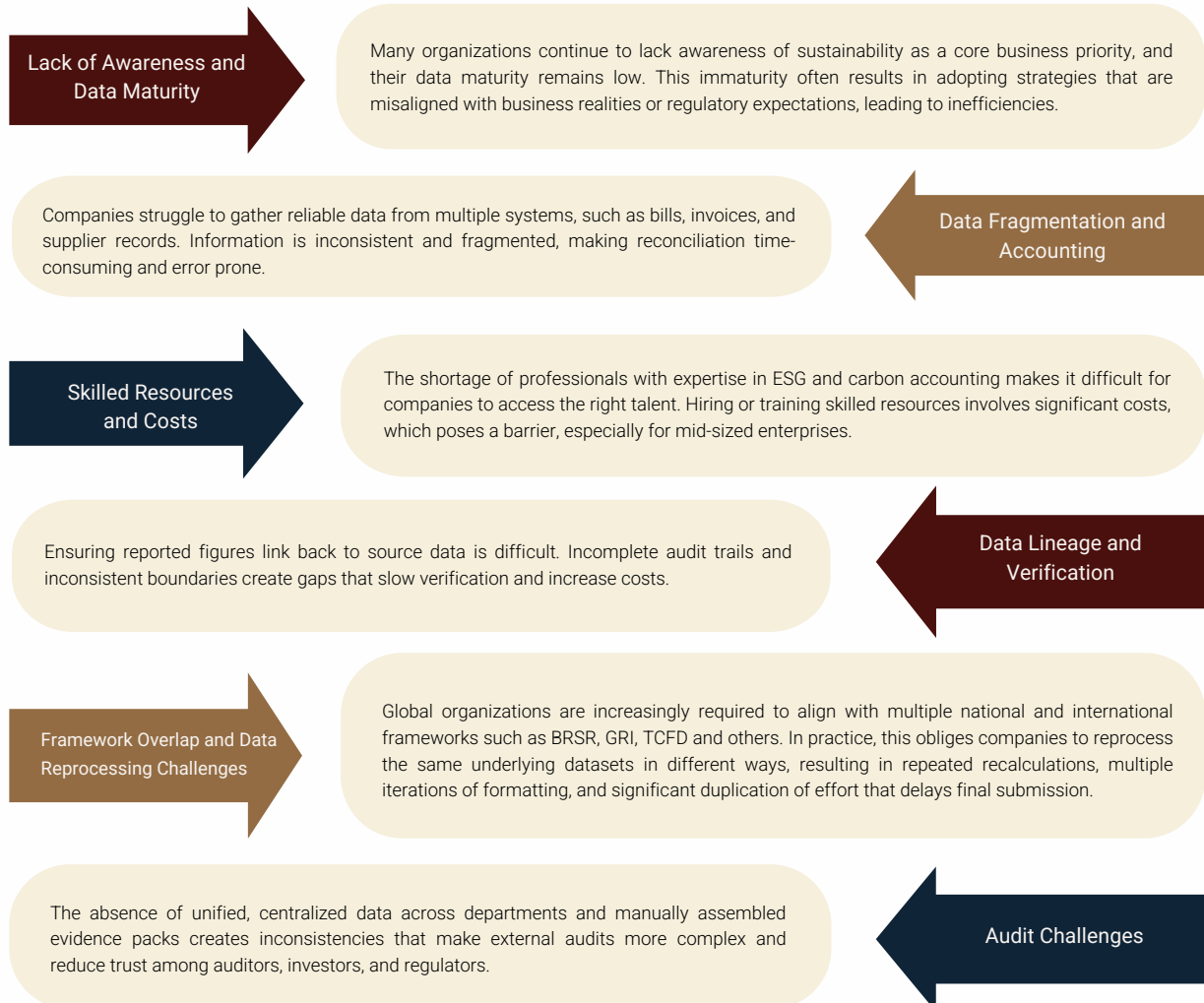# Challenges

Lack of Awareness and Data Maturity

Many organizations continue to lack awareness of sustainability as a core business priority, and their data maturity remains low. This immaturity often results in adopting strategies that are misaligned with business realities or regulatory expectations, leading to inefficiencies.

Companies struggle to gather reliable data from multiple systems, such as bills, invoices, and supplier records. Information is inconsistent and fragmented, making reconciliation time-consuming and error prone.

Data Fragmentation and Accounting

Skilled Resources and Costs

The shortage of professionals with expertise in ESG and carbon accounting makes it difficult for companies to access the right talent. Hiring or training skilled resources involves significant costs, which poses a barrier, especially for mid-sized enterprises.

Ensuring reported figures link back to source data is difficult. Incomplete audit trails and inconsistent boundaries create gaps that slow verification and increase costs.

Data Lineage and Verification

Framework Overlap and Data Reprocessing Challenges

Global organizations are increasingly required to align with multiple national and international frameworks such as BRSR, GRI, TCFD and others. In practice, this obliges companies to reprocess the same underlying datasets in different ways, resulting in repeated recalculations, multiple iterations of formatting, and significant duplication of effort that delays final submission.

The absence of unified, centralized data across departments and manually assembled evidence packs creates inconsistencies that make external audits more complex and reduce trust among auditors, investors, and regulators.

Audit Challenges

Digital Maturity in Carbon Reporting:

Our Carbon Reporting Readiness Survey shows that digital maturity varies across organizations. Most still rely on ERP extensions (31.6%) and spreadsheets (24.6%), indicating manual and non-scalable practices. Notably, 17.5% of companies are unaware of how emissions are tracked, revealing a structural knowledge gap. Use of specialized tools (15.8%) and AI/automation (10.5%) remains limited, highlighting the underuse of advanced solutions.
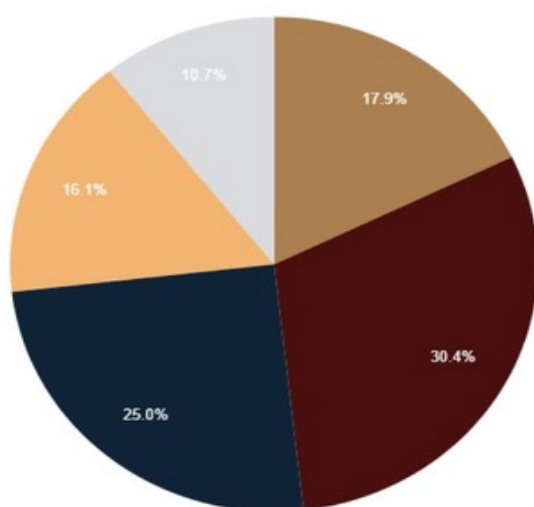
Figure 6: Digital Maturity in Carbon Reporting

- Not aware – 17.9%
- ERP extensions (finance/operations modules) – 30.4%
- Basic tracking spreadsheets – 25.0%
- Specialized carbon accounting tools – 16.1%
- AI/automation-driven solutions – 10.7%

Insight:

Companies are stuck with outdated methods. Without transitioning to automated and intelligence-driven platforms, reporting will stay fragmented and fail to meet regulatory and investor expectations.

3.2 From Compliance Cost to Enterprise Value: The Role of Digital Enablers

New age technologies are resolving many long-standing challenges for organizations when it comes to carbon accounting.

Together, AI, automation, MRV systems, IoT, blockchain, and GIS mapping deliver the three essentials of modern carbon reporting—accuracy, transparency, and efficiency.By doing so, they shift the narrative from carbon reporting as a compliance expense to a driver of enterprise value, enabling organizations to cut costs, strengthen credibility, and unlock revenue opportunities through verified reductions and carbon credits.

Technology-Objective	Description	Solutions	Business Impact
AI Turning complex carbon data into precise, actionable intelligence	Utilizes machine learning, anomaly detection, and natural language models to process carbon data and derive actionable insights.	Automates extraction from bills and records; estimates missing supplier emissions; flags anomalies; drafts disclosure-ready narratives; models abatement scenarios.	Improves accuracy by up to 95% through automated data capture, reduces manual errors by nearly 70%, enhances Scope 3 coverage with 30-40% more supplier data availability, accelerates report preparation timelines by up to 50%, and supports data-driven Net Zero strategy decisions
Automation-Making carbon reporting seamless, consistent, and scalable.	Integrates SAP, ERPs, Oracle, HRMIS, and other logistics platforms; automate workflows, approvals.	Resolves data fragmentation, ensures consistent application of emission factors, reduces duplication, streamlines approvals, and maintains transparent audit trails.	Ensures complete automation, lowers reporting costs by 30-40%, accelerates compliance cycles, and ensures scalable, repeatable carbon accounting.
MRV-Delivering assurance-ready systems for transparency	Structured digital framework linking verification into an monitoring, reporting, and assurance-ready system.	Provides real-time data capture, standardized reporting, transparent evidence packs, and third-party verification readiness.	Builds stakeholder trust, reduces verification costs by 83%, enables credit issuance, and strengthens compliance with global frameworks.
IoT-Real-time data collection and Industry 4.0 integration	Uses calibrated meters, submeters, telematics, and weighbridges to continuously capture	Enables predictive maintenance, real-time monitoring of energy use, automated alerts for anomalies, and cradle-to-use	Improves accuracy by replacing estimates with measured data, reduces Opex through optimized energy and maintenance, and enhances supply chain traceability, supporting robust life cycle assessments.
Blockchain-Secure and transparent records	Provides a tamper-proof, encrypted ledger for carbon and energy data across organizational boundaries.	Records supplier attestations, meter hashes, and chain-of-custody for renewable energy, SAF book-and-claim, and carbon credits.	Builds trust with auditors and buyers, reduces disputes, accelerates credit issuance and retirement, and delivers transparency across complex value chains.

Table 2

Taken together, these technologies provide enterprises with a truly end-to-end sustainability backbone, enabled by advanced technology and AI. This is a clear and accelerating trend; accounting and sustainability platforms must now evolve rapidly to integrate these digital enablers as a core capability rather than an add-on. Multiple such emerging tools are being designed to integrate these aspects, offering Indian enterprises a homegrown yet globally benchmarked solution that helps overcome systemic challenges with accuracy, transparency, and efficiency.

Enablers for Scaling Digital Adoption:

Survey responses also reveal what businesses believe will accelerate maturity. Financial incentives (28.1%) and regulatory clarity (26.3%) dominate, signalling a strong dependence on external levers. Peer benchmarks (19.3%) show appetite for comparability, while simplified tools (17.5%) and training (8.8%) remain undervalued despite evident capability gaps.
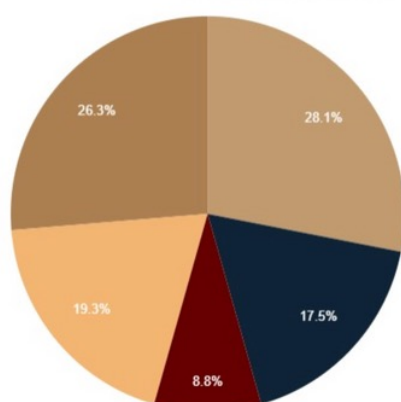
Mechanisms that accelerate carbon reporting

Figure 7

- ● Financial incentives − 28.1%
- ● Simplified digital tools − 17.5%
- ● Training & capacity building − 8.8%
- ● Industry benchmarks / best practices − 19.3%
- ● Clearer regulatory guidance − 26.3%

Insight:

Organizations look outward to policy and finance, while underestimating the role of internal capacity-building and digital tools. Bridging this gap requires a dual strategy, combining structural incentives with enterprise-level digital enablement.

3.3 New Age Carbon Accounting Platforms

Indian enterprises which encompass measurement, reporting, and credit monetization. Current challenges include fragmented technological solutions, evolving compliance requirements, diverse reporting frameworks, and disconnected strategic approaches that impede progress and increase costs.

Organizations require comprehensive platforms that address multiple carbon management functions simultaneously, rather than deploying disparate systems.

Comprehensive carbon management platforms are emerging to address these integration challenges. These solutions combine data assessments, AI-driven management systems, automated workflows, robust MRV frameworks, and integrated reporting within unified architectures.

Such integrated approaches extend beyond compliance to create strategic business value through operational efficiency, risk mitigation, and assurance-ready disclosures. Organizations also access revenue opportunities through verified carbon credit programs while establishing market positioning in India's low-carbon transition.

Platforms like New Age Platforms exemplify this evolution, offering end-to-end decarbonization solutions that unify technology, compliance, and strategy.These comprehensive approaches represent the shift from fragmented carbon management toward integrated solutions that align operational efficiency with regulatory requirements and business growth objectives.
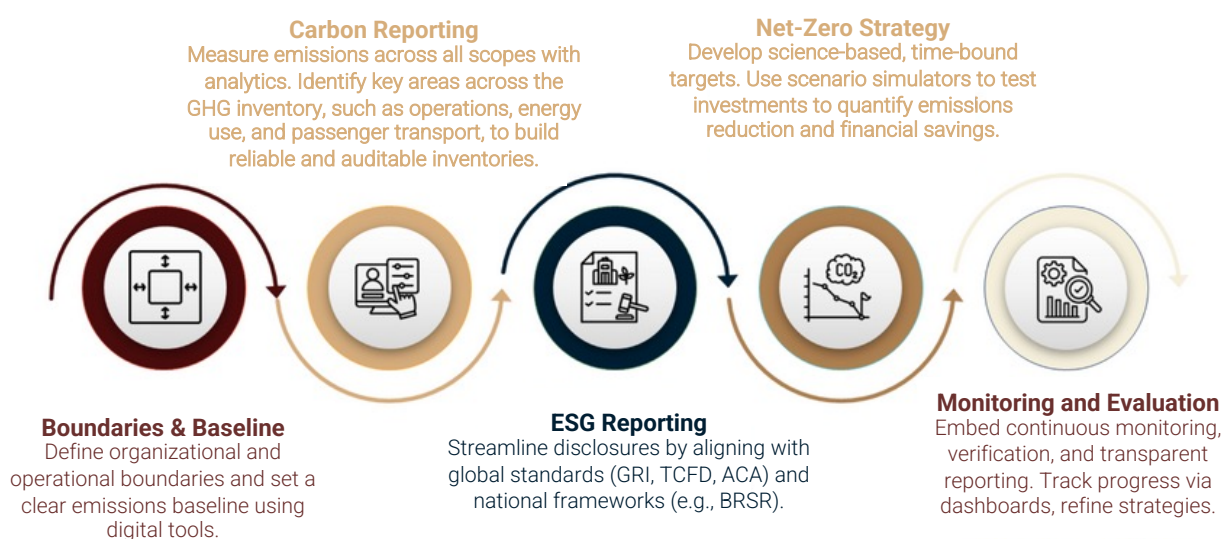
Carbon Reporting
Measure emissions across all scopes with analytics. Identify key areas across the GHG inventory, such as operations, energy use, and passenger transport, to build reliable and auditable inventories.

Net-Zero Strategy
Develop science-based, time-bound targets. Use scenario simulators to test investments to quantify emissions reduction and financial savings.

Boundaries & Baseline
Define organizational and operational boundaries and set a clear emissions baseline using digital tools.

ESG Reporting
Streamline disclosures by aligning with global standards (GRI, TCFD, ACA) and national frameworks (e.g., BRSR).

Monitoring and Evaluation
Embed continuous monitoring, verification, and transparent reporting. Track progress via dashboards, refine strategies.

Figure 8: Five Pillars of the Carbon Lifecycle

In a business environment where carbon emissions are being viewed with increasing scrutiny, all organizations looking to decarbonize will have to pursue these pillars.

The aviation sector exemplifies the complexities of carbon accounting that businesses across various industries must navigate. Responsible for ~2% of global CO_2 emissions, aviation demonstrates how the industry's multi-layered emission sources—spanning direct fuel combustion, purchased electricity, and extensive value chain activities from fuel extraction to aircraft manufacturing—mirror the comprehensive scope of carbon accounting that modern enterprises must master

Airports represent particularly complex operational environments where multiple emission sources, diverse stakeholder activities, and intricate supply chains converge.

The following section examines how comprehensive carbon management platforms enable airports to navigate these complexities, transforming regulatory compliance into strategic advantage while establishing frameworks that other industries can adapt for their own carbon accounting challenges.

04

From Theory to Practice – Carbon Accounting for an Indian Airport

Airport Decarbonization Lifecycle – Powered by Bharat Carbon

Airports are microcosms of the wider aviation ecosystem, and their emissions span the full spectrum of the GHG Protocol's three-scope framework. Before defining pathways to net zero, it is essential to understand how emissions are distributed across direct operations, purchased energy, and the broader value chain.

According to Keshav Singhal, Head of Environment and Sustainability at Noida International Airport Limited (NIAL), "Scope 1 and 2 together account for about 10% of the total GHG emissions at an airport, and a significant portion, up to 80%, of the scope 3 emissions comes from flight operations."
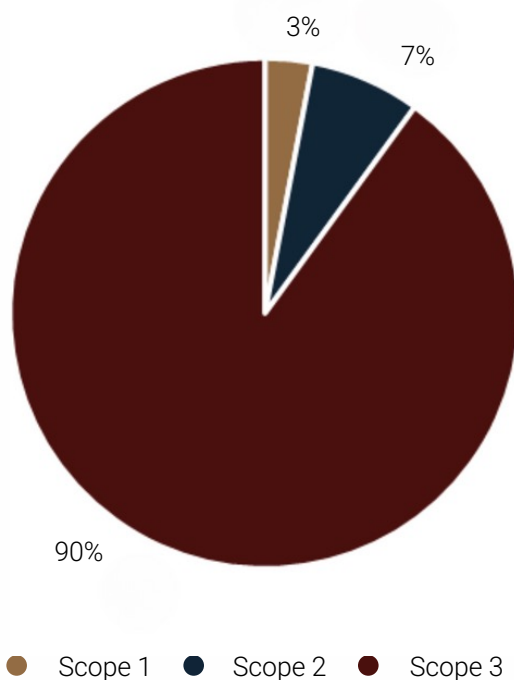
Figure 9: GHG Inventory across the Airport Value Chain
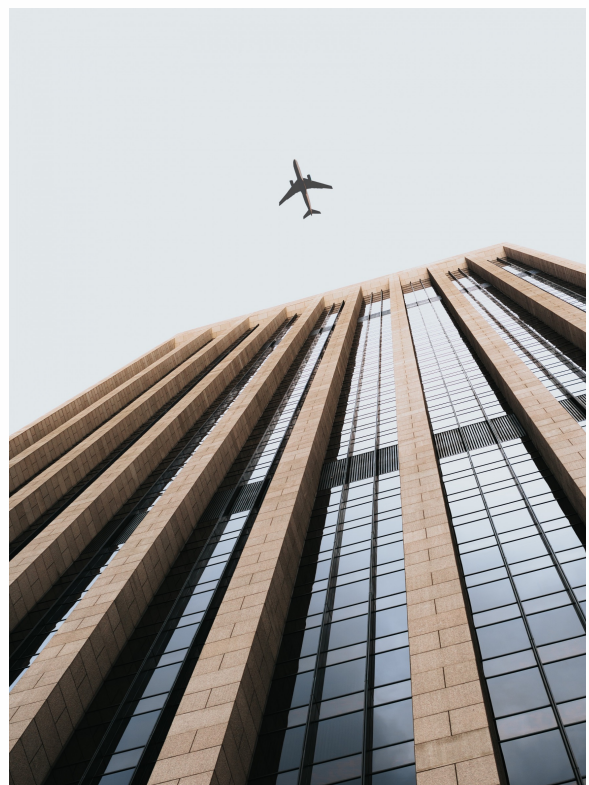
⯈⯈ Scope 1 – Direct Emissions (airport-controlled)

Scope 1 covers emissions from sources owned or directly controlled by the airport operator. These include

- ◎ Vehicles and ground support equipment (GSE) running on conventional fuels.
- ◎ On-site power generation for back-up or peak demand.
- ◎ Boilers, furnaces, and auxiliary power units (APUs) that support operations.
- ◎ Firefighting drills and safety exercises, often mandated by aviation regulations.
- ◎ Waste and water management systems operated within the airport boundary for most airports, Scope 1 is modest compared to Scope 3.

⯈⯈ Scope 2 – Indirect Energy Emissions

Scope 2 emissions arise from purchased electricity. Given that large terminals operate nearly 24/7, airports are among the most energy-intensive public infrastructures - baggage handling, security systems, heating, ventilation and cooling for passenger areas, offices and runway and terminal lighting, all contribute to the electricity load of the airport, which is fulfilled through power purchase agreements with power corporations.

Airports globally are reducing Scope 2 footprints by transitioning to renewable energy. For instance, Delhi International Airport has achieved 100% renewable electricity consumption since 2022, while Schiphol Airport in Amsterdam sources all its electricity from Dutch wind farms. These initiatives directly cut operational footprints while also strengthening an airport's environmental brand.

Scope 3 – Other Indirect Emissions (value chain)

Scope 3 is where airports face their biggest challenge — and greatest opportunity. Accounting for 90% of total GHG emissions, this category includes activities outside the airport operator's direct control but linked to its operations:

◎ **Aircraft operations:** landings, take-offs, taxiing, and in-flight emissions.

◎ **Third-party vehicles and GSE** operated by airlines, cargo handlers, and service providers.

◎ **Tenant and partner operations:** retail, food & beverage, lounges, and maintenance.

◎ **Passenger and staff access:** emissions from cars, buses, taxis and metro systems

◎ **Employee commuting and business travel.**

◎ **Off-site waste and wastewater treatment.**

◎ **Infrastructure decommissioning** at end of life.

◎ **Franchises and investments,** including stakes in other airports.

This displays that airports, like most businesses, are scope 3 heavy eco-systems, with their climate credibility hinging on collaboration as well as the critical dependency on flight operations to be decarbonized to have any meaningful achievement against targets.

Only by adopting a comprehensive value-chain approach, facilitated by platforms, can they align with global best practices, secure green funding, and build trust with regulators, investors, and passengers alike.
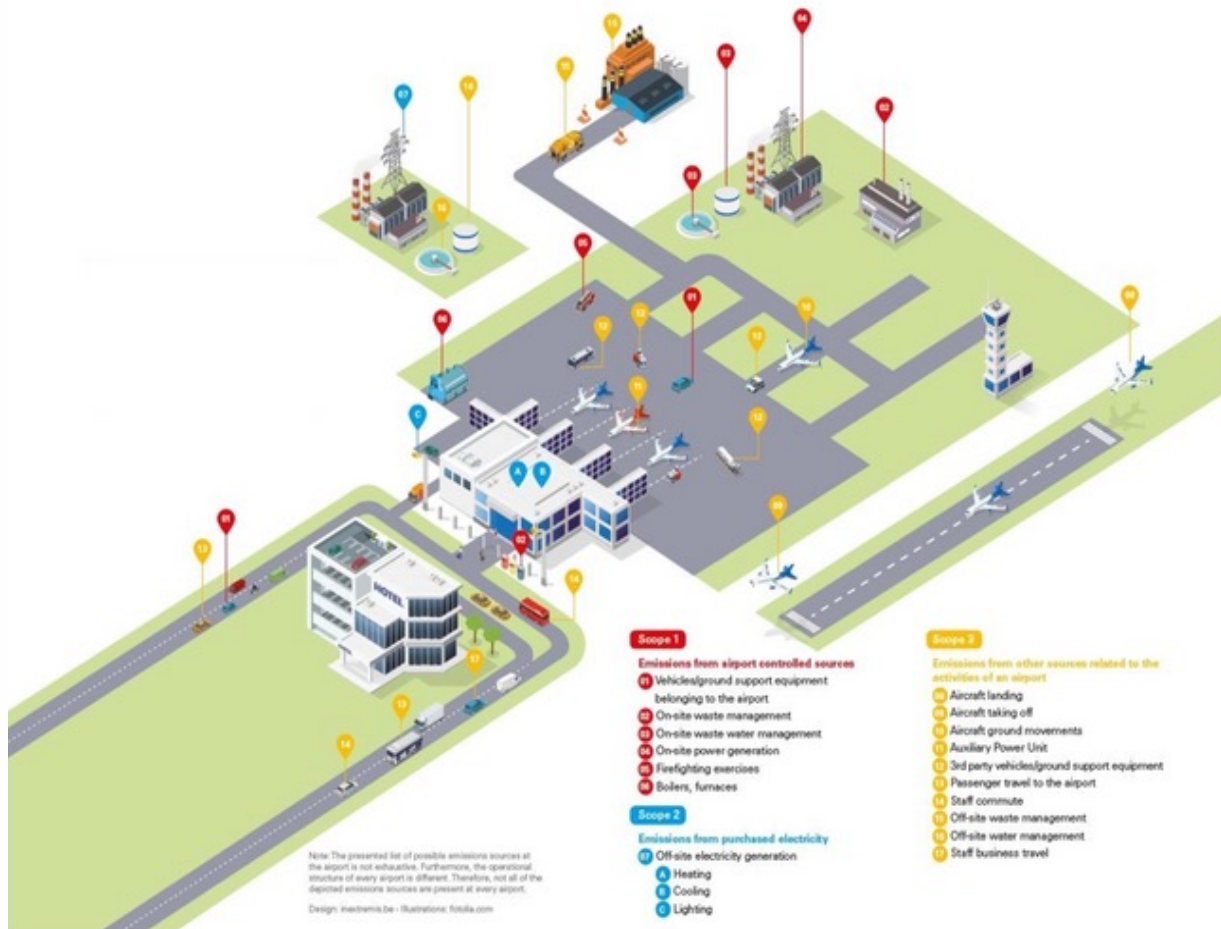
Figure 10: Scopes across the Airport value chain

An Illustrative Case Study

We present an illustrative case study showing how a Mid-Sized Southern Indian Airport can navigate its decarbonization journey. By using a digital management tool such as Bharat Carbon, the airport can establish a credible baseline, identify Scope 3 emission hotspots, align with global disclosure standards, and model science-based net-zero pathways.

Disclaimer: the following data is presented for illustrative purposes only

⏩ Step 1: Setting Boundaries & Establishing the Baseline

The first step in an airport's decarbonization journey is to set clear boundaries and establish a baseline. A digital tool supports this process by creating a structured framework, which will capture information such as:

◎ **Business Details –** legal entity, ownership, and corporate profile.

◎ **Facilities –** terminals, runways, hangars, cargo areas, and fuel farms.

◎ **Holdings –** joint ventures and affiliates that fall under Scope 3.

◎ **Employees –** headcount and commuting patterns that contribute to Scope 3 emissions.

◎ **Suppliers & Value Chain –** purchased goods, services, and contractor data.

◎ **Emission Factor Database –** standardized factors to convert activities into tCO_2e.

◎ **User Roles –** responsibilities for data entry, validation, and approvals.

Get Started

Add Business Details ✓	Add Facilities ✕	Add Holdings ✕	Add Employees ✕
Business details are significant to derive your intensity metrics	Comprehensive emission data can be achieved by providing detailed facility information	Holding details are essential for BRSR compliance and Scope 3 emissions accounting	An Integral Part of your company significantly contributes to emission accounting
Add Business Details	Add Facility	♛ Upgrade	♛ Upgrade

Add Suppliers ✕	Emission Factor Database ✕	Add Users ✕
Franchise are the most important aspects to calculate scope 1 metrics	Franchise are the most important aspects to calculate scope 1 metrics	Franchise are the most important aspects to calculate scope 1 metrics
♛ Upgrade	Add Holding	♛ Upgrade

Figure 11 - Initial Step of the Decarbonization Journey - setting boundaries and establishing a baseline

By completing this stage, the airport develops a comprehensive organizational map that anchors Scope 1, 2, and 3 boundaries. This baseline provides the foundation for accurate carbon accounting given that airports are Scope-3 heavy (often 90–95% of total).

Step 2: Carbon Reporting– Measuring the Footprint

Once boundaries are defined by the organization, the next step is carbon accounting. This is where the platform quantifies emissions across Scopes 1, 2, and 3, using the GHG Protocol principles of relevance, completeness, consistency, transparency, and accuracy.

The tool, using information such as the size of facilities, types of vehicles, quantum of electricity consumed would use emission factors created and updated by the IPCC (Intergovernmental Panel on Climate Change) and other databases which offer India specific emission factors for various activities.

Additionally, the emissions (calculated in tonnes of carbon dioxide equivalent) are benchmarked against other players in the industry.
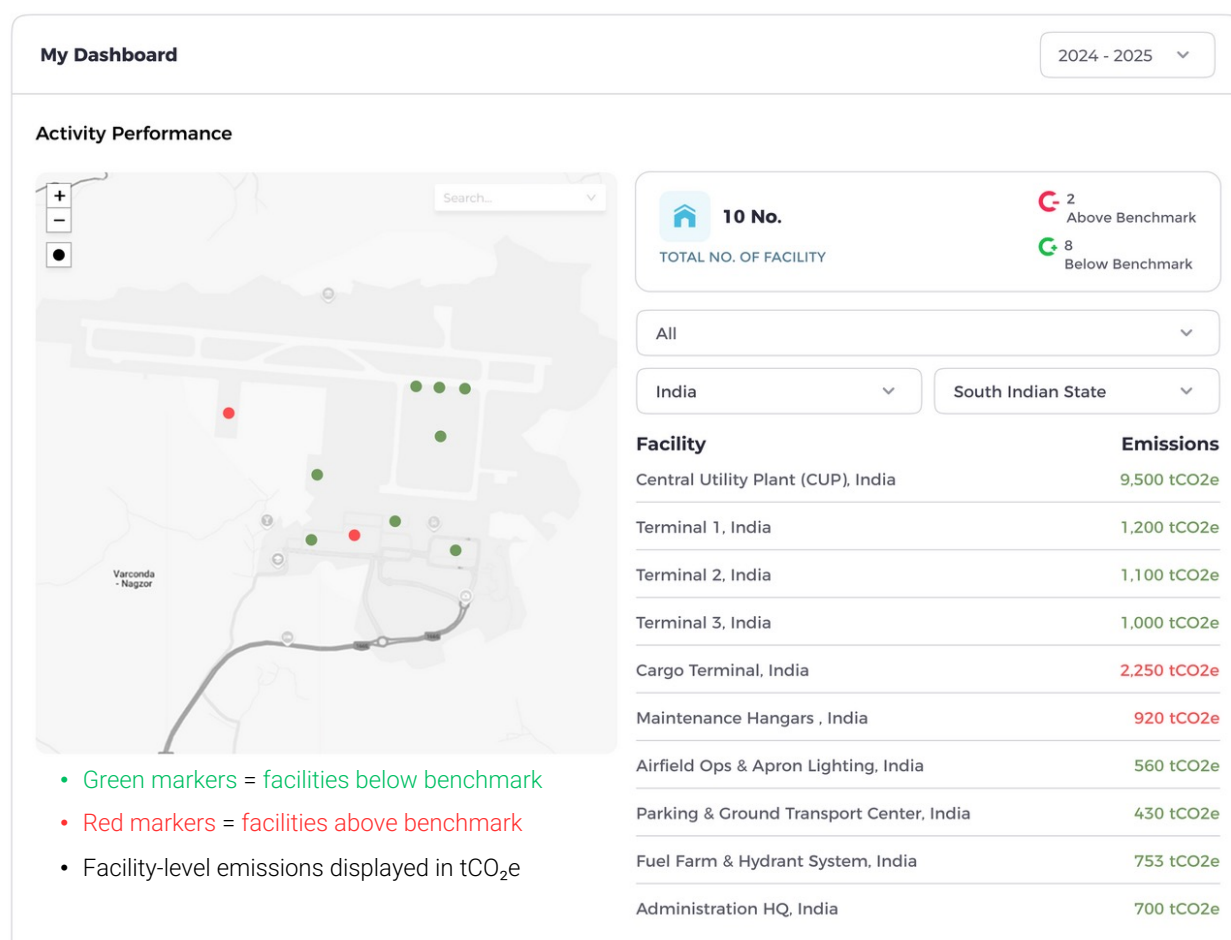

My Dashboard   2024 - 2025

Activity Performance

| | 10 No. | 2 Above Benchmark |
| | TOTAL NO. OF FACILITY | 8 Below Benchmark |

All

India   South Indian State

Facility	Emissions
Central Utility Plant (CUP), India	9,500 tCO2e
Terminal 1, India	1,200 tCO2e
Terminal 2, India	1,100 tCO2e
Terminal 3, India	1,000 tCO2e
Cargo Terminal, India	2,250 tCO2e
Maintenance Hangars , India	920 tCO2e
Airfield Ops & Apron Lighting, India	560 tCO2e
Parking & Ground Transport Center, India	430 tCO2e
Fuel Farm & Hydrant System, India	753 tCO2e
Administration HQ, India	700 tCO2e

- Green markers = facilities below benchmark
- Red markers = facilities above benchmark
- Facility-level emissions displayed in tCO$_2$e

Figure 12: Activity Performance Dashboard – Facility Map with Benchmarks

Scope Coverage

The tool will capture a comprehensive activity-level breakdown that aggregates to the period's total footprint (displayed in tCO₂e). Each colored ring corresponds to one activity/category (e.g., Fuel, Purchased Goods, Capital Goods, Waste, Refrigerants).

This step produces a data backed inventory which helps any airport understand where interventions would matter most, guiding the airport's decarbonization strategy.
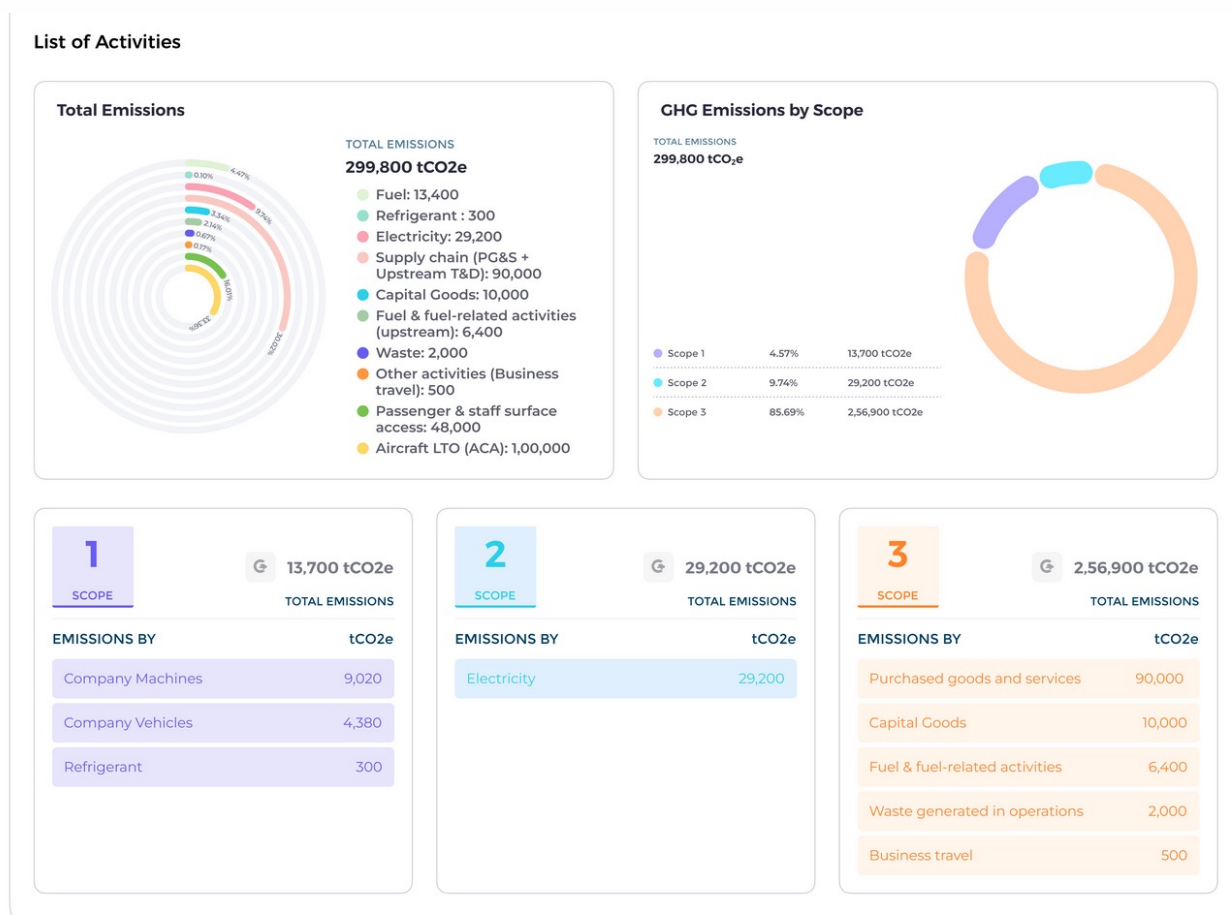

Figure 13: List of Activities – Total Emissions by Category & Scope

Step 3: ESG Reporting – Turning Data into Disclosure

After measurement, the airport must communicate its performance transparently. The digital tool simplifies ESG reporting by aligning carbon data with leading standards and frameworks. To address diverse and evolving compliance needs, including multi-framework outputs like BRSR, GRI,TCFD, ACA, and others, the digital tool must be capable of generating disclosures across these frameworks. Bharat Carbon ensures that airports can seamlessly meet regulatory obligations while strengthening stakeholder confidence and industry credibility by generating reports in the required formats.

Here is an example of how AI has revolutionized carbon reporting: Bharat Carbon leverages AI-powered algorithms to systematically analyze competitor ESG disclosures and extract key performance indicators, establishing comprehensive peer benchmarks across industries. This AI-driven comparative intelligence empowers businesses to enhance their sustainability reporting quality and competitively position their climate performance within their sector.
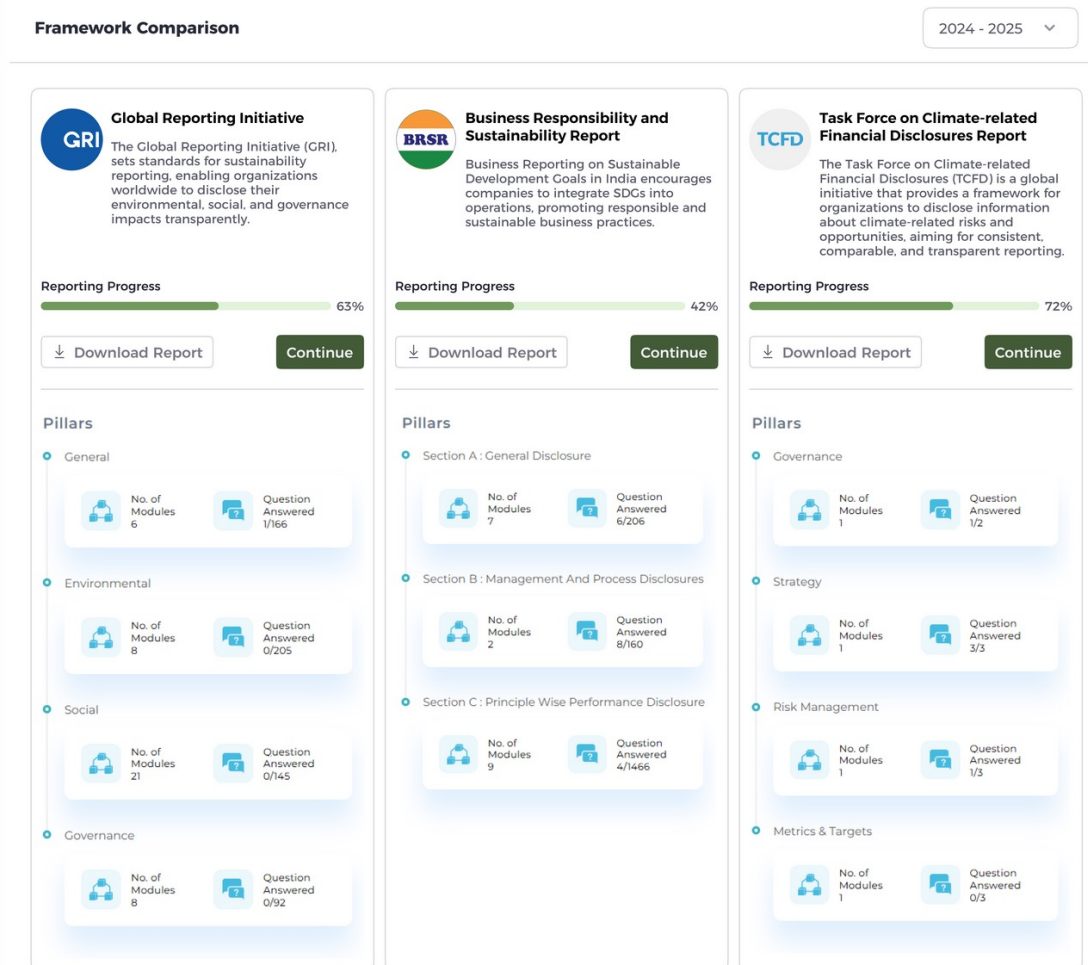

Figure 14: Framework Comparison Dashboard – GRI, BRSR, TCFD Progress

⟫ Step 3.1: Peer Benchmarking Dashboard

A peer-benchmarking dashboard is crucial because it provides airports with clear visibility into how they perform relative to their industry peers on key metrics. By comparing indicators such as Scope 1 emissions, diversity, or broader sustainability practices, airports can identify gaps, set realistic targets, and demonstrate progress to stakeholders.

This not only drives continuous improvement but also strengthens competitiveness, as investors, regulators, and passengers increasingly expect organizations to match or exceed sector benchmarks in sustainability performance. It allows the selection of ESG metrics
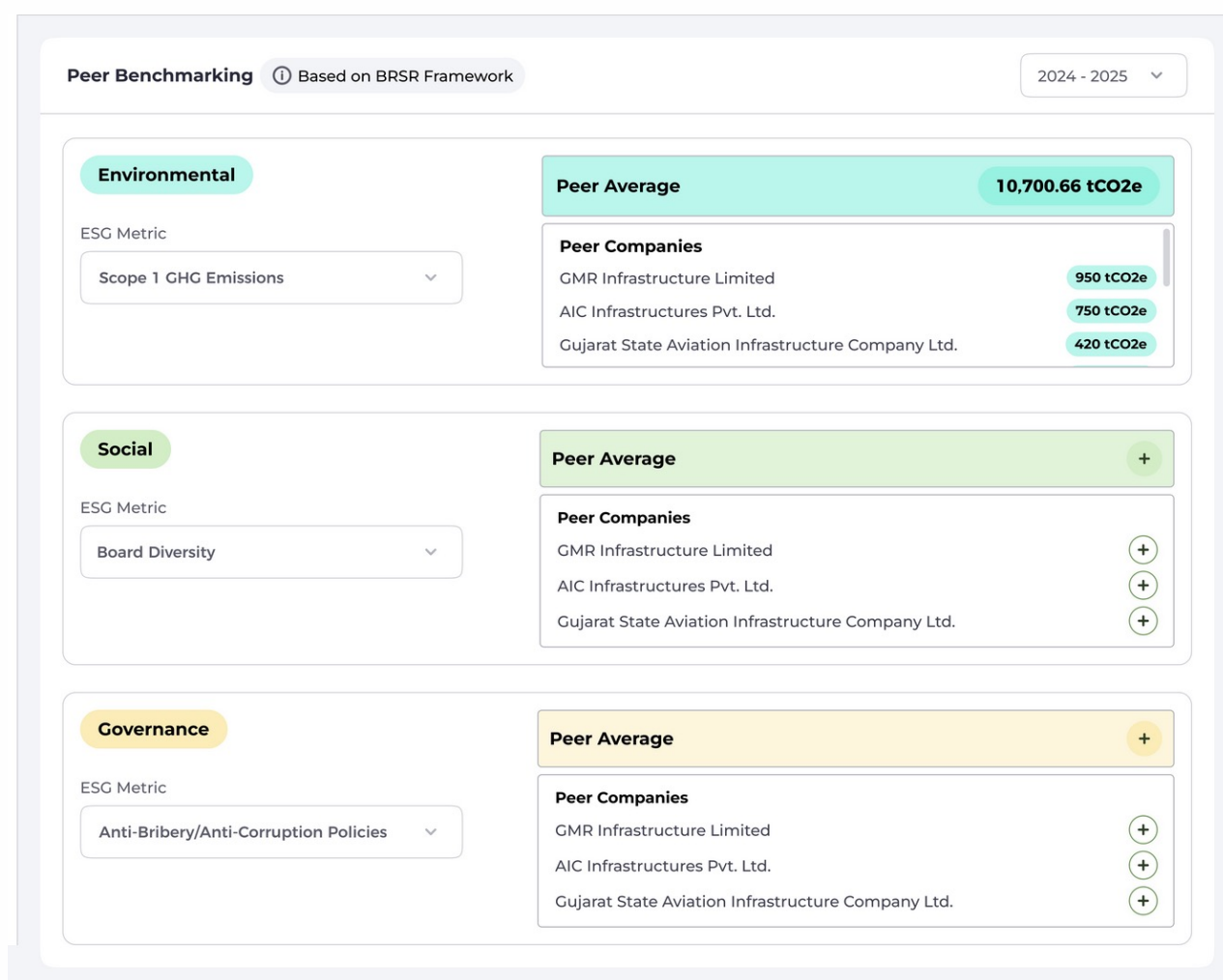

Figure 15: Peer Benchmarking Dashboard – ESG Metrics vs Peers

Step 4: Net Zero Strategy – How Choices Are Made

Following baseline establishment and compliance assessments, airports develop comprehensive decarbonization strategies through systematic evaluation of multiple factors.

The Science Based Targets initiative (SBTi) provides corporations, including airport operators, with data-driven pathways aligned with limiting global warming to 1.5°C above pre-industrial levels. SBTi's aviation guidance requires airports to achieve 35-40% carbon intensity reductions between 2019-2035, with 90% emission reductions by 2050. The framework provides airports with scientifically validated and globally recognized benchmarks for credible climate commitments giving confidence to regulators, investors, and credit rating agencies that the airport's strategy is not greenwashing but grounded in science.

Bharat Carbon allows airports to establish and visualize their SBTi derived decarbonization targets as displayed in the below figure.

The figure illustrates the airport's emission trajectory in comparison to a 1.5°C scenario. The light blue line represents the required annual reduction of 4.2%

(aligned to the SBTi target of limiting global warming to 1.5°C), while the green line highlights the business-as-usual scenario. The grey line represents the targeted emissions, any gap indicates the need for stronger interventions, particularly in Scope 3 where aircraft operations dominate.

Key factors influencing decarbonization investments include emission scope prioritization, with airports initially targeting Scope 1 and 2 emissions (5-15% of total emissions) through electrification, renewable energy, and operational efficiency measures. A plan to minimize Scope 3 emissions, representing 85-95% of total airport emissions from aircraft operations and passenger transport, is critical and will require collaborative stakeholder engagement and infrastructure investments in sustainable aviation fuels, electric ground support equipment, and alternative propulsion technologies.

Financial analysis plays a critical role, with airports developing stakeholder-specific financing models that balance investment costs with operational savings and regulatory compliance benefits. Technology readiness, infrastructure requirements, and regulatory mandates also shape investment priorities.

Figure 16: Emission Reduction Trajectory

4.2   Net Zero Simulator:

The Net Zero Simulator enables the airport to test investment choices and see their direct impact on emissions, operating costs, and risk. The left panel shows company growth, while the right panel maps the emissions trajectory, where simulates reductions as decarbonization projects are implemented. This simulation allows executives to see trade-offs in real time, balancing financial commitments, emission cuts, and operational savings. It converts climate ambition into a quantified, finance-ready roadmap that can be defended to boards, regulators, and financiers.
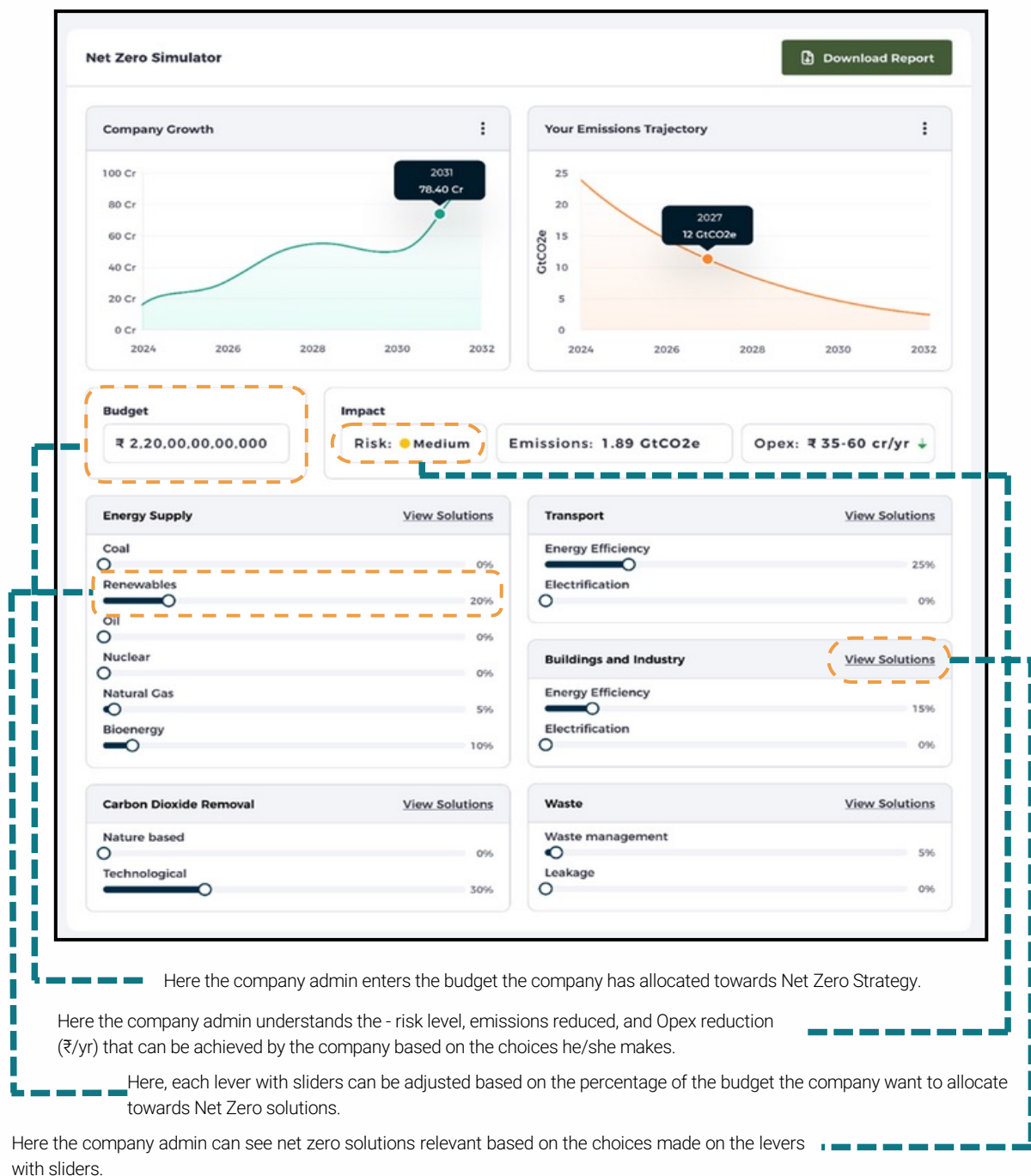

Figure 17 - Net Zero Simulator

4.3   Implementation - Decarbonization Solutions for the Airport

Following target-setting through the Net Zero Simulator, airports transition to implementing comprehensive decarbonization solutions. There are a range of solutions available to airports to decarbonize which include some solutions which are a low hanging fruit while some are longer term solutions which require technological innovation. Potential decarbonization projects include:

◎ **Energy Efficiency:** Terminal optimization through natural and LED lighting, efficient HVAC systems, and smart energy management.

◎ **Renewable Energy:** Green electricity procurement combined with on-site solar installations.

◎ **Fleet Electrification:** Replacement of fuel-powered vehicles and ground support equipment with electric or hydrogen alternatives.

◎ **Advanced Fuels:** Sustainable aviation fuel integration and hydrogen infrastructure development for zero-emission aircraft operations.

◎ **Circular Economy:** Waste reduction initiatives and enhanced recycling programs.

◎ **Circular Economy:** Waste reduction initiatives and enhanced recycling programs.

This systematic approach transforms airports from emission-intensive operations into strategic decarbonization leaders, delivering measurable environmental impact while maintaining operational excellence and regulatory compliance across all emission scopes.

» Step 5: Maintenance & Monitoring - How to keep score

The tool ensures maintenance & monitoring through independent verification, transparent reporting, and scheduled reviews, so Net Zero Strategy Targets and Decarbonization plans do not drift.

The graph below, on Bharat Carbon's platform, shows the "Emissions Reduction Timeline" based on the base and target years set by the company to reduce emissions as part of its Net Zero Strategy. This helps monitor and track the progress on the net-zero targets set by the company

Emission Reduction Timeline

Current Year Emissions :
Scope 1: 11,054 tCO2e   -19.3% ▼
Scope 2: 30,835.2 tCO2e   5.6% ▲
Scope 3: 2,50,991.3 tCO2e   -2.3% ▼

Target Achieved: 49.54% ▼   Target Remaining: 50.46% ▼

2019   2020   2021   2022   2023   2024   2025   2026   2027   2028   2029   2030
        Base Year   Current Year   Target Year

Total Emissions : 2,99,800 tCO2e   **Target Emissions** : 2,03,761 tCO2e

Figure 18: Emissions Reduction Timeline

05

The Business Case – From Compliance to Competitiveness

Carbon reporting is undergoing a paradigm shift, transforming from a perceived regulatory burden into a strategic business metric. Forward-thinking companies no longer view greenhouse gas (GHG) disclosure as merely a compliance exercise, but as a source of actionable data and a competitive advantage.

Compliance is only the starting point; the actual value emerges when organizations leverage emissions data to enhance efficiency, innovation, and stakeholder trust. Robust carbon accounting turns climate responsibility into opportunity.
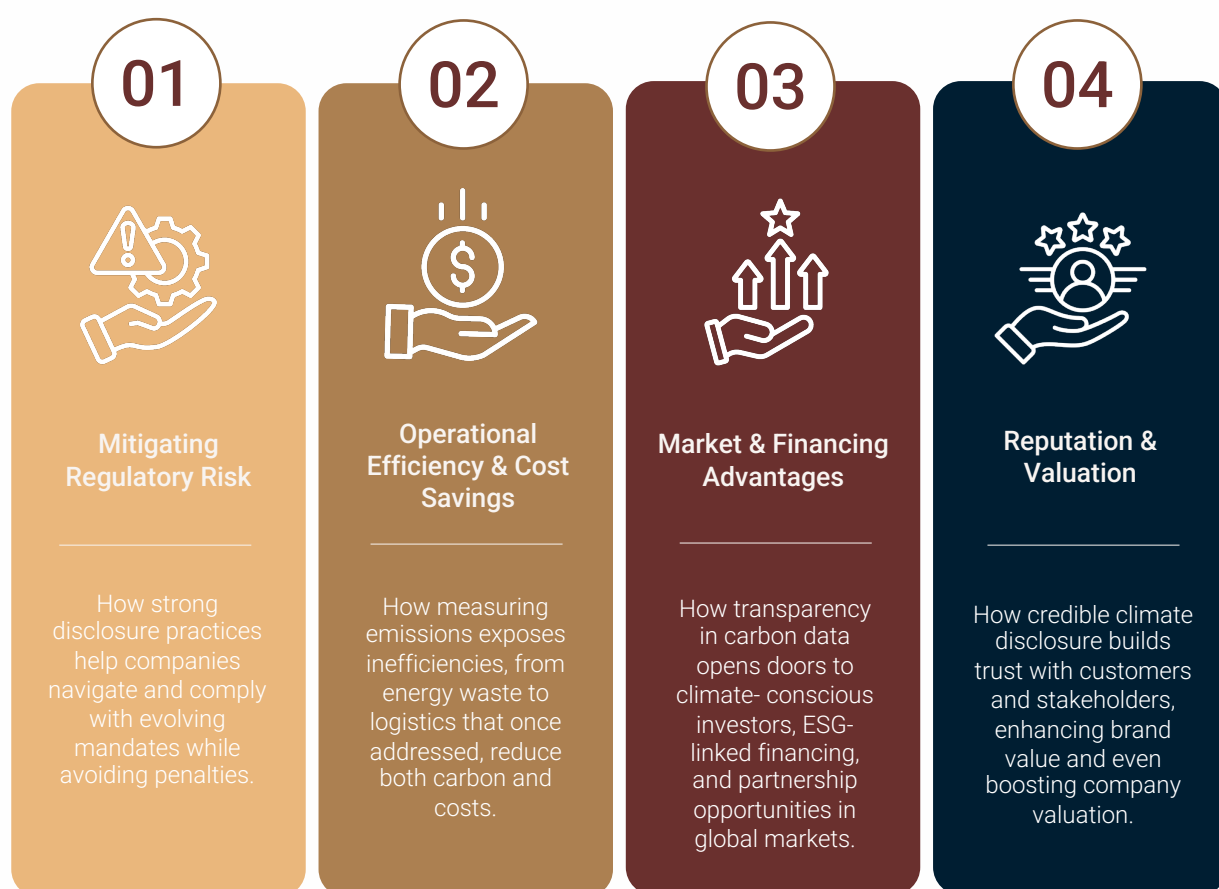
01
Mitigating Regulatory Risk

How strong disclosure practices help companies navigate and comply with evolving mandates while avoiding penalties.

02
Operational Efficiency & Cost Savings

How measuring emissions exposes inefficiencies, from energy waste to logistics that once addressed, reduce both carbon and costs.

03
Market & Financing Advantages

How transparency in carbon data opens doors to climate- conscious investors, ESG-linked financing, and partnership opportunities in global markets.

04
Reputation & Valuation

How credible climate disclosure builds trust with customers and stakeholders, enhancing brand value and even boosting company valuation.

Figure 19: The Pillars of the Business Case

PRIMUS RESEARCH

5.1 Steering Regulatory Obligations and Disclosure Mandates

Compliance with climate disclosure requirements is a non-negotiable first step in today's business environment. Around the world, governments and regulators are enacting rules that make carbon reporting mandatory.

Key Benefits of Proactive Climate Compliance:

◎ **Risk Mitigation:** Companies with accurate, auditable emissions data significantly reduce exposure to penalties, fines, and legal challenges under emerging climate laws.

◎ **Greenwashing Protection:** Credible reporting systems prevent unintentional greenwashing and protect organizations from reputational damage and scrutiny.

◎ **Operational Readiness:** Effective compliace establishes trust with stakeholders while ensuring systems are prepared for evolving regulatory requirements.

◎ **Strategic Resilience:** Businesses that transform compliance into core competencies build long-term resilience against future climate regulations and policy shifts.
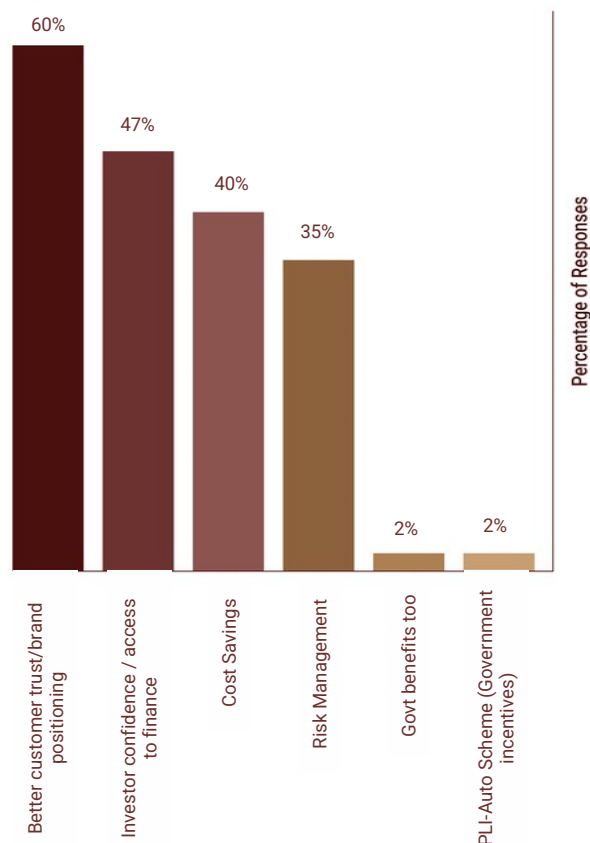

Figure 20: Reported Benefits Of Carbon Reporting

Our Carbon Reporting Readiness Survey confirms that companies are already seeing these benefits in practice. Survey results confirm this trajectory: 60% of firms report better customer trust and brand positioning, while 47% highlight improved investor confidence and access to finance. This demonstrates that regulatory compliance is evolving into a reputational and financial asset.

This systematic approach ensures regulatory compliance while creating strategic value, preparing enterprises for an increasingly regulated climate disclosure landscape.

5.2   Cost Optimization and Operational Efficiency

A key business case for carbon reporting lies in its ability to highlight inefficiencies. By measuring emissions across operations, companies could gain insights into energy and resource usage and that transparency often reveals areas for waste reduction. Carbon data provides a credible baseline, highlighting where fuel, electricity, or materials are being used inefficiently.

Identifying Opportunities for Savings: Carbon reporting data, particularly for Scope 1 and 2 emissions, often reveals areas of excessive energy use or waste. Common opportunities include:

◎ **Energy Efficiency in Buildings:** Tracking energy-related emissions may reveal unusual electricity use during non-operational hours.

◎ **Fleet & Logistics Optimization:** Tracking fuel consumption can identify overlapping delivery routes or excessive idle time.

In our case study, we demonstrated that digital carbon reporting could demonstrate that electricity consumption (Scope 2) makes up nearly half of operational emissions. This insight could highlight inefficiencies in lighting and cooling systems, which could encourage future investments in energy-efficient HVAC upgrades and LED retrofits across terminals.

The result would be lower electricity bills, reduced fuel spends, and decreased maintenance costs, demonstrating how carbon reporting could translate into tangible ROI and long-term efficiency gains. According to Keshav Singhal, Head of Environment and Sustainability at NIAL, "Our power purchase agreements for renewable sources are significantly lower than what corporations sourcing electricity from traditional sources could offer. We are targeting 50% of our energy to come from renewables." By measuring and managing carbon, companies not only reduce waste but also foster continuous improvement, it encourages employees to view resource efficiency as part of their job.

5.3   Market Access, Investor Expectations, and ESG-Linked Financing

As sustainability becomes a mainstream business requirement, credible carbon reporting is becoming an important passport to market access.

◎ **Climate responsibility, a key requirement:** Companies demonstrating transparency and progress in emissions reduction gain a preference in B2B and B2G relationships. For instance, many multinational corporations and government procurement programs request suppliers to disclose their carbon footprints or have science-based targets.

According to Keshav Singhal, Head of Environment and Sustainability at NIAL," Decarbonizing our operations not only involves us taking efforts on our part but also involves ensuring our vendors, contractors, concessionaires all align with our vision, and this is done through our agreements with each entity."

◎ **The Rise of the "Climate-Conscious" Investor -** Investors, from large asset managers to institutional funds, are integrating ESG (Environmental, Social, Governance) factors into their investment decisions. Climate performance has become a proxy for good management and forward-looking strategy.

A recent survey found that nearly 90% of institutional investors now consider non-financial performance (like sustainability metrics) as pivotal in investment decisions.
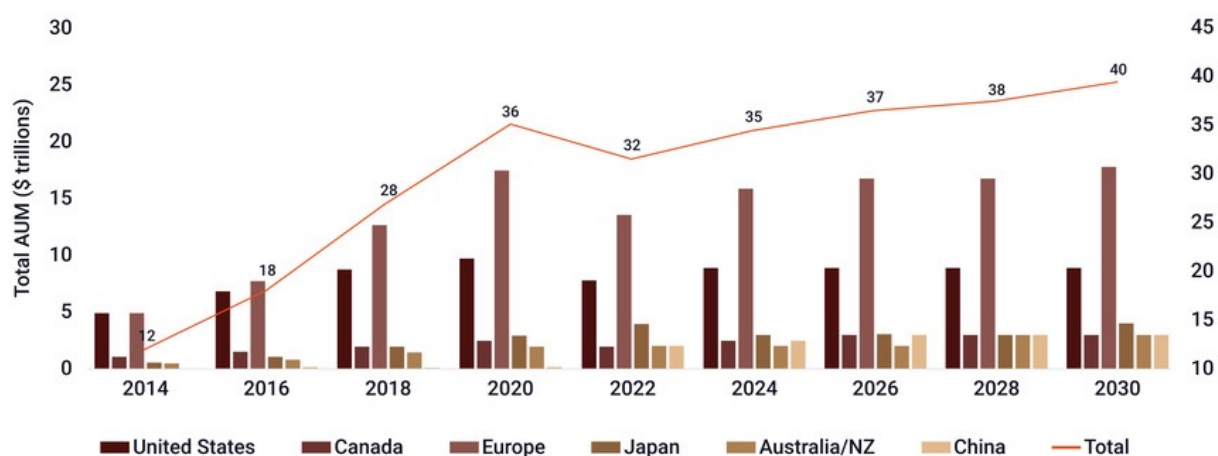

Figure 21; Global ESG AUM
Source: Bloomberg

◎ **Accessing Favourable Financing -** A growing ecosystem of green bonds, sustainability-linked loans (SLLs), and sustainability-linked bonds (SLBs) offers companies financial incentives to enhance their climate credentials. In an SLL, for example, interest rates decline if a borrower meets predetermined ESG targets. The Indian green bond market is expected to reach a cumulative issuance of USD 55.9 billion by 2024, representing a 186% increase since 2021.

Consider our case study - through digital carbon reporting, the airport identified that Scope 2 emissions formed nearly half of its scope 1 and 2 emissions.

By committing to on-site solar capacity and renewable power contracts, it established a verifiable pathway for emissions reduction. This would also enable the airport to access sustainability-linked financing, potentially negotiating lower interest rates or tapping into green bond markets. In effect, carbon reporting excellence translated directly into a financial advantage.

These trends show a clear trajectory and have strategic implications. Companies with credible climate strategies gain access to cheaper, more diverse capital, while lenders and investors ensure their money advances positive environmental outcomes.
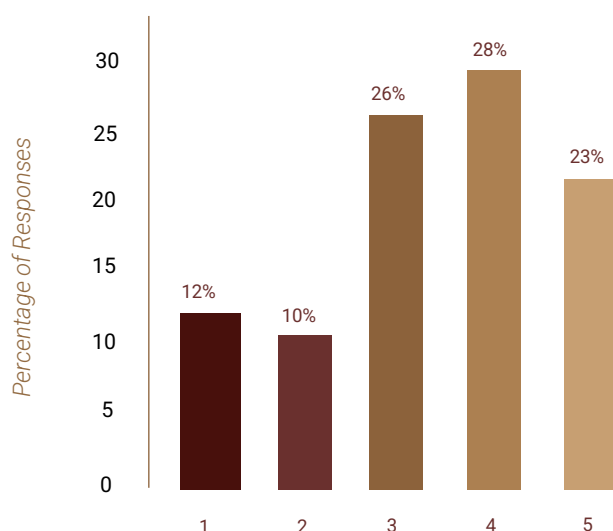

Figure 22: Firms rate the business value of carbon reporting

Our survey results show that firms are already recognizing this shift. When asked about the overall business value of carbon reporting, many firms rated it 4 or 5 on a 5-point scale, with an average score of 4.5, demonstrating that businesses view reporting not as a burden but as a source of competitive advantage.

◎ 28% rated it as 4 and 23% rated it a 5, meaning over half the respondents place carbon reporting at the top of the value spectrum.

◎ 26% rated it as 3, indicating that although some companies still view reporting as somewhat valuable, they recognize its increasing importance.

◎ Only 22% rated it at the lower end (1 or 2), showing that very few firms perceive minimal benefit.

5.4 Strengthening Valuation and Reputation through Transparency

In the age of information, a company's behavior –and its communication of that behavior is intertwined with its brand value. Public disclosure of carbon data and sustainability performance is viewed as a hallmark of corporate responsibility, resonating with consumers, employees, and communities. When a company is open about its carbon footprint and efforts to reduce it, it signals that it has nothing to hide and is committed to doing the right thing.

Data as a Strategic Tool

The detailed data gathered for carbon reporting isn't just for producing sustainability reports—it can become a goldmine for strategic decision-making at the highest levels of management. When companies begin incorporating carbon analysis into their business decisions, they gain a critical lens on both risk and opportunity.

Take our above case - baseline data could reveal that Scope 2 emissions from purchased electricity account for significant operational emissions.

Such an insight would directly shape capital expenditure planning: rather than simply renewing existing power purchase agreements, the airport could decide to invest in on-site solar capacity and long-term renewable power contracts, thereby reducing future energy risks and compliance costs. Other examples where the collected data can lead to strategic decision-making are illustrated below:

Decision-Making Pillar	Insight from Carbon Reporting	Potential Strategic Response
CapEx	Scope 1 emissions from refrigerants and cooling systems are significant	Invest in low-GWP refrigerants and advanced cooling technologies to reduce long-term liabilities
Supply Chain Design	Scope 3 analysis shows international flight operations drive high emissions.	Partner with airlines and oil corporations adopting sustainable aviation fuel (SAF) and incentivize low-carbon logistics
Risk Management	High exposure to Scope 2 grid electricity price volatility	Hedge risks with renewable PPAs, explore hydrogen-ready infrastructure

Table 3: Turning Carbon Data Into Strategy: Airport Case Study

06

The Road Ahead – India's Climate Trajectory and Corporate Carbon Leadership

While individual businesses embark on their carbon accounting journeys as the foundational step toward decarbonization, their efforts are intrinsically woven into India's larger climate narrative—one anchored by the ambitious Panchamrit commitments announced at COP26 in 2021. India has set a clear target to achieve net zero greenhouse gas emissions by 2070, a commitment announced rooted in principles of equity and sustainable development.

Within this national framework, corporate climate strategies, including the use of carbon offsets, form an essential part of the overall approach. Offsets allow companies to address emissions that are currently unavoidable while supporting projects that reduce or remove greenhouse gases beyond their operations.

However, offsets are only one part of a broader strategy that emphasizes real emission reductions aligned with India's long-term low-carbon ambition.

Distinguishing measurement from genuine emission reductions

This distinction between measurement and reduction is evident in India's Carbon Credit Trading Scheme (CCTS). The government strategically prioritizes hard-to-abate sectors as obligated entities, initially covering nine energy-intensive industrial sectors—aluminium, cement, pulp and paper, chlor-alkali, iron and steel, textiles, petrochemicals, petroleum refining, and fertilizers—collectively representing 16% of India's total GHG emissions.

Science-Based Targets: Aligning Corporate Ambition with Climate Science

Science-based targets (SBTs) provide companies with a science-aligned framework to reduce greenhouse gas emissions consistent with the Paris Agreement's 1.5°C goal. Unlike traditional targets, SBTs require measurable, time-bound reduction goals across full value chains, including Scope 3 emissions. India ranks 6th globally with 127 companies committed to net-zero targets, including major firms like Tata Power and Mahindra Susten with validated SBTi goals.

Adopting SBTs drives operational efficiency, risk mitigation, access to green finance, and innovation.However, meeting targets requires robust data systems, regulatory support, and low-carbon technologies.In India, sector-specific guidance and government policies are increasingly aligning incentives to help companies achieve these science-based goals.

Climate Vulnerability Driving Business Reforms

Another reality India must deal with is the climate risks that its population faces, affected by an increasing number of extreme weather events. These physical risks translate directly into supply chain disruptions, operational costs, and asset stranding — driving home the need for a low-carbon economy.

The Path Forward

India's decarbonization roadmap requires coordinated action across government policy, corporate strategy, and technological innovation. Companies establishing robust carbon accounting systems today position themselves advantageously for upcoming regulations, international trade requirements, and capital access. The convergence of domestic climate policy, international trade pressures, and technological capabilities creates an unprecedented opportunity for Indian businesses to lead in the global low-carbon transition.

India's carbon footprint management market, valued at $1.7 billion, is transforming from a compliance-driven exercise into a strategic asset class, with the potential to position the country as a global leader in scalable carbon accounting, decarbonization, and disclosure solutions.

As India navigates toward its 2070 net zero commitment while maintaining economic growth, carbon accounting transforms from regulatory compliance to strategic necessity. Organizations embracing comprehensive measurement, reporting, and reduction strategies will not only meet evolving disclosure requirements but unlock operational efficiencies, access green capital, and build resilience against climate risks. The journey from measurement to monetization represents more than regulatory compliance—it embodies India's transition toward sustainable prosperity in a carbon-constrained world.
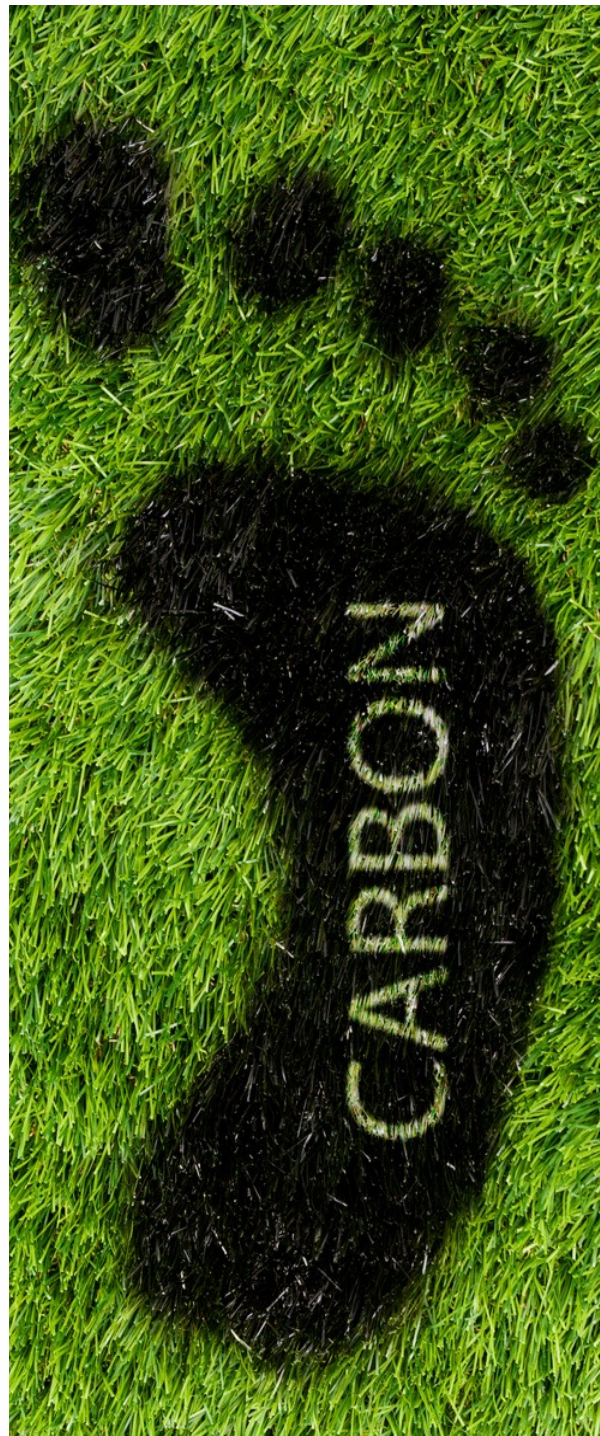
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for providing solutions to help clients achieve their goals

RESPECT
for all and alternate viewpoints

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of thoughts and actions

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STEWARDSHIP
for building a better tomorrow

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Our core strength comes from our founding partners, who are goal-oriented, with extensive hands-on experience and subject-matter expertise, which is well recognized in the industry. Established by seasoned industry leaders with extensive experience in global organizations, Primus Partners boasts a team of over 250 consultants and additional advisors, showcasing some of the finest talent in the nation.

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