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REVIEWER'S REPORT

Manuscript No.: IJAR- 59943

Manuscript Title: Developing an Integrated Carbon Accounting Framework for India: A Conceptual Review and Future Research Agenda.

Recommendation:
Accept after minor revision

Rating	Excel.	Good	Fair	Poor
Originality		✔		
Techn. Quality			✔	
Clarity			✔	
Significance	✔			

Reviewer Name: Dr. Abdul Haseeb Mir

Detailed Reviewer's Repot

General Overview

This manuscript presents a well-structured, timely conceptual review examining the institutional fragmentation of corporate carbon accounting in India and proposing the **Integrated Carbon Accounting Framework for India (ICAF-India)** alongside a prioritized future research agenda. Situating India's rapidly evolving regulatory landscape—spanning the Carbon Credit Trading Scheme (CCTS) under the Energy Conservation (Amendment) Act, 2022, the Securities and Exchange Board of India's (SEBI) Business Responsibility and Sustainability Reporting (BRSR) and BRSR Core reasonable assurance mandates, statutory financial reporting under Indian Accounting Standards (Ind AS), and cross-border pressures such as the EU Carbon Border Adjustment Mechanism (CBAM) and ISSB IFRS S2—within international carbon accounting scholarship, the paper effectively diagnoses why siloed physical, managerial, financial, and disclosure systems undermine credible decarbonization.

A standout strength of the manuscript is its synthesis of five competing conceptual frames (physical, political, market-enabling, financial, and social-environmental) into a coherent five-layered closed-loop enterprise architecture (ICAF-India) supported by a dual-track independent assurance workflow linking engineering verification (BEE-accredited ACVAs) with Chartered Accountant audits. The writing is clear, authoritative, and well-anchored in contemporary accounting literature through 2025. With minor revisions to specify the conceptual review methodology, sharpen a few institutional nuances (such as

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boundary reconciliation and Ind AS accounting treatments), and clean up minor typographical and OCR artifacts beneath the figures, this paper is well-positioned for publication.

Detailed Suggestions for Improvement

1. Adding a Concise Methodology Section for Transparency

Although the manuscript is explicitly framed as a conceptual review, adding a brief **Methodology / Review Approach** subsection (either at the end of Section 1 or the start of Section 2) will strengthen academic rigor and replicability:

- Specify the literature selection strategy (e.g., databases searched, inclusion window, core accounting and sustainability journals covered, and how Indian statutory instruments from MoP/BEE, SEBI, MCA/ICAI, and CERC were mapped alongside international peer-reviewed studies).
- Briefly explain the conceptual synthesis logic used to derive the five layers of ICAF-India from the five colliding frames identified by Ascui and Lovell (2011).

2. Deepening Technical Nuance in Ind AS Accounting and Organizational Boundary Reconciliation

- **Illustrative Ind AS Accounting Matrix (Section 3.3 & Layer 3):** Section 3.3 (page 8) and Layer 3 (page 10) provide a strong overview of the Ind AS standards currently applied ad hoc to carbon instruments (Ind AS 2, 20, 36, 37, 38, 113, and 115) and ICAI's 2012 Guidance Note on CERs. Including a compact summary table or structured comparison showing how **self-generated CCCs**, **purchased compliance CCCs**, and **compliance surrender shortfalls** are currently recognized, measured (cost vs. fair value), and presented under Ind AS—and how ICAF-India's *Carbon P&L Bridge* reconciles them—will add high practical value for accounting scholars and practitioners.
- **Organizational vs. Facility Boundary Reconciliation (Layer 1 & Layer 4):** Expand slightly on how ICAF-India resolves operational boundary mismatches in practice—for instance, when a conglomerate reports consolidated entity-wide Scope 1–3 emissions under SEBI BRSR Core (using financial consolidation or operational control) while only specific designated industrial plants within that conglomerate are regulated under BEE's facility-level CCTS intensity targets.
- **Data Privacy & Governance in MSME Scope 3 dMRV (Section 5.2 & Section 6.2):** When advocating Digital Public Infrastructure (DPI) and permissioned blockchain ledgers for Tier-1 and Tier-2 MSMEs, briefly note how commercial confidentiality (protecting supplier cost structures and process recipes from downstream buyers) can be safeguarded using cryptographic proofs or aggregated emission factors.

3. Formatting, Duplicated OCR Text Cleanup, and Typographical Polish

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A careful line-by-line edit is required to remove raw OCR text blocks duplicated beneath Figures 1 and 2, fix section heading numbering, and correct minor spacing errors:

- **Removing Raw OCR Text Blocks Beneath Figures 1 and 2 (Pages 11–12):**
  - On page 11 (lines 323–324), raw text extracted from inside the diagram (*"Integrated Carbon Accounting Framework for India (ICAF-India) / LAYER 5: ... / BEE Accredited ACVA Verification..."*) has been pasted directly above the Figure 1: caption, containing OCR typos such as IFRS $2/, (nd AS 36 & 113), Report Many), and Ascul & Lovell. Delete this entire duplicated text block so that Figure 1: immediately follows the graphic.
  - Similarly, on page 12 (lines 338–340), delete the raw OCR text block pasted below the second graphic (which contains OCR errors such as MSMES, proxies blockchain, (nd AS 37), and AEVASEBE GHG Verifications) so that Figure 2: sits cleanly beneath the image.
- **Section Numbering and Heading Consistency:**
  - Page 1, line 25: Number Introduction as **1. Introduction** to align with Sections 2. through 7..
  - Page 6, Table 1 (line 185): In the *Key Theoretical Lenses* column for rows 2 and 3 (*Carbon Management Accounting* and *Financial Carbon Accounting*), the cells are blank, and in row 4 (*External Disclosure & Assurance*), "theory; Signaling" is missing the start of "Legitimacy theory; Signaling theory". Populate the missing theoretical lenses for rows 2 and 3 (e.g., *Contingency theory; Management control theory* and *Positive accounting theory; Institutional theory*) and restore *"Legitimacy theory"* in row 4.
- **Line-by-Line Typographical and Spacing Fixes:**
  - Page 4, line 141: Fix "procurement ent scorecards" on page 10, line 297 → "procurement scorecards".
  - Page 5, lines 154–155: Remove duplicated phrase "between corporate insiders / corporate insid".
  - Page 8, line 234: Insert space in "UnderInd AS" → "Under Ind AS".
  - Page 11, line 322: Remove stray word "internal" at the end of the Layer 5 paragraph.
  - Page 17, line 503: Remove stray watermark fragment "UNDER P" at the bottom of the References.
  - **Spacing Around Ampersands (&):** Insert missing spaces after & across the text, tables, and References—for example, Milne &Grubnic → Milne & Grubnic (lines 27, 492), Amel-Zadeh& Tang → Amel-Zadeh & Tang (lines 30, 272), Ascui& Lovell → Ascui & Lovell (lines 34, 185, 391), Qian&Schaltegger → Qian & Schaltegger (lines 65, 185, 374,

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495), Andrew &Cortese → Andrew & Cortese (lines 185, 424), Bebbington& → Bebbington & (line 185), Luo& Tang → Luo & Tang (line 320), Rahman, S., &Kabir → Rahman, S., & Kabir (line 426), Houqe, M. N., &Zahir-ul-Hassan → Houqe, M. N., & Zahir-ul-Hassan (line 444), Schaltegger, S., &Zvezdov → Schaltegger, S., & Zvezdov (line 447), deAguiar → de Aguiar (line 459), Luciani, V., &Huisingh → Luciani, V., & Huisingh (line 464), Nazari, J. A., &Herremans → Nazari, J. A., & Herremans (line 484), Pérez Calderón, E., &Lourenço Dias → Pérez Calderón, E., & Lourenço Dias (line 488), and Merawati, E. E., &Roziq → Merawati, E. E., & Roziq (line 498).

Editorial Recommendation

Recommendation: Accept with Minor Revisions

This manuscript makes a thoughtful, rigorous, and timely contribution to corporate sustainability and accounting scholarship in emerging economies. By bridging international carbon accounting theory with India's statutory CCTS, SEBI BRSR Core, and Ind AS architecture, the proposed ICAF-India model and five-domain research agenda offer actionable guidance for standard-setters, assurance practitioners, and corporate leaders. Once a brief methodology note is added, the missing cells in Table 1 and duplicated OCR text blocks below Figures 1 and 2 are cleaned up, and the minor typographical/spacing issues are resolved, the manuscript will be ready for publication.