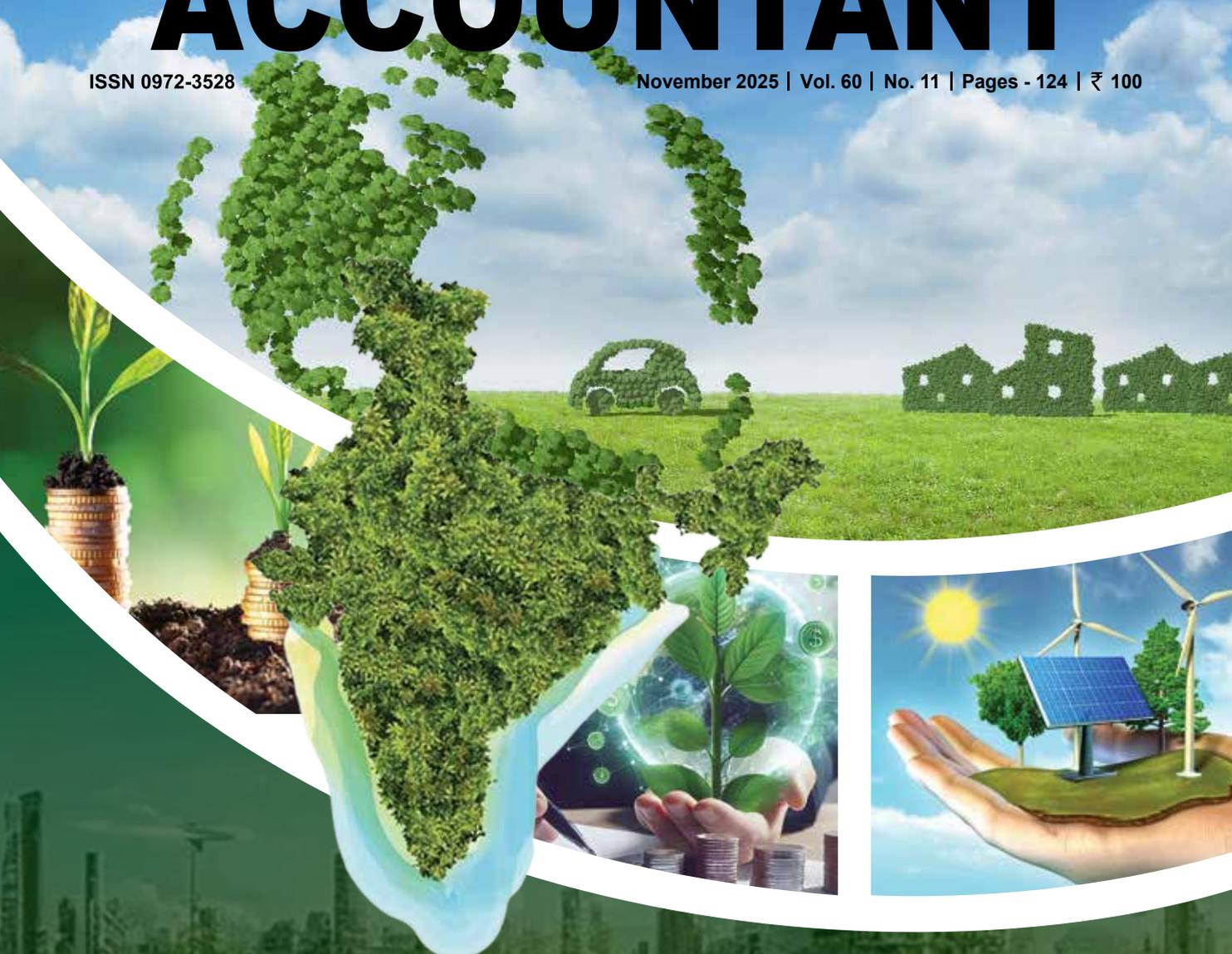


THE MANAGEMENT ACCOUNTANT

ISSN 0972-3528

November 2025 | Vol. 60 | No. 11 | Pages - 124 | ₹ 100



SUSTAINABLE FINANCE

STEERING INDIA TOWARDS A GREENER FUTURE



Journal of
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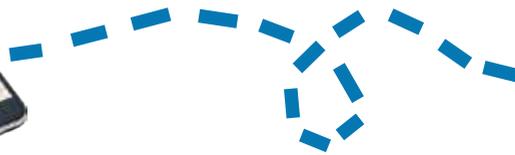
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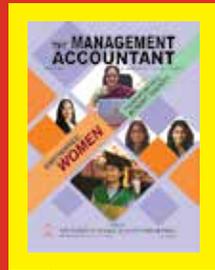
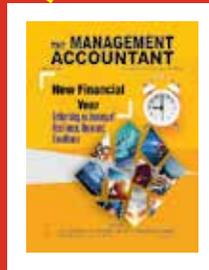
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- **THE INSTITUTE OF COST ACCOUNTANTS OF INDIA** (erstwhile The Institute of Cost and Works Accountants of India) was established in 1944 as a registered company under the Companies Act with the objects of promoting, regulating and developing the profession of Cost Accountancy.
- On 28 May 1959, the Institute was established by a special Act of Parliament, namely, the Cost and Works Accountants Act 1959 as a statutory professional body for the regulation of the profession of Cost & Management Accountancy.
- It has since been continuously contributing to the growth of the industrial and economic climate of the country.
- The Institute of Cost Accountants of India is the only recognized statutory professional organisation and licensing body in India specialising exclusively in Cost & Management Accountancy.

VISION STATEMENT

"The Institute of Cost Accountants of India would be the preferred source of resources and professionals for the financial leadership of enterprises globally."

MISSION STATEMENT

"The CMA Professionals would ethically drive enterprises globally by creating value to stakeholders in the socio-economic context through competencies drawn from the integration of strategy, management and accounting."

Institute Motto

असतोमा सद्गमय
तमसोमा ज्योतिर् गमय
मृत्योर्मातृं गमय
ॐ शान्ति शान्ति शान्तिः

From ignorance, lead me to truth
From darkness, lead me to light
From death, lead me to immortality
Peace, Peace, Peace

IDEALS THE INSTITUTE STANDS FOR

- to develop the Cost and Management Accountancy Profession
- to develop the body of members and properly equip them for functions
- to ensure sound professional ethics
- to keep abreast of new developments



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Behind every successful business decision,
there is always a **CMA**

*The Management Accountant, official organ of
The Institute of Cost Accountants of India, established in
1944 (founder member of IFAC, SAFA and CAPA)*

Publisher – Sucharita Chakraborty – The Institute of Cost Accountants of India, 12, Sudder Street, P. S. New Market, Kolkata, West Bengal – 700016.

Place of Publication – The Institute of Cost Accountants of India, 12, Sudder Street, P. S. New Market, Kolkata, West Bengal – 700016.

Printer – Maneck Eruch Davar, 10th Floor, Sun Paradise Business Plaza, Opp. Kamala Mills, Senapati Bapat Marg, Lower Parel., Mumbai, Maharashtra – 400013.

Printing Press – Spenta Multimedia Private Limited, Plot No. 15, 16 & 21/1, Morivali MIDC, Village Chikhholi, Ambarnath West, Thane, Maharashtra – 421505.

Editor – Sucharita Chakraborty – 12, Sudder Street, P. S. New Market, Kolkata, West Bengal – 700016.

Owner – The Institute of Cost Accountants of India, 12, Sudder Street, Kolkata, West Bengal – 700016.

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- **Subscription/Renewal/Restoration**
journal@icmai.in

EDITORIAL OFFICE

CMA Bhawan, 4th Floor, 84, Harish Mukherjee Road
Kolkata - 700 025, Ph: 033-24540184

The Management Accountant technical data

Periodicity : Monthly
Language : English

Overall Size : 26.5 cm x 19.6 cm

Subscription

Inland: ₹1,000 p.a or ₹100 for a single copy

Overseas: US\$ 150 by airmail

Concessional subscription rates for registered students of the Institute: ₹300 p.a or ₹30 for a single copy

The Management Accountant Journal is Indexed and Listed at:

- Index Copernicus and J-gate
- Global Impact and Quality factor (2015):0.563

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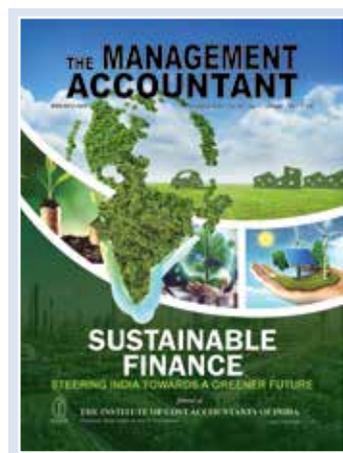
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From the EDITOR'S DESK

As India continues its trajectory of economic growth, integrating sustainability into financial decision-making has become a strategic necessity. Sustainable finance—anchored in green investments, ESG principles, and responsible lending—provides a framework to align capital flows with the nation's climate and development objectives. By embedding environmental and social considerations into financial systems, India can foster growth that is both resilient and inclusive.

However, achieving this transition requires coordinated action. Policymakers, investors, and institutions must collaborate to strengthen green capital markets, standardize disclosure frameworks, and incentivize sustainable business practices. The future of India's prosperity will depend not only on financial returns but also on our collective ability to fund progress that safeguards the planet.

Highlights of Articles in this Issue

- ⦿ *Indian Green Bond Market: Progress and Challenges on the Road to Net Zero* examines India's significant annual investment requirement of over \$160 billion in the energy sector between 2022 and 2030, resulting in a cumulative funding gap exceeding \$3 trillion to achieve the Net Zero target by 2070 (IEA, 2024). The Green Bond market plays a central role in bridging this gap.
- ⦿ *India's Journey towards Net Zero by 2070* details the evolution of policies underpinning India's commitment. The article outlines updated sector-specific pathways for

power, industry, transport, buildings, and land use, while highlighting key initiatives such as the National Green Hydrogen Mission and the new carbon credit trading framework.

- ⦿ *Sustainable Finance: Steering India towards a Greener Future* explores India's sustainability mission, climate policy developments, Viksit Bharat initiatives, the green bond market, the electric vehicle financing landscape, and the rising importance of investor awareness in advancing sustainable finance.
- ⦿ *Sustainable Finance and Investor Awareness* presents India as a leading example among emerging economies, illustrating how ambitious climate goals and evolving regulatory frameworks—such as SEBI's Business Responsibility and Sustainability Report (BRSR)—are accelerating the adoption of sustainable finance.
- ⦿ *India's Environment Audit Rules – A Step in the Right Direction* assesses the implications of newly notified rules on environmental governance, compliance, and professional opportunities for CMAs.
- ⦿ *Green Finance: Catalysing the Net-Zero Transition – The Imperative for Finance Professionals* explains the evolution and growing significance of green finance, particularly in emerging markets like India.
- ⦿ *Digital Transformation and Sustainability: From Steam to Smart – How Digital*

Transformation Powers a Sustainable Future conceptually examines how digital transformation supports sustainability objectives through ESG-aligned practices.

- ⦿ *India's Green Bond Market: A Pathway towards Sustainable Investments* provides a comprehensive overview of the growth, structure, benefits, challenges, and future potential of India's green bond market, presented in an accessible manner for students and beginners.
- ⦿ *Green Banking in India: Pathway to Sustainable Finance* highlights initiatives and practices adopted by leading Indian banks, addressing challenges such as limited awareness, high upfront costs, regulatory uncertainties, and skill gaps, while identifying opportunities from government incentives, environmental consciousness, and reputational advantages.
- ⦿ *Product Level Profitability – A Key Player in Financial Sustainability of Business* examines key aspects and indicators of profitability analysis, including historical, real-time, and predictive approaches, and highlights how this analysis supports critical business decision-making and long-term sustainability.
- ⦿ *Integrating Environmental Accounting into Sustainable Economic Development: A Pathway to Responsible Growth* explores the critical role of environmental accounting in balancing economic development with ecological preservation, detailing frameworks, methodologies, and corporate practices relevant to the Indian context.

In addition to these thematic contributions, this issue features contemporary topics and an exclusive interview with CMA Sipan Kumar Garg, Director (Finance), THDC India Limited and Additional Charge, Director (Finance), SJVN Limited. His insights on leadership, adaptability and strategic decision-making in a technology-driven environment offer valuable guidance for professionals navigating modern business complexities.

We are pleased to announce that *The Management Accountant* is now being delivered via magazine posting, which is optional for members. For subscription details and to receive hard copies, please refer to the 2nd cover page of this issue.

Furthermore, the Department recently organized a webinar, “**Pen to Publish: Elevate Your Article Writing Skills**”, on October 22, 2025. The session is available on YouTube, with a summary on page 118 of this issue.

Enjoy reading, and keep writing!



President's Communiqué

CMA TCA Srinivasa Prasad

President

The Institute of Cost Accountants of India

“Let us form a partnership, and share our virtues, let us abandon our faults, and walk on the Path”

-- **Guru Nanak Ji**

My Dear Professional Colleagues,
Namaskaar!

The month of November marks a period of reflection and gratitude as the year gradually draws to a close. The vibrant festivities of October, which filled the nation with joy, devotion and togetherness, continue to inspire a spirit of positivity and renewal. As we move forward, this is a time to look back on the progress achieved, the challenges overcome and the collective efforts that have strengthened our journey.

63rd National Cost and Management Accountants' Convention (NCMAC) 2026

The Institute is pleased to announce that the 63rd National Cost and Management Accountants' Convention (NCMAC) – 2026 is scheduled to be held from 9th to 11th January 2026 at Coimbatore, Tamil Nadu. This prestigious national event will provide a platform to highlight the remarkable contributions of Cost and Management Accountants in driving economic growth and innovation. All members and students are encouraged to mark their calendars and actively participate in this grand convention.

Release of Publication ‘Role of CMAs in Viksit Bharat 2047’

A special publication of the Institute titled “Role of CMAs in Viksit Bharat 2047” was ceremonially released by the Hon’ble Governor of West Bengal, Dr. C. V. Ananda Bose at Raj Bhavan, Kolkata, on 17th October 2025. The Hon’ble Governor also graciously penned the Foreword for the publication.

In his address, Dr. Bose described the book as “a splendid invitation to the professional world of Cost Accountants,” commending its vision and depth. He emphasized the vital role of CMA profession in strengthening India’s financial systems, fostering fiscal discipline and guiding strategic decision-making. He observed that the publication brings together a diverse group of accomplished professionals whose collective insights contribute meaningfully not only to the CMA fraternity but also to the broader public discourse on national development.

The address on the occasion highlighted the significance of the publication from the perspectives of practicing CMAs, industry professionals and students, the future finance leaders of the nation. The key thematic modules, authored by domain experts, present a comprehensive view of the evolving role of CMAs in realizing the vision of Viksit Bharat 2047.

The ceremony was graced by several distinguished dignitaries, including CMA Chandra Wadhwa, Former President, CMA Bibhuti Bhusan Nayak, Immediate Former President, CMA Manoj Kumar

Anand, Council Member, CMA Chittaranjan Chattopadhyay, Council Member, contributing authors and senior officials of the Institute.

The event underscored ICMAI's continued commitment to national economic growth and professional excellence, aligning with India's vision of becoming a developed nation by 2047. This milestone underscores our Institute's continued commitment to national development through cost excellence.

TPF National Legal Conference on “White-Collar Crimes in India”

It was a privilege to participate in the TPF National Legal Conference on “White-Collar Crimes in India” held on 11th October 2025 at Bharat Mandapam, New Delhi. The conference, organized by the Terapanth Professional Forum (TPF), brought together distinguished experts from the legal, enforcement and professional domains to deliberate on contemporary challenges in combating white-collar crimes and ensuring robust governance.

Participated in Panel Discussion–II on the theme “Governance and Compliance: Statutory Framework, Enforcement Agencies and Judicial Perspectives” and highlighted the critical role of Cost and Management Accountants in strengthening governance frameworks, promoting transparency and ensuring financial discipline across organizations. Emphasized the importance of professional vigilance, effective compliance systems and ethical conduct as key enablers of sustainable economic growth.

The conference served as an excellent platform for exchanging insights and reinforcing the collective commitment toward strengthening governance and accountability mechanisms in India.

Meeting with representatives of KASNEB

A delegation from the Kenya Accountants & Secretaries National Examination Board (KASNEB), comprising FCS Joshua Willy

Wambua, Board Member, Dr. Patricia Chemutai and David Nbibui, met CMA Manoj Kumar Anand, Council Member and CMA (Dr.) D. P. Nandy, Secretary (Officiating) on 28th October 2025 at CMA Bhawan, New Delhi, to explore potential avenues for mutual collaboration in professional development and capacity building.

Western Region Chapters Meet

The Western India Regional Council (WIRC) in association with the Regional Council & Chapters Coordination Committee convened the Western Region Chapters Meet for the year 2025-26 on the 4th and 5th October 2025 at Goa.

The event brought together 41 delegates representing 16 chapters from across the Western Region, demonstrating a strong commitment to regional collaboration and professional development. The primary objective of the meet was to strengthen inter-chapter coordination, review chapter performance and align local initiatives with the strategic goals of WIRC. Over the two-day program, participants engaged in structured discussions, interactive sessions.

The meet facilitated meaningful dialogue, peer learning and the exchange of best practices, resulting in a consolidated roadmap for chapter-level initiatives in the coming year. The Council expressed appreciation for the active participation.

Professional Development Programmes by SIRC, Bengaluru and Mangalore Chapter

It was a pleasure to participate in the Professional Development Programme conducted by Southern India Regional Council (SIRC) in association with the Bengaluru Chapter and the Mangalore Chapter on 18th October 2025 at Mangalore.

The event featured Shri V. Kumar, Joint Commissioner of Commercial Taxes, as the Chief Guest, who addressed the gathering on the significance of commercial taxes in the accounting profession.

CMA Vijay Kiran Agastya, Chairman, SIRC,

PRESIDENT'S COMMUNIQUÉ

delivered a comprehensive session on “Artificial Intelligence for Professional Accountants,” while CMA Vishwanath Bhat, Immediate Former Chairman, SIRC, deliberated on “Impact of GST 2.0 and Practical Issues Relating to GST Audit.” The programme was also attended by CMA Raghavendra B. K., Chairman, Bengaluru Chapter, CMA Santosh G. Kalburgi, Secretary, Bengaluru Chapter, CMA Harishchandra Borkar, Chairman, Mangalore Chapter and CMA Vishnu Prasanna K. N., Secretary, Mangalore Chapter. The event was well received by members and participants, serving as an excellent platform for knowledge sharing and professional development.

The Professional Development Seminar on “GST 2.0: A Game Changer for the Indian Economy” was also attended, organized by the Bengaluru Chapter in association with Laghu Udyog Bharati – Karnataka (LUB-K) on 25th October 2025 at Bengaluru.

The seminar witnessed the participation of around 280 delegates, including 10 IRS officials. The presence of Hon’ble Union Minister Smt. Shobha Karandlaje and Former Deputy Chief Minister Dr. C. N. Ashwath Narayan added immense value and prestige to the event.

Special appreciation was extended to the distinguished speakers, Dr. Kotraswamy M, IRS, Commissioner, CGST, and CMA Vishwanath Bhat, Immediate Former Chairman, SIRC, for their insightful deliberations on GST 2.0. The programme was attended by CMA Suresh R. Gunjalli, Council Member, CMA Vijay Kiran Agastya, Chairman, SIRC, and the Office Bearers and Managing Committee Members of the Bengaluru Chapter, including CMA Raghavendra B.K., Chairman, CMA Santosh G. Kalburgi, Secretary, CMA Gunamala S. R., PD Chairperson & Vice Chairperson, CMA Poornima, Treasurer, and other MC members.

The seminar received highly positive feedback from all participants, reaffirming the Institute’s commitment to continuous professional learning and excellence.

As the year draws to a close, let us uphold the values of professionalism, integrity and excellence that strengthen our fraternity. May the coming month bring renewed energy, success and fulfillment to all members and students.

Jai Hind!

With warm regards,



CMA TCA Srinivasa Prasad

1st November 2025

BRIEF SUMMARY OF THE ACTIVITIES OF VARIOUS DEPARTMENTS/ COMMITTEES/ BOARDS OF THE INSTITUTE DURING THE MONTH OF OCTOBER 2025

ADMINISTRATION DEPARTMENT

☉ Launch of Tobacco Free Youth Campaign (TFYC) 3.0

The Institute launched the Tobacco Free Youth Campaign (TFYC) 3.0 on 9th October 2025, as part of its continuous initiatives under the No Tobacco Campaign to promote public health and awareness against the use of tobacco. A documentary film highlighting the adverse effects of tobacco consumption and the importance of collective action for a tobacco-free society was screened for all staff members. The documentary encouraged participants to adopt and promote a healthy, tobacco-free lifestyle. The programme concluded with a collective pledge to contribute towards a tobacco-free environment and to spread awareness within the community.

☉ Observance of Nasha Mukh Bharat Abhiyan

In order to achieve the goal of making India drug free of the Government of India, The Headquarters of the Institute observed the Nasha Mukh Bharat Abhiyan on 15th October 2025. The objective of this campaign was to promote awareness about a drug-free and healthy lifestyle. Staff members actively participated in the event and took a pledge to contribute towards creating a society free from substance abuse.

BANKING, FINANCIAL SERVICES AND INSURANCE BOARD

The Banking, Financial Services & Insurance Board continued its various activities and initiatives in October 2025, a synopsis of which is presented herein under:

A. Webinars

☉ Webinar on Regulatory Framework in Insurance Sector

The Board organized the webinar on 10th

October 2025. Shri Ramana Rao A., Chief General Manager (GA & HR), Insurance Regulatory and Development Authority of India (IRDAI) was the Speaker.

☉ Webinar on from Policy to Profit: How Recent RBI's Regulatory Ripples Reach MSMEs

The Board organized a Webinar on 27th October 2025. CMA Pankaj Jain, Global MSME & Realty Strategist was the Speaker.

B. Certificate Courses

The Certificate Course on Treasury and International Banking (10th Batch) started from 12th October 2025. Shri B.S. Venkatasha, Dy. Managing Director, NaBFID inaugurated the course as the Chief Guest.

The admission window for all courses for the new batches is stated as follows:

<https://eicmai.in/OCMAC/BFSI/DelegatesApplicationForm-BFSI.aspx>

C. Seminars

☉ Seminar on Navigating the Dynamic Regulatory Landscape: Strategic Role of ICAI

The Board organized the CPE on 5th October 2025 at Goa in association with WIRC, ICAI. Shri Pradeep Ramakrishnan, Executive Director, Department of Capital Markets, IFSCA was the Chief Guest for the event. CMA Amit A. Apte, Former President, ICAI provided his special address in the inaugural session. The Seminar had three technical sessions starting with the Role of Reserve Bank of India in Viksit Bharat 2047 where CMA (Dr.) Kenchappa Balu, Former CGM, Reserve Bank of India was the speaker. The second session was on the Role of Banking Sector in Viksit Bharat 2047 where CMA Punit Jain, Director, NIBSCOM was the speaker and the

last session was on the Role of Capital Markets in Viksit Bharat 2047 where CMA Dhiraj Sachdev, CIO Roha Venture LLP was the speaker.

⊙ One-day Seminar on Financial Risk Frontiers 2025: Strategies for a Resilient Future

The Board in association with ICMAI Cochin Chapter organized the one-day seminar at CFE, Cochin. Ms. Mini George, Executive Director, Agriculture Insurance Company of India Ltd. was the Chief Guest. The first technical Session 1 was on Strategic debt management for project bankability. Ms. Devi A J, Vice President – State Head – Medium Enterprises Group, Axis Bank Ltd. was the speaker. The second technical Session was on Green & Climate Finance: driving sustainable growth. CMA Venkateswaran Ramakrishnan, General Manager, SEBI was the speaker. The Technical Session 3 was on Banking Risk Management. Shri Damodaran C, Executive Vice President & Chief Risk Officer, Federal Bank Ltd. was the speaker. The fourth technical session was on Business risk mitigation through General Insurance. Ms. Geeta Nair, Chief Business Manager, Trivandrum Business Office, National Insurance Company Ltd. It was attended by representatives of Banking and Insurance sector, chapter representatives, members and students.

D. Opportunities for CMAs

CMAs are eligible to apply for the recruitment in various managerial posts in Corporate and Institutional Credit (C & IC) Department in Bank of Baroda.

CAREER COUNSELLING & PLACEMENT COMMITTEE

The Directorate of Career Counselling and Placement successfully conducted the CMA Campus Placement Programme from 8th –10th October 2025 at Delhi and on 14th, 15th & 17th October 2025 at Mumbai for the qualified CMAs of the June 2025 Term.

This year's placement drive witnessed enthusiastic participation from leading Public

Sector Undertakings (PSUs), Multinational Corporations (MNCs), and other big corporates.

Prominent recruiters included Power Finance Corporation, MECON Limited, ITC Limited, Sun Pharmaceutical Industries Ltd., Honda Cars India Ltd., Kribhco Green Energy Private Limited, Accenture Solutions Pvt. Ltd., Saraswat Co-Op. Bank Ltd, Dovetail Capital Pvt. Ltd., Shriram Finance Ltd., Capgemini, InSolare Energy Limited, Sharp & Tannan Associates, Lupin Diagnostics Ltd., RECKITT, RSM Astute Consulting Pvt. Ltd., Fiducia Accounting Services Pvt. Ltd., Fenesta, Sakata Inx (India) Pvt. Ltd., Luminoso International Pvt. Ltd., Tax Connect Advisory Services LLP and many others.

The highest CTC offered was ₹26 lakhs per annum by Power Finance Corporation, while the average CTC stood at approximately ₹12 lakhs per annum.

Heartfelt appreciation is extended to all participating organizations for their continued trust and collaboration with the Institute. Congratulations are also conveyed to all successful candidates, along with best wishes for their professional journey ahead.

The Institute remains committed to organizing a series of Campus Placement Drives across various locations in the coming months to further enhance career opportunities for CMAs.

COOPERATIVE DEVELOPMENT BOARD

In continuation to the webinars being organised by CDB, a webinar was organised on 7th October 2025 on the topic “Catalyzing Cooperatives through Focus on ESG”, wherein the guest facilitator CMA (Dr.) S. K Gupta, Managing Director, ICMAI Registered Valuers Organization, enlightened the participants on various aspects of ESG. The webinar focused on how the Environmental, Social and Governance principles can serve as a catalyst for cooperative transformation – strengthening resilience, accountability and long-term sustainability while staying true to cooperative values. Dr. Gupta shared insights into integrating ESG frameworks

into cooperative governance, operations, and community engagement. Real-world examples highlighted how cooperatives are adopting sustainable practices, enhancing transparency and attracting impact-oriented investments. The session emphasized that embracing ESG is not just about compliance, it is a strategic approach to reinforce cooperatives' social mission, ensure long-term viability and contribute meaningfully to sustainable development goals.

The Board is in the process of finalizing two Research Studies on the topic “Cost Management Accounting Practices and their Impact on Profitability and Performance in the Dairy Co-operative Sector of Tamil Nadu” and “Management of Cost and Earning in Scheduled Urban Cooperative Banks in India – An Empirical Study” and a Concept Note on Urban Cooperative Banks and will be released soon.

A meeting was held at HQ - Delhi between the Chairman of the Cooperative Development Board, along with the President and Vice President of the Institute and Shri Laxmi Dass ji, President of the National Federation of Cooperative Urban Banks and Credit Societies (NAFCUB). The meeting was also attended by CA Milind Kale, Vice-President, NAFCUB & Chairman Cosmos Cooperative Bank Ltd., Shri Jyotindra M. Mehta, Director, NAFCUB & Chairman Gujarat Urban Cooperative Banks Federation Ltd., Shri O. P. Sharma, Director, NAFCUB & Chairman Haryana State Urban Cooperative Banks And Credit Societies Federation Ltd., Shri Yogesh Sharma, Chief Executive, NAFCUB, Shri Subhash Gupta, Ex CEO NAFCUB, Dr. Mohan Kumar Mishra, CDB Member and Chief Coordinator NAFCUB Conference.

The discussions focused on exploring avenues for joint initiatives in the interest of both ICMAI and the Urban Cooperative Banking sector, with particular emphasis on capacity building, governance enhancement, and professional collaboration. It was also deliberated that ICMAI will serve as the Knowledge Partner for the upcoming NAFCUB CoopKumbh in November 2025 at Vigyan Bhawan, Delhi,

further strengthening the partnership between the Institute and the cooperative banking community.

CMA Navneet Kumar Jain, Chairman, CDB along with CMA A.V. Gopalan and Ms. Nilima V. Bhonsle, called on the Hon'ble Minister of Cooperation, Shri Subhash A. Shirodkar at Goa on 8th October 2025. The delegation requested the Hon'ble Minister to recognize and include the Cost Accountants profession in the Official Gazette of Goa and Authorize Cost Accountants to conduct Audit and Certification of documents under The Goa Co-operative Societies Act, 2001 read with The Goa Co-operative Societies Rules. The delegation met Mr. Anant M. Chodankar, Managing Director, Goa State Cooperative Bank Ltd., apprising him of the Institute's objectives, activities and national initiatives and requested inclusion of CMAs for conducting Concurrent Audits of cooperative societies in Goa. Later, the team met Mr. Sanjay Amonkar, Director General, GCCI and Mr. P. Pravimal Abhishek, IAS, Managing Director, GIDC. The meeting was held to explore avenues of collaboration between the Institute and the key industrial and business bodies in Goa.

DIRECTORATE OF CAT

- ⦿ CAT Course in partnership with Directorate General Resettlement (DGR), Ministry of Defence, Government of India.

During the month of October 2025, seven new batches of the CAT Course commenced at Jaipur, Indore, Trivandrum, Madurai, Nagpur Chapters, and at EIRC, Kolkata. The inauguration ceremonies were held either physically or virtually, marking another milestone in this collaborative initiative.

- ⦿ 15th October 2025 – Jaipur: The inaugural session was graced by Cap. Vignesh Verma, 71 Signal Regiment.
- ⦿ 28th October 2025 – Trivandrum: The event was honoured by the presence of Cdr. Sankar Sarat, Station Commander (Navy), Trivandrum Area.
- ⦿ 30th October 2025- Hyderabad: Cdr Rahil Rai, DRZ (south) graced the occasion in

presence of CMA Rajendra Singh Bhati, Chairman, CAT, CMA (Dr.) K Ch A V S N Murthy Council Member and CMA Vijay Kiran Agastya Chairman, SIRC. In his address, Cdr. Rahil Rai appreciated the Institute's initiative in empowering ex-servicemen through professional skilling and emphasized the importance of financial literacy and accounting knowledge in civilian life.

- ⊙ Further Cdr Rahil Rai addresses the Madurai and Nagpur batches through VC.

All the above officials who attended the inauguration as Chief Guests from DGR, in their addresses congratulated the participants for choosing to upskill themselves through the CAT Course and commended ICMAI for its sustained efforts in supporting the professional reintegration of defence personnel. He highlighted that the structured learning provided under this programme would not only enhance their career prospects but also enable them to contribute their discipline, integrity, and analytical skills to the corporate and financial sectors.

The continued expansion of these batches reflects the strong commitment of ICMAI and DGR to empowering defence personnel as they transition into civilian careers. Through the CAT Course, participants gain practical knowledge in accounting, finance, and business management, skills that open new avenues for professional growth. This collaboration stands as a model of how institutional partnership can transform experience and discipline acquired in service into valuable assets for the nation's economic and professional ecosystem.

INTERNATIONAL AFFAIRS DEPARTMENT

CMA (Dr.) Ashish P Thatte, Chairman, International Affairs Committee along with CMA Harshad Deshpande and CMA Navneet Kumar Jain, Council Members attended the 141st AFA Council Meeting along with the 24th AFA Conference at Hanoi during 30-31 October 2025. The Conference had sessions focusing

on "Sustainable Accounting and Reporting" and "Green Finance in Practice: Transitioning to a Sustainable Future" and "Training and Technology for the Future of Sustainability." These emerging themes are expected to play a pivotal role in shaping the future landscape of cost and management accounting practices across the globe.

MEMBERSHIP DEPARTMENT

The Institute warmly welcomes and congratulates all the 293 new members who have been granted Associate membership and 38 Associate members who have advanced to Fellowship during the month of October 2025.

To support the Membership Drive, the Membership Department, together with the Regional Councils and Chapters, is reaching out to CMA Final pass-out students who have not yet obtained membership. The objective is to encourage them to join and actively contribute to strengthening the CMA community.

MSME & START-UP PROMOTION BOARD

The MSME & Start-up Promotion Board (MSPB), under the Chairmanship of CMA (Dr.) K Ch A V S N Murthy, successfully conducted a webinar on "Generative AI for MSME Growth" on 15th October 2025. The session was led by Shri Subbarao Mukkavilli, Founder of Skill Culture, Former Executive Director and CTO, and Registered Independent Director.

The webinar focused on empowering Micro, Small and Medium Enterprises (MSMEs) to adapt and thrive in an era driven by generative artificial intelligence. The engaging discussions and interactive participation created an atmosphere of enthusiasm and fulfillment, contributing to the overall success of the programme.

During the occasion, the Board also released its flagship bimonthly publication MSME TITBITS, Vol. 5. This issue highlighted key insights on cost management, financial discipline, and operational efficiency, factors that continue to influence the growth potential of MSMEs.

PROFESSIONAL DEVELOPMENT & CONTINUOUS PROFESSIONAL EDUCATION (PD & CPE) COMMITTEE

The Professional Development & CPE Directorate is going to commence the 15th Batch of Online Mandatory Capacity Building Training (e-MCBT) for CoP holders from 13th November 2025. Members are encouraged to participate actively. For further details, please visit the MCBT Portal: <https://eicmai.in/MCBT/Home.aspx>

Please note vide notice dated 18th October 2025, the Council of the Institute has decided to extend the time limit for generating the Unique Document Identification Number (UDIN) from 30 days to 60 days to ensure ease of doing business. For details, refer to the UDIN Portal <https://eicmai.in/udin/Home.aspx>

It may please be noted that the Karnataka Building and Other Construction Workers' Welfare Board considered Cost Accountants Firms for Internal Audit Services.

Members are advised to visit the PD Portal for Tenders/EOIs issued during October 2025, where the services of Cost Accountants have been sought by organizations such as Karnataka State Seeds Corporation Limited, Airports Authority of India, Vadodara, Directorate of Local Bodies, Rajasthan, M.P. Poorv Kshetra Vidyut Vitaran Co. Ltd., Jabalpur, Food Corporation of India, New Town Telecom Infrastructure Development Company Limited, Bharatiya Nabhikiya Vidyut Nigam Limited, Municipal Council, Sahibganj, among others.

As part of the monthly webinar series, the 22nd Webinar titled "AI-based Tech Automation Solution in Finance" was conducted on 3rd October 2025, featuring CMA Arun Aggarwal, Director, Dharmalife & Partner at Innwave 360, who shared valuable insights in the interest of the CMA fraternity.

During the month of October 2025, a total of 68 programmes — 34 in physical mode and 34 in online mode, were organised by various Committees, Regional Councils and Chapters of the Institute. These programmes covered a

wide range of topics, including Understanding Basics of RERA Including Income Tax and GST on Real Estate Transaction, GST 2.0: A Game Changer for the Indian Economy, Bridging Relationships and Reporting: Decoding Related Party Disclosures under Ind AS 24, Navigating Capital Gains Tax: Rules, Rates, and Real-World Implications, Unlocking Green Growth : Sustainability as a Catalyst for Business Innovation in the Technology - Driven era, Recent amendment in annual return & reconciliation statement form 9 & form 9C, Application of AI in Cost and Management Accounting, Catalyzing Cooperatives through focus on ESG, among others. Members are expected to have derived significant benefit from the rich deliberations and expert insights shared during these sessions.

SUSTAINABILITY STANDARDS BOARD

◎ Webinars- Vasudhaiva Kutumbakam Series

The Board organized the 42nd Webinar of the Vasudhaiva Kutumbakam series on 10th October 2025 on the topic "Earthy Weddings: Embracing Circular Economy". Ms. S.C.Sharada, Practising Company Secretary was the speaker.

The 43rd Webinar of the Vasudhaiva Kutumbakam series was held on 24th October 2025 on the topic "Embedding ESG in Professional and Personal Decision Making". CMA Anuradha Dhavalikar, Practising Cost Accountant was the speaker.

◎ Monthly Newsletter- Sukhinobhavantu

The Board released Volume XXVII which is the October 2025 edition of the monthly newsletter Sukhinobhavantu. The Download link is as follows:

https://icmai.in/upload/Institute/Updates/SSB_Oct_2025.pdf

◎ ICMAI Green Awards (2023-24)

The ICMAI Green Awards, endorses the excellence in Business Responsibility and Sustainability Reporting (BRSR) practises undertaken by the Companies in embracing the sustainable practices and transparent disclosure,

aligned with global benchmarks and the United Nations Sustainable Development Goals (SDGs). The last date for application in various categories is 25th November, 2025. The link for the application process and the rules is as follows:

https://icmai.in/icmai/SSB/Green_Awards_2023_24.php

INSOLVENCY PROFESSIONAL AGENCY OF INSTITUTE OF COST ACCOUNTANTS OF INDIA

Insolvency Professional Agency of Institute of Cost Accountants of India, in its endeavour to promote professional development and sharpen the skills of the professionals, has constantly been conducting various professional & orientation programs across the country and publishing various publications and books for the benefit of stakeholders at large. Towards that end, IPA-ICMAI has undertaken several initiatives, as enumerated below, during October 2025.

- ⊙ A Workshop on “Foundation & Framework for Going Concern Management” was held on 4th October 2025, focusing on the fundamental principles and practical approaches to managing companies as going concerns during insolvency proceedings.
- ⊙ A seminar on “Insolvency and Bankruptcy Code, 2016” was held on 8th October 2025, in collaboration with WIRC, Mumbai, offering a comprehensive overview of the Code’s implementation, emerging issues, and best practices for professionals.
- ⊙ A Workshop on “Management of Creditors under IBC: Framework, Dynamics & Practice” was held on 10th October 2025, emphasizing the vital role of creditors in the insolvency process and ways to enhance coordination among stakeholders. The workshop discussed the following key topics: Dynamics of the Committee of Creditors (CoC), Statutory and Other Creditors – Where Do They Stand? Operational Creditors – Rights, Remedies & Realities, etc.
- ⊙ A workshop on “Avoidance Transactions

under IBC, 2016” was held on 17th October 2025, providing an in-depth understanding of the legal provisions, judicial interpretations and practical challenges involved in identifying and managing avoidance transactions. The session saw active participation from over 72 professionals, highlighting the increasing interest and importance of this key area of practice.

- ⊙ A workshop titled “Navigating Cross-Border & Group Insolvency under IBC, and Global Practices” was held on 25th October 2025, discussing emerging frameworks for cross-border insolvency, group insolvency mechanisms and insights from global best practices.
- ⊙ In its endeavour to promote the profession, knowledge sharing, and environmental sensitisation, IPA-ICMAI published Au-Courant (Daily Newsletter), a weekly IBC Dossier, and a monthly e-Journal, all hosted on its website.

ICMAI REGISTERED VALUERS ORGANIZATION (RVO)

ICMAI RVO has successfully organised a “50-Hour Training Program” for Securities or Financial Assets, one program each for the Land and Building and Plant and Machinery Asset class, also organised six (6) online Professional Development Programs and one (1) Physical Professional Development Program” at Mumbai in October 2025. In its efforts to bring out relevant publications for the development of the valuation profession, ICMAI RVO also released its monthly journal, The Valuation Professional.

ICMAI SOCIAL AUDITORS ORGANIZATION (SAO)

ICMAI SAO released its monthly journal, The Social Impact Assessor and entered into MOU with Bureau Veritas for co-operation in Professional development and Research in the domains of CSR and Social Impact Assessment.

The Honourable Governor of West Bengal Releases Special Publication by the Institute of Cost Accountants of India

His Excellency Dr. C. V. Ananda Bose, Honourable Governor of West Bengal, formally released a special publication of the Institute of Cost Accountants of India (ICMAI) titled “Role of CMAs in Viksit Bharat 2047” at a prestigious ceremony held at the Governor House Auditorium, Kolkata, on Friday, October 17, 2025.

The Governor also graciously penned the Foreword for the publication.

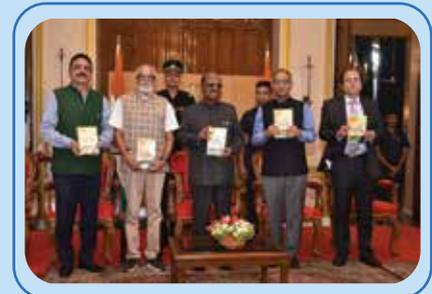
In his address, Dr. Bose described the book as “a splendid invitation to the professional world of Cost Accountants,” commending its vision and depth. He emphasized the vital role of the Cost and Management Accounting (CMA) profession in strengthening India’s financial systems, fostering fiscal discipline, and guiding strategic decision-making. He observed that the publication brings together a diverse group of accomplished professionals whose collective insights contribute meaningfully not only to the CMA fraternity but also to the broader public discourse on national development.

Speaking on the occasion, **CMA T.C.A. Srinivasa Prasad, President of the Institute of Cost Accountants of India**, highlighted

the significance of the publication from the perspective of practicing and industry-based CMAs, as well as for students — the future finance leaders of the nation. He also outlined the key thematic modules of the publication, each authored by domain experts, reflecting a holistic view of the evolving role of CMAs in realizing the vision of Viksit Bharat 2047.

Cost and Management Accountants as citizens should align their personal mission with the national vision to see beyond numbers and balance sheets and to recognise their potential as change-makers in India’s growth narrative. Together as a community of committed professionals, CMAs have the power to shape a future that is prosperous, inclusive, resilient and globally competitive. The event underscored ICMAI’s continued commitment to national economic growth and professional excellence, aligning with India’s vision of becoming a developed nation by 2047.

The ceremony was graced by distinguished dignitaries, including past Presidents of the Institute such as CMA Chandra Wadhwa, members of the Central Council, contributing authors, and senior officials of the Institute”.





CMA TCA Srinivasa Prasad, President; CMA Neeraj Joshi, Vice President and CMA Navneet Kumar Jain, Chairman, CDB, ICMAI met Shri Laxmi Dass, President and other board members of the National Federation of Cooperative Urban Banks, Chairpersons of Urban Cooperative Banks, Chairman of National Urban Cooperative Finance and Development Corporation (NUCFDC) at Delhi. Discussions focused on joint initiatives between ICMAI and Urban Cooperative Banks



A delegation from The Kenya Accountants & Secretaries National Examination Board (KASNEB) met CMA Manoj Kumar Anand, Council Member and CMA (Dr.) D. P. Nandy, Secretary (Officiating) on 28.10.2025 at CMA Bhawan, New Delhi, to discuss potential avenues for mutual collaboration in professional development and capacity building



Inauguration of CAT Course under DGR on 03.11.2025 at Kolkata, graced by Gp Capt Surya Bhattacharya, DRZ (East), CMA Rajendra Singh Bhati, Chairman-CAT, CMA Chittaranjan Chattopadhyay, CMA Avijit Goswami, Council Members, CMA Arati Ganguly, Chairperson-EIRC and CMA Abhijit Dutta, Secretary-EIRC



Valedictory of CAT Course under DGR on 10th October, 2025 at Lucknow, graced by Col Prashant Mishra, Jt Dir (Adm. & Trg), DRZc, DGR; CMA Ranjeet Singh, Chairman, Lucknow Chapter and other MC members of Lucknow Chapter



Inauguration of CAT Course under DGR on 30th October, 2025 at Hyderabad, graced by Cdr Rahil Rai, DRZ(South), DGR; CMA Rajendra Singh Bhati, Chairman-CAT, ICMAI; CMA (Dr.) K Ch A V S N Murthy, Council Member, ICMAI and CMA Khaja Jalal Uddin, Chairman-Hyderabad Chapter, ICMAI



Inauguration of CAT Course under DGR on October 28th, 2025 at Trivandrum, graced by Cmdr Sankar Sarat, Station Commander (Navy), Trivandrum Area; CMA Pranav Jayan, Chairman, Trivandrum Chapter and MC Members of Trivandrum Chapter



Valedictory of CAT Course under DGR on 10th October, 2025 at Ranchi in presence of CMA Bidyadhar Prasad, Treasurer, ICAI-EIRC, CMA Meera Prasad, Chairperson, Ranchi Chapter and other MC members of Ranchi Chapter



Valedictory of CAT Course under DGR on 10th October, 2025 at Cochin, graced by Cdr Mobin K Mathai, Indian Navy, CMA Renjini R., Chairperson, Cochin Chapter and other MC members of Cochin Chapter.

Glimpses - Participation of Council Members, CMA (Dr.) Ashish Prakash Thatte, CMA Harshad Shamkant Deshpande and CMA Navneet Kumar Jain in AFA Conference and Council Meeting



INDIAN GREEN BOND MARKET: PROGRESS AND CHALLENGES ON THE ROAD TO NET ZERO

Abstract

The article highlights India's significant annual investment requirement exceeding \$160 billion in its energy sector alone between 2022 and 2030, culminating in a total funding gap of over \$3 trillion to realize its Net Zero by 2070 commitment (IEA, 2024). The Green Bond market is a cornerstone of this strategy. Since the first domestic issuance by Yes Bank in 2015, cumulative issuance reached approximately \$21 billion by 2023 (World Bank, 2025). The key catalyst was the debut of the Sovereign Green Bond (SGrB) in January 2023, which has since raised ₹440 billion (approx. \$5.3 billion) (Grip Invest, 2025), setting a transparent pricing benchmark. This growth is underpinned by the enhanced SEBI Green Debt Securities Framework (2023) (SEBI, 2023). Despite progress, the market is constrained by the elusive 'Greenium' (pricing advantage), with SGrBs achieving only a modest 2–3 basis points (Gratham Research Institute, 2023). Other impediments suggested by the author include low secondary market liquidity and a transparency deficit. The article recommends demand-side stimulation, including targeted tax incentives and finalizing an authentic national Green Taxonomy.

Introduction: Mobilizing Capital for a Sustainable Future

1. India is at a critical juncture, balancing rapid economic growth with ambitious climate goals. The Pancharjit pledges at COP26 commit India to Net Zero emissions by 2070 and a 45% reduction in the emissions intensity of its GDP by 2030. Achieving these requires massive capital



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mobilization, especially for energy transition and climate-resilient infrastructure. Estimates suggest an annual investment exceeding \$160 billion in the energy sector alone between 2022 and 2030, leading to a total funding gap of over \$3 trillion to fully achieve the Net Zero vision (IEA, 2024). Traditional public finance is insufficient to bridge this gap. Consequently, the Green Bond market has become central to India's sustainable finance strategy.

2. Green Bonds are debt instruments issued exclusively to finance or re-finance green projects, such as renewable energy and sustainable waste management. They are instrumental in 'green-tagging' capital flows, directing private-sector liquidity toward environmental projects, and simultaneously helping institutional investors meet their Environmental, Social, and Governance (ESG) mandates. While the Indian market has evolved significantly, encompassing sovereign and municipal debt, its maturity is hampered by structural challenges like the elusive 'greenium' low secondary market liquidity, and transparency issues (Jena & Vuppuluri, 2024). This article analyses the progress, examines critical barriers, and proposes a roadmap for sustained growth in service of India's national climate strategy.

The Evolution of the Indian Green Bond Market: Milestones and Growth

3. The trajectory of the Indian Green Bond market comprises three phases: the pioneering private sector era, the regulatory establishment phase, and the sovereign catalyst era.

Pioneering Corporate and Financial Issuance

4. The market's genesis was the first domestic Green Bond issued by Yes Bank in 2015 (₹1,000 Crore, approximately \$150 million). Subsequent key issuances came from institutions like the Indian Renewable Energy Development Agency (IREDA) and Greenko. Early green debt was often executed in the offshore market via 'Masala Bonds' (INR-denominated bonds issued outside India), indicating strong international interest but limited initial domestic depth. By 2023, cumulative green bond issuance stood at approximately \$21 billion (**World Bank, 2025**), with the private sector commanding an overwhelming majority share (estimated at around 84%).

The Municipal Market Emergence

5. A crucial development was the entry of municipal bodies. The Ghaziabad Nagar Nigam (2021) and the Indore Municipal Corporation (2023) were pioneers, raising capital for water supply and solar power projects. The

oversubscribed Indore issuance, listed on the National Stock Exchange (NSE), paved the way for subsequent entries from Ahmedabad and Vadodara in 2024.

The Sovereign Catalyst and Market Acceleration

6. The defining moment was the debut of the Sovereign Green Bond (SGrB) in January 2023. Issued by the RBI on behalf of the Government of India, the first tranche raised ₹80 billion (approx. \$1 billion). This issuance was vital because it:

- Set a Benchmark: Established a transparent pricing benchmark for domestic green finance.
- Expanded Investor Base: Attracted new classes of domestic and foreign investors, including insurers.
- Provided Scale: The government has become the single largest issuer, raising a total of ₹440 billion (approx. \$5.3 billion) in SGrBs since January 2024 (**Grip Invest, 2025**).

7. Proceeds from the FY 2022-23 SGrB issuance were primarily allocated to Clean Transportation (78%) and Renewable Energy (21%) (**Government of India, 2024**). *The table below reflects the important milestones of Indian Green Bond Market and its cumulative issuance.*

Table 1

Phase	Time Period	Key Issuances/ Milestones	Cumulative Issuance (Approx.)	Purpose/Significance
Pioneering Private Sector	2015 – 2017	First domestic bond by Yes Bank (2015); Issuances by IREDA and Greenko.	Small, dominated by private/corporate.	Established proof of concept; heavy reliance on offshore 'Masala Bonds'.
Municipal & Regulatory Establishment	2018 – 2022	SEBI's initial GDS Guidelines; Ghaziabad Nagar Nigam (2021).	Growing, still primarily private.	Democratization of the instrument; development of a formal regulatory base.
Sovereign Catalyst & Acceleration	2023 – Present	Sovereign Green Bond (SGrB) debut (Jan 2023); Enhanced SEBI GDS Framework (2023); Indore municipal success.	\$21 billion by 2023; SGrB: ₹440 billion (\$5.3 billion) since 2024.	Sovereign benchmark set; rapid market scaling; enhanced transparency mandates (SPO).

Critical Analysis of Indian Green Bond Market Growth Comparative Growth Analysis (India vs. Global)

The Indian Green Bond market has demonstrated commendable growth, achieving \$21 billion in cumulative issuance by 2023 (**World Bank, 2025**), a significant feat given its relatively late start in 2015. However, its progress remains relatively modest when benchmarked against the global market's scale.

The global cumulative issuance surpassed \$1 trillion in 2020 and has since grown rapidly, with annual global issuance often exceeding \$500 billion in recent years (**World Bank, 2025**). India's \$21 billion cumulative total is dwarfed by the size of established markets like the US and the European Union, which benefit from decades of established financial architecture and comprehensive Green Taxonomies.

The critical difference lies in market depth and liquidity. Globally, the Green Bond market consistently commands a Greenium of 7–17 basis points (bps) (**Baker McKenzie, 2019**), providing a clear financial incentive for issuers. In contrast, India's SGrBs have only managed a modest Greenium of 2–3 bps at initial auctions (**Grantham Research Institute, 2023**), and the market has even seen 'Brown Discounts' (yields higher than conventional bonds), necessitating auction cancellations (**Grantham Research Institute, 2023**). This lack of a compelling 'Greenium' in India signals a fundamental gap in investor appetite for prioritizing the "green" label over mandatory financial returns, especially among domestic investors. Furthermore, India's low secondary market liquidity, driven by a domestic 'buy-and-hold' strategy, hinders the ease of entry and exit required by large global

The Sovereign Catalyst and Market Cap

India's \$21 billion Green Bond market got a boost from the **Sovereign Green Bond (SGrB)** debut in January 2023. The SGrB has raised **₹440 billion (\$5.3 billion) (Grip Invest, 2025)**.

However, the market remains constrained by structural issues. These include the minimal '**Greenium**' (only **2-3 bps** for SGrBs) (**Grantham Research Institute, 2023**) and low secondary market liquidity, which limits market appeal and depth.

institutional investors, thus limiting foreign participation and market depth compared to more mature global centres.

The Regulatory and Policy Architecture

8. The market's development is supported by concerted efforts from the Securities and Exchange Board of India (SEBI) and the RBI.

SEBI's Green Debt Securities Framework

9. SEBI, the capital markets regulator, has enhanced its framework for Green Debt Securities (GDS). Its 2023 update aligned the domestic

framework with the International Capital Market Association's (ICMA) Green Bond Principles. Key advancements include:

- a. **Expanded Scope:** Widening the definition of "green" projects to include climate adaptation and energy efficiency (**S&R Insights, 2024**).
- b. **Mandatory Disclosure:** Requiring pre-issuance disclosures and post-listing reports on the utilization of proceeds and environmental impact.
- c. **Third-Party Review:** Introduction of a mandatory independent third-party reviewer (Second Party Opinion - SPO) to validate ESG objectives, bolstering investor confidence and combating 'greenwashing' (**SEBI, 2023**).

The Sovereign Green Bond (SGrB) Framework

10. The Ministry of Finance's **SGrB Framework (2022)** sets the gold standard for sovereign issuance. It established the Green Finance Working Committee (GFWC) to

oversee eligible project selection. The framework mandates a dedicated ‘Green Register’ and a separate account for proceeds allocation, ensuring high transparency and accountability.

The Developing Green Taxonomy

11. India currently relies on its SGrB framework and SEBI’s GDS definitions. The absence of a comprehensive, legally binding national Green Taxonomy, similar to the EU’s, hinders investor clarity and increases transaction costs. The Union Budget 2024-25 signalled a commitment to establishing such a taxonomy to provide definitive, scientific criteria for ‘green’ activities (Shastri et al., 2025), which is expected to boost participation and reduce greenwashing risk.

Critical Challenges and Impediments to Growth

12. Despite progress, fundamental structural challenges constrain the market’s potential (Srivastava & Sharma, 2023).

The Elusive Greenium

13. The primary goal, the ‘Greenium’ (yield discount over comparable conventional bonds), has been minimal in India, with SGrBs achieving only 2–3 bps (Grantham Research Institute, 2023). Recent market trends have shown a ‘Brown Discount’ (investor-demanded yields higher than expected), leading the RBI to cancel portions of SGrB auctions in May 2024 and June 2025 (Jena & Vuppuluri, 2024). This is due to a mismatch between the government’s expectation for investors to accept lower yields for environmental benefit, and the domestic investor reality, where returns are prioritized over the ‘green’ label.

Low Liquidity and Investor Demand Constraints

14. The secondary market is thin and illiquid, deterring large institutional investors. This low liquidity results from:

- a. **Buy-and-Hold Strategy:** Domestic investors, particularly insurance and

pension funds, hold SGrBs until maturity (Agarwal & Singh, 2018).

- b. **Small Issue Sizes:** Issue sizes are small relative to the conventional bond market, limiting trading volume.
- c. **Limited Foreign Participation:** FII participation has been lower than expected due to perceived risks and an insufficient Greenium.

Greenwashing and Transparency Deficit

15. Trust is foundational, and it is tied to credible post-issuance reporting. Challenges include:

- a. **Delayed Impact Reports:** The delay in releasing timely post-issuance allocation and impact reports (e.g., the FY 2023-24 SGrB report) reduces investor confidence.
- b. **Lack of Contractual Protection:** Green bond terms often lack strong contractual covenants (like default clauses) for misuse of proceeds, leaving bondholders with limited legal recourse against greenwashing.

High Issuance Costs and Capacity Building

16. For smaller, first-time issuers, the complexity and upfront cost are prohibitive (Srivastava & Sharma, 2023). These costs include:

- a. **Second Party Opinions (SPOs):** The cost of engaging independent external reviewers for pre-issuance certification and post-issuance verification.
- b. **Tracking and Reporting:** The need for separate internal systems to track project expenditure and measure environmental impact adds operational complexity.

Policy Recommendations for Market Maturation

17. A multi-pronged strategy is essential to unlock the market’s potential.

Structural and Financial Incentives

- a. **Targeted Tax Benefits:** Introduce tax incentives on green bond interest income to make the instrument more financially

appealing to domestic investors, effectively replacing the market-demanded “greenium”.

b. Subsidies for Issuance

Costs: Provide a partial or full subsidy for the cost of obtaining the SPO and initial audit for first-time or sub-sovereign issuers (municipalities).

c. RBI’s Role in Liquidity:

The RBI should explore actively participating in the secondary market for SGrBs as a liquidity provider to improve trading volumes and appeal to short-term investors.

Fixing the Funding Gap

To fund its \$3 trillion Net Zero commitment (**IEA, 2024**),

India needs to pivot to **demand-side stimulation**. Key challenges are the lack of a compelling pricing advantage and a **transparency deficit** from delayed impact reports (**TERI, 2023**). The roadmap for growth requires implementing **targeted tax incentives** on green bond interest and the immediate adoption of a science-backed national **Green Taxonomy** (**Shastry et al., 2025**)

of Second Party Opinion (SPO) providers, verifiers, and independent auditors to reduce costs and reliance on international agencies.

b. Retail Investor Awareness:

Promote ease of investment for retail investors via green-themed mutual funds or exchange-traded funds (ETFs) to deepen the domestic demand base.

c. Financial Innovation:

Encourage new instruments like **Sustainability-Linked Bonds (SLBs)** and **Transition Bonds** to mobilize capital for high-emitting sectors that require decarbonization.

Regulatory Harmonization and Enforcement

a. Finalizing the Green Taxonomy:

The immediate adoption of a clear, harmonized national Green Taxonomy is paramount (**Shastry et al., 2025**). It must be based on a science backed ‘Do No Significant Harm’ (DNSH) principle.

b. Mandatory and Timely Reporting:

SEBI must enforce stricter rules and timeframes for post-issuance impact reporting (e.g., within 90 days of the financial year end). Non-compliance should carry meaningful penalties.

c. Developing a Project Pipeline:

Central and State governments must collaborate to create a visible, high-quality, and investable pipeline of pre-packaged green infrastructure projects to increase asset supply.

Capacity Building and Innovation

a. Domestic Verification Ecosystem: Invest in fostering a robust domestic ecosystem

Conclusion

The Indian Green Bond market has moved from its nascent phase to become a vital part of the nation’s climate finance architecture. The Sovereign Green Bond (SGrB) has served as a powerful catalyst, establishing a pricing benchmark and attracting new capital pools. Similarly, the evolution of SEBI’s regulatory framework reflects a strong commitment to global standards of integrity and transparency (**SEBI, 2023**). Nevertheless, the market’s reliance on sovereign issuance and its failure to consistently generate a competitive ‘Greenium’ point (**Grantham Research Institute, 2023**) to a core structural fragility. The challenges of low secondary market liquidity, regulatory enforcement gaps, and high compliance costs risk capping the market’s potential well short of India’s multi-trillion-dollar financing need (**IEA, 2024**). The path forward requires a strategic pivot toward demand-side stimulation. By implementing targeted financial incentives (tax benefits), finalizing a comprehensive national Green Taxonomy, and enforcing rigorous, timely

impact reporting, India can transform its Green Bond market from a policy signalling instrument into an engine for large-scale, private-sector-led climate transition. The success of this market is a prerequisite for India's global credibility and its ability to secure a sustainable, low-carbon future. **MA**

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Behind every successful business decision, there is always a CMA

INDIA'S JOURNEY TOWARDS NET ZERO BY 2070

Abstract

India has promised to achieve net-zero greenhouse gas (GHG) emissions by 2070. This goal requires striking a balance between rapid development and significant reductions in emissions. This article outlines the development of policies related to this pledge. It explains India's updated targets for 2070, identifies pathways for each sector, including power, industry, transport, buildings, and land use, and looks at finance, technology, and market mechanisms. These include the National Green Hydrogen Mission and the new carbon credit trading framework.



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Why Net Zero?

India is the most populous country in the world and has a rapidly growing economy. It accounts for approximately 7% of

global CO₂ emissions. However, its per-capita emissions are still significantly lower than those of developed countries, at around 2 tonnes of CO₂ per person, compared to levels several times higher in many OECD nations (based on energy-related CO₂ emissions). The International Energy Agency (IEA) indicates that coal is the main source of energy-related CO₂ emissions in India. This highlights the significant changes needed in both power and industry.

At COP26 in Glasgow, Prime Minister Narendra Modi announced that India aims for net zero by 2070. This date marks the recognition of the need for development, including energy access, job creation, and infrastructure, while also promising a significant long-term transformation. Official communications that followed have confirmed this commitment.

The journey to 2070 is built on shorter-term goals. In 2022, India updated its Nationally Determined Contribution (NDC) to:

- ⦿ reduce the emissions intensity of GDP by 45% by 2030 from 2005 levels, and
- ⦿ achieve about 50% of cumulative electric power installed capacity from non-fossil sources by 2030.

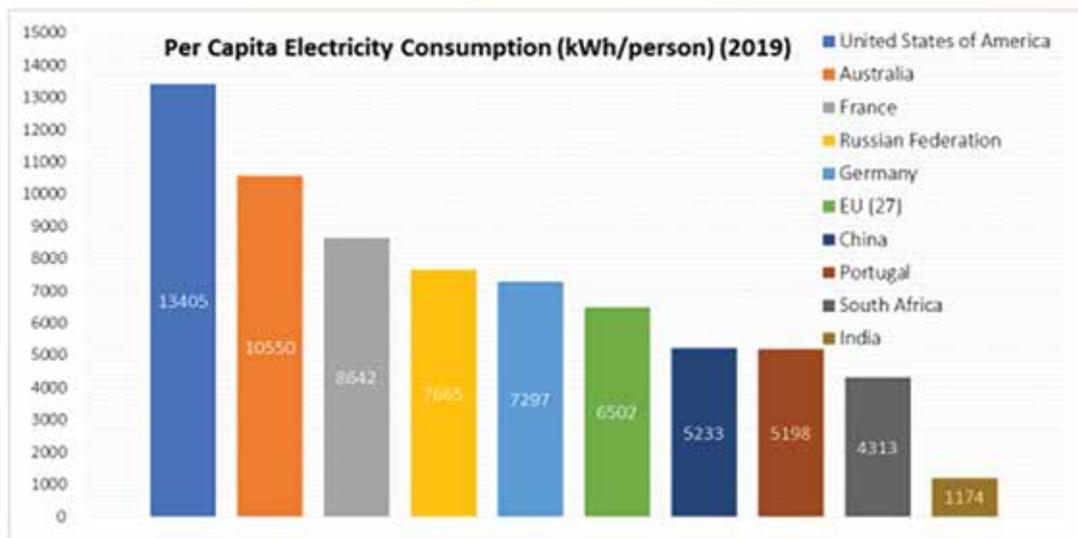


Figure 2.1 Country wise per capita electricity consumption (*Climate Equity Monitor, n.d.*). The year 2019 is chosen as it provides a better cross-country comparison from the year prior to the pandemic.

India has made significant progress toward its power capacity goal. Recent data indicate that the 50% non-fossil installed capacity milestone has been reached ahead of schedule, primarily due to the addition of solar, wind, hydro, and nuclear sources. However, actual power generation still depends heavily on coal. This presents a major challenge: replacing coal in the merit order while ensuring reliability. India's Long-Term Low-Carbon Development Strategy (LT-LEDS), submitted to the UNFCCC at COP27, outlines the plan for decarbonization. This includes cleaner electricity, green transportation, sustainable urban development, low-emission industries, CO₂ removals, increasing forest cover, climate finance, and Mission LiFE (Lifestyle for the Environment).

Initiatives Taken by the Government

1. Decarbonising Power

- ⊙ Power decarbonisation is essential. By mid-2025, India's renewable energy (RE) capacity, excluding large hydro, had exceeded approximately 119 GW of solar and notable wind power. Non-fossil installed capacity made up over half of the total. The Ministry of New and Renewable Energy (MNRE) monitors this growth and progress by state.
- ⊙ The policy task now is twofold:
 1. Sustain high annual renewable energy additions, including solar, wind, and

hybrid sources.

2. Scale firming battery energy storage systems, pumped storage, and grid modernization. This will ensure that clean capacity results in clean generation hour by hour. Recent months have seen record monthly additions of renewable energy, indicating strong momentum.
- ⊙ Hard-to-abate industries like steel, cement, fertilizers, and refining need molecules, not just electrons. The National Green Hydrogen Mission (NGHM) is crucial in this regard, as it aims to produce at least 5 million metric tonnes (MMT) of green hydrogen annually by 2030, along with a corresponding expansion of ~125 GW of renewable capacity, substantial investments, job creation, and import savings. Use cases covered by pilot support include shipping, mobility, and green steel.

Markets and Pricing Signals

- ⊙ The Energy Conservation (Amendment) Act, 2022, empowered the Union government to establish a Carbon Credit Trading Scheme (CCTS), with detailed rules emerging in 2023–24 to operationalise a compliance carbon market potentially evolving beyond existing PAT/RPO/RGO regimes to economy-wide signals. This can lower abatement costs

and mobilise private capital when aligned with robust MRV (monitoring, reporting, verification).

2) Sector Pathways to 2070

Power: Clean, Firm, Affordable

- ⊙ **2030–2040:** Triple the investment in solar and wind. Scale pumped storage and battery energy storage systems to integrate over 35 to 40 percent of variable renewable energy in generation. Expand transmission within states and between states. Adopt market products for flexibility, such as ancillary services and capacity markets. Accelerate coal flexibility and retrofits to reduce the emissions intensity of remaining coal generation.
- ⊙ **2040–2055:** Deepen renewables and firming to replace coal in baseload segments. Add green ammonia as seasonal storage. Evaluate new nuclear options and small modular reactors (SMRs) if they are cost-competitive. Deploy CCUS carefully at industrial clusters with shared CO₂ transport and storage.
- ⊙ **2055–2070:** Achieve a mostly clean power system. This will enable the full electrification of transportation and buildings. It will also support the use of green hydrogen in industry.

3) Electrify, Switch Fuels, Re-make Materials

- ⊙ **Steel:** Transition from blast furnace, basic oxygen furnace to DRI-EAF routes using green hydrogen and high-quality scrap. Implement CCUS at the remaining BF-BOF sites.
- ⊙ **Cement:** Tackle process emissions by reducing the clinker factor, using alternative binders, implementing CCUS, and improving energy efficiency.
- ⊙ **Chemicals & Fertilisers:** Substitute green hydrogen for grey. Electrify heat where possible. Use process intensification and circularity.
- ⊙ **Cross-cutting:** Scale energy efficiency in motors, drives, and waste-heat recovery. Use digital twins and heat pumps for low-temperature heat.

Transport: Avoid–Shift–Improve

- ⊙ **Avoid:** Managing demand through transit-oriented development, using telepresence for service sectors, optimizing logistics.
- ⊙ **Shift:** Mass public transport, such as metro and e-buses, and non-motorized transport; expanding rail freight share.
- ⊙ **Improve:** Quick adoption of electric vehicles for two-wheelers and three-wheelers; electrifying bus fleets and last-mile transport; using biofuels and synthetic fuels for aviation; green hydrogen for long-haul trucking and shipping pilots.

Buildings & Cities: Efficiency First

- ⊙ National and state energy conservation building codes.
- ⊙ Super-efficient appliances.
- ⊙ Cooling through building envelope, district cooling, and high-efficiency ACs.
- ⊙ Rooftop solar and storage.
- ⊙ Smart meters and demand response.

Land Use, Forests, and Carbon Removals

- ⊙ **Forestry:** Improve forest and tree cover. Support biodiversity and livelihoods.
- ⊙ **Nature-based solutions:** Restore mangroves. Manage watersheds.
- ⊙ **Engineered removals (long term):** Use Direct Air Capture and BECCS where land and water allow. Follow LT-LEDS guidance on social and ecological factors.

Financing the Transition

⊙ The Investment Scale

- ▲ Multiple analyses point to a requirement in the multi-trillion-dollar range. A widely cited CEEW study estimates a cumulative investment of USD 10.1 trillion is needed for a net-zero pathway by 2070 across electricity, hydrogen, and vehicles. This comes with an investment gap of USD 3.5 trillion and requires USD 1.4 trillion in external support. As we look ahead to 2030, Indian authorities and market observers

highlight significant needs for funding aimed at adapting to and reducing climate impacts. Regulators are also starting to see climate as a systemic financial risk.

⊙ **Mobilising Capital: Five Levers**

1. **Domestic Green Finance Architecture:** Taxonomy-aligned green bonds, credit enhancements, and blended finance; improve disclosures and stress testing for climate risk. RBI signals on climate risk and disclosure highlight this direction.
2. **Public-Private Partnerships (PPPs):** For grid, transmission, storage, and urban transit.
3. **Carbon Markets/CCTS:** To create price signals for emissions reductions.
4. **International Climate Finance:** Concessional pools, guarantees, and project preparation facilities.
5. **State-Level Instruments:** Green municipal bonds for transit, water, and resilience.

Policy Instruments and Governance

⊙ **The Policy Spine to 2030**

- ▲ Updated NDC (2022): 45% cut in emissions intensity, about 50% of power capacity from non-fossil sources by 2030.
- ▲ LT-LEDS (2022): The long-term plan for various sectors, including Mission Life for sustainable consumption.
- ▲ National Green Hydrogen Mission (2023): Annual target of 5 MMT by 2030 with around 125 GW of renewable energy connected; pilots in steel, mobility, and shipping.
- ▲ Carbon Credit Trading Scheme (2023–24): New compliance carbon market designed to support economy-wide efforts to reduce carbon emissions.

⊙ **Federalism and the Role of States**

- ▲ Energy is a practical subject that involves several factors. The financial health of state utilities, land acquisition, permitting, and renewable energy

procurement policies affect success on the ground. State Electricity Regulatory Commissions (SERCs) can help achieve net zero by:

- Recognizing storage as infrastructure.
- Enabling time-of-day tariffs and demand response.
- Streamlining open access and rooftop procedures.
- Increasing green procurement for public fleets and buildings.

Technology and Innovation Bets

⊙ **Storage, Grids, and Flexibility**

- ▲ Scale BESS using clear revenue sources like arbitrage, ancillary services, and capacity. Use transparent tariffs for pumped storage.
- ▲ Smart grids involve AI-based forecasting, dynamic line rating, and improved distribution management for high-RE grids.

⊙ **Hydrogen and Its Derivatives**

- ▲ Green hydrogen is used for steel, fertilizers, and refineries. Green ammonia is for shipping and long-duration storage.
- ▲ Manufacture electrolyzers domestically through technology partnerships, standards, and safety codes.

⊙ **CCUS Where It Matters**

- ▲ Use a cluster approach with steel, cement, and refining belts that share CO₂ transport and storage. Focus on sites with suitable geology and value chains.

⊙ **Demand-Side Digitalisation**

- ▲ Smart meters and user-focused apps can reduce peak demand. Building energy analytics and industrial digital twins help optimize processes.

Equity, Jobs, and a Just Transition

1. Reskill coal and thermal power workers for jobs in renewables, storage, and grid services.
2. Make modules, cells, batteries, and electrolyzers in the country to benefit from

value chains.

- Support MSMEs with credit, toolkits, and



Milestone Map to achieve Net Zero

2025–2030: Foundation and Scaling

Sustain over 35 to 40 GW per year in renewable energy additions, commission utility-scale storage and pumped storage projects, and enable time-of-day pricing across the country.

- Implement CCTS compliance pathways, expand corporate renewable energy purchasing, and track green attributes.
- Achieve 5 MMT per year in green hydrogen production through phased incentives and demand creation in steel, fertilizers, and refining, and complete port and pipeline pilot projects.
- Double urban electric bus fleets, require efficient cooling standards, and make energy audits common in small and medium enterprises.
- Keep the 2030 Nationally Determined Contribution on track, with a 45% reduction in intensity and about 50% of non-fossil capacity maintained in operation, not just on paper.

2030–2040: Integration and Substitution

- Renewable energy plus storage replaces a significant portion of coal-fired generation, and gas peakers, if necessary, are used sparingly as ancillary services markets

vendor development to spread efficiency and clean technology in the Indian industry.

STRATEGIC INTERVENTIONS FOR GREEN HYDROGEN TRANSITION (SIGHT)



Supports Domestic Manufacturing of Electrolyzers



Offers Incentives on Production of Green Hydrogen

develop.

- Hydrogen demand increases, making India a competitive manufacturer of electrolyzers and hydrogen derivatives.
- Rail freight share increases, electric vehicles take over two-wheelers, and a significant portion of buses and last-mile fleets.

2040–2055: Deep Decarbonisation

- Carbon capture, utilization, and storage (CCUS) operates at industrial clusters, and green steel becomes common.
- Most buildings are energy efficient, district cooling is implemented in large cities, and vehicle-to-grid services are widely available. 2055–2070: Net Zero Landing
- Remaining emissions in agriculture, aviation, maritime, and some industrial processes are balanced by high-integrity removal methods, which include nature-based and engineered solutions, along with strong monitoring, reporting, and verification measures and permanence safeguards highlighted in Long-Term Low Emission Development Strategies.

2055–2070: Achieve a mostly clean power system. This will enable the full electrification of transportation and buildings. It will also support the use of green hydrogen in industry.

Risks and Remedies

Risk	Why it matters	Remedy
Grid integration lag	Clean capacity without clean generation	Fast-track transmission (GEC corridors), storage tenders, ancillary services, and flexibility markets
DISCOM finances	Weak utility balance sheets impede RE PPAs and payments	Tariff rationalisation, loss reduction, direct benefit transfers, escrow mechanisms
Capital cost & access	High cost of capital can stall projects	Sovereign guarantees/first-loss facilities, blended finance, green taxonomy clarity
Technology uncertainty	Cost/availability of H ₂ , CCUS, long-duration storage	Portfolio approach; results-based incentives; public R&D and standards
Social transition	Regional job impacts in coal belts	Place-based just-transition packages; reskilling; local manufacturing hubs
Policy fragmentation	Centre–state misalignment delays delivery	Cooperative federalism platforms; outcome-linked funds; national-state compacts

Conclusion

India's path to net zero by 2070 is not linear; it follows an S-curve of technology, finance, and governance. The country has established firm targets for 2030: a 45% reduction in emissions intensity and about 50% of its power capacity from non-fossil sources. India is already achieving important milestones in capacity while recognizing the significant work still needed in generation mix, reliability, and affordability.

Achieving net zero by 2070 is both a development strategy and a climate pledge. If executed effectively, it can position India at the forefront of a low-carbon economy in the 21st century electrified, efficient, and fair. MA

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SUSTAINABLE FINANCE: STEERING INDIA TOWARDS A GREENER FUTURE

Abstract

Sustainable finance has emerged as a crucial instrument for driving India's transition towards a low-carbon, resilient, and inclusive economy. With rising climate risks and ambitious national targets, including achieving net zero by 2070, financing mechanisms aligned with sustainability are pivotal. This article explores India's sustainability mission, climate policy evolution, Viksit Bharat initiatives, the green bond market, electric vehicle financing landscape, and the growing role of investor awareness in advancing sustainable finance. It further analyses the Union Budget 2024–25 as a step towards green economic growth and highlights the pathways for India to achieve its net-zero commitments. By bridging policy frameworks, financial innovation, and institutional engagement, sustainable finance not only supports India's climate agenda but also strengthens its position in the global transition towards a greener future.

Sustainability Mission: Unleashing a Journey towards Green Finance

India's sustainability mission represents a critical turning point in the country's financial and economic planning. Sustainable finance integrates environmental, social, and governance (ESG) factors into decision-making processes, ensuring that capital allocation promotes resilience, inclusivity, and environmental preservation. Initiatives such as the International Solar Alliance, National Hydrogen Mission, and green financing policies underscore India's intention to position sustainability at the heart of financial development. Green finance promotes investments



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in renewable energy, clean mobility, sustainable agriculture, and waste management, thereby linking economic growth to environmental stewardship.

Emergence of Climate Policy Envisaging a Greener Future

The emergence of climate policy in India reflects growing recognition of climate risks and the necessity of integrating sustainability in policymaking. The National Action Plan on Climate Change (NAPCC), along with its state-level counterparts, laid the foundation for renewable energy adoption, energy efficiency, and sustainable agriculture. Recent policy frameworks emphasize the need for green taxonomies, carbon trading mechanisms, and climate disclosure norms to

mobilize capital. By aligning climate policy with developmental priorities, India aims to balance growth with environmental responsibility.

Viksit Bharat Initiatives for Funding Climate-related Companies

The vision of *Viksit Bharat* by 2047 includes promoting sustainable economic models with strong emphasis on climate finance. Government initiatives seek to channel funds into green infrastructure, renewable projects, and low-emission industries. Schemes such as the Production Linked Incentive (PLI) for solar and batteries, and priority sector lending for green enterprises, demonstrate the government's resolve to fund companies aligned with climate goals. These measures foster innovation while also creating employment and supporting a green industrial transition.

India's Green Bond Market

India's green bond market has gained traction as a mechanism to raise capital for environmentally friendly projects. The first sovereign green bond issuance in 2023 signaled India's intent to mainstream climate finance. Corporates, banks, and municipalities are increasingly issuing green bonds to fund renewable energy, public transport, and water conservation projects. Regulatory guidelines from SEBI on green debt securities have provided credibility and transparency, attracting both domestic and global investors. The expansion of this market reflects India's growing financial innovation in climate solutions.

India's EV Financing Landscape to Align with Climate Priorities

Electric vehicle (EV) adoption is central to India's decarbonization strategy. However, high upfront costs and limited financing have been key challenges. To address this, financial institutions and fintechs are offering customized EV loans, leasing options, and battery-as-a-service models. Public sector banks and multilateral development banks are extending concessional finance to accelerate EV adoption. By improving affordability and infrastructure financing, India's EV financing ecosystem aligns with its climate goals while building a sustainable mobility future.

Sustainable Finance and Investor Awareness

Investor awareness is a cornerstone of sustainable finance. The growing trend of ESG investing reflects rising demand for transparency and accountability in corporate practices. Regulatory interventions such as the Business Responsibility and Sustainability Reporting (BRSR) framework have enhanced disclosures, enabling informed investor decisions. Financial literacy campaigns and sustainable investment products encourage retail participation, making green finance more inclusive. By bridging the gap between institutional investors, regulators, and the public, India is fostering a more sustainable investment ecosystem.

Union Budget 2024–25: Decoding a Sustainable Path to Combat Climate Change

The Union Budget 2024–25 reflects India's commitment to addressing climate change through targeted allocations. Provisions for renewable energy expansion, viability gap funding for offshore wind, incentives for EV manufacturing, and investments in sustainable agriculture highlight the government's green priorities. The budget also emphasizes climate-resilient infrastructure and enhanced credit availability for green enterprises. Such fiscal measures bridge policy with action, steering India towards its sustainability commitments while supporting economic competitiveness.

India's Journey Towards Net Zero by 2070

India's pledge to achieve net zero by 2070 represents both an opportunity and a challenge. Achieving this goal requires coordinated action across energy, transport, agriculture, and industry. Scaling renewable energy to 500 GW by 2030, promoting green hydrogen, and strengthening carbon markets are crucial milestones. International climate finance, technology transfer, and public-private partnerships will play a key role in meeting targets. Sustainable finance mechanisms remain central to this journey, ensuring that India's growth is both inclusive and environmentally sound.

Case Studies and Recent Statistics (2025)

A significant example of sustainable finance in India is the issuance of sovereign green bonds in

2023 and 2024, which raised approximately INR 160 billion (\$2 billion) to finance renewable energy, clean transportation, and climate adaptation projects (World Bank, 2023). According to the Climate Bonds Initiative (2024), India's sustainable debt market reached nearly USD 30 billion in cumulative issuance, demonstrating strong investor appetite.

In 2025, new data highlights India's accelerated progress:

- ⊙ The Reserve Bank of India reported that green bond issuance in India crossed USD 13.6 billion in FY 2024–25, marking a 25% year-on-year growth.
- ⊙ EV financing expanded significantly, with more than 1.8 million electric vehicles sold in 2024, a 42% rise from 2023 sales (ICCT, 2024).
- ⊙ India installed 15 GW of renewable capacity in 2024, pushing the total to 145 GW, keeping the country on track toward its 2030 target of 500 GW.
- ⊙ The Union Budget 2024–25 allocated INR 35,000 crore (USD 4.2 billion) for energy transition, green hydrogen, and grid modernization (EY, 2024).

Case studies such as the Delhi Metro Rail Corporation's (DMRC) green bond-funded clean transport initiatives and Tata Power's renewable energy expansion show how sustainable finance is transforming both public and private sectors.

These real-world examples underscore the power of finance in aligning India's development with its climate goals.

Conclusion

Sustainable finance stands at the intersection of India's developmental and environmental priorities. By promoting green bonds, EV financing, investor awareness, and climate-focused policies, India is steadily steering towards a low-carbon economy. The Union Budget 2024–25 reinforces this direction by linking fiscal strategy with sustainability. As India progresses towards its net zero target by 2070, collaboration between government, private sector, and civil society will be pivotal. Sustainable finance not only addresses climate risks but also unlocks opportunities for innovation, resilience, and inclusive growth, making it a cornerstone of India's greener future. MA

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Obituary



**CMA (Dr.)
Parasuraman N.R.**

The Institute and its members deeply mourn the demise of Mysuru Chapter Member, CMA (Dr.) Parasuraman N.R. on 26.08.2025.

He was the director of SDMIMD, (Shri Dharmasthala Manjunatheshwara Institute for Management Development) Mysuru from 2011-2023. He was instrumental in assisting Mysuru chapter in conducting many Institute's seminars in the SDM IMD Auditorium and he was always there in extending his hand in the Institute's activities.

May God bless the family to have the courage and strength to overcome the irreparable loss.

SUSTAINABLE FINANCE AND INVESTOR AWARENESS

Abstract

Curious about the future of finance? The world of investment is undergoing a dramatic shift, moving toward a more sustainable approach that balances financial returns with positive environmental and social impact¹. This isn't just a trend; it's a fundamental transformation driven by global challenges like climate change and social inequality.

"Sustainable Finance and Investor Awareness," delves into this evolving landscape, exploring the key components, practices, and global context of **sustainable finance**. It unpacks how **environmental, social, and governance (ESG)** factors are reshaping investment decisions and highlights the critical role of investor education in navigating this new frontier.

The article focuses on India as a leading example among emerging economies, detailing how the country's ambitious climate goals and evolving regulatory frameworks—such as SEBI's Business Responsibility and Sustainability Report (BRSR)—are accelerating the adoption of sustainable finance.

Introduction

Sustainable finance is fundamentally transforming investment decisions by embedding environmental, social, and governance (ESG) considerations into traditional financial frameworks. This holistic approach addresses the increasing urgency of global challenges—climate change, social inequity, and governance weaknesses—while ensuring financial returns aligned to long-term value creation.

Investor awareness is paramount in advancing sustainable finance. Well-informed investors



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can channel capital into projects and businesses contributing positively to society and the environment while managing emerging financial risks. This article explores sustainable finance's evolution, core components, practices, investor education importance, and the current global and Indian context driving rapid adoption, supplemented with practical case studies and disclosure frameworks.

Background and Context

Sustainable finance aligns financial markets with the objectives of sustainable development. Global commitments such as the United Nations Sustainable Development Goals (SDGs) and the Paris Agreement have prompted regulators and institutional investors to incorporate ESG considerations into capital allocation and risk management.

Green bonds, social bonds, and sustainability-linked loans are key instruments channeling funds toward renewable energy, social inclusion, and governance improvements. Globally, sustainable investment assets surged from \$12 trillion in 2015 to an estimated \$100 trillion by 2025, driven by regulatory initiatives and shifting investor preferences.

India is at the forefront of this transition among emerging economies. With a net zero carbon

pledge by 2070 and ambitious climate goals, India’s sustainable finance ecosystem is gaining momentum, supported by government incentives, evolving regulatory frameworks (notably SEBI’s Business Responsibility and Sustainability Report - BRSR), and growing retail investor interest.

Key Components of Sustainable Finance

The Power of Integrated Sustainable Finance



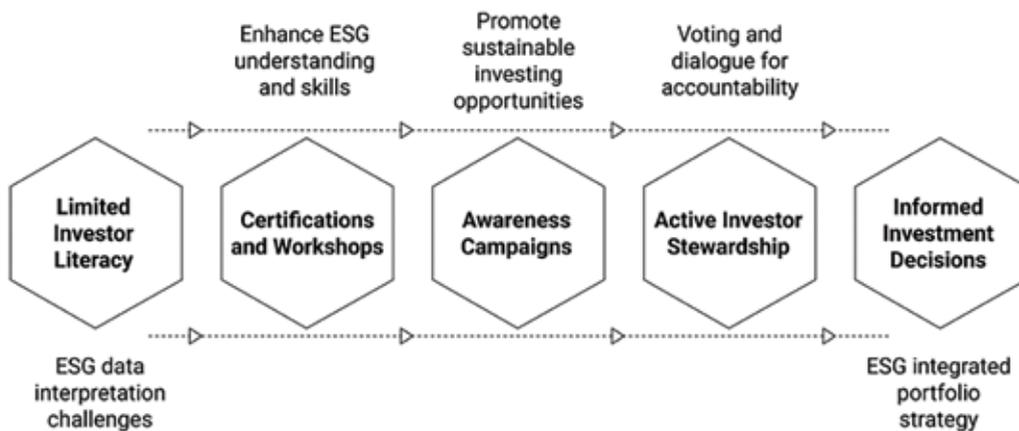
Sustainable finance rests on three intertwined pillars, often weighted as Environmental (40%), Social (30%), and Governance (30%).

- ⦿ **Environmental:** Involves climate risk mitigation, including emission reductions, resource conservation, pollution control, and climate resilience.
- ⦿ **Social:** Encompasses labor standards, diversity and inclusion, community engagement, and health and safety.
- ⦿ **Governance:** Includes board effectiveness, anti-corruption measures, risk management, and disclosure transparency.

Investment decisions evaluating these aspects manage risks not captured by traditional financial metrics and tap long-term growth aligned with global sustainability trends.

Investor Awareness and Its Critical Role

Empowering Investors for Sustainable Finance



Investor literacy shapes the impact of sustainable finance. Complexity and uneven ESG data quality challenge many investors, requiring education on interpreting ESG outcomes and integrating them in portfolio strategy.

Education through certifications, workshops, and investor awareness campaigns empowers investors to discern genuine sustainable

opportunities from greenwashing. Active investor stewardship, through voting and dialogue, reinforces corporate accountability and accelerates ESG adoption.

For instance, pension funds redirecting allocations toward low-carbon businesses can mitigate reputational and regulatory risks while seizing growth opportunities.

Sustainable Finance Practices and Trends

Below is a comparative view of dominant ESG investment strategies with detailed examples:

Strategy	Definition	Key Features	Examples
Exclusionary Screening	Avoids investment in sectors with negative ESG impacts	Eliminates sectors like coal, tobacco	Funds excluding coal mining companies
Positive Screening	Selects firms leading in ESG performance	Invests in ESG leaders across industries	Renewable energy firms such as Vestas, NextEra Energy
ESG Integration	Incorporates ESG data within fundamental financial analysis	Blends ESG risks and opportunities with finance	Credit risk models including carbon emissions data
Thematic Investing	Targets sustainability themes like clean tech or gender diversity	Focused investments aligned with sustainability	Water conservation and gender diversity-focused funds
Impact Investing	Pursues measurable positive social/environmental outcomes	Prioritizes measurable social/environmental impact	Microfinance for underserved communities

Growth of Global Sustainable Finance Assets

Sustainable finance assets have grown exponentially due to growing regulations and investor demand:

From \$12 trillion in 2015 to \$100 trillion by 2025, sustainable finance is reshaping global capital markets.

Breakdown of ESG Criteria and Financial Implications

Investors weigh ESG pillars to understand the material risk and opportunity profiles:

- ⦿ Environmental: Includes regulatory risk, operational efficiency, climate impact.
- ⦿ Social: Encompasses labor practices, community relations, workforce health.
- ⦿ Governance: Governance ensures ethical management and strategic oversight.

Why Sustainable Finance is More Crucial Today: Global and Indian Context

Economic & Market Conditions

Globally, ongoing climate challenges, regulatory reforms, and market transitions underscore sustainable finance’s urgency. Carbon-heavy sectors face increasing costs, while sustainability-oriented companies gain competitive advantages.

India’s rapid economic growth alongside commitments to reach net zero emissions by 2070 requires mobilizing substantial capital toward clean energy, efficient infrastructure, and social inclusion. With an expanding consumer base prioritizing sustainability, Indian markets are adapting rapidly.

Consumer & Social Factors

Millennials and Generation Z—who constitute approximately 65% of India’s population—are

steering demand for ESG investments aligned with their values. Empowered consumers and social communities hold companies accountable, influencing corporate strategies.

This demographic and social shift fosters inclusive and equitable growth strategies, elevating the importance of ESG-aligned investments in retail and institutional portfolios.

Changing Perspectives Through Adoption

Adopting sustainable finance builds resilience by reducing ESG-related risks, fostering innovation, and enabling investor confidence. India's supportive policies, green bond market expansion, and emerging green NBFCs are shifting capital allocation paradigms toward sustainability, signaling a national move towards embedding sustainability into economic growth.

Role of Finance Professionals & CMAs in Sustainable Finance

Professional accountants, company secretaries,

cost accountants, and finance experts play pivotal roles:

- ⊙ ESG data assurance and auditing foster transparency.
- ⊙ Integrating ESG management and disclosures in financial reports.
- ⊙ Advising corporations on compliance with evolving ESG standards.
- ⊙ Leading innovation in sustainability-linked financial products.

Their expertise is crucial in aligning financial frameworks with sustainability imperatives, ensuring market integrity, and supporting global competitiveness.

India's ESG Disclosure Frameworks Aligned with Global Standards

With the rapid expansion of ESG investing in India, robust disclosure frameworks have become vital.

India's ESG Disclosure Framework



SEBI's Business Responsibility and Sustainability Report (BRSR)

- ⊙ Mandatory ESG reporting for the top 1000 listed companies since FY 2022-23.
- ⊙ Detailed disclosures on environmental impact, social responsibility, governance, and value chain.
- ⊙ Progressive introduction of mandatory Scope 3 emissions reporting.

- ⊙ Inclusion of green credit disclosures incentivizes environmental stewardship.
- ⊙ Flexible assurance options allow gradual sophistication.

Governmental and Regulatory Support

- ⊙ RBI promotes ESG risk integration in banking.
- ⊙ Draft Climate Finance Taxonomy guides green finance flows and standards.

- ⦿ Policies encourage MSMEs and startups to embed ESG practices, broadening ecosystem inclusivity.

Comparative Global ESG Frameworks

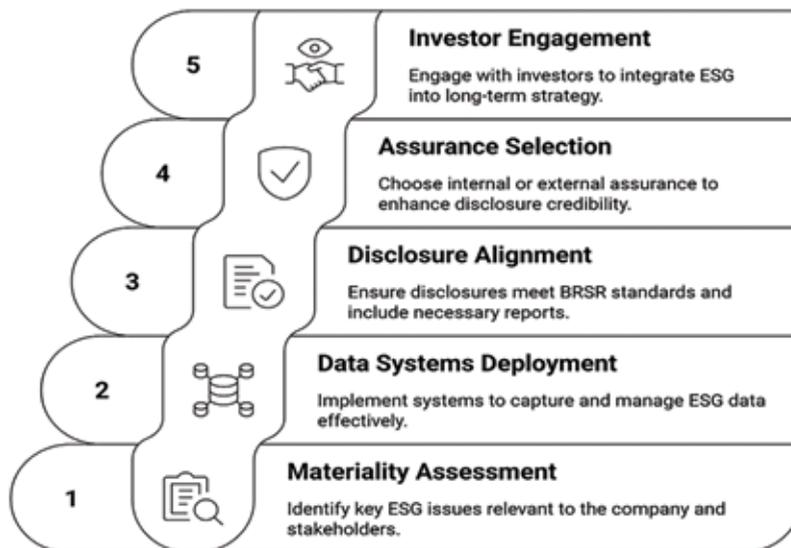
Indian frameworks harmonize with global standards:

Framework	Features	Applicability	Relation to BRSR
Global Reporting Initiative (GRI)	Detailed sustainability metrics	Multi-industry, global	BRSR draws heavily from GRI principles
Sustainability Accounting Standards Board (SASB)	Financial materiality, sector-specific	US-centric, broad	BRSR incorporates SASB for sector materiality
Task Force on Climate-related Financial Disclosures (TCFD)	Climate risk focus with scenario analysis	Financial institutions worldwide	BRSR aligns climate disclosures accordingly
Corporate Sustainability Reporting Directive (CSRD-EU)	Mandatory EU-wide disclosures	EU firms	BRSR comparable, less prescriptive
International Sustainability Standards Board (ISSB)	Emerging global unified standards	Global IFC umbrella	BRSR to evolve alongside ISSB developments

Practical Guide for Indian Companies on ESG Compliance

1. Conduct materiality assessments tailored to sector and stakeholders.
2. Deploy integrated data systems capturing emissions, social metrics, governance performance.
3. Align disclosures with BRSR templates, including value chain and green credit reports.
4. Select internal or external assurance to boost disclosure credibility.
5. Engage investors transparently to synthesize ESG into long-term strategy.

Achieving ESG Compliance



Case Studies: Indian Firms Leading ESG Disclosure

- Major Indian corporates in power and automobile sectors have adopted SEBI’s BRSR voluntarily prior to mandates, showcasing ESG-driven operational improvements and investor relations benefits.

- Financial institutions like ICICI Bank and SBI report comprehensive climate risk management aligned with TCFD recommendations, positioning themselves advantageously with global investors.

Future Outlook and Conclusion

Sustainable finance represents a paradigm shift in capital allocation, risk management, and corporate governance. India's vibrant sustainable finance ecosystem, underpinned by robust disclosure standards and growing investor awareness, is poised for significant growth.

For finance professionals and investors, expertise in ESG frameworks and sustainable investing practices is indispensable. Together, they foster a resilient, inclusive economy that meets ambitious climate and social goals. **MA**

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At the Helm!!!



CMA Proteek Kumar Chakraborty

Our Heartiest Congratulations to CMA Proteek Kumar Chakraborty who assumed charge as Director (Finance) at Electronics Corporation of India Limited (ECIL), a Schedule 'A' CPSE under the Department of Atomic Energy, A Miniratna Company.

Prior to this appointment, he had served as Additional General Manager (Finance) at Bharat Heavy Electricals Limited (BHEL). He also held the position of Chief (Finance) at the Central Electricity Regulatory Commission (CERC) a Joint Secretary-level role from July 2021 to January 2024. He is a member of the Institute of Cost Accountants of India as well as the Institute of Company Secretaries of India. He also holds a Bachelor's degree in Commerce from St. Xavier's College, Ranchi, and brings with him over 31 years of diversified experience in various domains of Finance and Accounts. He also contributed to international energy cooperation as a member of the Ministry of Power's "One Sun One World One Grid" taskforce from CERC, exploring global electricity grid interconnections.

We wish CMA Proteek Kumar Chakraborty the very best for all his future endeavours.

INDIA'S ENVIRONMENT AUDIT RULES – A STEP IN THE RIGHT DIRECTION

Abstract

India's robust environmental laws have historically faced weak enforcement, resulting in an "implementation deficit" that hinders national commitments to SDGs like Net Zero by 2070. To strengthen the compliances and address this situation, the Ministry of Environment, Forest and Climate Change has notified the **Environment Audit Rules, 2025**. The objective of this paper is to assess the implications of the notified rules for environmental governance, compliance, and professional opportunities for CMAs arising therefrom. These Rules introduce a mandatory, independent, third-party verification system to supplement existing regulatory bodies. The new institutional structure envisaged in the notified rules is expected to play a major role in bridging capacity gaps and ensure accountability. The audit scope is broad, covering major environmental legislations, waste management, and new frameworks like the Green Credit Rules. The initiative shifts environmental governance from reactive enforcement to a proactive, expert-led compliance architecture, significantly boosting transparency and creating new roles, especially for professionals like CMAs.

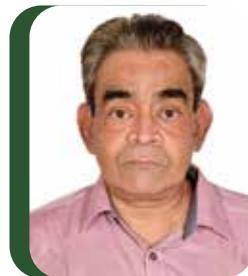
Background

With the increasing focus on ESG (Environment Social and Governance) including the importance attached to climate change related issues, the challenge before the governments world over is to balance Ease of Doing Business with responsibility towards providing a clean environment.



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In the case of EU generally, most of the member countries have established complex multi-layered system of governance to implement and enforce compliance of the prescribed regulations. In the case of USA with its complex Federal – State structure often characterised by variations between the states, the courts play a stellar role in enforcing and interpreting environmental law in a system well-known for “adversarial legalism”, where activists and citizen groups often bring lawsuits against polluters.¹ Amongst the emerging economies, China has prioritised economic growth. However, yielding to pressure groups it has put in place legal environmental framework since 2014,

¹ https://repository.law.umich.edu/book_chapters/417/#:~:text=Environmental%20regulation%20in%20the%20United,%2C%20industrial%2C%20and%20governmental%20activities.

but the structure is extremely complex involving multiple ministries and regulations, which has affected the enforcement and compliance.

India has in place a complex and well-intentioned structure with respect to rules and regulations concerning environment protection dating back to 1986, but is hampered by a fragmented governance structure contributing to weak enforcement characterised by lenient penalties which have given rise to a “Pollute and Pay” culture as against the targeted robust compliance. Further, there is an implementation deficit despite there being strong laws and judicial pronouncements mainly due to inadequate resources and staffing in regulatory bodies, corruption, prolonged judicial processes and lack of public awareness.² After detailed consultations with the stakeholders, the central government has notified the Environment Audit Rules, 2025 (notified rules) to strengthen the compliance mechanism.

Necessity for an audit mechanism

Viewed from a global perspective, India has given specific commitments towards Sustainable Development Goals (SDGs) relating to climate, energy and resource management such as for example Net Zero by 2070, Reduction of emission intensity vis-à-vis GDP by 45% compared to 2005 levels before 2030, and achievement of at least 50% electricity generation capacity through non-fossil sources by 2030. It is important to not only achieve these goals but from a regulatory perspective it is necessary to obtain reasonable assurance with respect to the reliability of the environment related data based on which it is sought to conclude whether the accomplishment of the SDGs has been achieved and if not the extent of deviation.

According to the preamble to the notified rules, the audit mechanism is being evolved primarily to strengthen environmental accountability, compliance, and governance across India. It clearly provides that the environment audit as envisaged is not an alternate to the existing system of compliance and monitoring through government agencies but is only to supplement the current efforts of the government

² <https://taxguru.in/corporate-law/environmental-legislation-in-india-challenges-pathways.html#:~:text=Ineffective%20Law%20Enforcing%20and%20Corruption,the%20potency%20of%20law%20enforcement.>

agencies, which will continue with their existing role of inspection and verification, as and when required.

The necessity for the audit mechanism, as reflected in the objectives and rationale of the Rules, include:

- ⊙ *Bridging Capacity Gaps*: The audit mechanism, by introducing a pool of certified, independent auditors, aims to supplement the existing compliance monitoring framework provided by government regulators (like the Central Pollution Control Board and State Pollution Control Boards). This is essential to overcome manpower and infrastructure deficits faced by regulatory authorities in comprehensively monitoring a vast number of industries and projects.
- ⊙ *Ensuring Independent Verification and Accountability*: The mechanism seeks to institutionalize independent third-party verification of environmental performance. This promotes greater transparency, objectivity, and accountability by creating a system where a Registered Environment Auditor (REA) independently assesses an entity’s compliance with environmental laws, standards, and clearance conditions.
- ⊙ *Promoting Compliance and Prevention of Degradation*: The audit is a systematic process to assess how well an entity is complying with environmental laws (such as the Environment Protection Act, 1986, and the Air/Water Acts). This ensures that projects adhere to stipulated safeguards, verify the effectiveness of pollution control measures, and identify violations to initiate prompt remedial steps, thereby helping to prevent, control, and abate environmental pollution.
- ⊙ *Aligning with Strategic Environmental Frameworks*: The mechanism is necessary to integrate and support emerging environmental instruments and national commitments, such as the Green Credit Rules, ESG (Environmental, Social, and Governance) disclosures, “Ecomark” certification, and India’s goals under the LIFE (Lifestyle for Environment) mission. Audits provide the data and verification needed for these frameworks.
- ⊙ *Enhancing Trust and Ease of Doing Business*: The rules envisage professionalism in the audit

process through certification, registration, and a system of random assignment for auditors, thereby seek to reduce conflicts of interest, build public and institutional trust in environmental assessments, and at the same time, ease the process of doing business by creating a more transparent regulatory environment.

It is hoped that the audit mechanism will facilitate the transition towards a proactive, structured, and expert-led compliance architecture as against the presently reactive enforcement of compliance in the environment space thereby boosting environmental governance.

Effective date of the Notified Rules and coverage

The notified rules namely Environment Audit Rules, 2025 has come into effect from 29th August 2025 being the date of the official notification by the Ministry of Environment, Forest and Climate Change (MoEFCC).³

The preamble to the notified rules refers to certain principal legislations and subordinate legislations specifically but is inclusive in nature as can be inferred from the use of the words “and other such legislations or under extant rules, regulations, notifications or directions of the Government, which mandate verification and auditing for the purposes of ascertaining compliance under various legislations or notifications or directions”. This flexibility indicates a huge unbounded potential for the environmental audits.

The following principal and subordinate legislations are specifically listed in the preamble⁴: -

- ⦿ Environment Protection Act, 1986
- ⦿ Ecomark Rules, 2024,
- ⦿ E-Waste (Management) Rules, 2022,
- ⦿ Plastic Waste Management Rules, 2016 and
- ⦿ Battery Waste Management Rules, 2022 and
- ⦿ Any other rules issued by the MoEFCC from time to time.
- ⦿ Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980,

³ Notification No. S.O. 3973(E) dated 29th August, 2025 issued by the Ministry of Environment, Forest and Climate Change (MoEFCC).

⁴ Ibid..3

⦿ Wild Life (Protection) Act, 1972

There are also references to the *Air (Prevention and Control of Pollution) Act, 1981*, the *Water (Prevention and Control of Pollution) Act, 1974*, *Notifications related to Environment Impact Assessment and Coastal Regulations Zone* within the notified rules.

Key Stakeholders and Responsibilities in Environment Audit

The Institutional structure consists of **Environment Audit Designation Agency (EADA), Certified Environment Auditor (CEA) and Registered Environment Auditor (REA)**. **Other than EADA, CEA and REA, the Project Proponent and the Regulatory authorities are the key stakeholders.** **Given below** is a summary table outlining the key stakeholders and their primary responsibilities within the institutional structure of Environment Audit:

Stakeholder	Role/ Description	Key Responsibilities
Environment Audit Designation Agency (EADA)	An agency notified by the Central Government for overall management of the Environment Audit function.	Overall management of the Environment audit function. Certifying and registering auditors (CEA/ REA). Conducting examinations Monitoring Performance Maintaining an online public register . Facilitating training.
Certified Environment Auditor (CEA)	An individual certified by EADA as qualified to undertake audits.	Qualified to undertake audits and such other functions. Qualifies either through a National Certification Examination or by way of Recognition of Prior Learning.

Stakeholder	Role/Description	Key Responsibilities
Registered Environment Auditor (REA)	A CEA or a firm/body corporate with two or more CEAs, registered with EADA.	Conducting Environment audits and Performing such other functions as may be prescribed by the Central Government.
Project Proponent	Entities, developers, and industries that must comply with environmental norms and/or require regulatory clearance.	Complying with environmental norms. Providing access to auditors/inspectors. Co-operating with auditors/inspectors in the discharge of their duties.
Regulatory Authorities	Comprised of Central and State Pollution Control Boards (CPCB/SPCB), Pollution Control Committees (PCC), and MoEFCC.	Assigning the audits/audit duties. Monitoring compliances along with the findings of the REA.

Scope of Audit by REAs under the notified rules

The scope of an environment audit as per the Environment Audit Rules, 2025 (of India) is broad and systematic, focusing on independent third-party verification of compliance with various environmental laws and obligations.

The key areas that fall under the scope of the environmental audit include:

1. Compliance Evaluation:

- ⊙ Systematic audit, verification, examination, inspection, or analysis of any project, activity, or process that has a bearing on the environment.
- ⊙ Verifying adherence to environmental standards and stipulated safeguards prescribed by regulatory authorities.
- ⊙ Assessing conformity with general as well as specific conditions mentioned in various

“green approvals” like Environmental Clearance (EC) and Coastal Regulation Zone (CRZ) compliance.

2. Statutory Compliance Verification:

- ⊙ Checking compliance with major environmental laws, including the:
 - ▲ Environment (Protection) Act, 1986
 - ▲ Water (Prevention and Control of Pollution) Act, 1974
 - ▲ Air (Prevention and Control of Pollution) Act, 1981
 - ▲ Forest (Conservation) Act, 1980 (referred to as Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980)
 - ▲ Wild Life (Protection) Act, 1972

3. Pollution and Waste Management:

- ⊙ Conducting sampling and analysis of emissions, effluents, and solid or hazardous wastes.
- ⊙ Evaluating the performance and effectiveness of installed pollution control systems and waste management systems.
- ⊙ Undertaking audits under specific frameworks like:
 - ▲ Waste Management Rules (e.g., Plastic Waste Management Rules, E-Waste Management Rules, Hazardous Waste Management Rules).
 - ▲ Extended Producer Responsibility (EPR) compliance.

4. Reporting and Enforcement Activities:

- ⊙ Identifying and reporting any violations or non-compliance with environmental regulations.
- ⊙ Computing environmental compensation for non-compliance and violations, where required by the competent authority.
- ⊙ Verifying self-compliance reports submitted by project proponents.

5. Integration with New Environmental Frameworks:

- ⊙ Undertaking verification activities under the Green Credit Rules, 2023 (for carbon and ecological credits).
- ⊙ Conducting audits for schemes like “Ecomark” certification and supporting

disclosures related to ESG (Environmental, Social, Governance).

Opportunities for CMAs

The Environment Audit Rules, 2025, create significant opportunities for Cost and Management Accountants (CMAs) by formalizing the requirement for third-party environmental compliance verification, which inherently links environmental performance with financial and operational efficiency.

CMAs can leverage their expertise in cost analysis, resource optimization, and management reporting to fulfil new and expanded roles in Environmental Management Accounting (EMA) and auditing.

1. Statutory Role as a Registered Environment Auditor (REA)

The direct opportunity is to qualify as a Certified Environment Auditor (CEA) and subsequently become a Registered Environment Auditor (REA), which is the only capacity authorized to conduct mandatory environmental audits under the Rules. CMAs can meet the eligibility criteria through the National Certification Examination (NCE) or Recognition of Prior Learning (RPL), depending on the guidelines.

CMA's Audit Responsibilities as an REA	Relevance of CMA Skills
Calculating Environmental Compensation	CMAs' core competency in quantification, costing, and liability estimation is essential for computing with reasonable accuracy the financial penalties for non-compliance.
Verification under Green Credit Rules	CMAs are well-suited to verify and report on economic activities like afforestation and waste management to earn tradable Green Credits, an activity that requires precise measurement and economic valuation.
Auditing Resource Flows	Auditing compliance with waste management rules, which requires tracking the physical flow of materials (input vs. output) to identify wastage—a key principle of cost accounting (mass balance approach).

2. Environmental Management Accounting (EMA) and Cost Reduction

The Rules increase the financial risk of non-compliance (through penalties and operational stoppages), making the CMA's role in proactive internal cost control crucial for businesses.

- ⦿ *Environmental Cost Tracking*: Establishing a comprehensive Environmental Management Accounting system to accurately identify, track, and report on all environment-related costs, which often go unnoticed in traditional financial accounting. These include:
 - ▲ Cost of wasted raw materials.
 - ▲ Disposal and treatment costs (waste, effluent, emissions).
 - ▲ Taxes, fees, and regulatory costs (e.g., landfill tax, water cess).
 - ▲ Costs of non-compliance (fines, cleanup).
- ⦿ *Resource Efficiency Assessment*: Using cost analysis techniques to advise management on optimal resource use (energy, water, raw materials), identifying inefficiencies, and calculating the Return on Investment (ROI) for adopting cleaner technology or pollution control equipment.
- ⦿ *Life-Cycle Costing*: Evaluating the total environmental cost of a product or process, from raw material procurement to disposal, to making informed decisions on process redesign and product pricing.

3. Financial and Integrated Reporting

CMAs play a strategic role in translating environmental performance into financial value and preparing the sophisticated reports demanded by stakeholders.

- ⦿ *ESG and Integrated Reporting*: The data generated by mandatory environmental audits becomes the basis for enhanced Environmental, Social, and Governance (ESG) disclosures and Integrated Reporting (IR). CMAs plays a major role in quantifying non-financial performance metrics and integrating them with the company's financial statements.
- ⦿ *Capital Budgeting for Sustainability*: Assisting management in capital expenditure decisions for environmental projects (e.g., solar plant

installation, effluent treatment plants) by conducting feasibility studies, budgeting, and performance monitoring.

- ⊙ *Risk Management and Liability*: Quantifying potential environmental liabilities and compliance risks, allowing the company to set aside appropriate provisions and manage risk exposure based on audit findings.

Way Forward

The Environment Audit Rules, 2025, notified by the MoEFCC, represent a significant reform in India's environmental governance. The "way forward" centres on effective implementation and addressing the practical challenges associated with this new framework, key Components could be as under: -

1. *Operationalising the Environment Audit Designated Agency (EADA)*:

- ⊙ EADA, the nodal body, needs to be fully established and resource-equipped immediately.
- ⊙ Its key immediate tasks include finalising eligibility criteria and the certification process for Certified Environment Auditors (CEAs) and Registered Environment Auditors (REAs) (via examination or a Recognition of Prior Learning pathway).
- ⊙ Developing a robust, transparent, and functional online platform for the randomized assignment of REAs to projects to eliminate conflicts of interest.
- ⊙ Creating and maintaining the public register of certified auditors and audit findings.

2. *Capacity Building and Training*:

- ⊙ Initiatives are required to train and certify a sufficient pool of qualified REAs to meet the audit demands of the vast Indian industrial landscape (estimated to be around 2.5 lakh industrial units).
- ⊙ Continuous capacity building and updated training for REAs on evolving environmental laws, technical standards, and integration with new frameworks like the Green Credit Rules, 2023.

- ⊙ Training for regulatory authorities (CPCB, SPCBs) on how to effectively use the audit findings for enforcement and to focus their limited resources on high-risk cases.

3. *Ensuring Auditor Quality and Independence*:

- ⊙ Strict adherence to the Code of Conduct for REAs, with rigorous monitoring and disciplinary action for misconduct, to maintain the credibility of the audit system.

- ⊙ Developing clear protocols for audit methodology, sampling, analysis, and standardized reporting to ensure consistency and high quality across all audits.

4. *Strengthening Enforcement and Integration*:

- ⊙ Audit findings must be directly linked to actionable penalties and remedial measures. The system needs to ensure that non-compliance detected by the REA results in swift and effective corrective action by the regulatory bodies.
- ⊙ Seamless integration of the audit reports with the functioning of the CPCB, SPCBs, and other regulatory frameworks.
- ⊙ Ensuring public disclosure of audit results and enforcement actions (as opposed to just submitting them to the government) to maximize transparency and public trust.

5. *Addressing Implementation Challenges*

for MSMEs by developing mechanisms to support Micro, Small, and Medium Enterprises (MSMEs), which may struggle with the cost and administrative burden of mandatory audits. This may call for subsidised audits, simplified audit procedures, or incentive-based compliance models for smaller players.

To sum up, the way forward is to move from the notification of the rules to their effective, rigorous, and transparent implementation to achieve the stated objectives of enhancing environmental compliance and strengthening governance through stronger ESG reporting and emphasis on proactive environmental governance. **MA**

GREEN FINANCE: CATALYSING THE NET-ZERO TRANSITION – THE IMPERATIVE FOR FINANCE PROFESSIONALS

Abstract

Achieving a net-zero global economy requires a massive shift in how capital is allocated. Green finance lies at the heart of this transformation, directing funds to environmentally sustainable projects. This article explains what green finance is, how it has evolved, and why it is becoming essential—especially in emerging markets like India.

Government policies and financial regulations are driving this momentum, helping private capital enter the green transition with lower risk. Finance professionals now play a crucial role in designing, managing, and reporting sustainable financial instruments. Understanding Environmental, Social, and Governance (ESG) factors is no longer optional—it is a fundamental skill for anyone shaping the future of finance.

“**G**reen finance is transforming global capital flows to drive the net-zero transition. Finance professionals now play a pivotal role in shaping this sustainable future.”

The Global and National Imperative for Green Finance

Green finance included the financial products and services that facilitate the flow of capital toward environmental objectives, such as climate change mitigation, adaptation, biodiversity conservation, and pollution control. It is an operational necessity driven by both **climate**



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urgency and economic opportunity.

The global commitment to the Paris Agreement and national pledges for a net-zero future require trillions of dollars of funding. Because governments alone cannot meet this need, private finance has become the main driver of the transition. The sheer scale of this challenge—estimated to require massive annual funding—has firmly cemented the financial sector’s role as a primary catalyst for transformation.

Green Finance vs. Sustainable Finance

It is crucial for professionals to distinguish between terms:

- ⊙ **Green Finance** specifically targets **environmental** outcomes (e.g., funding a solar park).
- ⊙ **Sustainable Finance** is the broader umbrella, incorporating **Environmental, Social, and Governance (ESG)** factors into investment decisions to achieve long-term sustainability and resilience. While all green finance is sustainable, not all sustainable finance is strictly “green” (e.g., a social bond for affordable housing).

Government Schemes and the Policy Push

Governments, central banks, and financial regulators play a dual role: creating a stable regulatory environment and directly incentivizing green investment. This policy push is vital, as it lowers risk perception for private investors and standardizes the definition of “green,” combating the risk of “greenwashing” (false sustainability claims).

Key Policy and Regulatory Mechanisms

- Green Taxonomy and Disclosure Rules:** A “green taxonomy” defines what counts as an environmentally sustainable activity. SEBI’s Business Responsibility and Sustainability Reporting (BRSR) requires listed companies in India to disclose ESG

metrics, helping investors assess climate risks.

- Central Bank Initiatives:** The Reserve Bank of India (RBI) is studying how climate risks affect banks and may soon adjust lending rules to promote green assets or integrate climate factors into monetary policy.

Illustrative Government Schemes (Focus on an Emerging Market Example)

In high-growth, high-emissions economies, government schemes are critical for risk mitigation and providing concessional finance to small and medium enterprises (SMEs) that lack the capital for green transition. Examples from India highlight this:

Scheme/Initiative	Administering Body	Purpose & Financial Mechanism
Green Business Scheme (GBS)	National Safai Karamcharis Finance and Development Corporation (NSFDC)	Provides concessional loans for income-generating, climate-friendly activities (e.g., e-rickshaws, solar gadgets) to marginalized sections.
Green Investment Financing for Transformation (MSE-GIFT)	Small Industries Development Bank of India (SIDBI)	A sub-scheme under the RAMP program providing concessional institutional finance to Micro and Small Enterprises (MSEs) for adopting clean/green technologies and energy-efficient practices.
Green Finance Scheme (GFS) & 4E Scheme	Small Industries Development Bank of India (SIDBI)	Offers term loans (Rupee or Foreign Currency) up to a significant portion of the project cost for manufacturing and service MSMEs in the green value chain (Renewable Energy, Water Management, E-Mobility).
Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME)	Department of Heavy Industry	Provides financial incentives and subsidies to promote the adoption and manufacture of Electric Vehicles (EVs), indirectly driving financing demand for EV infrastructure and loans.

Scheme/Initiative	Administering Body	Purpose & Financial Mechanism
IFSCA Sustainable Finance Framework	International Financial Services Centres Authority (IFSCA)	Mandates banking and finance units in the IFSC to allocate a minimum percentage of new loans to green, social, or sustainable projects, establishing a crucial financing gateway for India's green transition.

These schemes demonstrate a targeted use of **blended finance**, using public capital to reduce risk and attract significantly larger private investment into areas like SME efficiency and social equity in the green transition.

The Indian government also plans to raise ₹6.77 lakh crore in H2 of FY 2025–26, including ₹10,000 crore through Sovereign Green Bonds, which shall be completed through 22 weekly auctions till March 6, 2026.

The Indispensable Role of the Finance Professional

The rise of green finance has transformed the required skill set for financial professionals. Success in this evolving landscape demands an integration of core financial expertise with specialized knowledge of environmental science, policy, and impact measurement.

A. Investment Management and Analysis

1. ESG Integration and Valuation:

Financial analysts and portfolio managers are at the forefront of integrating ESG factors into financial modelling and valuation. This involves:

- ⊙ **Stress Testing:** Evaluating a company's performance under various climate scenarios (e.g., a "hot house" world or a rapid 1.5°C transition).
- ⊙ **Materiality Assessment:** Identifying the most financially relevant ESG issues for a specific sector (e.g., water risk for a beverage company or carbon pricing for a utility).
- ⊙ **Data and Reporting:** Interpreting complex sustainability data (often unstructured) from

frameworks like the Task Force on Climate-related Financial Disclosures (TCFD) and the International Sustainability Standards Board (ISSB) for inclusion in investment theses.

2. Product Structuring and Innovation:

Product specialists are developing and bringing to market novel green instruments:

- ⊙ **Green, Social, and Sustainability (GSS) Bonds:** Ensuring adherence to globally recognized standards like the **Green Bond Principles (GBP)**, which demand rigorous reporting on the use of proceeds and environmental impact.
- ⊙ **Sustainability-Linked Instruments (SLB/SLL):** Structuring bonds or loans where financial characteristics (e.g., coupon rate, interest rate) are tied to the issuer's achievement of ambitious, measurable **Sustainability Performance Targets (SPTs)**. This requires deep engagement with the borrower's sustainability strategy.

B. Corporate Finance and Risk Management

1. Strategic Capital Allocation:

Corporate finance teams now advise on how to align capital expenditure (CapEx) with net-zero commitments. This includes:

- ⊙ **Internal Carbon Pricing:** Assigning a shadow price to carbon emissions in project evaluation to favour low-carbon investments.
- ⊙ **Green CapEx Financing:** Utilizing green finance instruments to secure cheaper capital for transition projects, improving the Weighted Average Cost of Capital (WACC)

for green initiatives.

2. Climate Risk Analytics:

Risk managers are transitioning from purely financial risk to integrated climate risk management.

- ⊙ **Physical Risk:** Quantifying the potential financial losses from extreme weather events (e.g., flood damage to assets, supply chain disruption).
- ⊙ **Transition Risk:** Assessing the financial impact of policy, technology, and market shifts (e.g., devaluation of fossil fuel assets due to a carbon tax or new clean technology).
- ⊙ **Compliance:** Ensuring the firm's lending and investment portfolios comply with emerging green taxonomies and regulatory stress tests.

C. The Evolving Competency Model

To meet these demands, the finance professional must possess:

- ⊙ **Financial Acumen:** Core skills in financial modelling, valuation, and portfolio construction remain essential.
- ⊙ **ESG/Sustainability Expertise:** Formal certifications, such as the **CFA Institute's Sustainable Investing Certificate** or **GARP's Sustainability and Climate Risk (SCR) Certificate**, are becoming industry benchmarks.
- ⊙ **Regulatory Awareness:** Up-to-date knowledge of evolving national and international sustainable finance regulations.
- ⊙ **Data and Technology Skills:** Proficiency in leveraging Big Data and AI tools to manage, analyse, and report on diverse, non-financial ESG data.

Challenges and the Way Forward

While the momentum is strong, the green finance ecosystem faces challenges that finance professionals must address:

- ⊙ **Standardization and Interoperability:** A lack of globally harmonized green taxonomies and reporting standards creates complexity and market fragmentation. Finance experts must champion the adoption of global frameworks like the ISSB.
- ⊙ **Greenwashing Risk:** The risk of firms overstating their environmental credentials erodes investor trust. Professionals, particularly in audit and external review functions, must enforce robust governance and verification mechanisms.
- ⊙ **Bridging the Adaptation Gap:** Most green finance is currently directed towards mitigation (e.g., solar and wind). There is an urgent need to structure instruments that finance **climate adaptation** and resilience projects, often involving public-private blended finance structures to address higher inherent risks.

The finance professional is no longer just an allocator of capital; they are an **architect of the sustainable economy**. By integrating core financial expertise with a deep understanding of climate risk, policy, and impact, they will unlock the multi-trillion-dollar opportunity that green finance represents, delivering both financial returns and long-term societal value. MA

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DIGITAL TRANSFORMATION AND SUSTAINABILITY: FROM STEAM TO SMART – HOW DIGITAL TRANSFORMATION POWERS A SUSTAINABLE FUTURE

Abstract

This paper conceptually examines the role of digital transformation in achieving sustainability goals through ESG-aligned practices.

The evolution from steam-powered industries to smart digital ecosystems reflects humanity's enduring quest for innovation and progress. Today, as the world faces unprecedented challenges of climate change, resource depletion, and social inequity, digital transformation has emerged as a cornerstone of sustainable development. Technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), blockchain, and big data analytics are enabling industries to operate more efficiently, reduce environmental impact, and transition toward low-carbon and circular economic models. This paper explores how digital transformation aligns with Environmental, Social, and Governance (ESG) objectives, driving responsible innovation and intelligent resource optimization across sectors. It also examines the “twin transition” — the convergence of digitalisation and the green transition — as a defining force of Industry 4.0 and the emerging Industry 5.0, where human creativity harmonizes with machine intelligence. The journey from steam to smart thus signifies not only technological advancement but also a moral evolution — toward a future that is productive, inclusive, and sustainable.



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Introduction

The journey from steam engines to smart technologies marks a remarkable evolution in human innovation. Each industrial revolution has transformed how societies produce, consume, and connect. Today, as the world faces the twin crises of climate change and resource scarcity, digital transformation stands not merely as a hallmark of progress but as a catalyst for sustainability — enabling economic growth that is intelligent, inclusive, and environmentally responsible.

From Steam to Smart: A Historical Evolution

Humanity's industrial journey can be seen through five stages of transformation:

1. **Industry 1.0 – The Age of Mechanisation (Steam Power):** The late 18th century ushered in steam engines that mechanised production. This leap drove economic expansion but at the cost of environmental degradation and harsh labour conditions. ESG principles were non-existent, yet this era planted the seeds of industrial regulation and social reform.
2. **Industry 2.0 – The Age of Electrification and Mass Production:** Electricity and assembly lines enabled scale and standardisation. Factories multiplied, urbanisation accelerated, and global trade expanded. However, carbon-intensive growth deepened ecological footprints. The period also witnessed the rise of labour laws and early corporate governance frameworks.
3. **Industry 3.0 – The Age of**

Automation and Computing: With electronics, computers, and early robotics, efficiency reached new heights. Automation reduced waste and improved safety, while governance matured through data-driven management systems. This laid the groundwork for integrating sustainability with technology.

4. **Industry 3.2 – The Age of Digital Integration:** The early 2000s marked a digital awakening — cloud computing, big data, and mobile technologies connected enterprises globally. Businesses began tracking emissions, energy use, and waste through digital dashboards. Sustainability became measurable, making digitalisation a foundation for ESG accountability.
5. **Industry 4.0 – The Era of Cyber-Physical Systems:** The ongoing revolution blends physical and digital realms through AI, IoT, robotics, blockchain, and digital twins. This convergence empowers industries to self-optimize, predict outcomes, and integrate sustainability across operations.

Digital Transformation as a Sustainability Enabler

Modern digital technologies are redefining how we approach the environment, economy, and society. Table 1 below maps core digital technologies — Artificial Intelligence (AI), Internet of Things (IoT), Blockchain, and Digital Twins — to their corresponding sustainability outcomes such as energy efficiency, traceability, waste reduction, and carbon accountability.

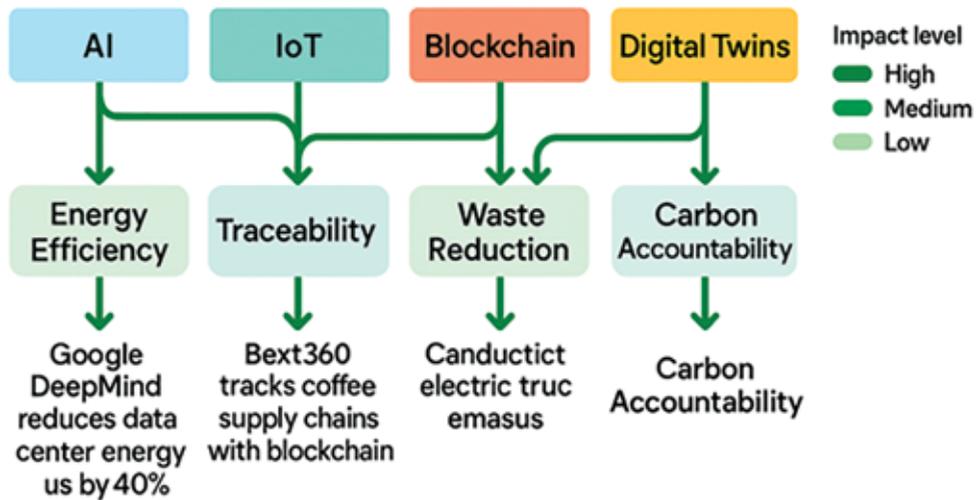
Table 1: Mapping of Digital Technologies to Sustainability Outcomes

Digital Technology	Sustainability Application	Key Outcomes
Artificial Intelligence (AI)	Predictive maintenance, process optimisation, energy forecasting	Reduced energy use and operational waste; enhanced resource efficiency
Internet of Things (IoT)	Smart sensors for energy, water, and emissions monitoring	Real-time tracking of environmental performance; improved energy and water efficiency

Digital Technology	Sustainability Application	Key Outcomes
Blockchain	Supply chain traceability, carbon credit verification, transparent ESG reporting	Enhanced trust, traceability, and accountability in sustainability data
Digital Twins	Virtual simulations of production systems and lifecycle management	Reduced material waste; improved design efficiency; lower carbon footprint

By integrating these technologies, organizations can design intelligent, transparent, and adaptive systems that promote both profitability and planetary stewardship — embodying the true essence of sustainable digital transformation.

Digital Transformation as a Sustainability Enabler



The diagram combines impact levels, technology-to-outcome mapping, and real-world examples.

Modern digital technologies are redefining how we approach the environment, economy, and society.

- ⦿ **AI and Analytics for Optimization:** Artificial Intelligence identifies inefficiencies invisible to humans, optimising energy use, logistics, and material flow. Predictive maintenance and data analytics reduce waste and emissions across sectors.
- ⦿ **IoT and Smart Infrastructure:** Internet of Things (IoT) sensors monitor energy consumption, air quality, and water use in real time. Smart grids balance renewable energy distribution, enabling cleaner and more reliable power systems.

- ⦿ **Blockchain and Transparency:** Blockchain enhances supply chain traceability, ensuring ethical sourcing and reducing fraud. It also underpins carbon accounting and ESG assurance systems.
- ⦿ **Digital Twins and Virtualisation:** Simulated digital models of factories and products minimise physical prototyping, saving materials and energy even before production begins.
- ⦿ **Remote Work and Dematerialization:** Cloud-based operations and virtual communication reduce travel, paper use, and infrastructure energy, significantly cutting organizational carbon footprints.

The Circular Digital Economy

Digital transformation underpins the transition from a linear economy (take-make-dispose) to

a circular economy (reduce-reuse-regenerate). Through AI-driven resource management, digital twins for lifecycle design, and blockchain-enabled recycling platforms, businesses can extend product lifespans and reclaim materials. Technology, once seen as extractive, now becomes restorative.

The Twin Transition: Digital + Green

The global economy is embracing a “twin transition” — integrating digitalisation with the green transition. Digital tools amplify the impact of sustainability initiatives, while sustainability provides direction for responsible innovation. For instance:

- ⊙ AI algorithms forecast renewable energy generation patterns.
- ⊙ IoT systems track carbon emissions in real time.
- ⊙ Digital twins simulate urban infrastructure to reduce energy waste. Together, they form the backbone of a smarter, greener, and more resilient world.

Challenges and Responsible Digitalisation

While the benefits are immense, digitalisation also introduces new challenges:

- ⊙ E-waste and Energy Consumption: Data centres and device lifecycles contribute to pollution and emissions.
- ⊙ Digital Divide: Unequal access to technology can widen social and economic gaps.
- ⊙ Ethical AI and Data Privacy: As automation grows, ethical governance and cybersecurity become critical.

To ensure a truly sustainable digital future, organizations must adopt green IT practices—using renewable-powered data centres, energy-efficient devices, circular electronics, and inclusive access to digital infrastructure.

The Role of Professionals in the Digital-Sustainability Era

For cost and management accountants,

sustainability professionals, and policymakers, this era presents a paradigm shift. They are now expected to:

- ⊙ Embed ESG metrics into digital transformation strategies.
- ⊙ Use analytics and BI tools for sustainability reporting and decision-making.
- ⊙ Promote capacity building and digital literacy to support green innovation.

In essence, professionals must bridge the gap between financial performance and planetary stewardship through intelligent, data-driven management.

The Future: Industry 5.0 – Human and Machine Collaboration

The next industrial era — Industry 5.0 — redefines progress through collaboration between human creativity and machine intelligence. Unlike Industry 4.0, which emphasized automation and efficiency, Industry 5.0 focuses on purpose, empathy, and personalization. It seeks to restore balance by ensuring that technology serves humanity, not the other way around.

Its principles — sustainability, resilience, and human-centric innovation — will guide industries toward inclusive growth, ethical digital ecosystems, and long-term societal well-being. Industry 5.0 envisions a digital economy that values people and the planet alongside profit, emphasizing collaborative robotics (cobots), personalized manufacturing, and adaptive decision-making systems.

According to the European Commission (2021), Industry 5.0 goes beyond efficiency and productivity as the sole goals of industrial development. It reinforces the role of industry in achieving societal goals, particularly those aligned with the European Green Deal, the Digital Strategy, and the United Nations Sustainable Development Goals (SDGs).

“Industry 5.0 recognises the power of industry to achieve societal goals beyond jobs and growth — to become a resilient provider of prosperity, by making production respect the boundaries

of our planet and placing the wellbeing of the worker at the centre of the production process.”
— *European Commission, Directorate-General for Research and Innovation (2021)*

Conclusion

In conclusion, digital transformation represents both a moral and strategic shift—aligning technological innovation with ethical governance and sustainable development. Future research may explore ESG analytics frameworks, green accounting models, and the measurement of digital maturity for sustainability performance.

From steam to smart, every technological leap has reimagined human potential. Yet, our current transformation carries a higher purpose: ensuring that progress itself is sustainable. Digital transformation today is more than an engine of efficiency—it is the foundation of a regenerative economy.

By integrating technology with ethical governance and environmental responsibility, we can create systems that not only produce profit but also preserve the planet.

In this new era, the greatest disruption is not what technology replaces, but what it restores — harmony between progress and the planet. **IMA**

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NOTES FOR AUTHORS

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INDIA'S GREEN BOND MARKET: A PATHWAY TOWARDS SUSTAINABLE INVESTMENT

Abstract

India's green bond market is fast becoming a crucial mechanism to fund projects that protect the environment and enable the country's transition toward a low-carbon economy. Green bonds allow organizations to raise funds exclusively for eco-friendly projects, encouraging sustainable investment while delivering financial returns. This article explores the growth, structure, benefits, challenges, and future directions of India's green bond market in an easy-to-understand manner for students and beginners.

Introduction:

As India pursues economic progress, it must balance growth with environmental responsibility. Climate change, pollution, and resource scarcity demand urgent action. To finance the vast infrastructure and technology needed for clean energy, sustainable transport, and water conservation, innovative financial products have emerged. Among these, green bonds stand out as a vital tool. They enable investors to support projects with clear environmental benefits while offering predictable returns.

What Are Green Bonds?

A bond is a financial instrument where an issuer (government or company) borrows money from investors for a fixed time and pays interest. A green bond is a bond where the funds are used only for projects that contribute positively to the environment, such as solar parks, wind farms, electric vehicles, or water treatment plants.

By investing in green bonds, people and



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institutions promote sustainability goals while also earning income. The green bond market helps channel capital into projects that reduce pollution and combat climate change.

The Emergence and Growth of Green Bonds in India:

India issued its first green bond in 2015, and since then, the market has grown rapidly. By end of 2024, cumulative green, social, and sustainability-linked bond issuance in India crossed USD 55.9 billion, with green bonds contributing 83% of this amount.

The Government of India also issued sovereign green bonds worth approximately USD 5.7 billion to create a reliable market for green debt. This domestic yield curve supports private companies seeking to raise funds for green projects.

India's targets include installing 500 GW of renewable energy by 2030 and reaching net zero emissions by 2070, driving the demand for sustainable financing.

The Indian green bond market is the fourth-largest emerging market source of green finance globally, after China, South Korea, and Chile.

Municipal green bonds are emerging, with Vadodara Municipal Corporation issuing Asia's

first certified municipal green bond valued at INR 1 billion.

By the first half of 2025 (Jan-June), green bond issuances in India's domestic market crossed approximately Rs 131.42 billion (~USD 1.6 billion) according to Renewable Watch Research.

However, several sovereign green bond auctions by RBI were cancelled in 2024 and 2025 due to lack of investor yield acceptance, highlighting pricing tensions and lack of the expected "greenium" (premium for green bonds).

Regulatory Framework Supporting Green Bonds in India:

The Securities and Exchange Board of India (SEBI) introduced guidelines in 2017 to regulate green bond issuance, ensuring transparency. Issuers must disclose how proceeds will be used and report regularly on environmental outcomes, often verified by third parties.

Other bodies like Reserve Bank of India and the International Financial Services Centre Authority (IFSCA) have implemented frameworks promoting green finance. The forthcoming Indian national climate taxonomy aims to standardize green definitions, reducing greenwashing risks.

New SEBI disclosure norms introduced in June 2025 require stricter verification and reporting for ESG-labelled debt to improve transparency and reduce greenwashing risk.

Key Players in India's Green Bond Market:

- ⦿ Issuers: Public sector units, renewable energy companies, non-banking finance companies, and private sector firms.
- ⦿ Investors: Banks, insurance companies, pension funds, mutual funds, global asset managers, and individual investors focused on environmental, social, and governance (ESG) criteria.
- ⦿ Certifiers and Auditors: Independent organizations verify that proceeds fund genuine green projects, maintaining market integrity.

Benefits of Green Bonds:

- ⦿ For Issuers: Access to a broader investor base interested in sustainability, potential cost advantages due to strong demand, and enhanced corporate reputation.
- ⦿ For Investors: Opportunities to achieve both financial returns and social impact, portfolio diversification, and alignment with global ESG trends.
- ⦿ For India: Mobilization of large-scale capital for climate-resilient infrastructure, sustainable urban development, and achievement of climate commitments.

Challenges in India's Green Bond Market:

Despite its promise, the market faces:

- ⦿ Awareness and Understanding: Many potential issuers and investors still lack clarity on green bonds.
- ⦿ Verification and Reporting Costs: Stringent standards require resources, posing barriers to smaller firms.
- ⦿ Market Depth and Liquidity: The market size is relatively smaller than traditional bonds, affecting trade volumes.
- ⦿ Definition and Taxonomy Gaps: Inconsistent understanding of 'green' leads to uncertainties.

Addressing these challenges involves educational efforts, technological innovation in impact reporting, and policy support.

Comparison with Global Green Bond Markets

The global market share of India in climate-aligned bond issuance is significant among emerging markets but represents only a small fraction of global issuance.

Advanced markets like the US and European Union have more mature frameworks and larger volumes of green bond issuance backed by robust verification and clear taxonomies.

India still lags behind in terms of market depth, liquidity, and rupee-denominated green bonds,

with a substantial share of issuance in US dollar green bonds limiting widening local investor base participation.

Challenges and Issues: Greenwashing and Verification

Greenwashing: There is a critical risk of issuers exaggerating environmental benefits or misusing funds raised through green bonds. Investors may face misleading claims, undermining market credibility.

SEBI has issued Do's and Don'ts guidelines (Feb 2023) mandating issuers to monitor fund utilization, avoid exaggerated green claims, report transparently, and repay funds used for non-green purposes.

Verification costs and lack of uniform certification standards remain barriers, especially for smaller issuers, making credible, reliable third-party audits crucial but expensive.

Varied definitions and taxonomies globally and inconsistencies in project classification create uncertainties and increase greenwashing risks. The Indian Government's ongoing effort to develop a national climate taxonomy aims to address this.

Market size and liquidity are still limited compared to traditional bonds, affecting investor confidence and trade volumes.

The Future Outlook:

India's green bond market is poised for expansion, supported by government policies, increasing global ESG investment flows,

and domestic climate ambitions. Innovative instruments like green masala bonds (rupee-denominated bonds sold to investors abroad) and credit-enhanced bonds are emerging.

The continuing integration of green finance into mainstream financial products and stronger standards will boost investor confidence. As more sectors, including transportation, real estate, and industrial decarbonization, tap green financing, the market is expected to diversify and deepen.

Conclusion:

India's green bond market plays an essential role in financing its sustainability goals. By linking capital markets with climate action, green bonds help mobilize resources for building a cleaner, greener future. Awareness, robust regulation, and stakeholder collaboration will be key to unleashing the full potential of green bonds in India's journey towards sustainability. **MA**

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Obituary



CMA George
Samuel

The Institute and its members deeply mourn the demise CMA George Samuel, our Beloved Member of the Institute on October 28, 2025.

May God bless the family to have the courage and strength to overcome the irreparable loss.

GREEN BANKING IN INDIA: PATHWAY TO SUSTAINABLE FINANCE

Abstract

Green banking in India has emerged as a vital tool for promoting sustainable development, aligning financial growth with environmental responsibility. This study outlines the green banking initiatives and practices adopted by major Indian banks. It also highlights challenges such as limited awareness, high initial costs, regulatory uncertainties and skill gaps. Additionally, it identifies opportunities arising from government incentives, growing environmental consciousness and reputational benefits. Regulatory support from RBI, SEBI, MoEFCC, IBA and BIS has strengthened the sector's commitment to sustainability and ESG compliance. By embedding green practices into operations and lending, Indian banks are contributing to renewable energy, eco-friendly infrastructure, and climate resilience, positioning green banking as essential for responsible economic growth.

Introduction

Rapid industrialization and economic growth have intensified environmental challenges such as pollution, resource depletion and climate change. Balancing economic development with ecological preservation has therefore become a pressing concern. Sustainability has therefore become a global imperative, aiming to balance economic progress with environmental protection. This approach emphasizes renewable energy, waste management, and eco-friendly production processes under the “reduce, reuse, recycle” principle. It emphasizes growth that safeguards both present and future needs (Reddy, 2018; World Bank, 2022; Panse and Sharma, 2023). Hence, adopting sustainable practices has become essential for ensuring long-term economic stability



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and social well-being, fostering harmony between nature and development.

Concept of Green Banking

With growing global concern for the environment, the banking sector is also shifting toward sustainable practices through “Green Banking”. Green banking aligns with this vision by integrating environmental considerations into financial operations. Through green finance and eco-focused investments, banks can promote renewable energy, sustainable agriculture, and cleaner industries (Panse and Sharma, 2023; Agarwal and Singh, 2023). This approach not only reduces the sector's carbon footprint but also

positions green banking as a strategic necessity for India's sustainable growth (Panse and Sharma, 2023). The primary goal is to protect and preserve natural resources and the environment by eliminating unsustainable practices. It also seeks to combat global warming and climate change through initiatives that promote sustainability and reduce pressure on natural ecosystems. India's initial strategic move toward environmental sustainability was the signing of the International Solar Alliance with France on 1 December 2015, aimed at fostering global collaboration to address climate change (IEA, 2015).

1. Core Elements of Green Banking

- a. **Eco-Friendly Operations**– Banks are integrating eco-friendly practices into operations and financing, including energy-efficient offices, digital platforms, and reduced paper usage.

- b. **Sustainable Lending Practices**– Banks are incorporating environmental criteria into credit appraisal and loan approval processes to mitigate environmental risks and ensure that funded projects align with sustainability objectives.
- c. **Awareness and Capacity Building**– Banks are raising awareness among employees, customers, and stakeholders to foster environmentally conscious behavior and green initiatives.

Regulatory Mechanism for Green Banking in India

India has developed a regulatory framework to support sustainable banking. Several authorities oversee and guide green initiatives in the financial sector:

Authority	Role in Green Banking	Key Provisions
I. Reserve Bank of India (RBI)	Promotes sustainable finance and green banking guidelines for commercial banks. Encourages credit flow to renewable energy and eco-friendly projects.	Guidelines on Environmental and Social Risk Management for banks (2019); Green Finance & Sustainable Banking Initiatives (2020).
II. Ministry of Environment, Forest & Climate Change (MoEFCC)	Sets environmental standards and policies that influence banking and investment decisions.	National Action Plan on Climate Change (2016 and 2020); Draft National Environmental Policy (2020).
IV. Indian Banks' Association (IBA)	Guides banks on implementing green banking practices and sustainability policies.	Green Banking Guidelines (2017); National Voluntary Guidelines (2017).
II. Securities and Exchange Board of India (SEBI)	Mandates ESG disclosures for listed companies. Regulates issuance of green bonds and sustainable financial instruments.	Business Responsibility and Sustainability Report (BRSR) framework (2021); Green Bond Guidelines (2022).
V. Bureau of Indian Standards (BIS)	Establishes national standards for green buildings, energy-efficient construction materials, and sustainable technologies; offers certification to assess compliance.	Green Building Standards (2019)

Objectives

This study endeavors to:

- a. To study the green banking initiatives and sustainable practices implemented by India's leading banks.
- b. To study the major green finance instruments offered by Indian banks.

- c. To assess the challenges and opportunities in promoting green finance for banks.

Green Banking Practices Adopted by India's Major Banks

The **State Bank of India (SBI)** has been a frontrunner in promoting sustainable finance since

2015, launching initiatives such as green branches and solar-powered ATMs. It has issued green bonds worth USD 650 million and actively finances renewable energy, energy-efficient technologies and environmentally responsible projects to reduce its carbon footprint. The **HDFC Bank** has strengthened its sustainability framework from 2016 onwards by offering energy-efficient home loans, promoting paperless and digital banking and developing ESG-aligned investment products. Its initiatives aim to combine profitability with long-term environmental responsibility. **Axis Bank** began advancing its green banking practices in 2016, issuing green bonds to support clean energy projects and financing sustainable infrastructure. The bank has also introduced eco-friendly branch operations and energy-saving measures across its network. Since 2016, **ICICI Bank** has actively financed solar and wind energy projects, issued green bonds, and supported low-carbon development initiatives. The bank has embedded sustainability into its lending practices and corporate operations to align with

global environmental standards. Since 2018, **Canara Bank** has implemented internal sustainability measures across its branches. It has offered financing for renewable energy, green housing, and sustainable agricultural projects, reflecting its commitment to environmental preservation. The **Yes Bank** has been a pioneer in India’s sustainable finance movement since 2015, becoming the first Indian bank to issue green bonds. It actively finances renewable energy, and ESG-driven investments, while publishing transparent sustainability reports to track progress. Lastly, **Bank of Baroda (BoB)** has been advancing its green banking practices since 2019 via loans for green buildings, renewable energy installations, and energy-efficient technologies. It committed in 2025 that it will reach net-zero emissions by 2057.

Green Finance Instruments Issued by Banks in India

Indian banks have developed a range of green finance instruments to support environmentally sustainable development. These include:

Green Finance Instrument	Description	Key Issued by Indian Banks
Green Bonds	Debt securities issued to raise funds for environmentally sustainable projects.	Yes Bank (India’s first green bond in 2015), SBI Green Bonds (2018), Axis Bank Green Bonds.
Green Loans	Loans provided for projects with environmental benefits such as energy efficiency, pollution control or sustainable agriculture.	IDBI Bank’s Green Project Finance (2016); SBI’s loans for solar rooftop installations (2018).
Green Deposits	Deposits mobilized from customers are channelled into eco-conscious and sustainable development ventures.	HDFC Bank (2021), IndusInd Bank (2022) and Federal Bank (2023) Green Deposit Schemes.
Carbon Credit Financing	Financial support for projects generating carbon credits under Clean Development Mechanism (CDM).	SBI (2019), IDBI Bank (2016), Yes Bank (2015) and PNB (2017) CDM-related project support.
Green Mutual Funds / ETFs	Investments in funds that focus on environmental, social, and governance (ESG) compliant companies.	SBI Magnum Equity ESG Fund; ICICI Prudential ESG Fund.
Green Infrastructure Funds	Funding for eco-friendly infrastructure projects over a longer horizon, covering renewable energy, urban transport, and waste and water management.	NABARD Rural Infrastructure Development Fund (RIDF – green focus strengthened 2010s); EXIM Bank Green Infrastructure Support (2018); SBI Infrastructure Fund (2017); Kotak Infrastructure Investment Fund – Green Focus (2020)

Challenges and Opportunities:

This table outlines the main challenges and opportunities banks face in adopting green banking, focusing on adoption, risk management, and competitive advantage.

Sl. No.	Challenges	Opportunities
I.	Lack of Awareness- Limited knowledge among customers and businesses about green banking products.	Rising Environmental Consciousness- Growing public and corporate interest in sustainability increases demand for green financial solutions.
II.	High Initial Costs- Investment in sustainable projects and green infrastructure are often expensive, posing financial constraints.	Government Incentives: Supportive policies, subsidies, and regulatory frameworks encourage investment in environmentally friendly initiatives
III.	Regulatory Hurdles- Inconsistent policies and unclear guidelines may slow adoption.	Emerging Markets: Opportunities exist in financing renewable energy, sustainable agriculture, eco-tourism, and green housing
IV.	Limited Expertise- Banks may lack skilled personnel to assess environmental risks and green projects.	Reputation and Branding- Adopting green banking enhances public image and builds customer loyalty.
V.	Market Penetration: Eco-friendly financial products may experience slow uptake, potentially affecting profitability.	Risk Mitigation- Financing environmentally responsible projects reduce exposure to regulatory, credit, and operational risks.

Conclusion

Green banking in India has emerged as a powerful driver of sustainable development, aligning financial growth with environmental responsibility. Despite challenges like limited awareness, high initial costs, regulatory uncertainties, and limited expertise, the sector continues to advance. Over the years, initiatives such as green bonds, renewable energy financing, and paperless operations have transformed the way Indian banks conduct business. Regulatory support from the RBI, SEBI, and MoEFCC has further strengthened the sector's commitment to sustainability and ESG compliance (RBI, 2019; SEBI, 2021; MoEFCC, 2020).

As India moves toward its net-zero and climate resilience goals, green banking is no longer optional but essential. By embedding sustainability into their strategies, banks are not only reducing environmental risks but also unlocking new opportunities for responsible growth, ensuring that economic progress and ecological balance advance hand in hand. MA

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PRODUCT LEVEL PROFITABILITY – A KEY PLAYER IN FINANCIAL SUSTAINABILITY OF BUSINESS

Abstract

This article elaborates key aspects and indicators of Profitability Analysis, which covers Historical, Real-Time and Predictive Analysis. Article looks into how Profitability Analysis helps in critical Business Decision Making and Business Sustainability. Explains how granular profitability assessment at product and customer level enables management to review Pricing Strategies, Product Life Cycle Analysis, and Resources Optimization & Marketing Strategy. The analysis helps to understand what went wrong in past? What can be done better to improve profitability levels? Importance of Predictive Analysis in Planning & Forecasting, use of various BI tools makes Profitability Analysis more insightful with the use of visualizations like trends, decomposition of data from starting from a broader level to a product level or even up to an invoice level. In today's competitive age, how management can amplify profitability. Improve market share by gaining higher volumes & optimum levels of profit. Profitability Analysis provides insights which helps organization to achieve short term & long term goals.

Introduction:

Traditionally business goals are to achieve maximum profit but in the current economic scenario optimum levels of profit work more effectively than better margin in terms of percentage. PROFITABILITY is often defined as the capability of the business to earn surplus over resources consumed during the period. Profit earning capacity depends on the profile of



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the product & competitiveness in the market. Analysis of the factors that are impacting the bottom line of the Profit & Loss statement, here CMAs plays a key role by creating timely alerts about unfavourable changes in costs. We need to keep watch on better fixed cost absorption. There should not be any under utilization of the production capacity. From the point of view of achieving better fixed cost absorption, there may be orders which are not profitable after considering fixed cost but give a positive contribution margin; that order may help in better fixed cost absorption.

Business can face downfall in profitability levels once there are entries of similar products of other brands; hence, the Innovation matrix is to be tracked, where we can analyse the profitability of the product since inception to till the period or at least defined life of the product.

Analysis should enable management to get insights about fact and figures where decisions about margin can be taken to achieve better margins, in fact the same product may give different profitability at multiple geographical segments. The product may indicate unfavourable profitability in one region with high volumes, but same may indicate better profitability with lower volumes at another region. These data points can

be analysed further.

Key consideration & data points for Profitability Analysis -

Adopted Costing Methods & Techniques:

Cost distribution & absorption of variable & fixed cost over products is a key factor in analysing profitability, absorption costing is commonly accepted technique which is less complex to implement & follow. On the other hand ABC Costing also can be implemented on any of the business irrespective of industry nature, but complex & quite hectic to follow but it gives more accurate inputs for decision-making.

Activity Based Costing to assign accurate costs by using cost drivers, it is suggested that ABC costing can be used in partially for cost allocations mainly for Selling & Administrative Overheads whereas cost up to Cost of Production to be captured through Absorption costing.

On the other hand standard costing is a commonly used technique to track & measure cost, variances are analysed for management control & efficiency monitoring.

Objectives of the Profitability:

Main objective of the Profitability Analysis is to identify how our business is doing & what the areas are where we can focus to maximize its profitability:

- ⊙ Detect areas which are causing lower margin products/services and their mix to overall business.
- ⊙ Optimize resource allocation for maximizing profitability.
- ⊙ Support strategic decision-making like product mix, business expansion decisions, and critical decisions about lower or negative margin products.

Methods & Techniques of Profitability:

It would be always better to analyse contribution margin; reducing directly identifiable costs from revenue gives clearer picture for effective decision making:

- ⊙ **Base Data:** Accurate Cost & Revenue data at Product & Customer level for actual revenue executed during the period as well as budgeted revenue & budgeted margins to be captured for comparison so that comparative analysis can be done.
- ⊙ **Key Indicators:** Compute Contribution Margin, Gross Margin & EBIT, generally contribution analysis is widely used indicator for analysing profitability of the business, however Gross Margin & EBIT are also key indicators to assess business health.
- ⊙ **Dimension:** Create common masters for product category/family based on core function, product variants & business segment, e.g. automotive component manufacturing industry – propeller shafts, clutch, steering joints. Further propeller shafts further grouped as Utility Vehicles, Heavy Commercial Vehicles, and other applications. These masters helps us to summarize profitability levels. On the other hand customer master to be prepared based on customer profile for example Boiler & Heaters manufacturing industry then Food Processing Industry, Chemicals etc. as well as geography also to be captured.
- ⊙ **Material Margin Analysis:** Material cost is a major element in the manufacturing industry, hence margins gives a broader idea about how much surplus is earned to bear other cost elements like labour, electricity, tools & consumables, repairs, depreciation etc.
- ⊙ **Contribution Margin Analysis:** It is a better method to analyse profitability levels because it covers all variable cost components; the rest cost elements are allocations. Hence contribution levels indicate a clearer view about margins. It helps in the computation of Break Even Points which may further be used in critical business decision-making such as grabbing orders from the market with good volume, having negative EBIT but having positive

contribution levels. In that case, a decision can be made if there is a positive margin at the offered selling price.

- ⊙ **Variance Analysis:** Profitability analysis becomes more effective & informative when there is comparison with budgeted data & previous periods, a deep dive can be taken to further analyse what went wrong & what did well.
- ⊙ **Regular Review & Updates:** There should be CFT of stakeholders with whom profitability levels are discussed & analysed on a regular basis & does brainstorming on things that went wrong during period end corrective actions to be made. Tracking of corrective actions to be made & actions taken till date to be discussed in this forum.

Key outcomes from profitability analysis:

- ⊙ **Identification of profit & non-profit areas** – non-profit areas to review & negotiate of price with customer & replace products with launch of new product with cost optimization.
- ⊙ **Inputs for pricing strategy** about cost recovery or cost cuts & strategic growth decisions.
- ⊙ **Inputs for investment decision** – business expansion, launch of new product and discontinuation of the Product or Business Unit.
- ⊙ **Improved accuracy of Budgeting & Forecasting** – future business decisions are dependent on the accurate inputs for budgeting such as business expansions, CAPEX for replacement of old machines, inputs for manufacturing cost levels, overhead levels.
- ⊙ **Supporting competitive advantage** through informed cost management and pricing.
- ⊙ **Order execution analysis** – such as capital goods manufacturing company received an order a year back but during the year the scenario got changed & there is an

increase in material cost due to commodity fluctuation; it may result in loss mainly because of delayed execution.

- ⊙ **Favourable & unfavourable shifts in cost** during the period, necessary actions can be made for profitability improvement.

Particular	Amount	Remarks
Revenue	100	
Material Cost	60	
Other Variable Cost	10	All directly identifiable cost elements (including absorbed variable MFG cost)
Contribution	30	Should be positive at any point
Fixed Cost (Overheads)	11	Define cost drivers & capture cost using Activity Based Costing techniques
Profit	20	May be negative for some bulk orders & to achieve better fixed cost absorption

Basically there are 3 major aspects of Profitability Analysis – Historical, Real Time & Predictive, let's look into Historical & Predictive Analysis.

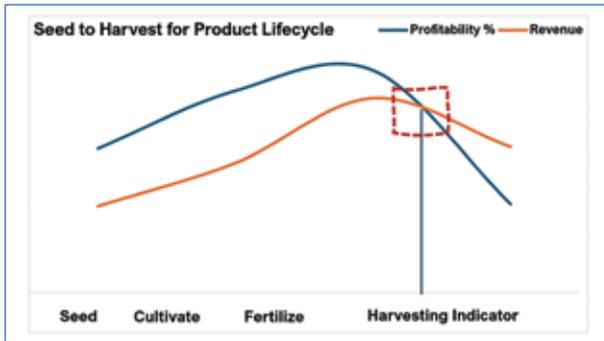
Historical Analysis

Historical Profitability Analysis compares product profitability performance historically and spot patterns of changes in profitability levels. Identifies sales patterns of the product & customer purchase patterns also reflects change in cost & revenue realization over a period of time.

Benefits of Historical Profitability Analysis -

Product Life Cycle Analysis: Profitability of the product can be traced since its launch in the market, periodic change in profitability levels, when the product reaches the saturation point in that case profitability ideally show a

downtrend, perhaps higher efforts towards the product. Corrective actions can be made to focus on better performing products rather than higher volumes for lower performers. By identifying top and underperforming products, sometimes underperforming products help to penetrate the market, and if earning volumes it also helps in better fixed cost absorption.



Reading in the graph: Graph indicates stages of product life cycle, Seed – Innovation, Cultivate – Productionize, Fertilize – Invest, Harvest – Stage of discontinuation (highlighted in red border) & phase of launching new product into market.

Cost Management, Product Pricing and Profit Positions: Break down the correct cost of the product, the analysis brings inefficiencies to the

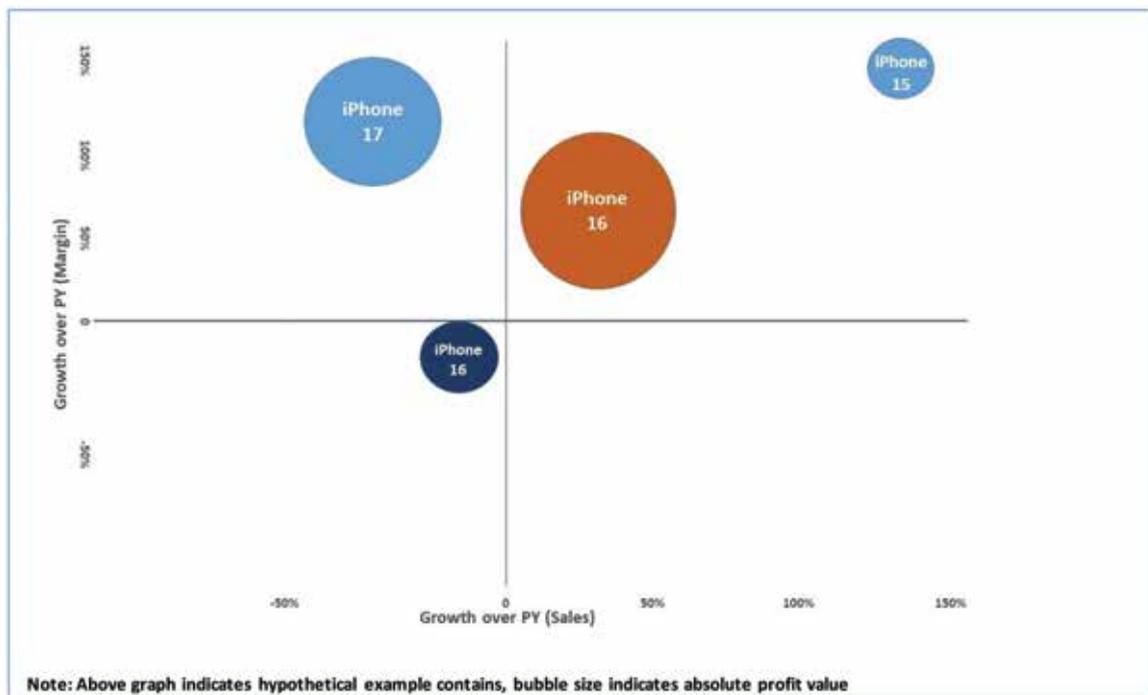
surface where decisions about cost cutting and improved pricing strategies can be brought in for increased sales levels without losing margin. In this situation robust data supports more informed and dynamic pricing decisions.

Trend Analysis: Review of historical performance of each product helps businesses spot emerging trends, seasonality or shifts in customer demand & profitability levels. These are important inputs for planning, forecasting, and discontinuing of demand-declining products.

Business Case Development: Historical insights guide innovation by validating product investment; historical performance data makes it easier to justify the launch of a new product or existing product with the cost optimization & changes in features.

Sustainable profit growth: Monitoring and acting upon abnormalities in product level profitability, businesses can optimize product portfolio or geographic existence in the market to maintain competitive advantage. Also entry into new regions also helps businesses to earn more volumes from the market and ultimately enhance existence in the market.

Visual for Historical Analysis (Growth in Revenue vs Growth in Profit):



Read in the graph – Based on hypothetical example, graph indicates that iPhone 17 recently launched in the market, hence gross margin growth is better. Organization should focus on getting higher volumes for iPhone 17, whereas price realization for iPhone 16 is getting down as soon as new model launched iPhone 15 is still has potential mainly because of its lower prices as compared with the 17 & 16 series. Whereas iPhone 14 should be discontinued from the market & put more effort into iPhone 17 & 15 to achieve a better level of profitability.

Real-World Examples

- ⊙ Tata has launched new models launched in EV segment, however due to higher price range & less number of charging stations, customer are still less attracted to the segment. Although profitability % are higher but in absolute terms long way to go.
- ⊙ Apple analyzes product line profitability to shift resources, refine pricing, and remain at the industry's forefront.
- ⊙ Amazon uses such analysis to optimize its mix of products on its platform, focusing on those that deliver higher margins.
- ⊙ Starbucks leverages profitability analysis to manage its supply chain and tailor offerings, boosting profits through evidence-based decisions.

Predictive Analysis

This type of analysis works on forward-looking and gives insights for future decisions which contributes to profitability management. It leverages historical data combined with statistical information such as price changes, cost fluctuations, market change patterns and customer behaviour etc. These inputs help to prepare dynamic margin forecasting. Predictive analysis helps management in the best risk reward balance which also identifies criticalities in advance so that corrective actions are taken in advance to avoid future losses.

Forecasting: Inputs from historical profitability analysis are taken as a base where behaviour of variable cost factors is taken into consideration as well as prediction about changes in material cost levels. As well as variable costs need to be worked out, complex data churning is required.

Scenario Modelling: Anticipating various factors like market changes, customer behaviour, evaluation of potential market changes with all this Scenario Building can be done using inputs from past trends as well as futuristic data from the market.

- a. Optimistic assumptions (High sales - low cost)
- b. Pessimistic assumptions (Lower sales - high cost)
- c. Average assumption (Averages sales – average costs)

Quality Data - Driver Based Forecasting:

Accurate & reliable data such as selling prices, volumes, variable cost per unit including material cost (based on historical average plus future predicted prices). Best example is - Driver for sales value projection is selling prices & volumes that are expected from the market.

Proactive Planning: Forward-looking data & models to anticipate financial outcomes, such as margin forecasting of sales orders for next quarter or next six months, ideally the rankings can be done. Better margin products should be prioritized for production as well as dispatches.

Pricing Strategy: Pricing strategy is a directly impacting factor for gaining or losing volumes from market, it completely depends on the management approach. Sometimes products that are contributing positive margins are focused and negative margin products are least prioritized. Ideally capacity should be fully utilized even if negative margin products are produced these may be least prioritized but they are also helpful business in fixed cost absorption.

Hedging Strategies: Hedging is also an outcome of futuristic analysis about business, Hedging strategies are protecting business from financial losses, market volatility, currency fluctuations and commodity price fluctuations.

Budgeting for next financial year or Strategic Business Plan for next 3 years or 5 years is the best example of outcome of Predictive Profitability Analysis, since the finance manager has inputs from profitability analysis it to excel his prediction about future profit while preparing the Business Plan.

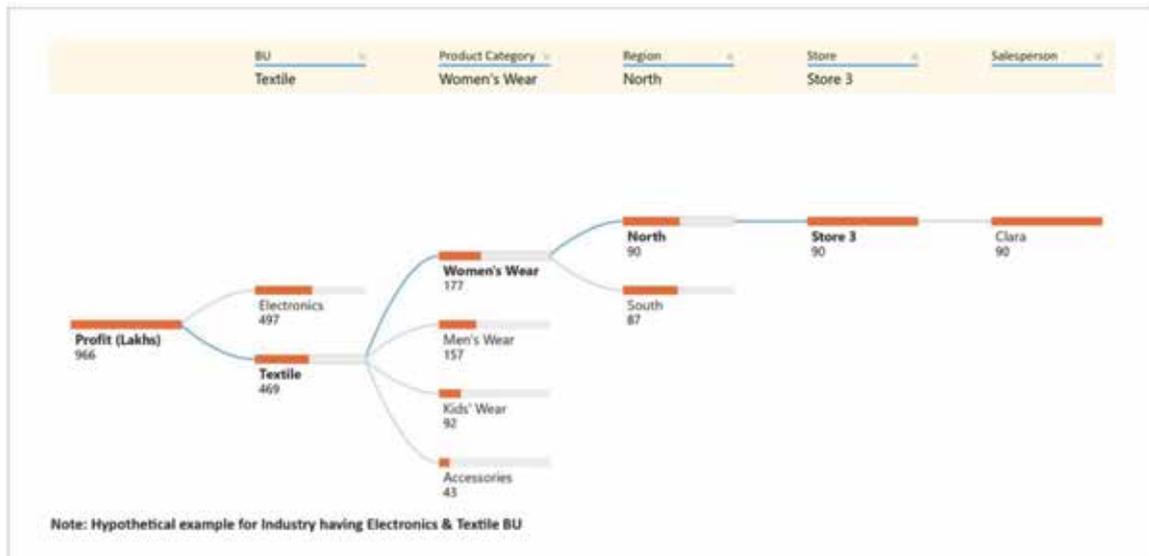
Data Analytics Tools:

BI Tools are playing key role in Profitability

Analysis, tools like Power BI, Tableau, and Google Analytics etc.

There are substantial benefits of using BI tools like one-time, onetime linking between various data tables, creating visuals that provide consistency in the formats through graphs, decomposition trees, scatter diagrams, bar charts etc. by using slicers & filters on the page. It becomes easier to create storylines & do variance analysis.

Example of decomposition chart:



Conclusion:

In a nutshell Profitability Analysis is the key to unlock insights about Business Health, in the current era various types of data available in the organization. Using that information to make analysis effective is the skill that we need to work upon. Insights from the analysis to be used for forecasting & planning to make future more visible & accurate. Analysis enables BU to transform data into actionable strategies, driving sustained growth and profitability in a rapidly evolving market. Analysis also help to make decisions about volume ramp up where management can think about optimization of profit levels to leverage profit per unit into maximize profitability in absolute terms. Incentive schemes can be launched to get volumes from the market to increase market share for at least products having positive Contribution Margin. There may be initiatives like VAVE, Kaizen initiatives may be driven to optimize major cost elements.

Traditional tabular formats have many drawbacks like interpretation of the data, it becomes really difficult to read & interpret something from tables, Dashboards help in quickly identifying errors or inconsistencies in profitability data & analytical accuracy.

It becomes easier to trace unprofitable segment by just adding value based slicer.

Moreover analysis of product lifecycle stages is important, that needs to be tracked at least on QoQ basis. It plays a vital role for Business Sustainability, it assesses improvement areas, business health checks and diagnoses weak areas, which enables management to achieve organizational goals. MA

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INTEGRATING ENVIRONMENTAL ACCOUNTING INTO SUSTAINABLE ECONOMIC DEVELOPMENT: A PATHWAY TO RESPONSIBLE GROWTH

Abstract

The accelerating pace of industrialization and urbanization has led to severe environmental degradation, threatening the sustainability of economic growth. The need for integrating environmental concerns into financial and policy decisions has given rise to the concept of Environmental Accounting or Green Accounting. This paper explores the critical role of environmental accounting in achieving sustainability and balancing economic development with ecological preservation. It identifies various frameworks, methodologies, and corporate practices related to green accounting, focusing on the Indian context. The study also outlines the stages of implementation, the ethical and practical challenges of green reporting, and the contribution of environmental accounting to achieving net-zero goals. The findings demonstrate that green accounting enhances transparency, aids in long-term decision-making, and strengthens corporate accountability towards sustainable development.

Introduction

Environmental degradation, climate change, and the depletion of natural resources are among the most pressing challenges confronting the global economy. Since the Industrial Revolution of the late 18th century, human activity has significantly altered ecosystems, leading to deforestation, pollution, and biodiversity loss. For developing economies, balancing industrial growth and environmental conservation has become a complex challenge.



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Green accounting, also referred to as environmental accounting, is a modern approach that integrates environmental costs and benefits into conventional accounting systems. It allows policymakers and organizations to evaluate the true cost of economic growth, taking into account resource depletion, waste generation, and ecological restoration efforts. This integration supports informed decision-making, sustainable development, and responsible governance.

Objectives of the Study

The primary objectives of this research are:

- ☉ To examine the concept and importance of environmental accounting in promoting

sustainability and economic growth.

- ⊙ To identify the various frameworks and methodologies used in green accounting.
- ⊙ To analyse the implementation stages and key components of environmental accounting.
- ⊙ To evaluate corporate adoption of green accounting practices in India.
- ⊙ To explore the ethical implications and challenges in environmental reporting.
- ⊙ To assess how environmental accounting contributes to achieving net-zero sustainability goals.

Research Methodology

This study follows a qualitative and descriptive research design based on secondary data sources. Data were collected from academic journals, ICAI publications, UN and OECD environmental accounting frameworks, and corporate sustainability reports of Indian companies.

The study focuses on the Indian corporate sector while referencing global standards and practices to draw comparative insights. The analysis utilizes the following frameworks:

- ⊙ System of Integrated Environmental and Economic Accounting (SEEA)
- ⊙ Global Reporting Initiative (GRI)
- ⊙ Environmental Management Accounting (EMA) for internal decision-making
- ⊙ Environmental Financial Accounting (EFA) for external reporting

Literature Review and Critical Analysis

Numerous studies have highlighted the growing significance of environmental accounting as a tool for sustainable decision-making. According to the United Nations System of Integrated Environmental and Economic Accounting (SEEA), environmental data integration is crucial for understanding the interaction between the economy and the ecosystem. The Global Reporting Initiative (GRI) has developed sustainability standards that help organizations measure and disclose their environmental performance.

Researchers such as Gray (1992) and Bebbington (2007) emphasized that environmental accounting provides a comprehensive picture of corporate responsibility, going beyond financial performance to include ecological and social impacts.

In the Indian context, the Institute of Cost Accountants of India (ICMAI) has played a pivotal role in promoting awareness and implementation of sustainability accounting through cost conferences and professional training programs.

However, challenges remain in quantifying environmental costs, standardizing reporting systems, and ensuring transparency. The theoretical complexity and long-term nature of environmental impacts make data collection and interpretation difficult, requiring multidisciplinary collaboration among accountants, environmental scientists, and policymakers.

Frameworks and Techniques in Sustainability Accounting

Environmental accounting employs various analytical and reporting techniques that help organizations quantify and communicate the environmental impact of their operations. These techniques can be broadly classified into three major approaches:

- ⊙ Inventory Approach
- ⊙ Cost Approach
- ⊙ Input–Output Approach.

Inventory Approach

The Inventory Approach involves identifying, cataloguing, and quantifying all natural resources consumed and pollutants generated by an organization. This includes tracking raw material inputs, energy consumption, water usage, and waste generation. By maintaining an environmental inventory, companies can monitor trends in resource use and identify inefficiencies in their production processes.

For instance, a manufacturing company might track how much carbon dioxide (CO₂) is emitted per unit of product manufactured. This quantitative data then becomes a foundation for setting reduction targets or developing cleaner production technologies.

Such inventories are also essential for regulatory compliance and for preparing environmental disclosures aligned with frameworks such as the Global Reporting Initiative (GRI) or SEEA standards.

Cost Approach

The Cost Approach focuses on monetizing environmental impacts and remediation expenses. It evaluates the financial implications of activities that degrade or restore the environment. This includes costs related to pollution control, waste management,

environmental training, renewable energy adoption, and penalties for non-compliance. By assigning monetary value to environmental actions, the Cost Approach makes it possible to integrate ecological considerations into financial decision-making.

For example, if a coal mining company invests ₹10 crore in dust suppression technology, that expenditure is treated as an environmental cost aimed at long-term sustainability and improved air quality.

This approach encourages firms to weigh the trade-offs between environmental investments and their financial outcomes, fostering the concept of “green profitability.”

Input–Output Approach

The Input–Output Approach evaluates the flow of resources and wastes within the production and consumption chain. It maps how inputs such as energy, water, and raw materials move through production processes and result in outputs like goods, emissions, or waste.

This method allows firms to identify points of inefficiency and assess their overall ecological footprint.

For instance, in the power sector, input–output analysis can trace how much coal input results in electricity output, CO₂ emissions, and ash waste.

By quantifying such linkages, companies can adopt cleaner technologies and circular economy practices, reducing resource dependency and improving sustainability metrics.

This approach also complements national-level policy tools like the System of Integrated Environmental and Economic Accounting (SEEA), which helps governments evaluate the trade-offs between economic growth and environmental degradation.

Stages of Green Accounting Implementation

The process of implementing environmental accounting within an organization typically unfolds through six stages. Each stage contributes to building a systematic, transparent, and reliable sustainability accounting framework.

1. Identification of Green Reporting Criteria:

The first step is to define which environmental aspects are material to the organization—such as energy use, carbon emissions, biodiversity impact, or waste management. This ensures that reporting focuses on issues that have the most significant ecological and economic implications.

2. Defining Reporting Parameters:

Once the criteria are identified, organizations

establish measurable indicators and performance parameters. Examples include metrics like tons of CO₂ emitted, liters of water recycled, or percentage of renewable energy used.

3. Setting Environmental Standards:

Standards provide a benchmark for assessing performance. Companies may align their practices with international standards such as ISO 14001 (Environmental Management Systems), GRI Standards, or SEEA guidelines.

4. Developing Environmental Performance Indicators (EPIs):

EPIs are quantitative tools used to assess the effectiveness of environmental management efforts. They may include energy intensity, waste-to-product ratios, or emission reduction percentages. Developing robust EPIs is crucial for consistent tracking and comparative analysis over time.

5. Measuring Environmental Performance:

This stage involves collecting and analysing environmental data using scientific and accounting tools. Measurement provides insights into areas where performance can be improved and helps evaluate the impact of sustainability initiatives.

6. Reporting and Disclosure:

The final stage emphasizes transparency. Environmental results are documented and communicated through sustainability reports, annual disclosures, or integrated reports. Transparent disclosure enhances credibility, builds investor confidence, and demonstrates alignment with national sustainability goals.

Corporate Adoption in India

Indian corporations are increasingly recognizing the strategic value of environmental accounting. A number of leading firms have adopted structured green accounting frameworks that combine financial prudence with ecological responsibility:

Larsen & Toubro (L&T):

L&T integrates environmental costs into project planning, particularly in infrastructure and construction. The company measures and reports its carbon footprint, promotes green buildings, and emphasizes material efficiency to minimize resource waste.

Tata Consultancy Services (TCS):

TCS employs a robust environmental management framework that tracks its energy consumption,

renewable energy usage, and carbon emissions. Its “Net Zero by 2030” roadmap is a testament to how digital technology can support data-driven sustainability reporting.

Nayara Energy:

The company utilizes environmental accounting to monitor emissions, waste generation, and effluent treatment costs. Investments in pollution control equipment are treated as capital expenditure toward long-term sustainability goals.

Tech Mahindra:

Tech Mahindra integrates sustainability into financial performance metrics, linking environmental outcomes to executive compensation. Its reporting framework aligns with GRI and Task Force on Climate-related Financial Disclosures (TCFD) standards.

Wipro:

Wipro’s environmental accounting covers detailed reporting on water and waste management, e-waste recycling, and renewable energy integration. Its sustainability reports provide a model for comprehensive green disclosure in the Indian IT sector.

Carbon Pricing and Emissions Trading

An emerging dimension of environmental accounting is the valuation of carbon through carbon pricing and emissions trading systems (ETS).

Carbon pricing assigns a monetary value to greenhouse gas emissions, compelling firms to internalize the environmental cost of pollution. India, while not yet operating a full-fledged carbon market, is experimenting with carbon credit systems under its Perform, Achieve and Trade (PAT) scheme. Companies that achieve emission reductions beyond regulatory requirements can sell surplus credits, creating financial incentives for sustainability.

Through proper accounting mechanisms, organizations record carbon credits as assets and carbon liabilities as obligations, thereby integrating climate finance directly into balance sheets. This not only promotes transparency but also motivates firms to innovate in clean technologies and energy efficiency.

Findings and Discussion

From the analysis above, several key findings emerge:

- ⊙ **Enhanced Decision-Making:** Environmental accounting provides managers with comprehensive data on ecological costs and benefits, leading to better long-term strategic decisions and efficient

resource utilization.

- ⊙ **Improved Transparency and Accountability:** Incorporating environmental information into financial reporting enhances the credibility of corporate sustainability claims and builds stakeholder trust.
- ⊙ **Financial and Reputational Benefits:** Companies that adopt green accounting attract environmentally conscious investors and customers. Their proactive sustainability initiatives also reduce operational risks and improve compliance with future regulatory frameworks.
- ⊙ **Challenges in Standardization:** A major challenge remains the lack of universally accepted metrics and valuation methods. Differences in methodologies across industries often make comparisons difficult.
- ⊙ **Limited Adoption among SMEs:** While large corporations have embraced environmental accounting, small and medium enterprises face barriers such as high implementation costs, lack of expertise, and absence of regulatory enforcement.
- ⊙ **Alignment with National and Global Goals:** Environmental accounting supports India’s commitments under the Paris Agreement and its target to achieve net-zero emissions by 2070, by embedding sustainability into the fabric of economic and corporate decision-making.

Thus, environmental accounting serves as a bridge between financial performance and ecological responsibility. It aligns business strategies with sustainable development goals (SDGs) by internalizing environmental costs that were traditionally externalized. The process not only quantifies environmental damage but also promotes preventive measures through resource optimization, waste reduction, and carbon management.

In the Indian scenario, while large corporations have begun implementing structured green accounting systems, small and medium enterprises (SMEs) lag due to lack of expertise and regulatory compulsion. Government initiatives, such as India’s commitment to achieve net-zero emissions by 2070, are expected to drive broader adoption.

Ethical considerations also play a vital role. Transparency and accountability in sustainability reporting prevent green washing—the practice of making deceptive claims about environmental responsibility. Accountants, therefore, act as guardians of credibility in sustainability disclosures.

Conclusion

Green accounting is essential for reconciling the objectives of economic growth with environmental preservation. By embedding environmental costs into financial systems, organizations can make informed decisions that support both profitability and sustainability. As regulatory scrutiny increases, integrating sustainability into accounting frameworks will be critical for achieving long-term ecological balance and economic resilience.

Environmental accounting not only strengthens corporate governance but also empowers stakeholders to make responsible investment choices. The adoption of robust environmental reporting mechanisms will be instrumental in achieving India's net-zero ambitions

and in building a future where economic development coexists harmoniously with environmental integrity.

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(Under the jurisdiction of Ministry of Corporate Affairs)
www.icmai.in



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Behind every successful business decision, there is always a CMA

THE MANAGEMENT ACCOUNTANT

ISSN 0972-3528

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Advanced Certification Course in **GST LITIGATION MANAGEMENT (ACCGLM)**

An initiative of
 Tax Research Department, ICMAI



Admission for Batch - 1
 Starts from October 30, 2025

Course Eligibility

- ⊙ Qualified Cost & Management Accountants (Members)
- ⊙ Other Professionals (CS, CA, MBA, M.Com, Lawyers)
- ⊙ Executives from Industries and Tax Practitioners
- ⊙ Students who are either CMA qualified or CMA pursuing

Course Content

- ⊙ Over View of GST Laws - Present Issues in litigation
- ⊙ Scrutiny of Returns, Notices handling and how to draft & submit reply
- ⊙ Assessments - Notices, handling and how to draft & submit reply
- ⊙ Audit
- ⊙ Anti Evasion-Enforcement - Search & Seizure
- ⊙ Litigation Process
 - a. Specific issues in drafting the reply or filing appeal
 - b. Leveraging allied laws in litigation
 - c. Notices and different Prescribed Forms
 - d. Adjudication
 - e. Inspection, Search, Seizure, Summons & Arrest
 - f. 1st Appellate Authority
 - g. GSTAT
- ⊙ Advance Ruling
- ⊙ Practical Case Studies

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1

Advanced Certificate Course in GST Litigation Management – Course Outline

Sl. No.	Topic		Subject coverage	Presentation	Hours
1	Sources of disputes	Over View of GST Laws - Present Issues in litigation	Overview of GST, Jurisdiction - Centre or State or both, Conundrum of Concurrent Jurisdiction and Sec. 6(2)(b) of the CGST Act, Registration under GST	provisions, circulars, notifications, present issues in litigation with examples and case decisions	3
			Issues related to supply, Classifications, taxability, exemption, Valuation,	provisions, circulars, notifications, present issues in litigation and case decisions	
			Notifications and Circulars issued under GST Laws - binding effect	Case law analysis	
			Issues related to time of supply, place of supply, Registration, invoicing and related filing of returns, Eway bills - present issues	provisions, circulars, notifications, areas of disputes with examples and case decisions	
			Issues related to Input Tax Credit including block credit and reversal of ITC, GSTR-2A, GSTR-2B etc, ISD and Jobwork - present issues	provisions, circulars, notifications, areas of disputes with examples and case decisions	
2	Scrutiny	Scrutiny of Returns, Notices handling and how to draft & submit reply	Overview of scrutiny of returns, Cases where the department generally carries out scrutiny, Provisions of Section 61 of the CGST Act, 2017 & Rule 99 of the CGST Rules, 2017, Procedure to be followed by the proper officer for scrutiny of returns, Procedure to be followed by the registered person after receiving the notice in ASMT-10 for scrutiny of returns, How to handle such notices and how to represent before the department., Instructions issued by the CBIC relating to the scrutiny of returns, Repercussions after issuance of ASMT-10, ASMT-11 and ASMT-12. Online filing of reply	With discussion on different issues, case study and updated case decisions	3
3	Assessment	Assessments - Notices, handling and how to draft & submit reply	Assessments under GST, Procedure of Assessments, Provisional Assessments, Self-assessments, Scrutiny Assessment, Notices issued during assessment, reply to notices, how to draft reply to such notices. Online filing of reply	With discussion on different issues, case study and updated case decisions	4
4	Litigation arising from the audit	Potential litigation arising from the audit	Types of Audits, Procedure for Audits, selection for Audit, Desk Review, Closure of Audits, ADT-01, ADT-02, MCM, Parala Audit by State & Central Authorities, Drafting of reply and how to handle the issues during Audit process. Online filing of reply	Provisions and case study with case decisions	6
		Audit-induced legal exposure Possible legal action resulting from the audit			
5	Anti-Evasion	Enforcement - Search & Seizure	Cases in which Department may conduct search and seizure operations, What are the Department's powers during search and seizure, Summons proceedings, Deposits during search and seizure operations, Rights and obligations of taxpayers during such proceedings. How to handle and reply during the proceedings.	Provisions and case study with case decisions	5
6	Litigation Process	Specific issues in drafting the reply or filing appeal	Discussion of some practical issues that taken in replying the SCN, adjudication process and appellate stage. Principle of natural justice, revenue neutral, recovery of tax under RCM when tax paid under forward charge, bonafide believe in availing exemption, analysis of applicability of interest provisions, applicability of judiciary precedent etc	Discussions of relevant provisions with case laws.	9
7		Leveraging allied laws in litigation	Allied laws relevant to GSTAT litigation: 1. Indian Contract Act, 1872 2. Bharatiya Nyaya Sanhita (BNS) 3. Real Estate (Regulation and Development) Act (RERA) 4. Customs Act 5. Code of Civil Procedure (CPC)	An over view of the allied laws in perspective of GST litigation matters	3
8		Litigation - Notices and different Prescribed Forms	Different type of Notices Forms used in the Compliance and Litigation process , its relevance under GST Laws	Provisions related to importance of the Notices, Time limit of issue of notices, related case decisions	1
9		Adjudication	Demands and Recovery, Procedure for demands and recovery, Show Cause Notices, Replies to Show Cause Notices, Interest and Penalties, Adjudication Order [Section 73,74, 74A & 75 etc]	Provisions and case study with case decisions	8
10		Inspection, Search, Seizure, Summons & Arrest	Inspection, Search, Seizure, Summons & Arrest	Provisions and case study	2
11	1st Appellate Authority	Relevant provisions for filing appeal before 1st Appellate Authority, Key considerations for drafting facts and grounds of appeal, Insights into judicial expectations and perspectives, Discussion of cases and practical scenarios	Provisions including practical aspect / case study how to draft Statement of facts and grounds of appeal, Authorised Representative, How to present the case and plead before GSTAT	9	
12	GSTAT	Relevant provisions for filing appeal before GSTAT. Detailed walkthrough of the GSTAT (Procedure) Rules 2025, Practical guidance on preparing an effective Paper Book, Key considerations for drafting facts and grounds of appeal, Insights into judicial expectations and perspectives, Discussion of cases and practical scenarios	Provisions including practical aspect / case study how to draft Statement of facts and grounds of appeal, Authorised Representative, How to present the case and plead before GSTAT	15	
13	Advance Ruling	Advance Ruling	Provisions and How to prepare		2
14	Case Study	Practical	Case Study - 5 Nos		10
			Total		80

INTERVIEW



CMA Sipan Kumar Garg

Director (Finance), THDC India Limited

Addl. charge, Director (Finance), SJVN Limited

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CMA Sipan Kumar Garg has been serving as the Director (Finance) of THDC India Limited since 17th August 2024 and has also been assigned the additional charge of Director (Finance) of SJVN since 1st September 2025. A distinguished finance professional, he holds a degree in Bachelor of Commerce (Hons.) and is a member of the Institute of Cost Accountants of India (CMA), the Institute of Chartered Accountants of India (CA), and the Institute of Company Secretaries of India (CS). Additionally, he has done LL.B. and was a rank holder in the Company Secretary examination.

With over 24 years of extensive experience in Finance, Accounts, Taxation, and Commercial aspects within the power sector, he brings a deep expertise to his role at THDC India Limited. His prior experience includes serving as the Chief Financial Officer (CFO) at Aravali Power Company Private Limited and Patratu Vidyut Utpadan Nigam Limited, both Group Companies of NTPC Limited. He has also contributed to NTPC Limited

in various capacities, including strategic roles in the Corporate Accounts Group and the Koldam Hydro Power Project.

During his tenure at NTPC, he ascended the professional ladder through his strong sense of responsibility, ethics, and unwavering dedication to the Company. Recognized as an outstanding finance professional, he excelled in every role he undertook at NTPC.

He has enhanced his expertise by participating in numerous workshops and seminars at prestigious institutions both in India and abroad. As a seasoned speaker on Accounting Standards and Ind AS, he has shared his insights widely over the years. He has also been an active member of several committees of the Institute of Chartered Accountants of India, including the 'Committee on Public Finance and Government Accounting,' the 'Accounting Standards Study Group,' and the 'Members in Industry Group (PSU).'

In recognition of his visionary leadership, Shri Garg was honoured as the Visionary CFO of India at the National Economic Growth Summit 2024. He also received a Certificate of Appreciation from ICAI for his dedicated contributions to the growth of THDC and for his efforts in advancing the CMA profession.

Q1 Reflecting on your distinguished career, could you share some of the key milestones, transformative experiences, and guiding principles that have shaped your professional journey and led you to your current leadership role at THDCIL?

Ans. My professional journey of over two decades in the power sector has given me the opportunity to have the deep understanding of the sector and I feel privileged to have been part of India's power sector transformation over the years. Experiences across Financial Management, Financial Reporting, Treasury Operations, Regulatory matters, and Strategic Planning have contributed meaningfully to my growth and leadership approach.

My long association with largest Power Generation Company of India i.e. NTPC Limited is one of the key milestones in my career. Structuring viable financing models, ensuring fiscal discipline and maintaining a balance between commercial prudence and developmental objectives have always been the constant priorities. Another defining phase was navigating regulatory and tariff issues, which deepened my understanding of the financial and policy dimensions of the power sector.

Transitioning to the role of Director (Finance) at THDCIL has been both an honour and a responsibility. The organization is at a transformative juncture, diversifying from conventional hydropower into Solar, Wind, and Thermal energy and financial stewardship plays a crucial role in driving this vision. Ensuring optimal resource mobilization, financial sustainability, and compliance with evolving regulatory frameworks remains central to our strategic objectives.

My guiding principles have always been

Integrity, maintaining financial discipline, transparency, accountability, and long-term sustainability of the organization. I firmly believe that financial leadership extends beyond numbers. It is about building trust, enabling sound decision-making, and aligning financial strategies with the organization's long-term goals.

Q2 What specific roles do Cost & Management Accountants play in designing and implementing THDCIL's cost architecture — including specialized cost models, transfer pricing mechanisms (such as for coal sourced from the Amelia Mine), and granular performance metrics — particularly for new power verticals like Khurja STPP and Tehri PSP, to ensure these projects contribute effectively to overall profitability and resource efficiency?

Ans. Cost and Management Accountants (CMAs) play a pivotal role in shaping the cost architecture of companies like THDCIL by aligning cost accounting practices with strategic objectives of efficiency, transparency, and long-term sustainability. Their responsibilities encompass cost design, implementation, analysis, and continuous improvement which is particularly critical as the company expands into new thermal and pumped storage verticals.

CMAs are instrumental in developing specialized cost models tailored to each business segment i.e. hydro, thermal, solar, and emerging renewable technologies. These models capture both direct and indirect cost drivers across the value chain, enabling accurate project cost capitalization, tariff determination, and performance benchmarking.

For projects such as Khurja STPP and Tehri PSP, activity-based costing systems reflect

project-specific dynamics such as fuel mix, plant load factors, auxiliary consumption, and water usage providing granular insights into unit energy costs and operational efficiency.

In the case of the Amelia Coal Mine, transfer pricing mechanisms have been established to ensure regulatory-compliant allocation of coal costs between mining and generation verticals. This enhances cost traceability and ensures that generation tariffs accurately reflect the cost of coal procurement and logistics.

Ultimately, through analytical insights, cost audits, and contributions to tariff petitions before regulators, it is ensured that each vertical i.e. hydro, thermal, or pumped storage optimally contributes to THDCIL's profitability, cost competitiveness, and resource efficiency.

Q3 In line with this issue's theme, "*Sustainable Finance: Steering India towards a Greener Future*," could you share a practical example where environmental cost accounting insights or sustainability-driven financial analysis directly influenced a key operational, strategic, or investment decision within THDCIL?

Ans. At THDCIL, we have progressively integrated sustainability and environmental cost considerations into our financial and investment decision-making processes. A notable example is the Tehri Pumped Storage Plant (PSP), where environmental cost accounting played a pivotal role during project evaluation and design optimization.

Through detailed sustainability-driven financial analysis, we quantified not only direct capital and operating costs but also environmental externalities including carbon abatement benefits, ecosystem impacts, and long-term resource

efficiencies. By incorporating a shadow price for carbon emissions and accounting for avoided thermal generation costs, the project's financial viability was significantly strengthened under a lifecycle cost framework. This analytical approach justified the PSP's strategic value as a green balancing asset in India's renewable-heavy grid, supporting its prioritization in the company's investment roadmap.

Building on this experience, similar environmental cost accounting insights are now being applied to upcoming projects, ensuring alignment with THDCIL's commitment to sustainable growth and India's decarbonization goals. By including Environmental, Social, and Governance factors in new project evaluations, it is ensured that the funds go to projects that give both financial returns and positive environmental impact. Our financial decision-making ensures that THDCIL's investments contribute not just to profitability, but also to India's green energy transition.

Q4 What practical advice would you offer to newly qualified Cost & Management Accountants regarding foundational techniques, analytical skills, and professional attitudes that can help them excel in today's competitive and rapidly evolving business environment?

Ans. For newly qualified Cost & Management Accountants, my advice would be to focus on three key areas.

First, foundational techniques: develop a strong command over cost accounting, financial reporting, budgeting, and taxation, as these form the backbone of all strategic financial decisions. Second, analytical skills: learn to interpret data critically, identify trends, anticipate risks, and

translate numbers into actionable insights that support business objectives. Finally, professional attitudes: cultivate integrity, discipline, and a habit of continuous learning.

In today's fast-evolving business environment, technical competence alone is not enough. Adaptability, ethical decision-making, and the ability to communicate complex financial concepts clearly are what truly differentiate a successful professional. To excel, they must develop a well-rounded blend of technical expertise, analytical insight, and a proactive professional mindset that aligns finance with strategy.

Q5 How is THDCIL proactively developing its CMA talent to be future-ready? What specific new competencies — in areas such as data analytics for cost prediction, ESG valuation, renewable energy finance, or digital cost management — is the organization prioritizing to strengthen its finance function and align it with THDCIL's growth and energy transition strategy?

Ans. At THDCIL, we place significant emphasis on developing our talent to meet the evolving demands of the energy sector. We are actively building capabilities in areas such as data analytics, digital cost management, and renewable energy finance, recognising that these skills are critical for informed decision-making and long-term sustainability. Beyond technical skills, we are fostering a mindset of strategic thinking, adaptability, and continuous learning, enabling our finance professionals to contribute not just to transactional efficiency but to shaping investment and operational decisions. By aligning our talent development with the company's growth and energy transition strategy, we aim

to create a finance function that is future-ready, agile, and capable of supporting THDCIL's vision for sustainable and affordable Power generation.

Q6 As Director (Finance) and a distinguished member of the CMA fraternity, what three practical steps would you advocate or implement within THDCIL to further strengthen the bridge between the company and the Institute of Cost Accountants of India (ICMAI)? In particular, how can initiatives such as mentorship programs, structured internships, and applied research collaborations in areas like infrastructure finance and complex project costing be institutionalized for mutual benefit?

Ans. I firmly believe that deeper collaboration between THDCIL and ICMAI can create significant value, not only by enhancing capacity-building within the organization but also by contributing meaningfully to the growth and relevance of the CMA profession in today's evolving business landscape.

Collaboration between THDCIL and ICMAI can be strengthened through structured mentorship programs that guide CMA students in applying their knowledge to real-world finance, internships that provide hands-on exposure to project costing and financial analysis in the power sector, and applied research partnerships in areas such as infrastructure finance and renewable energy projects. Institutionalizing these initiatives fosters a continuous learning ecosystem, enhances professional excellence, and reinforces the bridge between academia and industry. **MA**



Diwali Bazaar: Festivity to Finance



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The residents of Govardhandham Heights Society were full of joy in the pre-Diwali season. They were excited about the idea of upcoming Diwali Bazaar, while the strings of lights were already being tested.

This year the event wasn't just another celebration; it was an entrepreneurial attempt. The juvenile group of the society — affectionately known as the Vanar Sena took the lead to organise the Bazaar this time. However, society's Secretary, Mr. Sharma approved their initiation only on the condition that they need to make it not only spectacular but also profitable too by saying "No loss, only light."

The Three Pillars and the Target

The Vanar Sena comprising of three very active leaders. Raghav, the charming boy, whose energy could light up a room faster than any diya; Meera,

the meticulous planner who used to transform chaos into color-coded spreadsheets; and Kabir, the quiet finance strategist who saw the world through finance lenses.

Together when they visited society office with the proposal, they got a straight reply from Mr. Sharma that "sentiment wouldn't pay the bills." He further emphasised that we require a minimum surplus of ₹80,000 so as to achieve this year's donation target. He was very firm in his demand by adding to his initial specification that even if something unexpected occurs, be prepared for a twenty percent dip below your target profit but I will never accept a surplus below above mentioned amount. The Vanar Sena had no option but to nod.

Kabir, while running his fingers over a neat stack of papers, underlined this single number on notepad. He later told to Raghav and Meera that this wasn't just about organizing stalls; it

was about managing risk, planning capacity, and balancing profitability with festivity.

To meet the surplus target while accommodating diverse consumer preferences, the Vanar Sena adopted a tiered material mark-up strategy — applying 100% mark-up on Good packs, 110% on Better packs, and 120% on Best packs. These mark-ups were based on a well thought of response to market forces and perceived value. They considered the concept of price elasticity of demand, value perception and willingness to pay while considering cost absorption and margin cushion. This meant every product tier would carry its own profitability cushion, allowing them to reach the target with flexibility.

Raghav leaned back, smiling. “We’re basically building a business plan — with fairy lights.



The Inventory Challenge

Meera, tapping her pen rhythmically, spread the projection sheets across the table, as she wanted to explain the next layer of the puzzle. She opined that based on market survey projected sales mix will follow a 4:2:1 ratio for Good, Better and the Best respectively. However we need to work on production numbers because of

presence of opening inventory of Good, Better and Best which we carried from the previous Dandia event organised in Govardhandham. She reminded the Vanar Sena members about their commitment made to Mr. Sharma.

Mr. Sharma shared with them an inventory register which showed that opening stock from the previous event — 50 units of Good, 40 of

Better, and 30 of Best. The register also revealed that from the previous event, they had opening stocks of 50 units of packing material, 10 kgs of cashew, 30 kg of raisins, and 20 kgs of almonds. To maintain demand flexibility, the Vanar Sena agreed to keep a buffer closing stock of 45 units of packing material, 9 kg of cashew, 27 kg of raisins, and 18 kg of almonds. These figures would play a critical role in determining purchase quantities and ensuring uninterrupted production.

At the same time, Vanar Sena consented that they should plan for a buffer closing stock to meet higher demands if any else they can carry over it as closing stock for the Christmas event — 40 units of Good, 30 of Better, and 20 of Best.

Highlighting the figures Meera explained that we need to figure out exactly how much to produce considering these opening and closing stock quantities of our finished goods.

Raghav grinned. “So, our inventory is both our cushion and our constraint.” She nodded. “Precisely.”

The Product Mix and Material Map

The three varieties of offerings were carefully planned to have a perfect fit with consumer choices. This was based on marketing analytics project done by Raghav and Meera jointly in their recent project during the studies. Accordingly the Vanar Sena decided to go ahead and continue with the below composition which was also used during Dandia event earlier:-

- ⊙ **Good pack:** 1 unit of packing, 0.2 kg Cashew, 0.6 kg Raisins, and 0.2 kg Almonds.
- ⊙ **Better pack:** 1 unit of packing, 0.3 kg Cashew, 0.4 kg Raisins, and 0.3 kg Almonds.
- ⊙ **Best pack:** 1 unit of packing, 0.4 kg Cashew, 0.2 kg Raisins, and 0.4 kg Almonds.

They had a long lasting relationship with a reputed whole-seller of dry fruits who gave them the following rates: - ₹1,045 per kg of Cashew, ₹400 per kg of Raisins, and ₹760 per kg of Almonds with free delivery at site. However

packing material was costing ₹200 per packing unit inclusive of transportation charges 10%.

Kabir reminded Meera and Raghav that during processing, both Cashew and Almonds suffered a loss of 5% during Dandia event and this is something usual to happen. “Every gram lost,” he said, “is a cost ignored — and that’s not acceptable.”

Meera nodded. “We’ll factor it into the material utilization budget. No hidden surprises.”

The room fell into a rhythm of mental math and murmured calculations — the quiet hum of logic that powers good planning.

The Human Equation: Labor and Love

Behind every successful event, people’s involvement is a must. Vanar Sena, believing in this concept, came of the spreadsheet for a while and discussed need for manpower. Raghav said “We need volunteers as they work at low cost but with high spirits. Kabir confronted “For skilful work only professional support will do” Meera supported Kabir by arguing market dynamics and consumer expectations of quality.

Arguments heated up but landed in an advanced outcome consensus for a mixed of human requirement as The Vanar Sena agreed that enthusiasm alone wouldn’t fill boxes — time, precision, and fair compensation would.

They divided their workforce carefully. They worked out that junior volunteers will be happy with a stipend of ₹50 per hour while seniors will require at least ₹100 per hour. So they planned to assign the work in such way that Juniors devote 2, 3, and 4 hours per unit for the Good, Better, and Best packs respectively while seniors devote 1, 2, and 3 hours respectively.

However, as agreed, the professional packing artists must be invited, who are required to give the final polished look to each pack, given their higher remuneration of ₹125 per hour, they are planned to remain engaged only for 12 minutes, 24 minutes, and 48 minutes for each pack of Good, Better, and Best respectively.

Meera said that now we have planned for a

workforce energized by purpose and guided by precision. Raghav walked around the workspace that evening, smiling at the buzz of activity. “Every almond counts,” he said softly, half to himself. “Every pack is a promise.” And it truly was — a promise of quality, unity, and the satisfaction of doing things right.

The Unshakable Fixed Costs

There were some unshakable costs which stood tall, immovable and non-negotiable because they were behind giving the capacity to perform the entire event. Without them, the Vanar Sena’s meticulous planning would remain confined to spreadsheets. With them, the bazaar could become a benchmark.

Meera said that in modern times, it is very important to create a digital buzz and the the Social campaign will cost not less than ₹76,400. This spending will create a digital buzz that would ripple across platforms, drawing attention from neighbouring societies and even local influencers. Raghav smiled and said that we are not

e-commerce company and we require physical landscaping for which the Ground Rent will cost us a hefty ₹1,00,000. Kabir added to these cost mentions and said a lucky draw can do miracles in attracting customers but will cost us ₹1,51,000. It was considered as the magnet for footfall, promising high-value prizes that would keep the crowd engaged till the final diya was lit.

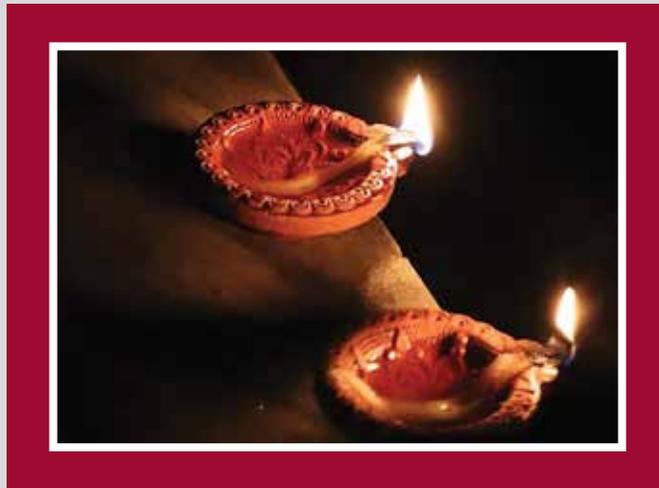
The Budgeting Blueprint

The Vanar Sena was working like clockwork. The air was filled with scribbles, debates, and the occasional burst of laughter. Kabir finally outlined the roadmap — the sequence of budgets that would guide every decision and would help

the Vanar Sena to finalise its deliberations and start action for the execution of the event with confidence of meeting promise made to Mr. Sharma:-

- ⊙ Sales Budget.
- ⊙ Production Budget
- ⊙ Material Utilization Budget
- ⊙ Material Purchase Budget
- ⊙ Manpower Cost Budget
- ⊙ Fixed Cost Budget
- ⊙ Operating Income Statement

Raghav nodded, impressed. “So the light show starts on paper before it ever hits the stage. Meera smiled. “Exactly. If our numbers shine, the event will too.”



The Critical Surplus Puzzle

As the clock edged past midnight, the trio reconvened in a room lit only by the soft glow of Kabir’s laptop screen. Meera, tapping her pencil on the table “We’ve outlined the production volumes, mapped out material requirements, and

completed manpower planning. But everything hinges on one key metric — the number of units we need to sell.”

Kabir agreed, “To secure a surplus of ₹80,000 after accounting for all fixed and variable expenditures, we must determine the precise sales quantity.”

Raghav leaned in, eyes focused. “So this is our inflection?”

The question lingered, weighty and unresolved — more pressing than any cost line item.

What method should the Vanar Sena use to calculate the optimal sales volume that guarantees their desired surplus — considering pricing tiers, cost structures, and inventory dynamics? **MA**

TRANSFORMING FOOD PROCESSING THROUGH ARTIFICIAL INTELLIGENCE: A STUDY ON PRACTICAL APPLICATIONS AND IMPACTS

Abstract

Artificial Intelligence (AI) has revolutionised the food processing sector by enabling unprecedented levels of automation, efficiency, and safety across the supply chain. These technologies are transforming traditional practices into smart, data-driven operations. This paper looked into different practices of AI in food processing and delivery, including quality inspection, hygiene monitoring, temperature control, fraud detection, and supply chain management. The adoption of AI not only enhanced operational efficiency and cost-effectiveness but also ensured compliance with health and safety standards. This study concluded that AI was not only a new trend but also a strategic necessity in modern food processing.

Introduction

The application of artificial intelligence (AI) to the food processing sector marks a significant leap toward smart manufacturing and intelligent delivery systems. AI tools such as machine learning, deep learning, and computer vision are redefining the boundaries of food production, logistics, and consumer interaction. As global demand for food grows and supply chains become more complex, the adoption of AI enables companies to improve efficiency, ensure food safety, and respond rapidly to market trends. The application of AI in the food processing sector has been growing for years due to various reasons, such as quality



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control, food sorting, prediction of parameters, and food safety (Nidhi Rajesh Mavani et al., 2021). Now many food business entrepreneurs have applied AI in different fields such as supply chain management, food storing, production development, food quality improvement, and proper industrial hygiene. This paper investigates the integration of AI in different areas of the food

industries, highlighting its impact on operational efficiency and turnover.

The role of AI in Food Delivery and Customer Engagement

1.1 Enhanced customer interaction

AI-powered chatbots are designed to imitate human conversation and play a crucial role in modern food ordering platforms. They apply natural language processing methodology to comprehend and read user input and produce responses in accordance with pre-programmed rules or machine learning algorithms. These bots provide real-time assistance, allowing users to place orders, track deliveries, and receive personalised recommendations. It enables quick responses and the ability to promptly provide relevant details without human intervention. It benefits businesses by managing multiple customer enquiries and reducing the need for extra staff. They also support internal operations like answering employees' queries and assisting with various tasks. By leveraging historical customer data, chatbots enhance user experience and enable platforms to scale customer service without a proportional increase in manpower.

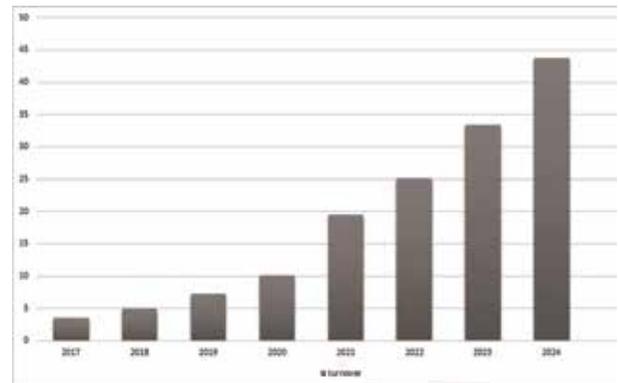
The famous food business like Starbucks uses chatbots to make ordering more convenient. It introduced an AI-operated barista support designed to simplify order processing, cut wait times, check loyalty rewards and stay updated on promotions. By implementing AI, Starbucks aims to improve order accuracy, minimise order wait times, free up human staff to focus on customer interaction and coffee preparation, and enhance the overall customer dealings. Panda Express has a chatbot on Messenger that helps customers find menu items and place orders with a smooth and hassle-free process. It utilises SYNQ3's AI voice ordering technology to place orders using voice commands, streamlining the ordering process and reducing wait times. Additionally, Panda Express has a mobile app that offers mobile ordering, Panda Rewards and a store locator. Burger king's digital assistant helps customers place orders, track orders and resolve issues. It provides automated replies to generalised questions, and customers can speak with a human

agent when needed. Domino's Dom chatbot, accessible through Facebook Messenger, Amazon Alexa and Google Assistant, enables customers to place orders, track deliveries and access previous orders. The easy order feature allows customers to quickly reorder their favourite dishes. Swiggy customises discounts and offers for its customers using AI. To provide a discount the platform considers customers' order history and other relevant data. It provides more targeted offers, which has increased the customer happiness.

The following graph represents the turnover of Swiggy before and after the implementation of AI technology in their food business.

1.1.1

Swiggy annual turnover from 2017 to 2024



(Source: Swiggy annual reports)

Swiggy started exploring AI in their food system around 2019-20. But significant advancements were made during 2022-23. The following graph showed a turnover from 2017 to 2024. The turnover was low in 2017 and 2018. From the year 2019 onwards, there was a noticeable increase each year. After using AI technology, the turnover jumps significantly from 2022 to 2024, with the highest value in 2024.

1.2 Fraud detection in delivery apps

The growing prevalence of digital transactions and complex financial systems has given rise to increasingly sophisticated fraudulent activities. This poses a significant threat to customers and harms the reputation of genuine food operators. Machine learning is a subset of AI that focuses

on developing algorithms that allow computers to learn from and make predictions based on data (Oluwabusayo Bello & Komolafe Olufemi, 2024). This model can identify suspicious activity such as fake orders or payment fraud, thus protecting both businesses and customers.

Swiggy, India's leading food delivery platform, uses SHIELD's fraud monitoring solutions to enhance its fraud detection capabilities. Sensfrx offers a comprehensive fraud detection and prevention solution, using AI powered anomaly detection to safeguard consumers and food delivery businesses.

Role of AI in Food Processing and Quality Control

2.1 Smart Food Processing and Automation

AI-driven robotics automate key processing steps such as sorting, slicing, mixing, and packaging with high precision. Robotics is a branch of automation that is involved in the process of controlling equipment to perform operations with little or no human interference. The use of these technologies in the food industry has been on the rise as a result of the following factors: ensuring consistency, reducing human error, minimising labour dependency, and making operations faster and safer.

The famous businesses like JBS employ AI-driven robotics to automate complex meat-cutting processes, ensuring consistent portion sizes and minimising product loss. Beyond Meat leverages AI and machine learning to refine the flavour and texture of plant-based meat alternatives.

2.2 AI-Powered Quality Inspection

Quality inspection is a planned and organised process in which the state of the product is assessed by examination, measurement, testing, gauging or comparison to determine if it conforms to the desired specification (Sarvesh Sundaram & Abe Zeid, 2023). The AI-orientated vision systems powered by deep learning analyse food products for defects such as discolouration, contamination, or deformities. It identifies differences between features of the product undergoing inspection and the desired features. These tools continuously learn, increasing their accuracy over time and

ensuring that only high-quality products reach consumers.

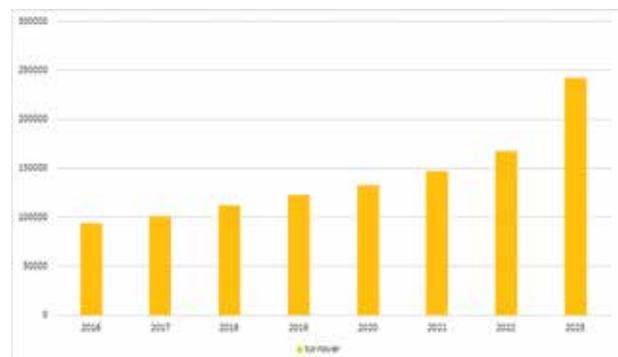
Tyson food implements machine vision to identify signs of spoilage in meat products more accurately than human inspectors. PepsiCo leverages AI in potato chip production to sort out defective chips based on colour, shape and texture. Nestle utilises AI-powered visual inspection systems in chocolate and coffee factories to detect defects and ensure high-quality standards. Their AI-based computer vision systems inspect food products on production lines, detecting issues like discolouration, size anomalies or foreign materials.

Nestle began its digital transformation journey in 2018. In 2021, it implemented an AI platform which became widespread in 2023.

The following graph represents Nestle turnover before and after the implementation of AI technology in their business.

2.2.1

Nestle turnover from 2016 to 2023



(Source: Nestle Annual reports)

The turnover shows a generally increasing trend over the years, with a significant jump in 2023. From 2016 to 2020, turnover was relatively stable with minor fluctuations. A slight increase is seen from 2020 to 2022. But with the widespread application of AI technology in their business, a notable spike in turnover occurs in 2023.

Role of AI in Enhancing Safety and Hygiene Standards

3.1 AI for Hygiene Monitoring

The increasing customer knowledge and

demand for transparency are putting more pressure on food operators to meet the highest safety standards. AI-equipped surveillance systems monitor food preparation areas to ensure compliance with hygiene protocols. Infractions such as improper glove use or insufficient handwashing are automatically detected, prompting corrective action to maintain food safety standards.

Tyson Foods implemented automated cleaning systems for maintaining hygiene and reducing water consumption by 2.8 million gallons annually. It showcases their commitment to sustainability and efficient operations.

3.2 Temperature Monitoring

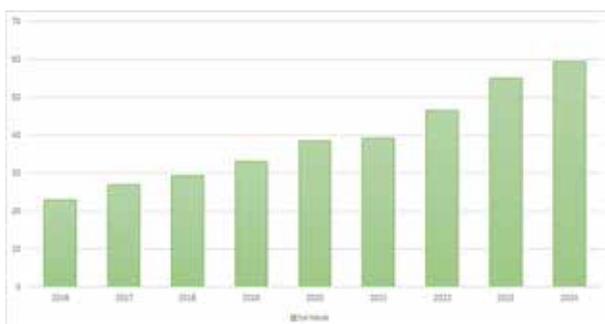
AI-powered sensors track food temperature throughout the processing and delivery phases. When temperatures deviate from safe thresholds, alerts are issued in real time, preventing spoilage and ensuring compliance with safety regulations.

PepsiCo used AI-driven temperature control systems to monitor and adjust temperature, ensuring product quality and safety. Hindustan Unilever also follows these technologies to track and maintain optimal temperature during transportation and storage. Amul utilised industry 4.0 technologies in their milk processing plants. Amul used sensors to monitor temperature, pressure and humidity systems to ensure safety and quality in their dairy products processing and storage (Gyanesh Sinha & Sumit Mishra, 2023).

The following graph represents Amul turnover before and after the implementation of AI technology in their business.

3.2.1

Amul turnover from 2016 to 2024



(Source: Amul annual reports)

Amul turnover has been increasing steadily from 2016 to 2024. At the end of 2021, the organisation implemented AI technologies in different stages, such as milk procurement, milk processing and packaging and distribution, to monitor temperature, pressure and humidity systems. With the integration of AI technology across various business functions, Amul experienced a notable increase in turnover from 2022.

Role of AI in Supply Chain Management

AI enables end-to-end visibility across the supply chain by monitoring inventory levels, supplier reliability, route efficiency, and storage conditions. Predictive analytics allows businesses to forecast demand accurately, manage perishable inventories efficiently, and minimise wastage. In the face of disruptions, AI models can suggest alternate routes or sourcing strategies, ensuring supply continuity. The most prevalent AI technique is ANNs which can apply to several categories of problems, including pattern classification, approximation, optimisation, clustering, function, prediction, retrieval by content and process control (Reza Toorajipour et al., 2021). The implementation of AI in supply chain management comprises various areas such as demand forecasting, procurement, inventory management, customer relationship management, transportation networks, resilience and risk.

Kraft Heinz is developing a system that creates a digital version of its supply chain, allowing it to make automatic decisions about things like product movement and scheduling, helping it respond quickly to changes in consumer preferences. The business is also piloting a generative AI-enabled product known as Plant Chat that collects real-time observations across the supply chain from employees making key business decisions. Britannia industries has also developed the Bhub AW app to optimise its supply chain, simplifying processes and utilising

real-time data to expand its business.

Challenges in adopting AI in the food industry

The adoption of Artificial Intelligence (AI) in food processing holds huge potential for enhancing food safety and quality. However, the food processing sectors, mainly small and medium enterprises, face various challenges that hinder the effective integration of AI technologies into their operational activity.

One of the main barriers is high implementation cost. AI-based systems require large investment in technology, infrastructure, and skilled manpower. Many micro, small and medium food sectors operate on limited budgets, making it difficult to allocate funds for advanced technology implementation. The lack of technical expertise is another major obstacle. The units faced a lack of employees trained in AI, data analytics, and machine learning, which are essential for operating and maintaining AI systems.

Data availability and quality also pose a major problem. AI applications rely on large, accurate datasets for effective performance. However, food businesses may not have well-organised digital records or sufficient data to train AI models.

Conclusion

AI is a transformative force in the food industry, enhancing every stage from production to plate. Its capabilities in automation, quality assurance, hygiene enforcement, and supply chain efficiency ensured that food products are safe, consistent, and delivered in optimal condition. As technologies mature, their integration will continue to elevate standards, streamline operations, increase turn over and promote sustainable practices.

Future Scope

The future scope of this study lies in exploring the role of Artificial intelligence across various stages of food processing, from raw material assessment to packaging and distribution. Further research can focus on developing cost-effective AI

tools suitable for small and medium enterprises, enhancing data integration, and improving predictive analytics for food quality and safety.

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We thank Indian Council for Social Science for providing necessary financial assistance for completing the article

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FIDUCIARY ROLES IN AI GOVERNANCE

Abstract

AI governance has emerged as a core element of boardroom responsibility. Compliance is an evolving fiduciary obligation that requires real time monitoring of AI systems' ethical, legal, and operational impacts. Boards are central actors in risk mitigation and governance. Fiduciary care and protection have the potential to transform AI governance from a compliance obligation into a strategic asset, empowering organizations to innovate responsibly while safeguarding their legitimacy in a rapidly evolving digital economy. In this backdrop an attempt has been made in this article to highlight the devolving additional AI related fiduciary duties and responsibilities in the midst of exponential pace of increase in uses and embedment with existing solutions of AI tools and devices by businesses to reap its inherent potential for more efficient value creation.

Introduction

AI has persistent, broad and global consequences that are transmuting societies, economic sectors and the ecosphere of work, and are poised to progressively do so in the future. AI has inherent potential to deliver greater welfare and well-being of mankind, to enhance and strengthen constructive enduring global economic activity, to intensify innovation and to increase productivity, and to help meeting key global challenges. Concomitantly, these evolutions might impact differently various segments of societies and economies particularly regarding economic shifts, competition, transitions in the labour market, inequalities, and implications for democracy and human rights, privacy and data protection, and digital security.

Failing to incorporate AI into decision-making could also constitute a breach of fiduciary duty.



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AI's potential to create value will become an avenue for differentiation as management continues incorporating AI even deeper within their operations. But with this demand comes increased regulatory scrutiny of AI practices from regulatory agencies and international authorities.

Intrinsic features of AI as driver of fiduciary risks & responsibilities

AI is being increasingly used in applications for wide ranging products and processes viz., IOT, healthcare, automobiles, business and data analytics etc. Main objectives of using AI are to Improve productivity and efficiency, support regulatory compliance and risk management and enhance core business/revenue generating activities. Entities / institutions use AI to do things faster, economising on costs and, to do things which humans cannot do with the accuracy and high speed that AI can deliver. AI by virtue of its proficiencies to carry out complex analyses and computations at a speed beyond the capacities of humans generates quicker insights. Significant benefits out of the AI abilities to generate and process voluminous data at high speed have accrued to Businesses and insurance.

While use of AI has the potential to accrue transformative benefits to the user entities it may also exacerbate existing risks. While AI might mitigate some elements of risks, it also brings along with it some new species of exposures and risks. This may be partly attributable to the fact that AI depends

largely on human feed huge volume of data.

Misuse of AI can also impair the very basics of any organization's business model: its brand popularity and reputation. There is no dearth of evidence of biases in AI-driven outcomes.

AI systems are prone to malfunctioning and failures arising due to improper maintenance, design defects or human error. These defects may trigger financial loss, property damage or bodily injuries (viz., effects of malfunctioning of AI in autonomous vehicles, health care & medical devices, Industrial robots & manufacturing, Aviation & transport system, every day consumer devices etc.)

Generative AI has exhibited proclivity to respond to questions with "hallucinations"—plausible-sounding answers that are factually incorrect or misleading. AI can describe a non-existent product or issue harmful product instructions. Such inappropriate information may make organisations liable for deceptive marketing or for injuries caused by defects in the AI components built into their products. They generally fall in systematic hard to predict ways due to data, modelling or other blind spots.

AI designers keep secret their algorithms rendering it difficult to identify the root causes of errors. Insureds, in turn, may not fully understand risks when purchasing AI products. Thus, more often than not insureds while buying AI products cannot see through the associated risks and the insurers cannot differentiate between unintended errors to be covered and intentional acts that have to be excluded from coverage. This misperception vitiates precise risk assessment and accurate pricing.

Using AI Often requires setting up of new interfaces (like API or web service) that are accessible from outside the organisation. These end points let the people or the systems to query AI. From business point of view these new public end points expand the opportunity horizon. However, they also increase the attack surface since each new public end points could be potential source of security or privacy risk if not managed properly and thus entail greater risks.

Failing to take appropriate preventive safeguards against such attacks can result in breach of fiduciary duties and devolvement of civil liability. Further, in speedier data processing (e.g., high frequency trading, real time risk calculation, AI inferences at scale) there would be less time available for

validation, error checking and quality control and consequently the chances of errors slipping through increase. Faster the data are pushed through a system the greater would be the need for error detection and correction mechanism, because natural tendency in such scenario is for errors to multiply. All these give rise to more complex vulnerabilities and more potential legal violations.

Boards and top management have fiduciary responsibilities and duties to all stakeholders of the organisation. The directors and senior officers must exercise due diligence and prudential cautions in good faith while making hard choices based on reasonable information. Adherence to these principles encourages innovation and promotes higher risk taking to reap opportunities of high returns

Dependence of the Board on faulty AI tools while making business decisions, might breach its fiduciary duties. This is more likely when the goals and values of AI, the corporate, the shareholders and the data subjects are not aligned.

When a consultant is appointed to advise a company on AI-related matters, the fiduciaries still hold ultimate responsibility. They can delegate tasks, but not accountability. The fiduciary should ensure that the consultant's advice is critically reviewed, not blindly accepted. They should ensure exercising due diligence that consultant recommended AI adoption serves the interests of all stakeholders and prevent conflicts of interest (e.g., consultant also selling AI tools for profit). The fiduciary should verify compliance of consultant's recommendations with AI regulations (e.g., EU AI Act, GDPR, India's DPDP Act). Fiduciaries must monitor how the consultant's AI recommendations are implemented. While doing so it must over see whether ethical guidelines, risk controls, and impact assessments are followed and data subjects' rights (privacy, fairness, transparency) are protected.

AI can turn out to be a two-edged sword for cyber resilience. While AI can meaningfully fortify cyber security by proactive sensing of threats and finding vulnerabilities at the same time, cyber criminals can use similar AI tools to conduct more sophisticated cyber-attacks.

LLMs are evolving from powerful text models into complex multimodal systems that unify language, vision, and audio, unlocking new capabilities

while introducing new risks. This transformation is reshaping AI's role—from a text-based assistant into a context-aware partner in human and machine ecosystems. Deepfake technology will appear more resounding, and more manual functions will be automated.

As deepfakes proliferate identification management will pose governance issue for the Boards and the investors.

AI's rapid integration is reshaping the foundations of both legal and insurance frameworks. Legal systems must redefine doctrines of liability, authorship, and privacy, while insurers must develop new models and products to capture novel risks. The convergence of technology, law, and risk transfer mechanisms demands a proactive approach: embedding explainability, accountability, and fairness into AI systems.

AI's rapid integration is reshaping the foundations of both legal and insurance frameworks. Legal systems must redefine doctrines of liability, authorship, and privacy, while insurers must develop new models and products to capture novel risks. The convergence of technology, law, and risk transfer mechanisms demands a proactive approach: embedding explainability, accountability, and fairness into AI systems. Ultimately, those who adapt legal codes and insurance practices to responsibly manage AI risks will foster trust, innovation, and resilience in the digital economy.

Regulatory change is also inevitable, whether that means more jurisdictions with comprehensive AI regulations or allocating liability for AI harms to its human controllers.

Board-Level AI Risks

i. Strategic Risks:

- a. Overreliance on AI without human judgment in core decisions (credit approvals, hiring).
- b. Missing competitive threats from AI-driven disruptors. The competitive threat from AI driven disruptor is less about technology and more about the pace of business model innovations they enable. Missing it can turn strong incumbent into legacy players almost overnight. For example, disruptors using AI offer hyper personalisation ,predictive services, and frictionless experiences. Missing

these shifts may render incumbent appear outdated even if their core product is strong. AI system might optimise operations, personalise offerings and automate decision making far faster than legacy firms. Incumbents that depend on slow product cycle or outdated infrastructure may fail to keep pace. Boards and executives may underestimate AI's transformative impacts treating it as a tool rather than core driver of new business model. This leaves scopes for disruptors redefine value chains.

ii. Operational Risks

- a. AI hallucinations, errors, or poor data governance leading to financial losses. A hallucination transforms from a technical glitch into a systemic risk when embedded in a critical decision-making systems without proper oversight.
- b. Vendor concentration risk (few big providers dominate). Vendor concentration risk in AI is not just a supply chain problem. It is a systemic vulnerability that affects resilience, cost stability, and strategic independence.

iii. Compliance & Regulatory Risks:

Compliance and regulatory risk arise from the gap between rapid technological adoption and slower, fragmented framework. Organisations must treat compliance as moving target, not a one-time check. Specific attention need be bestowed to the following:

- a. AI-specific regulations (EU AI Act, U.S. AI executive orders, India's evolving digital rules).
- b. Cross-border data transfer and privacy laws (GDPR, DPDP Act in India)
- c. Algorithmic accountability requirements

iv. Ethical & Reputational Risks:

Ethical risks are about doing harm; reputational risks are about being seen as harmful. Together , they can undermine AI adoption, customer trust and long term business sustainability. Ethical lapses trigger reputational fallout. Reputational damages may persist longer than fines or compliance costs eroding competitive advantages. The following aspects would require close attention.

- a. AI bias or discrimination (in recruitment, lending, insurance pricing).
- b. Deepfakes and misinformation tied to corporate brand: Deepfakes and misinformation tied to corporate brand can hijack a corporate brand's identity, distort public perception and inflict lasting reputational and financial harms. The best defence would be a mix of tech safeguards, governance protocol, legal readiness and stakeholders' trust building.
- c. Stakeholder backlash against job losses or misuse of AI.

v. Cyber security & Input-Output Risk

Cybersecurity protects AI from external threats while I/O risk addresses vulnerability in what AI consumes or produces. Together they determine the trustworthiness and safety of the system. Models may leak sensitive data (prompt injection, model inversion). Infringement risks arises if AI outputs violate copyright/IP. Prompt injection refers to malicious user manipulating the input (the prompt) in order to override its instructions, bypass safeguards or make it reveal unintended information. Attackers insert hidden instructions inside prompt. The AI model interprets these as higher priority than its original safety rules and intended tasks. Model inversion is an attack where adversaries exploit a train AI model to reconstruct or infer sensitive information about its training data. Attackers repeatedly query the model and analyse output to reverse engineer private data it was trained on.

vi. ESG & Stakeholder Risk

- a. AI's environmental footprint (energy-heavy models).
AI environmental foot print spans energy, emission, water and materials from training to deployment. Its sustainability depends heavily on greener data centres, renewable energy adoption and responsible hardware life cycle. AI use can harm environment but it can also be used to reduce environmental harms.
- b. Responsible AI demanded by investors, regulators, and society
Responsible AI is no longer optional. Investors demand it for value protection, regulator

mandate it for compliance and the society expects it for trust. Entities ignoring these demands would face financial, legal and reputational risks.

Fiduciary Duties

⊙ Duty of Care

Boards are expected to make informed decisions. If AI strategies are adopted in an organisation without sufficient understanding and comprehensive appreciation of the entailed risks (bias, explainability, regulatory compliance), it would amount to breach of duties on the part of the Board of Directors. It has to be ensured that AI systems are robust, accurate, and tested before deployment. Regular audit of AI models should be carried out for errors, bias, and cybersecurity vulnerabilities. Effective human oversight must be exercised in high-risk decision-making (finance, healthcare, HR)

⊙ Duty of Loyalty (Avoiding Conflicts of Interest)

Conflicts of interest must be scrupulously avoided by the Directors. AI must be deployed in ways that benefit stakeholders, not just for profits. Customer privacy and data rights need be protected eschewing exploitation of personal data unfairly. Avoidance of use of manipulative AI (e.g., dark patterns in e-commerce) would be a prudent strategy.

⊙ Duty of Oversight

Boards must exercise effective governance and oversee risk management and compliance systems. Failure to be agile and receptive to AI's impact on privacy, discrimination, cyber risk, or consumer protection could lead to devolvement of avoidable liability.

⊙ Duty of Accountability

Explicit disclosure should be made about when and how AI would be used in decision-making (e.g., loan approvals, hiring) need be ensured. Limitations of AI and potential risks must be clearly enumerated and disclosed. Implementation of clear governance structures as to who would be responsible if AI causes harm is advisable.

⊙ **Duty of Compliance:**

Compliance with and scrupulous adherence to related laws and regulations (GDPR, DPDP Act, EU AI Act, sector-specific rules) must be ensured. Emerging future possible AI regulations may be anticipated for proactive policy alignment.

⊙ **Duty of Ethical Stewardship**

Fairness and non-discrimination in AI-driven decisions need be encouraged and patronised. The fiduciaries should ensure that AI aligns with corporate values and social responsibility commitments. Evaluation of environmental impact of AI (e.g., energy-hungry large models) is the need of the hour.

What Boards Should Do?

a. Governance & Oversight

- ⊙ Establish AI risk committees or integrate AI into risk/audit committees.
- ⊙ Require management to maintain AI inventories (where and how AI is used).

b. Policy & control

- ⊙ Adopt Responsible AI principles (fairness, transparency, accountability).
- ⊙ Mandate explainability for high-stakes AI use cases.
- ⊙ Ensure third-party vendor audits.

c. Training & Expertise

- ⊙ Appoint or consult with a Chief AI Officer / AI Ethics Officer.
- ⊙ Bring AI literacy to the board (just as with cybersecurity).

d. Disclosures & Reporting

- ⊙ Transparent reporting on AI use, risks, and governance
- ⊙ Proactive stakeholder communication to manage reputational risk.

Mitigation of AI-Related Risks by the Board

We focus here specifically on how the Board can mitigate AI-related risks. The emphasis is on oversight, governance, and proactive frameworks. A structured summary is given below:

i. Governance & Oversight

AI Oversight Structures may be created.

Towards this end a dedicated Technology/ AI Committee, may be constituted or alternatively responsibility may be assigned to the Risk/Audit Committee. Board-level accountability for AI decisions may be defined. The governance framework might prescribe and define the role of human intervention to mitigate detrimental outcomes from AI systems. Management should maintain a registry of all AI systems in use, with their purpose, risk category, and regulatory exposures.

ii. Policy & Frameworks

Unwavering Organisational commitments to fairness, transparency, accountability, explainability, and data protection should be made visible in the whole of the organisation. Human oversight in critical areas (credit scoring, recruitment, healthcare, compliance monitoring) should be mandated. Third-Party Risk Management assume greater important needing pointed focus. Intensive due diligence, on contracts entered into may be undertaken. Periodic audits for AI vendors and cloud providers may be mandated. Board must scrupulously monitor compliance on audit findings.

iii. Risk & Compliance Controls

AI may be integrated into the Enterprise Risk Management (ERM) framework. Regular review of emerging risks (bias, privacy breaches, cybersecurity, intellectual property, and ethical misuse) must be carried out. Alignment with global AI regulations (EU AI Act, U.S. AI directives, India DPDP Act) need be ensured. Anticipate cross-border data and algorithmic accountability obligations.

iv. Board Competence & Training

For AI Literacy of Directors board-level periodic trainings on AI basics, risks, and governance obligations may be organised. For Independent Expertise external experts may be engaged or an AI Ethics Advisory Council to provide guidance, oversight and accountability in responsible deployment and use of AI may be put in place.

v. Monitoring & Assurance

Regular independent audits of high-risk AI

systems may be commissioned. Explainability reports and bias testing results need to be obtained and perused for corrective and strategic action.

Crisis management and disclosure protocols need to be in place for AI failures, cyberattacks, or reputational crises.

vi. Disclosure & Stakeholder Communication

Transparent disclosure of AI usage, governance measures, and risk mitigations in annual reports, ESG disclosures, or issuance of sustainability statements may be ensured.

vii. Continuous Review

Regulatory Horizon Scanning need to be carried out on continuous real time basis to Keep abreast of evolving global AI regulation. Treat AI governance as a recurring agenda item, with periodic updates on progress and risks.

The Board mitigates AI risks by embedding them into the core governance framework—not as a technology issue, but as a fiduciary and strategic risk domain. Proactive oversight, policies, audits, and transparent communication protect both shareholder value and corporate reputation.

Conclusion

AI creates a new fiduciary landscape. The fiduciary role in AI governance extends the traditional duties of care, loyalty, and prudence into the sphere of algorithmic decision-making wherein instead of a person weighing the facts, an algorithm process data and outputs a decision or recommendation with enhanced efficiency and consistency and scalability. The responsibilities of Directors and trustees extend besides financial oversight, also to ensuring that AI systems are transparent, auditable, and aligned with organizational and stakeholder interests. Deficiencies in governance of AI attributable to negligence in monitoring bias, failure to protect data subjects, or overreliance on opaque models have the potential to expose boards to direct legal liability under corporate and fiduciary law. This additional duty of oversight renders AI governance a core element of boardroom responsibility.

Beyond liability management, fiduciary AI governance provides a way forward to a state of sustainable competitive advantage. By embedding

transparency, fairness, and accountability into AI strategies, boards can strengthen stakeholder trust, protect reputational capital, and differentiate themselves in markets increasingly sensitive to ethical and regulatory standards. Fiduciary care and protection thus have the potential to transform AI governance from a compliance obligation into a strategic asset, empowering organizations to innovate responsibly while safeguarding their legitimacy in a rapidly evolving digital economy.

Boards treating AI as just an IT issue might face litigation, regulatory penalties, or reputational harm. Strong oversight, ethical alignment, and informed governance are the board's defence.

Considering the rapid development and implementation of AI, there is a need for a stable policy environment that promotes a human-centric approach to trustworthy AI, that fosters research, preserves economic incentives to innovate, and that applies to all stakeholders according to their role and the context.

Stephen Hawking said in 2016 at the launch of the Centre for the Future of Intelligence (CFI), “the rise of powerful AI will either be the best or the worst thing ever to happen to humanity. We do not yet know which.” It all depends on how we harness it! **MA**

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IMPACT OF GOVERNMENT INITIATIVES ON REALTY SECTOR IN INDIA

Abstract

The present study aims to investigate the impact of policy decisions of the government on the real estate sector. The initiatives taken in the last decade to bring about greater transparency and strength in the realty sector. Policies such as The Black Money (Undisclosed Foreign Income and Assets) and Imposition of Tax Act, 2015, The Benami Transactions (prohibition) Amendment Act, 2016, The Goods and Service Act, 2017, The Model Tenancy Act, 2021 and change in GST rate announced recently are studied in context of its impact on real estate market. The results show that most of the initiatives saw significant negative abnormal returns. Thereby the sector responded negatively to policy decisions taken by the government. However, Acts like model tenancy didn't generate any significant reaction. And the GST initiative meant to bring down cost of construction and give boost to the sector didn't receive any significant response.

Background and motivation

The government has been working towards promoting a sound, transparent and responsive infrastructure for the economy. An important part of that infra is the real estate market. Over the last decade a lot of policies have been brought towards making the sector transparent, regulated and vibrant towards growth. The government of India had been preparing to control black money, corruption and counterfeiting through a series of policy initiatives. It began by introducing bills like The *Black Money (Undisclosed Foreign*



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Income and Assets) and Imposition of Tax Act, 2015, The Benami Transactions (prohibition) Amendment Act, 2016, the parliament passed The Goods and Service Tax (GST) Act in September 2016 whereas the state legislature and GST was rolled out on 1st July 2017. For a strong real estate push, The Model Tenancy Act, 2021 was rolled out on 2nd June 2021. Also, the changed GST rate announced on 3rd September 2025 came into effect on 25th September 2025 was meant to reduce the cost of construction.

In the process of controlling black money the central government experimented with a big and bold move on 8th November 2016 through demonetization. The idea behind these policy decisions was to destroy huge piles of black money. The introduction of bill on black money in 2015 imposed criminal liability for concealment and evasion of taxation on foreign income. It also gave one-time opportunity to disclose such income and assets. Next step undertaken was amendment of The *Benami Transaction (Prohibition) Act, 1988*. The benami transactions are defined as, “a transaction where a property is held by or transferred to a person, but has been provided for or paid by another person” it was extended to include all the cases where

the owner had no knowledge of the ownership of such properties. The amendment also sought to include such transactions retrospectively and made the penal provisions stricter. To further curb unaccounted money and implement a uniform, simplified indirect taxation the government passed *The Goods And Service Tax Act* in September 2016. The GST was further implemented in the country in July, 2017. The law was made more stringent and aimed at increasing the tax base. The tax payers could claim the input credit only if the supplier uploaded the invoice. Also, GST being controlled by centralized surveillance system could catch the defaulters quickly and efficiently. The last and final step undertaken by the government was demonetization in November 2016. Demonetization is the discontinuing of the circulating currency and replacing it with a new currency. The demonetization initiated in the country was aimed to curb terrorist funding, black money in circulation and tax evasion. It also gave an impetus to digitization in the country.

The series of policy implementation took a toll on realty sector which is notorious for parking unaccounted money. The laws implemented by the government gave a signal to the real estate industry that it would not accept illicit money in the economy. A large proportion of dealings in real estate include dirty cash. The transactions are under-reported to escape stamp duty and hide the source of money. It indicated that the volume and value of transactions in the real estate sector would go down as the government would clamp down on defaulters. When various laws were passed in the parliament the realty sector responded negatively to these policy implementations.

On the other hand, the government tried to push reforms through initiatives like *The Model Tenancy Act, 2021*. The aim of the model law was to push towards equitable rights for tenant and landlord. Also, an effective dispute redressal mechanism. The study tries to explore the effect of the initiative on real estate.

Lastly, it studies the impact of GST changes

on the sector. According to a report by CRISIL, GST on key inputs for realty sectors like cement, paint and air conditioners was reduced from 28% to 18%, marble and travertine, Granite block and Sandlime brick from 12% to 5% bringing about a total reduction in cost of construction by 3.5 %-4.5 %. Thereby translating into reduction of costs for home buyers by 1%-5%. Also, increasing the demand by the home buyer by 5%-10%.

Table 1

Event	Event date
<i>The Black Money (Undisclosed Foreign Income and Assets) and Imposition of Tax Act, 2015 (BMUFIA)</i>	1 st July 2015
<i>The Benami Transactions (Prohibition) Amendment Act, 2016 (BTP)</i>	1 st November 2016
Demonetization announced	8 th November 2016
<i>The Goods And Service Tax Act, 2017</i>	1 st July 2017
<i>The Model Tenancy Act, 2021</i>	2 nd June 2021
Goods and service tax rate change	25 th September 2025

Since the demonetization was initiated by the government of India, a lot of research has been conducted to explore its effect on the stock market (Upadhyay and Suvarna, 2018; Sardana and Gupta, 2018), banking and automobile sector companies (Padmavathy, Umashankar and Indhu’s, 2017). The empirical findings show mixed results with some studies conclude that the demonetization didn’t have an impact on the stock markets in India and others find significant abnormal average returns in the stock market.

However, the studies didn’t explore the effect of other steps initiated by the Indian government to curb illicit cash. It also doesn’t examine the affect of these events on the real estate sector. The policy tools implemented to suck out unaccounted cash from the system should have a crucial impact

on the real estate sector. This paper aims to fill the research gap. The paper also looks into the impact of policy decision to strengthen infra in real estate. The study investigates the recent changes in GST on the sector.

The purpose of this research is to use event methodology to analyze the impact of key policy decisions such as approval of The *Black Money (Undisclosed Foreign Income and Assets) and Imposition of Tax Act, 2015*, The *Benami Transactions (Prohibition) Amendment Act, 2016*, The *Goods and Service Tax Act, 2017* announcement of demonetization, The *Model Tenancy Act, 2021* and change in GST on the Realty sector index. The paper will aim to identify significant abnormal returns in the Realty sector index before and after these events.

Data and research methodology

The study considers daily closing prices for NIFTY REALTY INDEX and NIFTY 50 from the National Stock Exchange (NSE) website. The paper has selected following events:

Above are the event dates considered for the study. The study considers to a long-term window and short term window to analyze the impact of enactment of these laws on the realty sector. The long-term window has a pre-event window of -20 days and post event window of +20 days thereby a total event window of 41 days including the event day. Whereas, the short-term window has a pre-event window of -7 days and post event window of +20 days making the total event window of 28 days. The estimation window is -120 days before the pre-event window of 20 days. Other event studies have used similar windows (Sardana and Gupta, 2018). For this study single index model has been applied to estimate returns of NIFTY REALTY INDEX and NIFTY 50 has been used as market index. For the entire time period daily closing value of index are taken. The returns for the index are calculated i.e. $RI_t = \ln(I_t/I_{t-1})$. The following is the regression equation to estimate normal returns for NIFTY REALTY INDEX:

$$RI_t = \alpha + \beta RM_t + \varepsilon_t$$

Where;

RI_t is the realty index return for t time period

RM_t is the NIFTY 50 return for t time period

The abnormal returns are calculated on the basis of difference between actual returns and normal estimated returns. Cumulative Abnormal Returns (CAR) are calculated by cumulating across the window. Also, the Standardized Cumulative Abnormal Returns (SCAR) are calculated by dividing cumulative abnormal returns from standard deviation of the event window.

Results and Findings

We examine the NIFTY REALTY Index response to black money laws coming into force in the country. The results show that when The *Black Money (Undisclosed Foreign Income and Assets) and Imposition of Tax Act, 2015*, The *Benami Transactions (Prohibition) Amendment Act, 2016* and demonetization came into force in the country the realty sector responded negatively to it. And the Table 2 shows significant negative abnormal returns to these laws in the short and long window. The market feared that it would pull out cash from the system and create an environment of fear amongst the realty sector investors. The laws were bound to lower the volume and participation in the realty industry. However, the reaction to roll out of GST in the country has been significantly negative in the short term window. The realty sector didn't respond to the roll out for the longer window. On the other hand there wasn't any significant impact of introduction Model Tenancy Act although it was meant to strengthen the regulations that govern tenant landlord relationship making it stronger. Also, the change in GST was expected to bring down the cost of construction thereby boosting demand. However, the market reaction was lukewarm as it assumed that the announcement weren't going to bring down the project cost or their margins. The sector was expecting restoration of input tax credit which didn't materialize.

Event		BMUFIA	BTP	Demonetization	GST roll out	Model Tenancy	GST Change
		1.7.15	1.11.16	8.11.16	1.7.17	2.6.21	25.9.25
Short-term Window	CAR	-0.062*	-0.150*	-0.189*	0.0263*	0.01394	0.000735
	SD	0.0112	0.0235	0.0230	0.00910	0.01340	0.008761
	SCAR	-5.5476	-6.3778	-8.2259	-5.7962	1.0403	0.08385
Long-Term Window	CAR	-0.170*	-0.109*	-0.194*	-0.0022	0.01964	0.007787
	SD	0.0121	0.0211	0.01979	0.0101	0.012525	0.008137
	SCAR	-13.992	-5.1959	-9.8181	-0.2164	1.568117	0.956881

Table 2: Results reported for short and long window

(at * 1% and ** 5% level of significance critical value for two tailed t-distribution is +2.576 and +1.96)

Discussion and Conclusion

As the *The Black Money (Undisclosed Foreign Income and Assets) and Imposition of Tax Act, 2015*, *The Benami Transactions (Prohibition) Amendment Act, 2016*, demonetization in November 2016 and *The Goods and Service Tax, 2017* the realty sector index gave significant negative abnormal returns. Thereby making the market vulnerable to abnormal earnings for investors. The *The Model Tenancy Act, 2021* and change in GST were expected to give significant positive reaction from the realty sector. However, the market saw the change in GST rates as a policy centric to consumer durables. There was no significant abnormal returns in the realty index.

The present study is useful for portfolio managers and investors to identify investment and trading strategies to make profits. Also, to the market regulatory authorities to frame policies to avoid abnormal earnings in the long term. MA

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THE TAXATION SYSTEM IN INDIA: EVOLUTION THROUGH THE LENS OF THE INDIAN KNOWLEDGE SYSTEM

Abstract

The Indian Knowledge System (IKS) has profoundly influenced governance, economics, , business and trade and ethical frameworks within India's long civilizational history. This paper investigates the evolution of India's taxation system from ancient traditions to modern institutional reforms, contextualized through the ethical and philosophical lens of IKS. According to the primary sources such as the 'Arthashastra', 'Manusmriti', and other classical treatises, alongside modern fiscal policies and reform committee reports, the study identifies enduring continuities in fiscal ethics - fairness, accountability, and distributive justice. Through an analytical synthesis of historical evolution, colonial transformation, post-independence restructuring, and the incorporation of contemporary digital governance, the paper argues that IKS principles remain vital to fostering transparency and equity in modern fiscal administration. The present study intends to describe the sustainable taxation in India continues to derive legitimacy from its alignment with dharmic (religious) principles of justice and welfare.

Introduction

Taxation constitutes one of the most enduring pillars of governance, linking the moral economy of the state to its administrative apparatus. India's fiscal evolution is unique in its continuous dialogue between spiritual-ethical traditions and pragmatic statecraft. The Indian Knowledge System (IKS) - a composite of philosophical, administrative, and



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ethical insights provides a moral and intellectual foundation for understanding taxation as both a civic duty and a mechanism for redistributive justice. By drawing the transformation of taxation from early age through colonial codification and modern reforms, this study highlights the Indian fiscal governance as a continuum rooted in indigenous rationality yet adaptable to global exigencies.

India's tax system traces its roots to ancient texts, particularly Manusmriti and Arthashastra, which advocated equitable taxation, economic stability, and governance. Taxation historically supported state welfare and prevented excessive concentration of wealth. Today, these historical principles influence policies aimed at efficiency, equity, and inclusive growth. Tax revenue collection is at the core of public fund mobilization for various public expenditure programmes and is very popular source of revenue generation mechanism since ancient period. Taxation is the cheapest source of revenue mobilization since it is not *quid pro quo* i.e. nothing is payable by the government (tax collector) in consideration of tax revenue collection. As a result, the taxpayers become unhappy to forego their hard-earned

money. Accordingly, it is well recommended that tax should be levied without harming the taxpayers as bees collect honey without harming the flowers.

The Foundations of Taxation in the Indian Knowledge System

Ultimately, India's knowledge and taxation systems represent a synthesis of ancient wisdom and modern advances, guiding both social development and fiscal management. India is an old country with a rich heritage. In India, the direct tax system as it is known today, has been in force in one form or another even from ancient times. There are references both in Manusmriti and Arthashastra to a variety of tax system. Classical Sanskrit sources systematically addressed the aims, principles, and mechanism of taxation. The Dharmashastra tradition (exemplified by Manusmriti) articulates a normative stance and the sovereign's right to levy contributions was justified by the duty of protection. The taxation was bounded by principles of moderation and equity. The recurring prescription of a one-sixth share for the sovereign in several Dharmashastra and Smriti passages indicates an early canonical benchmark for land and produce-based levies; commentators and comparative studies have interpreted this 'one-sixth' as both a moral and pragmatic rule that balanced state needs with agrarian sustainability. Manu advocated moderate taxation, so that the subjects are not hit hard by taxes. Taxes in those days, in Manu's time were imposed by the king on traders, artisans, dancers, actors, and singers etc. These texts also distinguish taxes from other dues (fines, gifts, and fees), which also recommend for remissions in times of calamity, and insist on administrative probity - features that anticipate later canonical tax principles. The tax structure was a broad based and it brought most of the people under its ambit.

Kautilya's 'Arthashastra' supplements the Dharmashastra prescriptions with a technocratic and pragmatic manual of statecraft. It classifies the sources of revenue (land, trade, customs, forestry, mining and state industries), prescribes proportionate methods of assessment, and emphasizes on regular accounting procedures,

appointment of specialized officers, and use of local informants and inspectors for assessment and collection. The Arthashastra stipulates graded assessments based on soil fertility and productivity, allows remission during crop failure, and prescribes penalties and audit measures to prevent corruption. Collectively, 'Manusmriti' and 'Arthashastra' form a combined normative-technical corpus that shaped fiscal decision-making in early Indian polities.

Beyond procedural detail, the IKS puts the taxation within an ethical economy: revenue was conceived as a social contract rather than a unilateral extraction. The ruler's legitimacy rested on distributive outcomes—roads, irrigation, inns, and educational support—and the texts repeatedly link fiscal policy to public welfare. Kautilya argues that revenue must secure the state's longevity while not undermining the productive capacity of the populace; this produced rules such as variable rates based on land classification and exemptions during natural calamities. Such policies manifest early versions of what modern public finance terms as 'ability-to-pay' and 'ability-to-produce' principles

During the Gupta dynasty, emperor Chandragupta introduced tax on profit which is a form of levy tax on income. Kautilya in his famous treatise 'Arthashastra' dwelt in length on the financial system of Maurya Empire. The Maurya kings used to collect revenue from agricultural production. Taxes were also imposed on forest, mining and on export and import trade. The revenue so earned by the king was to be utilized for the protection of their subjects and for public welfare e.g. roads, educational institutions, inns on the road side, plantation and such other activities relating to the social welfare. According to Kautilya, revenue earned by the Sovereign, made the king responsible to return the same to the subjects in the form of welfare activities. The Arthashastra prescribes a range of non-tax revenue-generating activities (state monopolies, manufactories) to diversify the fiscal base, and both traditions emphasize record-keeping and audit to reduce corruption. Ethical injunctions - moderation, fairness, and the duty of the sovereign to return the yield in

welfare constitute a fiscal ethic that complements technical rules and underpins the sustainability of taxation in the subcontinent. It is very interesting to learn from Kautilya's Arthashastra that, even in those days a judicious taxation system prevailed.

Theoretical Framework

Existing literature on taxation in India spans economic history, administrative theory, and comparative governance. Classical sources like Kautilya's 'Arthashastra' (Shamasastri, 1915) and 'Manusmriti' (Bühler, 1886) emphasize ethical taxation and fiscal responsibility as extensions of state dharma. Sarkar's (1978) seminal work 'Public Finance in Ancient India' found these prescriptions as precursors to modern fiscal accountability. The analyses made by Chelliah (1992), Kelkar (2002), and Shome (2012) focus on rationalization, efficiency, and compliance in post-independence reforms. Recent studies (NIPFP, 2019; CBDT, 2022) further highlight digitalization, indirect tax like Goods and Services Tax (GST) implementation, and ethical governance. This literature collectively underscores that IKS values of moderation, transparency, and welfare continue to resonate within India's fiscal discourse.

Historical Evolution of the Tax System

Ancient and Medieval Periods:

Ancient Indian taxation, codified in 'Manusmriti' and 'Arthashastra', combined ethical restraint with administrative precision. The king, according to Manu, was entitled to levy moderate percentage of agricultural produce - typically one-sixth ensuring state sustenance without exploitation. The Mauryan Empire institutionalized these practices through trained officials and record-keeping systems (Arthashastra, Book II). The king generally collected more revenue from his subjects. The traders had to pay lump sum donations to meet the cost of war. It would not be out of place to mention that the Indian Taxation Policy in many respect is similar to that of the Maurya era. We get some other terms in the history of ancient and medieval India like 'Rajaswa', 'Sardesh-mukh' etc. which were nothing but the various types of taxes levied by the kings of that time. Even there was instance of levy tax on

'religion'. Epigraphic and textual sources suggest systematic land revenue assessments tied to land quality and yield; some estimates and readings of the Arthashastra indicate shares ranging from one-sixth to one-fourth of produce depending on circumstances. Taxes on trade (tolls, tariffs), artisanal professions, and resource exploitation (forestry, mining) expanded the fiscal base and reflected a pluralistic revenue system.

During the Sultani period, Al-uddin Khilji had imposed 'Jakat' and 'Jijia kar' and later Mughal administrations introduced their own tax categories also incorporating pre-existing local practices. At the same time, mechanisms of remissions, local self-assessment in villages, and patronage-based exemptions persisted, underscoring continuity in administrative pragmatism. From all these evidences, it can be inferred that among different taxes which were prevalent in ancient and medieval times, income tax was an integral part of the taxation policy as the major source of revenue in the hands of the legislative authority/government.

Colonial Reconfiguration:

The modern tax system in India was actually introduced by the 'British' when India was under the British rule. The history of the modern tax system in India began its journey in phased manner.

The colonial approach prioritized revenue extraction over welfare, diverging from IKS ethics of balance and equity. British colonial rule transformed indigenous fiscal systems through codification, centralization, and monetization of tax obligations. The first Income Tax Act (1860), introduced by Sir James Wilson to meet fiscal exigencies after the 1857 uprising (Sepoy Mutiny), represented a new legalistic approach - taxes were classified and organized under different heads, assessments were formalized. Subsequent legislative reforms (Income Tax Acts of 1869, 1886, 1918, and 1922) progressively refined definitions of income, created administrative institutions (e.g., the Central Board of Revenue, 1924), and separated procedural law from prescribing tax rate (delegating to the annual Finance Acts). While the colonial state introduced administrative

rigour—standardized book-keeping, audit trails, and legal appeals—it also prioritized revenue extraction for imperial purposes, which in certain regions intensified burdens on producers. Although the colonial legacy left behind a comprehensive legal-fiscal framework, the post-colonial state inherited these framework and repurposed them in shifting their orientation towards developmental governance, equity, and inclusive growth in taxation. The government gave top priority to industrialization because it was argued that a strong industrial foundation would bring about economic freedom for all.

The Modern Era: Reform process

Post-independence India faced the dual challenge of sustaining welfare commitments and promoting economic growth. The Income Tax Act of 1961 became the bedrock of direct taxation, consolidating earlier statutes and empowering the Central Board of Direct Taxes (CBDT). Some of the reform committees viz. Nicholas Kaldor (1956), Mahavir Tyagi (1958), K. N. Wanchoo (1971), C.C. Chokshi (1977), Raj Chelliah (1991), Vijay Kelkar (2002), and Parthasarathi Shome (2013) played pivotal roles in restructuring fiscal administration, aligning it with global practices while emphasizing simplicity and equity. The Wanchoo Committee underscored the need to curb evasion through administrative vigilance, while the Chelliah Committee advocated for lower rates and a broad base to enhance compliance. Kelkar Committee later promoted digitization and self-assessment models, setting the stage for e-governance and transparency in tax administration.

Corporate taxation (business and trade) represents the intersection between fiscal policy and industrial development. Since independence, India has sought to balance revenue generation with investment promotion. Early frameworks granted incentives for industrialization in backward regions, reflecting distributive justice akin to the IKS notion of ‘samabhava’ (balance). Post-1991 liberalization, the corporate tax system underwent major restructuring to attract foreign investment and ensure global competitiveness. The reform exemplifies the shift toward efficiency

and growth-oriented fiscal framework of the country. Tax incentives (in the form of allowances, deduction, and tax holidays), provided by the act for the infrastructure and export enterprises, reflect Kautilya’s recommendation for state patronage of productive activities and removing the regional imbalances. Corporate Social Responsibility (CSR), mandated under the Companies Act of 2013, reintroduces an ethical dimension akin to ancient practices of social contribution (‘dana’ and ‘seva’). The fiscal architecture thus integrates economic rationality with moral accountability, ensuring that corporate profits contribute to public welfare - a continuation of ‘dharmic’ fiscal principles of the ancient times.

The introduction of the Goods and Services Tax (GST, 2017) in India is the biggest economic reform in the post-independent era which has redefined the country’s taxation landscape significantly. By promoting ease of living and ease of doing business, it has turned the vision of “One Nation, One Tax” into a reality. This reform embodies IKS principles of unity and rationality, simplifying compliance and reducing cascading effects.

Digital platforms like the Income Tax Portal and the introduction of online assessments have further operationalized ethical transparency. These changes signify a moral and administrative continuity - the ancient principle of fairness is now implemented through technological efficiency. Modern fiscal policy in India also embodies redistributive justice. Programs such as ‘PM-KISAN’, ‘Make in India’, ‘Digital India’ and targeted subsidies resonate with the ancient ethos of welfare-centric technology driven governance. In integrating fiscal rationality with social equity, India’s taxation system continues to reflect its IKS heritage while adapting to global economic paradigms. India has implemented extensive digital initiatives to modernize its taxation system, aiming for greater efficiency, transparency, and compliance.

Integrating Indian Traditional Knowledge into Modern Fiscal Governance:

The relevance of IKS in contemporary fiscal governance lies in its holistic integration of ethics,

administration, and sustainability. Ancient fiscal philosophy emphasized the symbiotic relationship between the ruler and the citizens, with taxation framed as a moral obligation rather than coercion. Modern fiscal policy, through participatory governance, social audits, and welfare budgeting, echoes this relational ethic. The IKS principle of 'Artha' - the rightful pursuit of material prosperity, requires balance with 'Dharma' (ethical conduct), providing a theoretical foundation for inclusive taxation.

Integrating IKS principles into fiscal management of the country involves three dimensions: transparency, proportionality, and welfare. India's digital tax reforms, data-driven compliance, and citizen-centric e-filing systems operationalize these ideals. Moreover, reforms in both the direct and indirect taxes and Direct Benefit Transfer (DBT) mechanisms embody the concept of equitable redistribution, minimizing corruption and enhancing accountability. The incorporation of sustainability indicators in budgetary processes also reflect the ecological sensitivity of traditional Indian economic thought. The traditional practice of governance as is found in the IKS envisions taxation as an ethical ecosystem that balances efficiency with empathy. Fiscal responsibility and social obligation are not merely administrative concerns but expressions of 'rajadharma' - the duty of governance toward collective welfare. Thus, contemporary tax reforms that emphasize transparency, progressivity, and inclusion represent a civilizational continuity rather than an estrangement. The extant Income Tax Act, 1961 has been rehabilitated by the introduction of Income Tax Act, 2025 to be implemented with effect from 1st April, 2026 to cope with the changing fiscal governance scenario in the pursuit of modern Indian knowledge system.

Conclusion

The study demonstrates that India's taxation system embodies a deep continuity between ancient ethical principles and modern fiscal frameworks. IKS contributed moral legitimacy, administrative logic, and welfare orientation to fiscal design. While colonial codification introduced legal uniformity, post-independence

reforms reinstated ethical and developmental imperatives. Recent digitalization and simplification initiatives actualize the IKS ideals of fairness and transparency through contemporary means. The synthesis of ethical tradition and technological modernization represents India's distinctive contribution to global fiscal thought.

Taxation in India is not merely a financial instrument but a reflection of its civilizational philosophy of balanced governance. IKS provides an enduring framework where ethical duty and administrative rationality coalesce. Policymakers can draw upon IKS insights - moderation, distributive justice, and public accountability to enhance fiscal legitimacy. As India advances toward deeper digital integration and greater global interdependence, embedding its indigenous ethical principles into the fiscal framework will help in aligning the economic growth with social welfare and environmental sustainability. **MA**

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Down The Memory Lane

November, 2015



Dr. Kamineni Srinivas, Hon'ble Minister for Health and Medical Education, Govt of Andhra Pradesh delivering his speech at the seminar on 'Cost Management in Healthcare Sector' organized by Visakhapatnam Chapter of Cost Accountants dated November 1, 2015. From left: CMA K Sanyasi Rao, Chairman, SIRC, CMA PVN Madhav, Chairman of the chapter, Dr G Santha Rao, Director of Medical Education, Govt. of Andhra Pradesh, CMA S Natrajan, Advisor, TDEC, Chennai



Lighting of sacred lamp at the 'Discussion Meet on Risk Management in BFSI' organized in Delhi on November 20, 2015. Seen in the photo are Chief Guest Shri K V Acharya President, AIBPARC (All India Bank Pensioners & Retirees Confederation), CMA P V Bhattad, President, CMA Amit Anand Apte, Chairman, Banking & Insurance Committee of the Institute, Shri G R Kejriwal, father of Delhi Chief Minister, Shri Arvind Kejriwal and other dignitaries present

November, 2005



Training Programme on 'Finalisation of Accounts and Review of Audit Paras' on 18th -19th November 2005 and 25th -26th November 2005 organized by Bangalore Chapter of Cost Accountants. Seen in the picture from left to right are: Y.H. Anegundi, A.V.S. Moorthi, Chief Guest, Dr. I. Devendran, IAS, Principal Secretary to Government of Karnataka, Dept of Public Enterprises and S. Murali



PD Meet on 'Transfer Pricing-Role of Cost and Management Accountant' on 18th November 2005 organised by Bangalore Chapter of Cost Accountants. Seen in the picture from left to right are: Y. H. Anegundi, A.V.S. Moorthi, Chief Guest Saumyadipta Sinha and S. Murali

Down The Memory Lane

November, 1995



Harijiban Banerjee, President, ICWAI addressing the journalists at Agartala at the felicitation programme for the President and the newly constituted Central and Regional Council Members on 12 November, 1995 at Hotel Rajarshi Yatri Niwas, Agartala

November, 1985



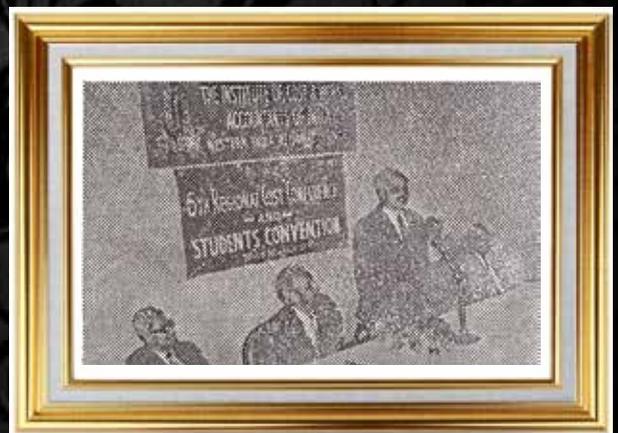
Seminar on "OR and the Management Accountant-An Interface" on 6th November, 1985 at SIMA Conference Hall, Coimbatore

November, 1975

Felicitation to the President on 15th November, 1975



At the Felicitation to the President, Shri M. Sreenivasa Rao with Past President Shri Shyamal Banerjee



At the Felicitation function-Reply by the President.

Others (L to R) S/Shri V.R. Iyer, Vice-Chairman, WIRC, M.R.S. Iyengar, Past President, K.P. Viswanath, Chairman, WIRC and B.S. Ramaswamy, Secretary, WIRC

Source: Extracted from the various issues of The Management Accountant Journal

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EASTERN INDIA REGIONAL COUNCIL

CPE Program Summary: Viksit Bharat 2047

An EIRC Continuing Professional Education (CPE) Programme focusing on "Viksit Bharat 2047: The Synergy between RERA, MSMEs and CMAs in Building a Transparent and Resilient Economy" was held on October 18, 2025, at the EIRC Auditorium, Kolkata.

The session, organized under the Professional Development Committee, featured CMA Agnishwar Mukherjee and CMA Bikash Gupta as resource persons, who provided valuable insights into the emerging trends and synergy between the three key sectors (RERA, MSMEs, and CMAs). The event was also graced by CMA Arati Ganguly, Chairperson, and CMA Abhijit Dutta, Secretary and PDC Chairman, EIRC.

The program was highly interactive and received an overwhelming response from the participants.

Meeting on Accreditation Policy at Asansol Engineering College

On October 25, 2025, representatives from EIRC (Chairperson CMA Arati Ganguly, Vice Chairman CMA Damodar Mishra, and Secretary CMA Abhijit Dutta) and Asansol Chapter (Chairman CMA Subroto Banerjee and Managing Committee Member CMA Amol Homeroy) met with the Principal of Asansol Engineering College.

The discussion centered on the ICAI's accreditation policy for the Institute and the potential for a Memorandum of Understanding (MoU). The goal of this collaboration is to enhance career opportunities for engineering students by encouraging them to pursue the CMA course.

EIRC Launches CAT Course for Defence Personnel

On October 27, 2025, the EIRC (Eastern

India Regional Council), in collaboration with the CAT Directorate of ICAI, inaugurated the Certificate in Accounting Technicians (CAT) Course for retiring and retired JCOs/OR (Junior Commissioned Officers/Other Ranks). This program, conducted for the first time at EIRC, is part of a mandate under the Directorate General Resettlement (DGR), Ministry of Defence, Government of India. CMA Arati Ganguly, Chairperson of ICAI-EIRC, welcomed the 30 defence personnel who will attend classes from October 27, 2025, until February 13, 2026.

SOUTH ORISSA CHAPTER

Successful Annual Members' and Students' Meet

The South Odisha Chapter, Berhampur successfully hosted its Annual Students' and Members' Meet – 2025 on October 12, 2025, at Nandan Hotel and Convention. The event, attended by about 350 students and 50 members, featured dignitaries including CMA (Ms.) Arati Ganguly (Chairperson, EIRC) as Chief Guest, who stressed developing students' inherent skills for practical professional application. Other speakers, including CMA Damodar Mishra and CMA Abhijit Dutta, emphasized the need for professionals in industry and the Institute's developmental steps. The meet included an address by Chapter Chairman CMA Akshya Kumar Swain, prize distribution to students for academic and competition performance, a soft skill program, a blood donation camp that collected 24 units, and a cultural program before concluding with the National Anthem.

BHUBANESWAR CHAPTER

Workshop on GSTAT Preparedness

The Bhubaneswar Chapter successfully held a one-day Workshop on "Preparedness for Appearing before GSTAT" at its Conference Hall on Sunday, October 12, 2025. The event

featured CMA Niranjn Swain and CMA Shiba Prasad Padhi as expert Resource Persons. More than 50 participants, including members from both industry and practice, actively attended the workshop, engaging in discussions and clarifying practical issues related to the Goods and Services Tax Appellate Tribunal (GSTAT). CMA Sarat Kumar Behera, Chairman, delivered the welcome and vote of thanks, while CMA Ramesh Chandra Patra, Immediate Past Chairman, facilitated the successful event.

Bhubaneswar Chapter: Career Outreach Initiative

The Bhubaneswar Chapter conducted a series of successful CMA Career Awareness Programmes in late October 2025 to promote the profession to students across the region.

- ⊙ Bishnu Samantaray College (Oct 16, 2025): The chapter hosted an event at Bishnu Samantaray College, Nuahat, Jajpur. CMA Niranjn Sahoo detailed the CMA Course curriculum and career opportunities to over 150 commerce students and faculties from the college and Centurion University of Technology & Management.
- ⊙ Kendriya Vidyalaya-4 (Oct 20, 2025): A program was held at Kendriya Vidyalaya-4, Niladri Vihar, Bhubaneswar. Distinguished speakers, including CMA (Dr.) Suresh Chandra Mohanty (Past President, ICAI)

and CMA Avinash Kotni, addressed over 100 students and faculty, offering in-depth insights into the CMA profession.

- ⊙ DAV Public School (Oct 24, 2025): The outreach continued at DAV Public School, Kalinga Vihar, Bhubaneswar. CMA Niranjn Sahoo once again highlighted the vast career scope and curriculum of the CMA Course to over 100 commerce students and faculties from the school.

Across all three sessions, students and faculty actively engaged with the speakers, clarifying their queries about pursuing a career as a Cost and Management Accountant.

CAT Valedictory Programme

The Bhubaneswar Chapter successfully held the valedictory session for the CAT (Certified Accounting Technician) Course, DGR Batch 197-07-2025, on Friday, October 24, 2025, at CMA Bhawan. The event was graced by Colonel B.P. Jagdev, Station Staff Officer, Station Head Quarters Bhubaneswar, who addressed the session as the Chief Guest. CMA Sarat Kumar Behera, Chapter Chairman, delivered the welcome address, and CMA Surya Narayan Tripathy, Past Chairman, facilitated the entire programme, marking the successful completion of the course for the batch.

Glimpses of Eastern India Regional Council



Eastern India Regional Council



Eastern India Regional Council



South Orissa Chapter



South Orissa Chapter



Bhubaneswar Chapter



Bhubaneswar Chapter

NORTHERN INDIA REGIONAL COUNCIL

JAIPUR CHAPTER

Industry Oriented Training Program in Jaipur

The Jaipur Chapter organized a highly successful 10-Day Industry Oriented Training Program (IOTP) for CMA Final students, running from September 23 to October 6, 2025. Over 93 students participated enthusiastically in sessions led by experienced faculty, covering crucial topics like Direct Tax, GST, Cost Control, and essential soft skills such as Presentation Skills and Group Discussions. The program heavily emphasized practical application through mock group discussions and student-led presentations. The training culminated on October 6, 2025, with a valedictory session featuring CMA Gaurav Chaturvedi (RAS, Executive Director) and CMA D.K. Gupta (AGM Finance & Accounts).

During this session, participation certificates were distributed, and the Best Performers in Group Discussion and PowerPoint Presentation, as well as winning team members, were honored with medals.

Jaipur Chapter Seminar Highlights

The Jaipur Chapter hosted a seminar on October 11, 2025, covering two distinct and valuable topics for its members.

Seminar Topics & Speakers

- ⦿ Overview of RIPS 2024 - Role of CMAs: This session provided crucial insights into the RIPS 2024 (Rajasthan Industrial Promotion Scheme) and highlighted the significant role that CMAs (Cost and Management Accountants) play in its implementation. The session was led by CMA Neeraj Jain.
- ⦿ Health Talk by Heart Specialist: Focusing

on well-being, the program also featured a specialized health talk. The key speaker was Dr. Sunil Sharma, a Consultant in Cardio-thoracic & Vascular Surgery at Narayana Multispeciality Hospital, Jaipur.

The program's overall conduct and coordination were managed by CMA Dr. Deepak Kumar Khandelwal.

Inauguration of CAT Course for Defence Personnel

The Jaipur Chapter successfully held the inaugural session for the Certificate in Accounting Technicians (CAT) Course (Batch 319-10-2025) on October 15, 2025.

This specialized CAT course is conducted by The Institute of Cost Accountants of India in collaboration with the Directorate General of Resettlement (DGR), Ministry of Defence, and is exclusively for retiring and retired Defence personnel.

The session, which began at 11:30 AM, was graced by Chief Guest Capt. Vignesh Verma. CMA Purnima Goyal, Chapter Chairperson, welcomed the Chief Guest and addressed the candidates. Course faculty, including Dr. Satish Handa, CMA Sonali Sharma, and CMA Kapil Saini, were also present to motivate the new batch. The program was conducted by CMA P.D. Agrawal, Director of Coaching.

Diwali with Laxmi Pooja

The Jaipur Chapter organized a traditional Laxmi Pooja at the Chapter premises on the morning of October 20, 2025, as part of the Diwali celebrations. The event was well-attended, with more than 50 Members taking part in the prayers and sharing warm greetings to mark the festive occasion.

Seminar and Family Get-Together: Focus on Relationships and Fellowship

The Jaipur Chapter hosted a dual-event on

October 25, 2025, featuring a professional seminar followed by a lively family get-together for CMA members.

Seminar on Relationships

The day began with a seminar focused on "Relationships—Revive, Repair & Reconnect." The key speaker was Ms. Pooja Sharma (Life Coach and Founder of Transformation Tribe), who shared valuable tips for improving personal and professional relationships. CMA Purnima Goyal, Chapter Chairperson, welcomed the attendees, and CMA Dr. Deepak Kumar Khandelwal, Chapter Treasurer, conducted the program.

Members' Family Get-Together

Immediately following the seminar, a Members Get Together with Family was held, graced by the presence of CMA Rakesa Yadav, Chairman of NIRC. The event fostered fellowship and fun, with CMA members and their families participating enthusiastically in activities like singing, dancing, and poetry. All performers received participation gifts, and special prizes were awarded for the Best Dressed Males, Females, and children. CMA Deeptanshu Pareek, Chapter Vice-Chairman, conducted the get-together.

Career Counselling at Kendriya Vidyalaya No. 3

The Jaipur Chapter organized a career counselling program for students at Kendriya Vidyalaya No. 3, Jhalana Doongri, Jaipur, on October 29, 2025.

Chapter officials, including Chairperson CMA Purnima Goyal, Vice Chairman CMA Deeptanshu Pareek, and Executive Member CMA Govind Sharma, actively participated in the session. They inspired and guided over 150 aspiring students across different classes, highlighting the bright future and opportunities available through the CMA Course. The school's Principal, Shri Nishi Kant Agrawal, also attended the program.

Glimpses of Northern India Regional Council



Jaipur Chapter



Jaipur Chapter

SOUTHERN INDIA REGIONAL COUNCIL

BENGALURU CHAPTER

The Bengaluru Chapter was highly active in October 2025, starting with the "Swachhata Hi Seva 2025" cleanliness drive on October 2nd. A Professional Development Programme (PDP) on "Cost Audit" was conducted on October 11th, led by CMAs Venkanna S, Poornima M, and Dr. Abhijeet S Jain. On October 18th, the chapter collaborated with the Southern India Regional Council (SIRC) and the Mangalore Chapter to host a successful PDP in Mangalore. This landmark event, which featured sessions on commercial taxes, "Artificial Intelligence for Professional Accountants", and the "Impact of GST 2.0 and Practical Issues Relating to GST Audit," was graced by Shri V. Kumar (Joint Commissioner of Commercial Taxes) and CMA TCA Srinivasa Prasad, President marking his first visit to the Mangalore Chapter. Concluding the month on October 25th, the Chapter partnered with Laghu Udyog Bharati (LUB) for a major seminar on "GST 2.0: A Game Changer for the Indian Economy," with Kum. Shobha Karandlaje (Hon'ble Minister of State) and Dr. C. N. Ashwath Narayan (Former Deputy Chief Minister) as Chief Guest and Guest of Honour, respectively.

VISAKHAPATNAM CHAPTER

Professional Development Programme: Strategic Business Partnering

On October 25, 2025, the Chapter hosted a highly informative Professional Development Programme (PDP) titled "Strategic Business Partnering: CMAs Beyond Numbers" at its premises. The session featured CA CMA Rajesh Ravuri, Director Finance, Pfizer Healthcare India Private Limited, Visakhapatnam, as the speaker, who shared insights on how Cost and Management Accountants can transition from traditional reporting roles to becoming strategic partners in business decision-making. The event saw the presence of CMA U Lakshmana Rao, Chairman of VCCA, and CMA N Venkatesh, Secretary, along with a good turnout of CMA Members.

TIRUCHIRAPALLI CHAPTER

Students Meet

On October 25, 2025, the Tiruchirappalli Chapter hosted a successful "Students Meet" for its Foundation, Intermediate, and Final oral coaching students. Chapter Chairman CMA N Shanmugasundaram welcomed the attendees, which included faculties, managing committee members, and special invitee Shri T Swaminathan, the 32nd rank holder in the June 2025 CMA Examination. Shri Swaminathan, introduced by Secretary CMA C Jayaraman, shared invaluable

insights on exam preparation, time management, and the importance of avoiding unnecessary social media for achieving success. Chapter faculties—CMA T Ananthasayanam, Prof. Dr. Natarajan, and CMA Abdulla—also addressed the students, offering advice on answering questions and outlining essential Do's and Don't's for the examination period. The interactive session concluded with a free flow of questions from the students and a vote of thanks proposed by Vice Chairman CMA M Mohanraja.

KOZHIKODE-MALAPPURAM CHAPTER

IOSCO World Investor Week 2025

The Kozhikode–Malappuram Chapter successfully organized the IOSCO World Investor Week 2025 on Tuesday, October 7, 2025, at the Nexstay De Malabaricus Hotel, Kozhikode. Held in association with SEBI and CDSL, the program was designed to promote investor awareness, financial literacy, and investor protection, centering on the theme “Stay Informed · Stay Protected.” The event was inaugurated by Chapter Chairperson CMA Syamly C. M., and featured insightful talks by CA CMA Salman K. K., Deputy General Manager, SEBI, and Mr. Shibhunath, Assistant Vice President, CDSL. The session emphasized the importance of responsible investing and protecting investor interests, concluding with a Vote of Thanks by CMA Askarali P. C., Chairman – PD Committee.

RANIPET-VELLORE CHAPTER

Ranipet Vellore Chapter Signs Three MOUs

The Ranipet Vellore Chapter significantly enhanced its industry-academia linkage by signing three separate Memoranda of Understanding (MOUs) in October 2025 to promote professional education.

MOU with C. Abdul Hakeem College

On October 8, 2025, the Chapter partnered with the PG & Research Department of Commerce,

C. Abdul Hakeem College, Melvisharam, to promote the CMA Courses among commerce students. This collaboration, aiming for academic-professional synergy, was exchanged between Chapter representatives (including CMA Manoharan R., Vice Chairman) and the college principal and department heads.

MOU with Adhiparasakthi College of Arts and Science

Later on October 8, 2025, the Chapter coordinated an MOU between the Tax Research Department (ICMAI) and Adhiparasakthi College of Arts and Science, Kalavai. This agreement focuses on introducing a specialized GST Certificate Course for students to enhance their professional competence in Goods and Services Tax.

MOU with Auxilium College (Autonomous)

The following day, October 9, 2025, the Chapter signed an MOU with Auxilium College (Autonomous), PG & Research Department of Commerce, to further introduce and promote CMA courses. This partnership will facilitate awareness programmes, career guidance, and academic support for students, allowing them to pursue the CMA qualification alongside their regular degrees.

Study Circle Meeting on Resilience and Confidence

The Ranipet Vellore Chapter, in association with the PG & Research Department of Commerce at Auxilium College of Arts and Science, successfully conducted a Study Circle Meeting on October 10, 2025, at the college campus. The focus of the meeting was an inspiring session on “Resilience and Confidence: Keys to a Successful Professional Journey,” delivered by eminent speaker Ms. Poornima Manikandan (M.Com., ACMA, ACS, Manager (Finance), BHEL, Ranipet).

Ms. Manikandan provided expert insights on the expanding career opportunities for CMAs, stressing the critical importance of professional

growth, adaptability, and self-confidence for achieving success in one's career. The event was inaugurated with felicitations by Dr. (Sr) Sagaya Mary T and a welcome by Dr. (Sr) Amala Valarmathy A, Vice Principal. The session saw enthusiastic participation from over 50 students and faculty and concluded with a vibrant interactive Q&A session.

COIMBATORE CHAPTER

The Coimbatore Chapter dedicated October 2025 to activities focused on professional development, corporate governance, and cost audit reforms. The month began by observing ICLS Day on October 1st, marking engagement with corporate law.

Cost Audit Reforms and Recommendations

The Chapter held two critical Study Circle Meetings to debate Cost Audit under Section 148 of the Companies Act, 2013. The initial meeting on October 4th proposed key recommendations to the MCA, including Cost Auditor Rotation, Turnover-Based Applicability (in place of HSN codes), and Inclusion of MSMEs based on turnover. A follow-up session on October 16th refined these proposals, suggesting an Enhanced Cost Audit Report Format, Universal Applicability, and Revised Appointment Procedures. All recommendations were resolved to be forwarded to the Ministry of Corporate Affairs (MCA) through ICAI Headquarters.

Second Cost Convention and AI Tools

The Chapter successfully hosted its Second Cost Convention 2025 on October 11th–12th, themed “Costing Profession 2.0,” featuring sessions on “Artificial Intelligence in Costing” and “Notices and Appeals under GST.” Following this, a Professional Development Programme (PDP) on “An Overview of AI Tools – ChatGPT and Copilot” was conducted on October 25th, with CMA Vijayaraghavan Srinevasan demonstrating the practical uses of AI for automation and analytics, emphasizing the future-readiness of CMAs.

Networking and Career Promotion

Chairman CMA Dr. R. Maheswaran played a vital role in external engagements, including participating as Guest of Honour at an International Conference on “Unlocking Green Growth” on October 17th. The Chapter also reinforced its commitment to career growth by attending the CMA Campus Placement Programme in Chennai on October 29th and conducting a Career Guidance Programme at Hindustan College of Arts and Science on October 30th to promote the scope of the CMA course.

COCHIN CHAPTER

The Cochin Chapter organized a comprehensive series of five major programs in October 2025, ranging from social responsibility and training to specialized professional development on finance and taxation.

Community Service and Training Initiatives

The month began with social commitment through the Swachhata Hi Sewa (SHS) 2025 campaign on October 2nd, where faculty, staff, and students actively cleaned the CMA Bhavan premises, promoting environmental responsibility. The Chapter also concluded two major training programs:

- ⦿ A 10-day Industrial Orientation Training Programme (October 6th-15th) successfully equipped around 50 final-year students with practical industry insights.
- ⦿ The Valedictory Function for the CAT DGR Programme (October 10th) celebrated the successful completion of the course by 31 candidates from the Army, Defence, and Navy, with Commander Mobin K. Mathai as the Chief Guest.

High-Level Professional Development Programs

The Chapter conducted three high-value sessions focusing on current financial and accounting frontiers:

- Webinar on “Income Tax: Transition from Old to New” (October 4th): An insightful session by a past SIRC Chairperson, providing clarity on the comparative aspects and implications of the old and new income tax regimes.
- Joint Programme on “Financial Risk Frontiers 2025” (October 24th): Organized with the BFSI Board, this one-day program featured prominent speakers like Ms. Mini George (Executive Director, AIC) and

CMA (Shri.) Venkateswaran Ramakrishnan (General Manager, SEBI), covering strategic debt management, green finance, and banking risk management.

- 5th Webinar Series on Ind AS (October 30th): The session, themed “From Cost Accounting to Financial Reporting — A Deep Dive into CAS 17 and Ind AS 23,” was conducted by CMA Ramsankar Mishra and focused on aligning cost and financial reporting standards.

Glimpses of Southern India Regional Council



Bengaluru Chapter



Bengaluru Chapter



Visakhapatnam Chapter



Visakhapatnam Chapter



Tiruchirappalli Chapter



Tiruchirappalli Chapter



Kozhikode-Malappuram Chapter



Kozhikode-Malappuram Chapter



Ranipet-Vellore Chapter



Ranipet-Vellore Chapter



Coimbatore Chapter



Coimbatore Chapter



Cochin Chapter



Cochin Chapter

CMA Career Guidance at Indira College

On October 10, 2025, the Pimpri-Chinchwad Chapter successfully hosted a career counseling session at Indira College of Commerce & Science, Pune, focused on the CMA (Cost and Management Accounting) course. Led by CMA Sagar Malpure, the session introduced the ICMAl, demystified the CMA curriculum, and outlined the examination stages. Additional guidance was provided by CMA Kunal Wakte and CMA Amit Bhise, who shared practical professional insights, emphasized skills like analytical thinking and ethical decision-making, and highlighted career opportunities in fields like financial analytics and risk management. The event, which included an open Q&A, successfully motivated students and provided them with clarity on pursuing a career in Cost and Management Accounting.

Rangoli Competition (October 17, 2025)

The Surat South Gujarat Chapter organized a Rangoli Competition on October 17, 2025, at their campus in Surat. The event saw participation from Intermediate students. Chapter officials, including CMA Kishor Vaghela (Chairman) and CMA Vipinkumar Patel (Secretary), felicitated and appreciated the students' work. The chapter office was beautifully decorated with lighting and traditional Rangoli for the festival.

CPE on "GSTAT Readiness Key Points to Keep in Mind" (October 4, 2025)

The Chapter hosted a Continuing Professional Education (CPE) session on October 4, 2025, titled "GSTAT Readiness Key Points to Keep in Mind." The keynote speaker was CMA Pankaj Kannaujiya, who was felicitated by Chapter officials including CMA Vipinkumar Patel (Secretary). Approximately 20 participants

attended the dynamic and insightful session.

Webinar on "RECENT AMENDMENT ON GST" (September 13, 2025)

On September 13, 2025, the Surat South Gujarat Chapter jointly hosted a webinar with the ICMAl-Bharuch Ankleshwar Chapter on the theme "RECENT AMENDMENT ON GST." The session featured CMA Manoj Malpani and CMA Dr. Shailendra Saxena as keynote speakers. The insightful online event was attended by approximately 40 participants.

Industry Orientation Program (IOP) for Final Students

The Ahmedabad Chapter organized an extensive Industry Orientation Program (IOP) for final students from October 3 to October 13, 2025. A large number of students participated in the program, which featured lectures by eminent faculty on a diverse range of topics:

- ⦿ **Soft Skills:** Dhaval Karatia (Active Listening, Feedback Techniques, Networking & Personal Branding), Sophianne Jobs (Critical & Creative Thinking, Leadership and Teamwork Management).
- ⦿ **Practical Skills:** Darshil Mehta (Group Discussion, Interview & Presentation Skills), Jainam Shah (Communication Skills and Public Speaking).
- ⦿ **Technical Subjects:** Vishal Dave (Practical Approach on Working Capital Management), Vikash Agarwal (GST), Ami Desai (Digital Financial Services), Nirali Desai (Indirect Taxation), Milin Shah (Process of Finalization of Accounts), and Jignesh Parikh (Direct Taxation).

The program concluded on October 13, 2025, with participant students delivering group power point presentations on related topics and being awarded participation certificates.

Dhanteras Pooja

On the auspicious occasion of Diwali, the Ahmedabad Chapter organized Dhanteras Pooja at the chapter office on October 18, 2025. Members and staff actively participated in the traditional Pooja ceremony.

BARODA CHAPTER

Chapter Achievements and Social Initiatives

The Baroda Chapter achieved a significant win by becoming the Winner of the Career Awareness Program Competition organized by the WIRC. This award recognized the Chapter's outstanding efforts in conducting 9 Career Awareness Programs in various schools to promote the CMA profession. Additionally, on October 1, 2025, the Chapter actively participated in the 'Swachhata Hi Sewa (SHS) – 2025' campaign, conducting a Mega Cleanliness Drive at the CMA Bhawan and surrounding areas. The event concluded with an awareness session and a special felicitation for sanitation workers.

Continuing Professional Education (CPE) Programs

The Chapter organized and co-organized multiple high-value CPE sessions:

- Debt Capital Markets (September 26, 2025): An online CPE on “India’s Debt Capital Markets: Opportunities for Issuers & Investors” was held, addressed by Mr.

Ashish Choudhary of Tipsons Group. The program was attended by 40 members.

- MIS & Decision Support System (October 11, 2025): In collaboration with the Nashik Chapter, a CPE was held featuring CMA Prakash Mishra, focusing on the practical applications of MIS & Decision Support System in decision-making.
- GST Annual Return Amendments (October 11, 2025): The Chapter, in partnership with the Pune, Chhatrapati Sambhaji Nagar, and Solapur Chapters, organized a CPE on “Recent Amendments on Annual Return & Reconciliation Form 9 & Form 9Cs,” led by CMA Rahul Chincholkar.

All CPE sessions were highly informative, offering members 2 CPE hours each.

Strategic Participation and Support

- GST Video Conference (September 29, 2025): Several Chapter members, including CMA Amruta Vyas and CMA Mohit Nagdev, participated in a significant Video Conference on GST under the Chairmanship of the Hon'ble Chief Minister of Gujarat to deliberate on important GST aspects.
- Placement & Training: The Chapter arranged various Placement & Training Activities to benefit a large number of students and members.

Glimpses of Western India Regional Council



Pimpri Chinchwad Chapter



Pimpri Chinchwad Chapter



Surat-South Gujarat Chapter



Surat-South Gujarat Chapter



Ahmedabad Chapter



Ahmedabad Chapter



Ahmedabad Chapter



Baroda Chapter



Baroda Chapter



Baroda Chapter

The Journal & Publications Committee, ICAI organized a webinar on *“Pen to Publish: Elevate Your Article Writing Skills”* on **October 22, 2025** from 5:00 pm to 6:00 pm.

CMA Harshad Shamkant Deshpande, Chairman, Journal & Publications Committee, and CMA (Dr.) K. Ch. A. V. S. N. Murthy, Chairman, MSME & Start-up Promotion Board, ICAI, welcomed the speaker and participants. In their address, they emphasized that an article should be written and presented in a manner that effectively conveys its core message to the readers. They highlighted that every article must be informative, engaging, and insightful, providing adequate details to enable readers to clearly understand the subject being discussed. They emphasized that an article should not merely be written, but thoughtfully redrafted, refreshed, and refined to enhance clarity and depth. They further advised that writers should not rely solely on ready-made software tools available in the market for drafting or refining their work. Instead, authors should cultivate their own analytical thinking, originality, and writing discipline. Such an approach ensures that articles produced under the Pen to Publish initiative stand out as credible, thoughtful and professionally enriching. CMA Harshad S Deshpande, Chairman, J&P also highlighted that The Management Accountant is a peer-reviewed professional journal, where each article undergoes a rigorous review process to ensure quality, authenticity, and relevance. The review mechanism includes stringent checks, such as verification of facts, assessment of originality, and AI and plagiarism screening to maintain the highest academic and professional standards. He also encouraged members to subscribe to The Management Accountant Journal, which is available at a nominal cost of ₹500 for 12 issues annually. He further mentioned that, along with the printed edition, the Journal is also available in e-copy format, making it easily accessible across platforms. In addition, the Journal is actively strengthening its social media presence, podcasts of featured articles and other digital outreach initiatives, with many more innovations planned. These collective efforts aim to position The Management Accountant as one of the leading knowledge journals in the professional domain, fostering continuous learning, insight-sharing and thought leadership among the CMA community and beyond.

CMA (Dr.) Gaddam Naresh Reddy Registrar & Professor of Commerce, Osmania University, the Resource Person, provided an insightful discussion on the structure of a research paper, emphasizing the importance of clarity, coherence, and

methodological soundness. He elaborated on the common reasons for research paper rejection, which include both technical and editorial factors. On the technical side, he pointed out that articles often fail due to a lack of relevance to the economy, society, or national context, or because they do not present adequate data or evidence to support the claims made. In some cases, the results or conclusions cannot be reproduced or validated, which weakens the academic credibility of the research. He also highlighted that papers are frequently rejected when arguments are unclear, inconsistent, or illogical, leading to confusion in understanding the author’s perspective. On the editorial front, non-adherence to submission guidelines, incorrect formatting,



and insufficient literature review can also lead to rejection. He emphasized that authors must ensure their articles are well-structured, data-driven, logically argued, and aligned with the Journal’s thematic scope to enhance the chances of acceptance and publication. He further explained the steps to improve the chances of successful submission of research articles. He stressed the importance of building research that creates impact, is meaningful, and contributes to existing knowledge. Following the Journal’s guidelines meticulously, constructing a strong and well-supported argument and using credible, high-quality references are essential elements of a publishable paper. Authors should not deviate from the core research area and should collaborate with competent and committed co-authors where appropriate. He also discussed different types of article writing skills, including setting clear goals, adopting systematic data collection methods and critically analysing information from multiple sources. He emphasized the importance of identifying research gaps ensuring that the study adds new

insight rather than repeating existing knowledge. While acknowledging the convenience of technology, he strongly advised to avoid over-reliance on AI tools, stressing that genuine research must reflect the author’s own thinking, originality, and academic integrity

The session concluded with an engaging question and answer interaction and was followed by a formal vote of thanks by CMA Sucharita Chakraborty, HoD and Secretary, J&P, who expressed her gratitude to the speaker, dignitaries, and participants for their valuable contribution to the success of the webinar. The webinar was effectively moderated by Ms. Indrakshi Bhattacharya, J&P Committee, ICAI and the program concluded on a constructive note, reinforcing the importance of quality research and scholarly writing in professional development.



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CMA

COURSE GOING GLOBAL

CMA Courses - Eligibility Criterion

Admission in Foundation Course

- Passed Class 10 (Require to pass 10+2 before appearing in CMA Examination)
- 10+2 Pass or its equivalent (Students appearing for 10+2 also apply on provisional basis)

Registration to Intermediate Course

- Passed CMA Foundation Examination
- Graduates of any discipline (Students awaiting final result also apply on provisional basis)
- Qualified CAT Level - I of The Institute of Cost Accountants of India
- Qualified CA Intermediate; Qualified Engineers; Qualified CS

Core Strengths of CMA Profession



Career Opportunities for CMAs



University Grants Commission (UGC) recognizes CMA Qualification as equivalent to PG Degree

CMA Qualification is recognised by NARIC (National Recognition Information Centre of UK) as equivalent to Master's Degree in U.K. and UAE

Course Fees

FOUNDATION - Rs. 6,000/-

INTERMEDIATE - Rs. 23,100/-*

FINAL - Rs. 25,000/-*

*Installation facility available

Important Job Roles For CMAs

- CMD
- GEO
- COO
- CFO
- Director - Finance
- President - Finance
- Vice President - Finance
- Head of Finance
- Strategic Head
- Cost Advisor
- Finance Controller
- Cost Controller
- Risk Manager
- Business Analyst
- Research Analyst
- Dean/Professor of Finance

and many more

The Institute of Cost Accountants of India is a premier professional Institute and a Statutory Body established under an Act of Parliament under the administrative control of **Ministry of Corporate Affairs (MCA), Government of India** to regulate and develop the profession of Cost and Management Accountancy (CMA) in the country.

CMA LEADS

6,00,000+ Students

1,00,000+ Alumni

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The Institute of Cost Accountants of India

Headquarters: CMA Bhawan, 3, Institutional Area, Lodhi Road, New Delhi - 110003
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THE INSTITUTE OF COST ACCOUNTANTS OF INDIA
(STATUTORY BODY UNDER AN ACT OF PARLIAMENT)

TIME TABLE & PROGRAMME- DECEMBER 2025

FOUNDATION COURSE EXAMINATION

(Multiple Choice Questions through offline OMR based from Centre)

Day & Date	Foundation Course Examination Syllabus-2022	
	Time 10.00 A.M. to 12.00 Noon. - IST Paper – 1 & 2 (200 Marks)	Time 02.00 P.M. to 04.00 P.M. - IST Paper – 3 & 4 (200 Marks)
Saturday, 13 th December, 2025	Paper – 1 : Fundamentals of Business Laws and Business Communication (100 Marks 50 Multiple Choice Questions) Paper – 2 : Fundamentals of Financial and Cost Accounting (100 Marks 50 Multiple Choice Questions)	Paper – 3 : Fundamentals of Business Mathematics and Statistics (100 Marks 50 Multiple Choice Questions) Paper – 4 : Fundamentals of Business Economics and Management (100 Marks 50 Multiple Choice Questions)

The Institute has decided to conduct December 2025 Foundation Examination through offline OMR centre based.

Examination Fees

Foundation Course Examination	Inland Candidate	₹1500/-
	Overseas Candidate	US \$ 100

- Application Forms for Foundation Examination has to be filled up through online and fees will be accepted through online mode (including Payfee Module of IDBI Bank)
 - STUDENTS FROM OVERSEAS HAVE TO APPLY OFFLINE AND SEND DD ALONG WITH THE FORM.
- (a) Students can login to the website www.icmai.in and apply online through payment gateway by using Credit/Debit card or Net banking.
(b) Students can also pay their requisite fee through pay-fee module of IDBI Bank.
- Last date for receipt of Examination Application Forms is 14th October, 2025 without late fee, and from 15th October, 2025 to 21st October, 2025 with late fee of ₹500/- (Rupees Five hundred only) for December 2025 examination.**
- (i) The Foundation Examination will be conducted in M.C.Q Mode through offline OMR based from Centre.
(ii) Each paper will carry 100 marks 50 Multiple Choice Questions (Each Question will carry 2 Marks). Each session will have a total of 100 Multiple Choice Questions of 200 marks.
(iii) All Candidates/students are to appear in the Foundation examination through offline OMR centre based.
- A candidate/student who is completing all conditions for appearing in the examination as per Regulations will only be allowed to appear for the examination.
- There is no negative marking.
- Detailed instructions will be provided along with Admit Card.
- Examination Centres: Adipur-Kacheh (Gujarat), Agartala, Agra, Ahmedabad, Ahmednagar (Maharashtra), Akurdi, Allahabad (Prayagraj), Angul Talcher, Asansol, Anandpur Sahib (Punjab), Aurangabad (Sambhaji Nagar), Balasore (Odisha), Ballari (Karnataka), Bangalore, Bankura, Baroda, Bathinda (Punjab), Berhampur – Ganjam (Odisha), Bharuch Ankleshwar, Bhilai, Bhillwara, Bhiwandi (Maharashtra), Bhiwani (Haryana), Bhopal, Bewar City(Rajasthan), Bhubaneswar, Bilaspur, Bikaner (Rajasthan), Bokaro, Calicut, Chandigarh, Chennai, Coimbatore, Cuttack, Dindigul, Dehradun, Delhi, Dhanbad, Duliajan (Assam), Durgapur, Ernakulam, Erode, Faridabad, Gaya, Ghaziabad, Gorakhpur (Uttar Pradesh), Guntur, Gurgaon, Guwahati, Haridwar, Hazaribagh, Hosur, Howrah, Hubballi (Karnataka), Hyderabad, Indore, Jaipur, Jabalpur, Jalandhar, Jalgaon-Dhule (Maharashtra), Jammu, Jamshedpur, Jeypore (Odisha), Jhunjhunu (Rajasthan), Jodhpur, Kalyan, Kannur, Kanpur, Karnal (Haryana), Kanchipuram, Kharagpur (West Bengal), Kolhapur, Kolkata, Kollam, Kota, Kottakkal (Malappuram), Kottayam, Kurnool, (Andhra Pradesh), Lucknow, Ludhiana, Madurai, Mangalore, Meerut, Mumbai, Muzaffarpur (Bihar), Mysore, Nagpur, Naihati, Nanded (Maharashtra), Nasik, Nellore, Neyveli, Noida, Palakkad, Palghar, Panaji (Goa), Patiala, Patna, Pollachi (Tamil Nadu), Pondicherry, Port Blair, Pune, Raipur, Rajahmundry, Ranchi, Ratnagiri (Maharashtra), Rewari (Haryana), Rourkela, Salem, Sambalpur, Sangrur (Punjab), Satara (Maharashtra), Serampore, Shillong, Shimla, Siliguri, Singrauli (Vindhyanagar), Sivaganga (Tamil Nadu), Solapur, Srinagar, Surat, Thanjavur (Tamil Nadu), Thoothukudi (Tamil Nadu), Thrissur, Tiruchirapalli, Tirunelveli, Tirupati, Trivandrum, Udaipur, Vapi, Varanasi (Uttar Pradesh), Vashi, Vellore, Vijayawada, Visakhapatnam and Overseas Centres at Bahrain, Dubai and Muscat.
- Date of publication of result: Foundation examination latest by 8th January, 2026.

* The Candidates/students are advised to keep regularly in touch with the website of the Institute for further notifications and announcements relating to Foundation Examination of December 2025 and in case of any query or clarification can e-mail us at- exam.helpdesk@icmai.in

CMA Dr. Debaprosanna Nandy
Secretary (Officiating)

THE INSTITUTE OF COST ACCOUNTANTS OF INDIA
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INTERMEDIATE AND FINAL EXAMINATION TIME TABLE & PROGRAMME – DECEMBER 2025

ATTENTION: INTERMEDIATE & FINAL EXAMINATION (DECEMBER – 2025 TERM) WILL BE HELD ON ALTERNATE DATES FOR EACH GROUP.

Day & Date	FINAL (Time: 10.00 A.M. to 01.00 P.M. - IST) PROGRAMME FOR SYLLABUS 2022	INTERMEDIATE (Time: 2.00 P.M. to 5.00 P.M. - IST) PROGRAMME FOR SYLLABUS 2022
Wednesday, 10th December, 2025	Corporate and Economic Laws (P-13)	Business Laws and Ethics (P-05)
Thursday, 11th December, 2025	Cost and Management Audit (P-17)	Operations Management and Strategic Management (P-09)
Friday, 12th December, 2025	Strategic Financial Management (P-14)	Financial Accounting (P-06)
Saturday, 13th December, 2025	Corporate Financial Reporting (P-18)	Corporate Accounting and Auditing (P-10)
Sunday, 14th December, 2025	Direct Tax Laws and International Taxation (P-15)	Direct and Indirect Taxation (P-07)
Monday, 15th December, 2025	Indirect Tax Laws and Practice (P-19)	Financial Management and Business Data Analytics (P-11)
Tuesday, 16th December, 2025	Strategic Cost Management (P-16)	Cost Accounting (P-08)
Wednesday, 17th December, 2025	Electives (Any one of three Papers) : (i) Strategic Performance Management and Business Valuation (P-20A) (ii) Risk Management in Banking and Insurance (P-20B) (iii) Entrepreneurship and Start up (P-20C)	Management Accounting (P-12)

Group (s)	Final Examination	Intermediate Examination
One Group (Inland Centres) (Overseas Centres)	₹1800/- US \$ 100	₹1500/- US \$ 100
Two Groups (Inland Centres) (Overseas Centres)	₹3200/- US \$ 150	₹2800/- US \$ 150

- Application Forms for Intermediate and Final Examination has to be filled up through online only and fees will be accepted through online mode only (including Payfee Module of IDBI Bank). No Offline form and DD payment will be accepted for domestic candidate.
- STUDENTS OPTING FOR OVERSEAS CENTRES HAVE TO APPLY OFFLINE AND SEND DD ALONG WITH THE FORM.
- Students can login to the website www.icmai.in and apply online through payment gateway by using Credit/Debit card or Net banking.
Students can also pay their requisite fee through pay-fee module of IDBI Bank.
- Last date for receipt of Examination Application Forms is 10th October, 2025 without late fee, and from 11th October, 2025 with late fee of ₹500/- (Rupees Five hundred only) for December 2025 examination.
- The mode of examination will be offline-centre based.
- Candidates are required to follow clarifications of DOS related to December 2025 term of examination and the same will be issued by DOS in due course.
- Examination Centres: Adipur-Kachh (Gujarat), Agartala, Agra, Ahmedabad, Ahmednagar (Maharashtra), Akurdi, Allahabad (Prayagraj), Angul Talcher, Asansol, Anandpur Sahib (Punjab), Aurangabad (Sambhaji Nagar), Balasore (Odisha), Ballari (Karnataka), Bangalore, Bankura, Baroda, Berhampur – Ganjam (Odisha), Bharuch Andeshwar, Bhilai, Bhiwara, Bhiwandi (Maharashtra), Bhiwani (Haryana), Bhopal, Bewar City (Rajasthan), Bhubaneswar, Bilaspur, Bikaner (Rajasthan), Bokaro, Calicut, Chandigarh, Chennai, Coimbatore, Cuttack, Dindigul, Dehradun, Delhi, Dhanbad, Duijajan (Assam), Durgapur, Ernakulam, Erode, Faridabad, Gaya, Ghazabad, Gorakhpur (Uttar Pradesh), Guntur, Gurgaon, Guwahati, Haridwar, Hazaribagh, Hosur, Howrah, Hubballi (Karnataka), Hyderabad, Indore, Jaipur, Jabalpur, Jalandhar, Jalgaon-Dhule (Maharashtra), Jammu, Jamshedpur, Jeypore (Odisha), Jhunjhunu (Rajasthan), Jodhpur, Kalyan, Kannur, Kanpur, Karnal (Haryana), Kanchipuram, Kharagpur (West Bengal), Kolhapur, Kolkata, Kollam, Kota, Kottakkal (Malappuram), Kottayam, Kurnoor (Andhra Pradesh), Lucknow, Ludhiana, Madurai, Mangalore, Meerut, Mumbai, Muzaffarpur (Bihar), Mysore, Nagpur, Naihati, Nanded (Maharashtra), Nasik, Nellore, Neyveli, Noida, Palakkad, Palghat, Panaji (Goa), Patiala, Patna, Pollachi (Tamil Nadu), Pondicherry, Port Blair, Pune, Raipur, Rajahmundry, Ranchi, Ratnagiri (Maharashtra), Rewari (Haryana), Rourkela, Salem, Sambalpur, Satara (Maharashtra), Serampore, Shillong, Shimla, Sifiguri, Singrauli (Vindhyanagar), Sivaganga (Tamil Nadu), Solapur, Srirangar, Surat, Thanjavur (Tamil Nadu), Thoothukudi (Tamil Nadu), Thrissur, Tiruchirappalli, Tirunelveli, Tirupati, Trivandrum, Udaipur, Vapi, Varanasi (Uttar Pradesh), Vashi, Vellore, Vijayawada, Visakhapatnam and Overseas Centres at Bahrain, Dubai and Muscat.
- A candidate who is fulfilling all conditions specified for appearing in examination will only be allowed to appear for examination.
- Date of publication of result: Inter & Final examination latest by 11th February, 2026.

* The candidates/students are advised to keep regularly in touch with the website of the Institute for further notifications and announcements relating to Examination of December 2025 and in case of any query or clarification can e-mail us only at exam.helpdesk@icmai.in

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THE MANAGEMENT ACCOUNTANT

PAPERS INVITED

Cover Stories on the topics given below are invited for 'The Management Accountant' for the four forthcoming months

December 2025	Theme Cost Audit: Enhancing Transparency, Efficiency, and Strategic Decision-Making	Subtopics <ul style="list-style-type: none"> ⊙ Legal Framework of Cost Audit in India ⊙ Role of Cost Auditors in Corporate Governance and Compliance ⊙ Cost Audit and Performance Improvement: Identifying Inefficiencies ⊙ Use of Information Technology in Cost Auditing: Tools, Techniques and Challenges ⊙ Industry specific or Sector Specific guidance on Cost Audit ⊙ Interpreting the Cost Audit Report: Key Metrics and Insights for Management ⊙ Cost audit as a tool for strategic planning and pricing decisions ⊙ Way forward for Cost Audit in India: Strategic Insights Beyond Compliance ⊙ Linkage of Cost Audit with GST Compliance and Input Tax Credit Verification ⊙ Cost Audit and Transfer Pricing: Supporting Arms-Length Transactions ⊙ Using Cost Audit Reports in Tax Assessments and Dispute Resolution ⊙ Capacity building of CMAs and recommendations for policymakers, industry, and academia in the areas of Cost Audit.
January 2026	Theme Strategic Role of CMAs in Risk Management, Cost Management and Innovation in the Banking Sector	Subtopics <ul style="list-style-type: none"> ⊙ Role of CMAs in strengthening risk-based internal audits in banks ⊙ CMA's role in credit risk assessment and recovery management ⊙ CMA's role in Credit appraisal, project financing, and cost-benefit analysis ⊙ Cybersecurity, risk assessment and financial controls ⊙ Digital Banking & Fintech ⊙ Role of CMAs in treasury operations and foreign exchange risk management ⊙ Sustainability & ESG in Banking ⊙ Agency for Specialized Monitoring (ASM) of large borrowal accounts ⊙ Due diligence and valuation for mergers, acquisitions, and restructuring of banks ⊙ CMA's role in evaluating cost efficiency of financial inclusion schemes
February 2026	Theme Sustainable Agriculture for a Resilient and Food-Secure Future	Subtopics <ul style="list-style-type: none"> ⊙ National Mission on Natural Farming ⊙ Digital Agriculture Mission (DAM) ⊙ Climate-Smart Agriculture ⊙ Can Organic Agriculture Sustain the Global Population? ⊙ Activity-Based Costing (ABC) in Sustainable Agriculture ⊙ Cost-Benefit Analysis of Sustainable Agricultural Technologies ⊙ Performance Measurement and Sustainability Reporting in Agri-Business ⊙ Youth and Women in Sustainable Agriculture
March 2026	Theme Give to Gain: Women Driving Financial Sustainability through Strategic Management Accounting	Subtopics <ul style="list-style-type: none"> ⊙ Women Leaders Giving Vision to Gain Financial Sustainability ⊙ Women Accountants as Ethical Stewards: Giving Integrity to Gain Trust ⊙ Women Mentors in Finance: Giving Guidance to Gain Growth ⊙ Women Driving Financial Inclusion: Giving Access to Gain Economic Empowerment ⊙ Women Innovators in Management Accounting: Giving Ideas to Gain Digital Advantage ⊙ Women Professionals in ESG: Giving Stewardship to Gain Sustainable Impact ⊙ Women Building Resilience: Giving Strength to Gain Organizational Stability ⊙ Women Empathetic Leadership: Giving Empathy to Gain Ethical Excellence

The above subtopics are only suggestive and hence the articles may not be limited to them only.

Articles on the above topics are invited from readers and authors along with scanned copies of their recent passport size photograph and scanned copy of declaration stating that the articles are their own original and have not been considered for anywhere else.

Please send your articles by e-mail to editor@icmai.in latest by the 1st week of the previous month.



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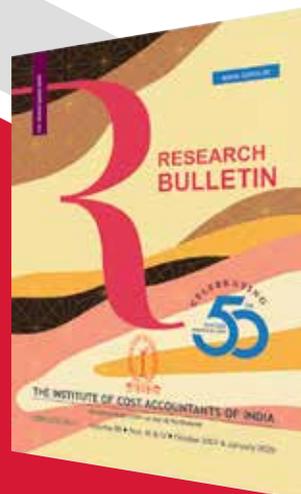
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RESEARCH BULLETIN

Volume 50 • Nos. III & IV • Oct - 2024 & Jan - 2025

Price of Single Copy: ₹400.00 only
Annual Subscription (for Four Volumes): ₹1200.00 p.a.
Courier Charges: ₹200.00 p.a. for four volumes
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THE INSTITUTE OF COST ACCOUNTANTS OF INDIA

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Research Bulletin, Vol. 51 No. III October 2025 (ISSN 2230 9241)

Call for Research Papers/Articles

We invite you to contribute research paper/article for "Research Bulletin", a peer-reviewed Quarterly Journal of The Institute of Cost Accountants of India. The aim of this bulletin is to share innovative achievements and practical experiences from diverse domains of management, from researchers, practitioners, academicians and professionals. This bulletin is dedicated to publishing high quality research papers providing meaningful insights into the management content both in Indian as well as global context.

Guidelines to submit full Paper

- Soft Copy of the full paper should be submitted in double space, 12 font size, Times New Roman, keeping a margin of 1 inch in four sides, MS Word (.doc) format.
- Each paper should be preferably within 5000 words including all.
- An abstract of not more than 150 words should be attached.
- The cover page should contain the title of the paper, author's name, designation, official address, contact phone numbers, e-mail address.

Papers are invited on the following topics, but not limited to:

- Artificial Intelligence in Education
- Green Energy
- Cybersecurity in an AI-Dominated World
- Asset Pricing Dynamics and Derivative Strategies
- Corporate Sustainability and Corporate Governance
- Global Health Equity
- Financial Risk and Resilience in different markets
- Startups
- Banking & Insurance
- Integrating Sustainability, Ethical Considerations, and Digital Innovations for Sustainable Growth
- GST
- Cost Audit
- Customer Relationship Management (CRM)
- Venture capital
- Forensic accounting and auditing

Papers must be received within

30th November, 2025

in the following email id:

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Benevolent Fund

FOR THE MEMBERS OF THE INSTITUTE OF COST ACCOUNTANTS OF INDIA

CMA Bhawan, 12, Sudder Street, Kolkata - 700016

OBJECTIVE

The Fund has been created to provide outright grant of prescribed amount to the member in the event of critical illness of a member / beneficiary of the Fund. It is also for outright grant of prescribed amount to the beneficiary in the event of death of a member of the Fund.

LIFE MEMBERSHIP FEE

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BENEFITS

- ⊙ Income Tax Benefit under section **80G** for donation only
- ⊙ Outright grant not exceeding ₹3,00,000.00/- in each case to the beneficiary in the event of death of the member.
- ⊙ Outright grant not exceeding ₹1,50,000.00/- in each case to the member and beneficiary for critical illness duly certified by the doctor under whom the treatment is continuing.

Coverage of Critical Illness, leading to hospitalization, may cover the following -

- ⊙ Cancer / Malignancy
- ⊙ Coronary Artery Bypass Graft Surgery
- ⊙ Stroke / Cerebral Attack / Paralysis
- ⊙ Heart Valve Replacement Surgery
- ⊙ Myocardial Infarction (heart attack) / Heart Failure / Pace Maker Surgery / Kidney Dialysis(CKD)/ Renal Failure
- ⊙ Major Organ Transplant
- ⊙ Hemophilia
- ⊙ Thalassemia
- ⊙ Neurological Diseases
- ⊙ Flue Blown acquired Immune Deficiency Syndrome
- ⊙ Multiple sclerosis
- ⊙ Tuberculosis / Bronchopneumonia/ Pleurisy
- ⊙ Permanent disablement
- ⊙ Any other disease that may be considered by the Board of Trustees to be critical in nature

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