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## ACCOUNTING FOR CARBON CREDITS IN INDIA : AN EXPLORATORY STUDY

**Abstract :** Carbon accounting, put simply, is the part of environmental accounting that identifies, records, measures, and reports the greenhouse gas emissions attributable to an organization, along with the accounting treatment of the tradable instruments those emissions generate. India occupies an unusual position in this field. It was among the largest hosts of Clean Development Mechanism projects under the Kyoto Protocol, and it has now legislated a domestic compliance carbon market through the Energy Conservation (Amendment) Act, 2022 and the Carbon Credit Trading Scheme, 2023 (Ministry of Power, 2023). Yet the supporting accounting architecture remains unsettled. Neither the International Accounting Standards Board nor the Institute of Chartered Accountants of India has issued a comprehensive standard on emission instruments, and the withdrawal of IFRIC 3 Emission Rights in 2005 left preparers to choose among competing recognition models. This paper examines accounting for carbon credits in India across recognition, measurement, and disclosure. The study is exploratory and descriptive, executed through qualitative documentary analysis of accounting standards, statutory and regulatory instruments, standard-setter agenda papers, and peer-reviewed literature.

Three findings emerge. First, the classification of certified emission reductions remains contested across AS 2, AS 26, AS 29, and AS 9; the ICAI Guidance Note favors inventory treatment but leaves cost determination unresolved, so carrying amounts are systematically understated relative to the effort required to produce them. Second, the shift from project-based crediting to an intensity-based compliance market changes the question from how to record a saleable output to how to recognize a compliance obligation accruing with production, and no Indian pronouncement addresses that liability. Third, disclosure is fragmented between the audited financial

statements and the Business Responsibility and Sustainability Report, which apply different measurement bases to overlapping subject matter. The paper proposes a recognition and disclosure framework specifying a recognition trigger, a cost definition, a provision measurement basis, and a reconciliation between reported emissions and the quantity underlying the compliance provision; it also identifies an empirical research agenda. The principal limitation is that the design is documentary and the compliance cycle was incomplete at the time of writing, so the analysis of its consequences is prospective.

**Keywords :** carbon accounting, carbon credits, certified emission reductions, Carbon Credit Trading Scheme, measurement and disclosure, India.

**Introduction :** Climate change has moved from the margins of corporate reporting to its centre, and much of the economic weight of that shift now rests on a single instrument: the carbon credit, a tradable certificate representing the reduction, removal, or avoidance of one tonne of carbon dioxide equivalent. The idea first took institutional shape under the Kyoto Protocol, adopted in 1997 and in force from 2005. The Protocol attached quantified emission limitation commitments to industrialized countries and created three flexibility mechanisms for meeting them: joint implementation, the Clean Development Mechanism, and international emissions trading (UNFCCC, 1998). The Clean Development Mechanism mattered most to India. It allowed an Annex I party to finance an emission reduction project in a developing country and claim the resulting certified emission reductions against its own target. India became one of the two largest hosts of registered projects worldwide. Of the 7,847 projects registered by the Clean Development Mechanism Executive Board, 1,686 were Indian. Indian projects received roughly 12.6 per cent of all certified emission reductions issued globally, amounting to about 255 million units (Ministry of Power, 2022). Most of these projects clustered in renewable energy, with wind accounting for close to 42 per cent and biomass a further 15 per cent (Indian Economic Service, n.d.). The certificates those projects generated entered the books of Indian companies well before any accounting guidance existed to receive them (Sarkar & Dash, 2011).

The landscape has since changed twice over. The Paris Agreement of 2015 replaced the binary Annex structure with universal nationally determined contributions. More consequentially, Parliament amended the Energy Conservation Act, 2001 in December 2022 to insert clause (w) in section 14. The Ministry of Power then notified the Carbon Credit Trading Scheme, 2023 on 28 June 2023, establishing the Indian Carbon Market (Ministry of Power, 2023). India now has a statutory carbon market with a compliance arm and, following a December 2023 amendment, an offset arm. The accounting response has not kept pace. The International Accounting Standards Board issued IFRIC 3 Emission Rights in December 2004 and withdrew it in June 2005 after preparers objected that it created measurement mismatches between the allowance asset and the emission liability. The successor project has produced agenda papers but no standard (International Accounting Standards Board, 2014). In India, the ICAI issued a Guidance Note on Accounting for Self-generated Certified Emission Reductions in 2012, authoritative in a narrow sense but silent on several practical questions and predating both the Paris Agreement and the statutory scheme. The economic weight behind these figures is not trivial. Between 2010 and 2022, India issued about 278 million voluntary carbon credits, close to 17 percent of global supply, and one estimate places potential Indian revenue from voluntary credits at USD 20 to 40 billion by 2030 (Council on Energy, Environment and Water [CEEW], 2025). At the same time the market has shown how volatile the underlying instrument can be: the price of a certified emission reduction fell from around USD 20 a tonne in 2008 to below USD 5 a tonne by 2012 as European demand collapsed (Indian Economic Service, n.d.). Preparers are applying guidance framed around a project-based Kyoto instrument to a statutory compliance

market, and the fit is imperfect. This paper addresses that gap. It consolidates a literature scattered across accounting, energy policy, and environmental governance journals, reads it against the regulatory architecture as it now stands, and proposes a recognition and disclosure framework for Indian preparers and the standard setter.

**Conceptual Framework :** A carbon credit is not a single legal thing but a family of instruments whose accounting character depends on how it was created and why it is held. Three creation pathways matter here. Project-based crediting has a developer demonstrate reductions against a counterfactual baseline, obtain third-party verification, and receive certificates from a registry; certified emission reductions under the Clean Development Mechanism follow this route. Allowance allocation under cap-and-trade has a regulator issue a fixed quantity of allowances that participants must surrender against verified emissions, as in the European Union Emissions Trading System. Intensity-based baseline-and-credit has the regulator set an emissions intensity target per unit of output and issue credits to entities that outperform it. India's Carbon Credit Trading Scheme adopts this third design (International Carbon Action Partnership [ICAP], 2026). The distinction is not academic. Each pathway generates a different accounting question. A developer holding self-generated certificates asks how to recognize and measure an output it intends to sell. An obligated entity asks how to recognize a liability accruing as it emits and an asset held to settle it. An intermediary holding credits for trading asks whether it holds inventory, an intangible, or a financial instrument. The literature has tended to treat these as one problem, which is part of why it has produced conflicting recommendations.

A second layer concerns the boundary of measurement. The Greenhouse Gas Protocol partitions emissions into Scope 1 for direct emissions, Scope 2 for indirect emissions from purchased energy, and Scope 3 for other value chain emissions (World Resources Institute & World Business Council for Sustainable Development, 2004). Financial accounting recognizes transactions at the reporting entity boundary, which corresponds closely to Scopes 1 and 2 but poorly to Scope 3. As a result, a company reporting Scope 3 emissions in its sustainability report while recognizing only instruments it holds in its financial statements produces two documents describing overlapping but non-identical phenomena. That mismatch is the structural source of the disclosure fragmentation examined below.

**Review of Literature :** This body of work has grown along four tracks that rarely speak to one another, since each asks a different question and none of the answers really add up to a single picture: recognition and measurement in financial accounting, disclosure and comparability in sustainability reporting, market design in energy policy, and a smaller Indian institutional literature on professional readiness.

The recognition debate really starts with the withdrawal of IFRIC 3. It was issued in December 2004, withdrawn barely six months later in June 2005, and in its short life it had required allowances to be recognized as intangible assets at fair value with a corresponding government grant. The emission liability, meanwhile, had to be measured at the market value of allowances needed for settlement. Preparers objected that this asymmetric measurement created artificial earnings volatility. The successor Pollutant Pricing Mechanisms project has produced agenda papers but no standard (International Accounting Standards Board, 2014). Deac (2013) documents the three practices that filled the vacuum in Romania: the IFRIC 3 approach, the government grant approach, and the net liability or off-balance-sheet approach, finding the last predominant. Ayaz (2017) examines the financial statements of the largest emitters in the European Union Emissions Trading System and shows that the absence of an authoritative treatment produced a multiplicity of practices sufficient to undermine comparability within a single scheme. The International Swaps and Derivatives Association (2023) echo this

conclusion, noting that few entities apply IFRIC 3 voluntarily. Working on the same problem from a policy standpoint, the Climate Policy Initiative (2011) argues that a fair value approach to allocated allowances best reflects the carbon cost the scheme imposes, while conceding that the net liability or cost of settlement approach, in which the liability is measured at the carrying amount of allowances already held, had become the majority practice in Europe (Lovell et al., 2010). More recently, the European Securities and Markets Authority (2024) surveyed listed issuers and confirmed that diversity in recognition, measurement, and presentation persists even two decades after IFRIC 3 was withdrawn. Its response was not a recognition rule but a call for issuers to disclose the accounting policy they have chosen and to apply it consistently. Sachin (2026) extends the comparison to India, profiling the disclosed policies of several multinational emitters and identifying the same guidance gap in the Indian context.

The disclosure literature comes at the same subject from outside the financial statements altogether. Kaplan and Ramanna (2021) put it bluntly: corporate emissions reporting rests on estimation methods that are simply too weak for the use being made of them. They propose an E-liability system that measures emissions at the point of activity and allocates them to outputs using cost accounting rules. The institutional response has standardized disclosure rather than recognition. The International Sustainability Standards Board issued IFRS S1 and S2 in June 2023 (IFRS Foundation, 2023), and in India the Securities and Exchange Board of India had already mandated Business Responsibility and Sustainability Reporting for the largest listed entities (SEBI, 2021). The Institute for Energy Economics and Financial Analysis (2025) maps the two frameworks and concludes that the Indian regime provides a strong disclosure base but does not deliver the forward-looking, financially integrated information lenders and investors require. The result is a two-channel regime in which emissions are described in a sustainability report on a Greenhouse Gas Protocol basis and, separately and incompletely, in financial statements on an accounting basis.

The market design and Indian institutional literatures complete the picture. Ruseva (2023) shows how offset rules designed to protect environmental integrity create contractual interdependencies and participation costs that are difficult to weigh against uncertain rewards. Priyanka et al. (2026) make the participation constraint concrete for India's largest potential supply pool, agriculture: roughly 180 million hectares of Indian cropland could sequester an estimated 180 million tonnes of carbon dioxide equivalent a year, an amount large enough to offset close to half the country's annual transport-sector emissions, yet fewer than one per cent of Indian farmers currently take part in any carbon credit programme. The gap between technical potential and actual participation is not a market design detail; it is direct evidence that the accounting and verification infrastructure this paper examines is a binding constraint on realizing the credits the literature says exist on paper.

Sarkar and Dash (2011) make a related point about India specifically: an effective domestic credit market needs accountability, transparency, and transaction efficiency, and they treat adherence to accounting standards, certification, and verification as preconditions for that market rather than something that follows once the market exists. Examining the demand side, the Council on Energy, Environment and Water (2025) documents that India has been one of the largest suppliers to the voluntary carbon market; independent registry data put India's share at 1,720 of the 9,921 voluntary carbon projects registered worldwide as of December 2024, behind only the United States and ahead of China (Berkeley Carbon Trading Project, as cited in Prabhu, 2026). That scale has not translated into unqualified confidence in the credits it produces. An analysis by the civil-society organization Corporate Accountability found that nine of the forty-seven largest global voluntary-market projects it rated as producing "problematic" credits in

2024 were located in India, out of roughly 207.8 million offset credits retired that year across the market as a whole (Corporate Accountability, 2025, as reported in Rajshekhar, 2025). Yet India still lacks the institutional plumbing, including consistent accounting and valuation, needed to convert that supply into reliable financial information. CEEW treats this constraint as a brake on the credibility of the emerging domestic scheme. Kamat and Kamat (2015) survey 196 accounting educators and practitioners and find uneven comprehension of carbon accounting alongside deficiencies in the applicable standards.

Jamal (2016) reaches much the same conclusion from the practitioner side: no settled accounting principle exists for carbon credits in India, and professional bodies have only partly closed the gap through the 2012 Guidance Note. Chaudhuri and Barman (2019), Shukla, Singh, and Dixit (2022), and Maheria (2025) all land in roughly the same place, too, finding that Indian treatment lacks uniformity and that the Guidance Note still leaves cost determination unresolved.

Bhardwaj et al. (2022) add that the tax position rests on the project-based Clean Development Mechanism fact pattern, a gap the Income Tax Act has still not closed even as the statutory compliance market becomes operative (Mondaq, 2026).

Bhattacharya et al. (2025) study companies in Uttarakhand and report that firms applying clear, consistent recognition and measurement practices for carbon credits show stronger profitability, asset utilization, and market valuation than firms without such practices, evidence that the accounting choices this paper examines carry a measurable financial consequence rather than a purely presentational one.

A recent content analysis complements the doctoral and working-paper evidence discussed below. Patel, Kumari, Manglani, Chaudhari, and Kadian (2024) examine the annual reports of NSE- and BSE-listed firms that announced carbon credit transactions between 2005 and 2022 and find wide diversity in how certified emission reductions are recognized, measured, and disclosed, with no consistent reporting convention across firms, corroborating at firm level the standard-setting gap this paper traces to the withdrawal of IFRIC 3 and the narrow scope of the ICAI Guidance Note. Doctoral and working-paper research provides further detail that the journal literature omits.

Shah's (2016) doctoral thesis at Gujarat Technological University surveys energy-sector companies across Gujarat that registered projects under the Clean Development Mechanism. It finds that accounting and disclosure practice varied by firm size and by the auditor's familiarity with emission-reduction instruments rather than by any settled convention, a finding that anticipates the comparability problem this paper investigates at the national level.

Chotaliya's (2014) working paper traces carbon emission trends across six countries between 2008 and 2012 and concludes that Indian taxation treatment of carbon credit receipts remained unsettled even as trading volumes grew, a gap later formalized, though not fully closed, by the Central Board of Direct Taxes.

On the policy side, Singh and Chaturvedi's (2023) working paper for the Council on Energy, Environment and Water reports stakeholder interviews across regulators, project developers, and financial institutions. It finds that market participants view accounting and valuation uncertainty, not price risk alone, as the principal obstacle to deepening India's carbon market. The government literature reinforces the same concern from the supply side.

NITI Aayog's (2022) report on Carbon Capture, Utilization and Storage frames the absence of a settled cost-accounting methodology for abatement instruments as a barrier to structuring the blended finance the report recommends, a diagnosis that applies with equal force to the credit-accounting question this paper addresses.

Most recently, Kumar, Ghosh, and Banerjee's (2025) working paper for the Indira Gandhi

Institute of Development Research models the compliance market's price and volume dynamics. It shows that outcomes are sensitive to the initial allocation method chosen for certificates, a modeling result with direct accounting consequences because the allocation method determines the cost basis at which an entity first recognizes a certificate.

Three gaps follow. First, the recognition literature is overwhelmingly pre-Paris and almost entirely pre-Carbon Credit Trading Scheme; it analyses cap-and-trade allowances and project credits, not the intensity-based baseline-and-credit instrument India has adopted. Second, the disclosure and recognition literatures do not speak to each other, so the relationship between the emissions figure in a sustainability report and the amounts recognized in the financial statements is unexamined. Even where international regulators such as the European Securities and Markets Authority (2024) have intervened, the response has been to standardize disclosure of the chosen policy rather than to settle recognition itself. Third, no study proposes an operational recognition and disclosure framework calibrated to the Indian statutory scheme. This paper addresses the three together.

### **Objectives of the Study**

1. To study the concept of accounting for carbon credits in India.
2. To study the measuring and disclosure practices of accounting for carbon credits.

**Research Methodology :** The study adopts an exploratory, descriptive design using qualitative documentary analysis. This design fits because the phenomenon is still in transition: India's statutory carbon market began issuing binding intensity targets only in the 2025 to 2026 compliance year, and accounting practice has not yet accumulated an observable record sufficient to support hypothesis testing. The purpose is to map the field, establish the boundaries of the recognition problem, and generate propositions for later empirical testing.

The evidence base is secondary and comprises five source classes: authoritative accounting literature, including Indian Accounting Standards, the ICAI Guidance Note of 2012, IFRIC 3, and IASB agenda papers; Indian statutory and regulatory instruments, including the Energy Conservation (Amendment) Act, 2022, the Carbon Credit Trading Scheme, 2023, and Bureau of Energy Efficiency procedures; disclosure frameworks, including the SEBI Business Responsibility and Sustainability Reporting circular and IFRS S1 and S2; peer-reviewed literature from accounting, energy policy, and environmental governance journals; and institutional reports and working papers. Sources were identified by keyword searching of academic databases and regulatory repositories, then read against one another to isolate agreement, contradiction, and silence. No primary data were collected. Because the design is documentary, the study reports what standards require and what the literature observes rather than what preparers do, and it analyzes the compliance mechanism by reasons from scheme design rather than observed practice.

**India's Climate Commitments and Policy Trajectory :** India's updated nationally determined contribution, communicated in August 2022, sets two operative 2030 targets: a 45 per cent reduction in emissions intensity of gross domestic product from 2005 levels, and non-fossil sources reaching about 50 per cent of installed electric power capacity, alongside net zero by 2070. The emissions target is expressed as intensity rather than absolute volume, so absolute emissions may rise while the target is met, and the Carbon Credit Trading Scheme inherits this intensity logic directly. India belongs to the non-Annex I group, which carried no binding commitments under Kyoto, and that position shaped Indian carbon accounting: because Indian entities were never capped, practice developed around selling self-generated credits rather than settling compliance obligations, and the professional infrastructure reflects that origin. Pressure now comes from investors, lenders, and customers as much as regulators. Kaplan and Ramanna

(2021) observe that the environmental reports published by roughly nine in ten S&P 500 companies frequently contain inaccurate, unverifiable, and inconsistent data, attributing the weakness to estimation method rather than intent, and propose measuring emissions through engineering and chemistry at the point of activity and allocating them to outputs using cost accounting rules, producing an auditable figure at each transfer that survey-based Scope 3 estimation cannot match.

Table 1

**Three Candidate Accounting Approaches for Emission Allowances**

| Element                                     | Approach 1 (IFRIC 3 model)                    | Approach 2 (Grant, net measurement)                                   | Approach 3 (Cost basis)                         |
|---------------------------------------------|-----------------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------|
| Initial recognition of allocated allowances | Market value at date of issue                 | Market value at date of issue                                         | Cost, which is nil for granted allowances       |
| Corresponding credit                        | Government grant (deferred income)            | Government grant (deferred income)                                    | None recognised                                 |
| Liability recognition                       | As emissions are produced                     | As emissions are produced                                             | Only when emissions exceed allowances held      |
| Liability measurement                       | Market value of allowances required to settle | Carrying amount of allowances held plus market value of any shortfall | Market value of the excess only                 |
| Principal consequence                       | Earnings absorb full carbon price volatility  | Volatility confined to uncovered exposure                             | Neither asset nor liability appears until short |

Note. Adapted from International Accounting Standards Board. (2014). Emissions trading schemes (Staff Agenda Paper 6B, Pollutant Pricing Mechanisms project). IFRS Foundation.

Table 1 sets out the three approaches identified in practice and states compactly why recognition remains unresolved. Approach 1 follows the withdrawn IFRIC 3 model; Approach 2 retains the government grant but measures the liability net of allowances held; Approach 3 recognizes granted allowances at nil cost, so neither asset nor liability appears until emissions exceed the allocation. The three produce materially different balance sheets and different earnings volatility from identical facts, and none is prohibited. That is the comparability problem in its clearest form, and it is what Indian preparers will inherit as the compliance mechanism becomes operative.

**The Indian Regulatory Architecture for Carbon Credits :** The Statutory Market: Energy Conservation (Amendment) Act, 2022 and the Carbon Credit Trading Scheme, 2023

The Energy Conservation (Amendment) Act, 2022 inserted clause (w) into section 14 of the Energy Conservation Act, 2001, empowering the Central Government to specify a carbon credit trading scheme. Exercising that power, the Ministry of Power notified the Carbon Credit Trading Scheme, 2023 by gazette notification S.O. 2825(E) dated 28 June 2023. This established the Indian Carbon Market and provided for the issue of carbon credit certificates, each denominated in one tonne of carbon dioxide equivalent (Ministry of Power, 2023). The notification also created the governing institutions, including the National Steering Committee for the Indian Carbon Market. It defined the roles of the administrator, the technical committee, and the accredited carbon verification agencies. An amendment in December 2023 added the offset mechanism, extending the market to voluntary participants outside the obligated sectors.

The compliance mechanism is an intensity-based baseline-and-credit system rather than

cap-and-trade. The Ministry of Environment, Forest and Climate Change notifies emissions intensity targets, expressed as tonnes of carbon dioxide equivalent per unit of output, for obligated entities in designated energy-intensive sectors. An entity reducing intensity below its target receives certificates equal to the shortfall multiplied by output. An entity exceeding its target must purchase and surrender certificates or face a penalty. Certificates trade on the power exchanges. Notification has proceeded in phases. Binding intensity targets took effect from fiscal year 2025 to 2026 for roughly 490 entities across seven of the nine sectors. Aluminum, cement, chlor-alkali, and pulp and paper were notified in October 2025, and petroleum refining, petrochemicals, and textiles followed in January 2026; iron and steel and fertilizer remain pending (ICAP, 2026). Once all nine sectors are notified, roughly 740 obligated installations will carry binding targets for the compliance years 2025 to 2026 and 2026 to 2027 against a 2023 to 2024 baseline. Together, these cover more than 700 million tonnes of carbon dioxide equivalent, placing the scheme among the largest emissions trading systems in the world (ICAP, 2026). An entity that falls short of its target and fails to surrender the required certificates faces a penalty set at twice the market value of the shortfall. An offset mechanism runs in parallel under a procedure the Bureau of Energy Efficiency issued in March 2025, with eight approved methodologies. It allows non-obligated entities to register projects and receive certificates, supplying liquidity and extending the price signal beyond the cap (BEE, 2025). The government has since confirmed that the scheme is designed as a rate-based emissions trading system, under which the aggregate cap is not fixed in advance but each obligated entity is held to a performance benchmark, a design intended to preserve flexibility for future industrial growth while still pricing carbon (Press Information Bureau, 2026). The accounting consequences of that design choice have arrived faster than the supporting tax architecture. With the first compliance year closing in April 2026 and declarations due by July 2026, commentators note that Parliament amended the Energy Conservation Act to create the scheme in 2022 and separately recodified the Income Tax Act in 2025 without connecting the two, leaving the tax treatment of certificate purchases, sales, and penalties as unresolved as the financial accounting treatment this paper examines (Mondaq, 2026).

**The Disclosure Channel: Business Responsibility and Sustainability Reporting :** Running alongside the market is a disclosure obligation of independent origin. The Securities and Exchange Board of India mandated the Business Responsibility and Sustainability Report for the largest listed entities. It requires quantitative disclosure of energy, emissions, water, and waste, including Scope 1 and Scope 2 greenhouse gas emissions and, initially voluntarily, Scope 3 (SEBI, 2021). Subsequent circulars introduced core indicators subject to reasonable assurance. The Report is filed with the exchanges as part of the annual report but sits outside the audited financial statements. Its measurement basis is the Greenhouse Gas Protocol rather than any accounting standard. A third pressure arrives from outside the domestic regime: the European Union's Carbon Border Adjustment Mechanism requires importers of cement, iron and steel, aluminum, fertilizers, electricity, and hydrogen to report embedded emissions, with financial obligations from 2026. Because those categories overlap substantially with the obligated sectors, Indian exporters must measure product-level embedded emissions on a foreign regulator's methodology. They must do this alongside entity-level intensity reporting for domestic compliance and Scope-based reporting for the sustainability report. Three measurement regimes therefore apply to overlapping emissions from the same facility. No Indian pronouncement addresses how the resulting figures relate.

**Accounting Treatment of Carbon Credits in India: Analysis**

**Recognition: When Does a Credit Become an Asset? :** Recognition requires that an item meet

the asset definition and satisfy the criteria for recording it. The ICAI Guidance Note holds that certified emission reductions are recognized when created by the UNFCCC or otherwise unconditionally available to the generating entity. The reasoning is that until verification and issuance, the entity holds an expectation rather than a controlled resource. Before that point, the treatment is disclosure as a contingent asset under AS 29, which is not recognized (ICAI, 2012). Issuance under the Carbon Credit Trading Scheme is structured differently. An obligated entity earns certificates not through a discrete project but by outperforming an intensity target measured across a full compliance year, verified after year-end and issued thereafter. At the balance sheet date, the entity may know reliably that it has outperformed yet hold no issued certificate. Whether that is an unconditional entitlement and therefore a recognizable asset, or merely a probable benefit requiring disclosure, is unaddressed by any Indian pronouncement. Yet the answer determines whether the benefit falls in the year the reduction occurred or the following year.

**Measurement: Which Costs, and at What Value?** : The Guidance Note directs that self-generated certificates be measured under AS 2 at the lower of cost and net realizable value. The reasoning is that they are held for sale in the ordinary course and therefore fall outside AS 26, which requires an intangible asset to be held for use in production or supply, for rental, or for administrative purposes (ICAI, 2012). Cost determination, however, remains unresolved. Generating certificates involves research into abatement alternatives, project design documentation, validation and verification fees, registry charges, and frequently capital expenditure on abatement equipment. The Guidance Note distinguishes pre-implementation costs that do not result in certificates from costs directly attributable to them, while tangible abatement assets fall under AS 10. In practice the boundary is indistinct. Because most abatement expenditure is capitalized as plant rather than allocated to certificates, the carrying amount recognized as inventory is often nominal while sale proceeds are substantial. Maheria (2025) documents this asymmetry, which mirrors the mismatch identified in the international literature.

**Presentation and the Four Competing Classifications** : The classification debate in the Indian literature has produced four candidate treatments. Table 2 sets these out with the justification advanced for each and the consequences that follow. The table synthesizes the positions taken in the Indian literature and in the ICAI Guidance Note. It is presented as a map of the debate rather than as a statement of settled requirement. The reader should note that the ICAI position favors the inventory treatment in row one for self-generated certificates.

Table 2

**Candidate Accounting Classifications for Certified Emission Reductions under Indian Accounting Standards**

| Sl. No. | Accounting treatment | Accounting standard | Justification for classification                                                        | Benefits from classification                                                  |
|---------|----------------------|---------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| 1.      | Inventory            | AS 2                | Certified emissions reductions (CERs) can be sold in the market similarly to inventory. | 1. Ease of computation<br>2. Sale of CERs will be considered as a normal sale |

|    |                  |       |                                                                                                                                                              |                                                                                                                                                                                                                            |
|----|------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2. | Intangible asset | AS 26 | CERs are recognizable non-financial assets that have no physical presence and are held for use in producing goods or services that will be rented to others. | <ol style="list-style-type: none"> <li>1. Benefits of amortization can be availed</li> <li>2. Tax benefit for the company classifying it as an intangible asset</li> </ol>                                                 |
| 3. | Contingent asset | AS 29 | CERs may be classified as contingent assets until the UNFCCC certifies that the emission reductions have been made, before which they cannot be traded.      | <ol style="list-style-type: none"> <li>1. Avoids recognizing an asset before the entitlement is unconditional</li> <li>2. Consistent with AS 29, under which a contingent asset is disclosed but not recognized</li> </ol> |
| 4. | Other income     | AS 9  | Since the sale of CERs does not fall under the company's typical lines of operation, it should be treated as a separate source of income.                    | <ol style="list-style-type: none"> <li>1. Easy calculation</li> <li>2. It will be another source of income for a company other than its normal revenue-generating operations</li> </ol>                                    |

Note. Compiled by the author from the ICAI Guidance Note on Accounting for Self-generated Certified Emission Reductions (Institute of Chartered Accountants of India, 2012), Accounting Standards AS 2, AS 9, AS 26, and AS 29, and the classifications discussed in Sarkar and Dash (2011), Kamat and Kamat (2015), Bhardwaj et al. (2022), and Maheria (2025). The ICAI Guidance Note favors the inventory treatment for self-generated certificates; the remaining classifications reflect positions advanced in the literature or applied in practice rather than authoritative requirements.

The four classifications are not merely alternative labels; each carries a distinct measurement basis, presentation, and tax consequence. Inventory treatment under AS 2 reports proceeds as operating revenue but suppresses the carrying amount, since most abatement cost sits in plant. Intangible treatment under AS 26 would permit amortization but sits awkwardly with the definitional test, as certificates are held for sale rather than use. Contingent asset treatment under AS 29 is correct before issuance and incorrect after, so it describes a stage rather than a classification. Other income treatment under AS 9 acknowledges that credit sales are incidental to the principal business, which is factually accurate for many entities but pushes a recurring item below the operating line and obscures operating margin.

**The Compliance Obligation: The Gap Indian Standards Do Not Address :** All four classifications concern the asset side. The Carbon Credit Trading Scheme introduces the liability side, and here Indian guidance is silent. An entity emitting above its notified target incurs an obligation to surrender certificates it does not hold. That obligation accrues as production occurs. It is measurable by reference to verified output and the notified target, and it requires settlement by purchase or penalty. On any reasonable reading of AS 29 or Ind AS 37, it is therefore a present obligation arising from a past event, one that should be provided for as emissions accumulate rather than recognized at the compliance deadline. Measurement then follows the pattern in Table 1. Measuring the provision at market price each reporting date imports carbon

price volatility into earnings even where physical performance is unchanged, the mismatch that led preparers to reject IFRIC 3. Measuring it at the carrying number of certificates held plus the market price of the shortfall confines volatility to the uncovered exposure, the approach most European entities adopted. Carrying nil-cost certificates at nil shows neither asset nor liability until the entity is short. India can specify one basis before divergent practice entrenches, an opportunity the European Union lacked because its market began operating before the question was asked.

**Findings and Discussion :** Four findings follow. First, recognition in India is settled only for the narrow case the Guidance Note addresses: self-generated certificates held for sale. It is unsettled for the case that will shortly dominate: certificates and compliance obligations under an intensity-based statutory scheme. Second, measurement fails on cost determination rather than valuation principle. The lower of cost and net realizable value rule is clear, but the cost entering the calculation is not, so carrying amounts understate the economic effort producing them. Third, disclosure is bifurcated between the audited financial statements and the Business Responsibility and Sustainability Report, which apply different measurement bases to overlapping subject matter. Fourth, the absence of an authoritative standard permits at least three defensible outcomes from identical facts, so users cannot achieve comparability through diligence alone. Under Kyoto these uncertainties were tolerable, because credit volumes were modest and participation voluntary. With a statutory market issuing binding targets across roughly 740 entities, the same uncertainty now attaches to instruments of far greater aggregate value. Reported positions have analytical value only if they are comparable across periods and entities. That requires a stable measurement basis, disclosure of that basis, and an audit trail sufficient to support assurance.

**A Proposed Recognition and Disclosure Framework :** The framework proposed here has five elements. On recognition, a certificate asset should be recognized when the administrator issues it, or the entitlement becomes unconditional, with a reliably measurable expected entitlement disclosed but not recognized where issuance is pending at the reporting date. On measurement, the inventory basis under AS 2 or Ind AS 2 should apply where certificates are held for sale. Cost should be specified to include validation, verification, registration, and documentation costs directly attributable to the certificates, with the basis of allocating shared abatement costs disclosed. On the compliance obligation, a provision should be recognized as emissions accrue, measured at the carrying number of certificates held and expected to be surrendered plus the reporting-date market price of the shortfall, confining price volatility to the uncovered exposure. On presentation, the certificate asset should appear separately within inventories and the provision separately within provisions. On disclosure, the notes should state the recognition trigger, the cost elements capitalized, the provision measurement basis, and movements in certificate quantities with opening and closing balances. They should also include a reconciliation between emissions reported in the sustainability report and the quantity underlying the compliance provision. That reconciliation is the single disclosure that would do most to resolve the bifurcation identified here.

**Implications, Limitations, and Future Research :** For the standard setter, the ICAI Guidance Note requires revision before the first compliance cycle closes, addressing the compliance obligation and cost determination rather than restating the classification debate. For preparers, the task is to build measurement and control infrastructure capable of supporting assurance, treating emissions data as accounting data subject to the same reconciliation discipline as any other input to the financial statements. For the profession, carbon accounting remains largely absent from syllabi given its significance, consistent with Kamat and Kamat's (2015) finding of

uneven comprehension among accounting educators and practitioners surveyed in India. For investors and lenders, reported carbon positions across Indian entities are not presently comparable, so inference requires reading the measurement basis in the notes rather than the figures alone.

Three limitations qualify the findings, and each defines a research opportunity. The study is documentary, so it reports what standards require rather than what preparers do. A content analysis of obligated entities' annual reports across the first two compliance years would establish what choices Indian preparers actually make. The compliance cycle was incomplete at the time of writing, so the analysis is prospective. The proposed framework has not been tested against preparer feasibility or auditor verifiability. Further work might replicate the Kamat and Kamat (2015) instrument to measure professional readiness, quantify the disclosure fragmentation identified here through a reconciliation study, and test whether recognized carbon positions carry information content for Indian equity prices.

**Conclusion :** The accounting treatment of carbon credits in India stands at a transition the accounting framework has not yet acknowledged. For two decades, the question was how a project developer should record certificates generated for sale, and the ICAI Guidance Note answered it defensibly, if incompletely. From the 2025 to 2026 compliance year, the question becomes how an obligated entity should recognize a statutory obligation accruing with production and the instruments held to settle it. On that, Indian standards are silent, while international standards have been silent for two decades. The withdrawal of IFRIC 3 and the absence of any replacement show the difficulty is genuine, not a drafting issue. Preparers and standard setters do not agree on what an emission instrument economically is, and until they do, measurement will remain contested.

India is nonetheless better placed than the jurisdictions that preceded it. Its compliance market begins at a moment when the range of defensible accounting outcomes is documented, and the consequences of each are understood. Specifying a recognition trigger, a cost definition, and a provision measurement basis before divergent practice entrenches is an achievable act of standard setting. It would deliver comparability that the European experience shows cannot easily be retrofitted. Fully settling the unresolved questions will take international consensus, not something India can deliver alone. What India can do on its own, however, is available now, and the cost of putting it off only grows with every compliance cycle that closes without an answer.

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