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Journal Abstracts

July 2026

Sl. No	Article	Author	Source	Year
7	Genetic architecture, inter relations in selection programme for yield enhancement in paddy (<i>Oryza sativa</i> L.)	Manjunatha, B.; Niranjana Kumara, B.	Current Science Vol:129 No:12	2025

Abstract: The present study was carried out at the Agricultural and Horticultural Research Station, Kathalagere, India. Sixty-seven sophisticated paddy breeding lines were used in the experiment. Three replications of the experiment were carried out, each with a plot size of 4 m × 3 m. Grain yield per plot (kg), grain yield per hectare (kg), plant height (cm), panicles per square meter, days to 50% flowering, and days to maturity were all noted. Genetic variability and diversity parameters – two important aspects of plant breeding – were analysed. When selecting the genotypes, varieties, and breeding lines, higher genetic and phenotypic coefficients of variability (GCV and PCV) should be considered to progress and prosper in the yield and yield contribution towards varietal performance. These include days to 50% flowering, days to maturity, plant height (cm), panicles per square meter, and grain yield per plot (kg). Genetic diversity studies demonstrated that the factors that contributed most to the genotypes' divergence were the following: plant height, grain production per plot, panicles per square meter, days to 50% flowering, and days to maturity. Several crossing studies have shown that transgressive segregants with high genetic yield potential and early maturity can improve the quality of some clusters, which are made up of superior genotypes.

Sl. No	Article	Author	Source	Year
2	Population structure and regeneration status of <i>Dalbergia latifolia</i> Roxb. (Indian rosewood) in forest areas of Karnataka, India: implications for conservation and sustainable management	Balakrishna, S. M.; Manohara, T. N.; Suresh, H. S.	Current Science Vol:129 No:12	2025

Abstract: *Dalbergia latifolia* Roxb. (Indian rosewood) is a valuable tropical hardwood native to South and Southeast Asia, increasingly threatened by habitat loss, overexploitation, and regeneration challenges. The present study provides a comprehensive field-based assessment of population structure, regeneration dynamics, and ecological factors across thirteen forest divisions in Karnataka, India, including Reserve Forests (RFs) and Wildlife Sanctuaries/Tiger Reserves (WLS/TRs). A total of 190 transects were surveyed, recording 1,705 individuals classified as seedlings, saplings (poles), or mature trees. The average tree density was 6.66 ± 6.51 individuals per 0.1 hectare (range: 0–34). Regeneration was mainly seed originated, accounting for 92.5% of individuals, with minimal contribution from root suckers. Seedling (520 individuals/ha) and sapling (330 individuals/ha) densities were significantly higher in RFs compared to WLS/TRs, where regeneration was considerably limited despite the presence of mature trees. Size-class distributions in RFs showed a reverse J-shaped pattern, indicating active recruitment, whereas WLS/TRs displayed recruitment bottlenecks dominated by mature cohorts. Invasive species such as *Lantana camara* and *Chromolaena odorata* have been identified as significant barriers to regeneration, intensifying competition and increasing fire risk. Biomass and carbon stock assessments revealed significant spatial variation, with the Madikeri and Bhadra divisions contributing notably to carbon sequestration. These findings emphasise the urgent need for adaptable, site-specific management approaches, including invasive species control, fire mitigation, enrichment planting, and regeneration support, guided by ongoing ecological monitoring. The integrated methodological framework presented here offers a scalable model for assessing other endangered hardwood species, delivering essential insights to promote conservation, sustainable forest management, and global climate resilience.

Sl. No	Article	Author	Source	Year
3	Aquaculture growth and its role in India's aquatic food supply: a trend analysis and projection to 2033	Shetye, Bhupeshri V.; Pawar, Ravindra A.; Rathod, Kajal B.; Nirmale, Vivek H.	Current Science Vol:129 No:12	2025

Abstract: India's aquatic food systems require a comprehensive assessment to ensure nutritional security amid demographic expansion. We examined aquatic food balance sheet elements (total production, imports, exports, domestic availability, non-food uses, and per capita supply) during 2010–2022 and species-specific production dynamics (2004–2023), projecting trajectories to 2033. Total fisheries production is projected to increase 46.0%, with per capita food supply requiring 42.7% growth to meet demand under 0.69% annual population growth. Capture fisheries demonstrated a precipitous decline (86.8% reduction), precluding wild resources from long-term food security. Aquaculture emerged as the primary driver, exhibiting 39.1% expansion with Indian major carps projected to reach 11,082 thousand tonnes by 2033. Going forward, our scenario-based analysis identified 'business-as-usual' pattern as optimal. Critical vulnerabilities exist in relation to climate stress and disease outbreaks, with emphasis on biosecurity and climateresilient strain development. Our assessment provides empirical foundations for strategic sectoral prioritisation in the national aquatic food security planning.

Sl. No	Article	Author	Source	Year
4	Germination sensitivity and seedling quality of mahogany (Swietenia macrophylla) in response to saline irrigation	Kumar, Manish; Kumar Rai, Arvind; Rajkumar; Chaudhary, Amresh; Kumar, Jitendra; Yadav, Gajender; Banyal, R.; Kumar Yadav, Rajender	Current Science Vol:129 No:12	2025

Abstract: Salinity is a major abiotic constraint to seed germination and early seedling establishment in forest tree species, especially in arid and semi-arid regions where freshwater scarcity necessitates the use of saline irrigation. The present study assessed the effect of varying salinity (4.0–8.0 dS m⁻¹) on seed germination and seedling quality of Swietenia macrophylla (mahogany) under nursery conditions at the Indian Council of Agricultural Research–Central Soil Salinity Research Institute, Karnal. Germination parameters, final germination percentage (FGP), germination index (GI), coefficient of velocity of germination (CVG), and seedling quality indices declined significantly with increasing salinity. The FGP decreased from 28% in the control to 7% at 8.0 dS m⁻¹. Higher salinity

prolonged the mean germination time and significantly reduced growth and Dickson quality index values. The present study highlights the salinity sensitivity of mahogany during germination and underscores the need to screen and select tolerant genotypes for sustainable afforestation in saline-prone areas

Sl. No	Article	Author	Source	Year
5	TBX21 as an early immune biomarker of sepsis and septic shock: development of a prognostic immune risk score model	Lin, Xue; Wu, Shenghao; Fang, Siwei; Wang, Jianlei; Zheng, Shaopeng	Current Science Vol:129 No:12	2025

Abstract: The early detection of sepsis onset, progression to septic shock, and accurate prognosis are critical for effective management, yet reliable biomarkers for diagnostic and prognostic assessments remain lacking. The present study aims to identify a potential biomarker, explore its relationship with immune function, and develop an immune-related risk score (IRS) prognostic model. Adult sepsis and septic shock datasets from the GEO database were screened. Through differential gene expression analysis, weighted gene coexpression network analysis, and STRING-Cytoscape analysis, hub genes associated with the trend of sepsis onset and progression to septic shock were identified. Among these, reduced TBX21 was associated with increased 28-day mortality in sepsis patients after prognostic analysis. Enzyme-linked immunosorbent assay (ELISA) further confirmed that serum TBX21 progressively decreased in healthy volunteers, septic patients and patients with septic shock. GSEA showed that TBX21 functioned primarily through immune signalling pathways. Immunoscore and immune infiltration analyses were used to evaluate immune scores and immune cell changes in septic shock and sepsis patients with low TBX21 expression. The proportion of M0 macrophage infiltration was significantly increased; however, CD8(+) T-cell infiltration was decreased in both septic shock patients and sepsis patients with low TBX21 expression. External validation of flow cytometry also found that patients with septic shock had significantly fewer CD8(+) T cells in their peripheral blood compared to patients with sepsis. Based on TBX21 expression, prognostic signatures were identified (CEACAM6, PTGDS, and CX3CR1) to develop an IRS model, validated for stability and predictive ability internally. Expression trends of these signatures across healthy volunteers, sepsis, and septic shock groups were characterised. In conclusion, TBX21 was identified as a potentially protective gene that may regulate the onset and progression of sepsis to septic shock at early stages, predominantly through immune pathways. Early reduced TBX21 expression correlated with increased 28-day mortality in sepsis patients, and the developed IRS prognostic model had high stability and predictive ability. TBX21 may be a potential immunotherapeutic target for sepsis.

Sl. No	Article	Author	Source	Year
6	Polymorphism rs3729825 of MHRT predicts worse cardiac prognosis in Chagas disease	Cavalcante, Gilson Aquino; Fernandes, Fernando Liberalino; Falcão de Brito, Danielle; Dutra Diniz Morgado, Sara Solange; Fernandes Feitosa, Paula Samyla; Almeida, Valéria Duarte de; Silva Júnior, Roque Ribeiro da; Medeiros Fernandes, Thales Allyrio Araújo de	Current Science Vol:129 No:12	2025

Abstract: Chagas disease (CD), caused by Trypanosoma cruzi, may progress to chronic cardiac involvement, the most severe form. Single-nucleotide polymorphisms (SNPs) in regulatory genes may influence disease outcome. We investigated the association of SNP rs3729825 (C > T) in the lncRNA myosin heavy chain-associated RNA transcript (MHRT) with cardiac parameters in patients with chronic CD. Genotyping was performed using polymerase chain reaction–restriction fragment length polymorphism (PCR-RFLP), and echocardiographic data were analysed. Carriers of CT/TT genotypes exhibited larger atrial and ventricular diameters, as well as a reduced left ventricular ejection fraction, indicating a poorer prognosis. These findings suggest that rs3729825 may serve as a prognostic genetic marker in CD

Sl. No	Article	Author	Source	Year
7	Decoding Bank Profitability Drivers: A DuPont and Panel Regression Approach	Kaushik Bhattacharjee, Arun Jha and P Bhanu Sireesha	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2025

Abstract: This study looks at what drove bank profits in India from 2005 to 2025. It used 21 years' data for different bank groups (public sector, private sector, and foreign banks) to study key financial ratios and run a DuPont analysis. This helps track long-term trends in net interest income, noninterest income, operating costs and provisions. Through the DuPont method, the study breaks down return on equity (ROE) to understand what is driving profitability: higher leverage, better use of assets, or stronger cost control? The findings show that foreign banks (FBs) earn more mainly because they manage their funds better and have a wider mix of income

sources. On an average, FBs pay much less for their funds—around 154 basis points lower than public banks and 177 basis points lower than private banks. They also make more money from noninterest activities: about 98 basis points more than public banks and 39 basis points more than private banks, when measured against total assets. Using yearly data for 40 banks and a fixed effects model, the study finds that the equity ratio, income mix, and intermediation costs matter the most for profitability. Among economic factors, only inflation (measured by CPI) shows a steady influence. These variables strongly affect return on assets (ROA), ROE, and net interest margin (NIM). The results suggest that things like strong capital levels, diverse income sources, and good cost control play an important role in improving the performance and stability of banks in India.

Sl. No	Article	Author	Source	Year
2	Dynamics of Currency Beta in Emerging Markets: A Study on Indian Sectoral Indices	Dasam Ragupathi	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: The paper evaluates the dynamics of currency beta, which differs over time in several Indian industries. It explores whether currency beta is regime-dependent, employing the Markov regime switching model. Selected monthly index data of BSE sectors, namely, automobile (AUTO), capital goods (CAPGOOD), consumer durables (CONDURA), fastmoving consumer goods (FMCG), healthcare (H.CARE), information technology (IT), metal (METAL), oil and gas (O&G), public sector units (PSU) and technology (TECK) industry, are among them. Markov Regime Switching (MRS) approach and descriptive statistics are used. It reveals that currency betas fluctuate significantly depending on the industry. The nature of currency beta indicates varying degrees of volatility for various industries during different crisis periods. Strong evidence of currency beta's regime-switching behavior is also shown by the results. The results will be of use for portfolio managers and hedgers who seek to diversify and hedge currency beta in both calm and tumultuous market conditions in an emerging market like India.

Sl. No	Article	Author	Source	Year
3	Profitability's Mediating Effect on ESG Performance and Enterprise Value	Khajabee Pathan and Shaiku Shahida Saheb	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: The paper explores the indirect link between environmental, social and governance (ESG) performance and a company's value, with profitability indicators such as return on assets (ROA), return on equity (ROE) and return on capital employed (ROCE) serving as mediators. It uses annual data from 124 publicly listed Indian companies across various sectors from 2019 to 2023. The study employed the pooled mean group-autoregressive distributed lag (PMG-ARDL) model to estimate the long- and short-run results, and used Sobel test for mediation analysis. The findings indicate a significant long-term effect of the independent variables on the dependent variables, and also demonstrate the mediating role of ROA and ROCE between ESG performance and enterprise value (EV). The study findings provide insights for stakeholders, decision-makers, legislators, and researchers on the impact of ESG on firm value.

Sl. No	Article	Author	Source	Year
4	Impact of Insolvency and Bankruptcy Code on Stressed Assets of Indian Banks	Debashree Biswas and Dwarikanath Mishra	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: India enacted the Insolvency and Bankruptcy Code (IBC) 2016, a consolidation and amendment of the prevailing recovery laws. This study focuses on the role of IBC in improving the profitability of Indian banks by enhancing their asset quality. For this purpose, pre- and post-reform analyses have been done regarding the variations in nonperforming assets (NPA) slippage, NPA recovery, and their effect on the annual profits of the banking sector. Further, a comparative analysis of asset quality between banks in the public and private sectors has been performed to address the efficacy of IBC, sectorwise. The result demonstrates the significant effect of IBC on banks. There has been significant improvement in asset quality after enactment of IBC in terms of reduction in GNPA slippage and expansion in GNPA recovery.

Sl. No	Article	Author	Source	Year
5	Influence of Multiples on Stock Price and Stock Returns: An Empirical Analysis of Indian Banks	Bhargav Pandya	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: The paper examines the influence of multiples on stock price and stock returns in the context of the Indian banking sector. A sample of 12 banks included in the Nifty Bankex was used. Price-to-earnings (PE) ratio, price-to-book value (PBV) ratio, price-to-sales (PS) ratio, and earnings yield were the independent variables used to examine their impact on stock price; besides, the effect of PBV ratio, PS ratio, and earnings yield on stock return was examined. Panel data models were tested to examine the relationship between dependent and independent variables. The results show that PS ratio is the only significant predictor of stock price. PBV ratio emerges as the only significant predictor of stock return. Earnings yield is not a significant predictor of either stock price or stock return. Investors may find it useful to consider PS ratio while estimating the stock price of banks. Similarly, they may find the PBV ratio as the most important factor driving stock return while gauging the stock return they expect to earn from the bank stocks. The paper provides fresh insights regarding the influence of multiples on stock price and stock return in the context of the Indian banking sector.

Sl. No	Article	Author	Source	Year
6	Do Anchor Investors Affect IPO Pricing? Evidence from India	Geetha Iyer, Kalyani Mulchandani, Bhavyaraj Singh, Anshuman Thapliyal and Devansh Gupta	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: The paper analyzes IPO underpricing in India's financial market, focusing on anchor investors' role. It expands discussions on institutional investment's impact on market activities, examining how anchor investors serve as quality indicators in the IPO market, potentially affecting underpricing before and after public listing. It analyzes 225 IPOs listed on the National Stock Exchange (NSE) between 2015 and 2022. The RANSAC algorithm handles data points related to IPOs in the Indian financial sector. This methodology was chosen for removing outliers and revealing patterns in noisy financial datasets. Robust regression was utilized to investigate firm-specific and market-specific variables. The empirical results indicate several factors influencing IPO underpricing. The liquidity ratio shows positive correlation with pre- and post-market underpricing, suggesting more liquid stocks have higher underpricing. Larger

IPOs, indicated by issue size, are associated with less underpricing. The study notes anchor investors and institutional buyers' positive influence on pre-market underpricing. It adds to the understanding of IPO valuation strategies and market behaviors, highlighting the importance of strategic underpricing and anchor investors.

Sl. No	Article	Author	Source	Year
7	Impact of Pre-IPO Operating Performance on Subscription Rate: Insights from BSE SME Listings	Swathi Velisala and Kanukuntla Shankaraiah	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: The paper assesses the impact of pre-IPO operating performance on the subscription rate (SR) of small and medium enterprises (SMEs) listed on Bombay Stock Exchange (BSE) in India. A multiple regression model was developed to analyze the impact of operating performance on subscription rate of book-built SME IPOs. The study is based on secondary data collected from various sources during the period 2013-14 to 2021-22. Using multiple regression model, the study found that measures of operating performance have no impact on the SR of IPOs. As the relationships are insignificant, the study concludes that the selected metrics, barring assets turnover ratio (ATR), have their due consideration in making subscription decision, and further infers that the demand for equity shares in companies may be influenced by operating results and reputation. The study suggests that market conditions, investor sentiment, and external economic factors may play a more significant role in influencing subscription rates than previously thought.

Sl. No	Article	Author	Source	Year
8	Examining Audit Quality of US Auditors Using Financial Restatements on a State-by-State Basis	Jadallah Jadallah, Stacie Krupp and Elizabeth M Pierce	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: The paper uses financial restatements, a common measure of audit quality, to rank auditors on a state-by-state basis in the United States (US). The data for the period 2016 to 2020 from audit analytics is used to rank auditors. Big R and little r restatements

are used. During this time period, it is found that Iowa and Oregon are the states with the lowest quality auditors, while several states have high-quality auditors. Thirty states (including district of Columbia and Puerto Rico) have zero or one of the Big 4 accounting firms ranked in the top 10. This finding is different from that of Francis et al. (2013), who found that larger Big 4 offices experience fewer client restatements. In assessing the Big 4 firms, the ranking in terms of audit quality is given as follows: (1) Ernst & Young, (2) PricewaterhouseCoopers (PwC), (3) Deloitte, and (4) KPMG. The paper provides US companies with lists of high-quality auditors to choose from for completion of their annual audits.

Sl. No	Article	Author	Source	Year
9	Contextualizing External Influences of Sustainability Assurance by Internal Audit Function of Banks in Emerging Economies	Joshua O Ohioma	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: The Internal Audit Function (IAF) plays a significant role in enhancing organizations' ability to serve public interest, encompassing socioeconomic interests, societal welfare and sustainability matters. The paper investigates the external factors influencing assurance of sustainability by IAF, using a Likert scale survey for data collection, with data analysis using Linear Regression Model and Analysis of Variance, among others. The study found foreign shareholdings, regulatory authorities and professional associations significantly impacting IAF sustainability assurance in banks. The study recommends regulatory guidelines for mandatory IAF involvement and reporting of sustainability assurance to ensure effective contribution to the ultimate attainment of Sustainable Development Goals (SDGs).

Sl. No	Article	Author	Source	Year
10	Integrating Remote Sensing and Bayesian Analysis for Crop Yield Estimation and Insurance Pricing in India	Upelina Bina Murmu and Dushyant Ashok Mahadik	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: Lack of quality, consistent, and timely data hinders the smooth functioning of risk assessment and claim settlement, which has an impact on the accurate pricing of insurance premia and farmers' satisfaction. The present paper addresses these challenges by integrating high-resolution remote sensing data, specifically the Normalized Difference Vegetation Index (NDVI) and temperature, into a Bayesian regression framework for crop yield estimation. The proposed method captures the relationship between yield and remote sensing indicators while accounting for uncertainty in both the data and model parameters. In 16 wheat-growing districts of northern India, the Bayesian model demonstrates improved predictive accuracy compared to traditional linear regression. These findings highlight the potential of probabilistic modeling to enhance transparency and adaptability in crop insurance pricing.

Sl. No	Article	Author	Source	Year
11	Moderating Role of Sustainability Reporting in CSR-Financial Performance Relationship: A Quantile Panel Analysis	Kamal Krishna Sharma and Sanjay Kumar	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: The paper examines the moderating role of sustainability disclosure score (SDS) in the relationship between corporate social responsibility (CSR) performance and financial performance. Using firm-level data from the Nifty 500 Index (2015-2022), the study employed fixed-effects panel quantile regression to assess how SDS influences return on assets (ROA), return on equity (ROE), and Tobin's Q (TQ). The findings reveal that CSR performance positively impacts financial performance, particularly for firms at the median and upper quantiles. However, SDS does not significantly moderate this relationship, challenging prevailing assumptions in legitimacy and signaling theories. These results highlight the need for firms to focus on substantive CSR strategies rather than mere disclosure. The study contributes to the sustainability literature by employing advanced econometric techniques and offering insights

into CSR disclosure practices in emerging markets. The findings provide practical implications for policymakers and corporate decision-makers.

Sl. No	Article	Author	Source	Year
12	Evaluating the Transition to Ind AS 113: Insights from the Shift in Financial Reporting in India	Indrajit Das and Debasish Sur	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: The paper evaluates the impact of India's transition from historical cost-based accounting to fair value accounting (FVA) under Ind AS 113, implemented in 2016-17. Addressing the gap in empirical analysis of FVA's effectiveness in emerging markets, the study aims to assess changes in the relevance, reliability, and predictive power of financial statements. Using regression analysis and key financial indicators—including earnings per share (EPS) and return on capital employed (ROCE)—the study reveals that financial statements under FVA better reflect market realities. The earning quality ratio (EQR) has either improved or remained stable after transition. These findings support the conclusion that Ind AS 113 enhances financial reporting quality in India's dynamic economic context.

Sl. No	Article	Author	Source	Year
13	Impact of IFRS (Ind-AS) on the Share Price Performance of Selected BSE-Listed Companies	Devarajappa S and Rajath B S	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: The study examines how the convergence of Indian Accounting Standards (Ind-AS) with International Financial Reporting Standards (IFRS) has affected the performance of selected Bombay Stock Exchange (BSE)-listed companies' share prices. The study is restricted to selected BSE-listed companies of Karnataka. Total six companies were selected, for shortterm performance of stock prices. Event study methodology was employed, and daily abnormal returns (AR) and cumulative AR (CAR) were calculated using the marketadjusted model over two 41-day windows (± 20 days around key events: MCA notification on February 16, 2015, and mandatory

adoption from April 1, 2016), with BSE Sensex as benchmark and parameters from a 180-day estimation window. In order to test the hypothesis t-test was used. According to the findings of the study, the adoption converged accounting standards has had a significant impact on several stocks. The examination of the share price performance reveals that there is no regular pattern of AR for these companies; in certain instances, the market responded both favorably and unfavorably during event window one, and in all cases, the market responded favorably during event window two. Therefore, it can be said that the adoption of IFRS proved positive for increasing the wealth of the shareholders of the selected companies in the short term. The study does not rule out the impact of other factors such as political or macroeconomic in this regard.

Sl. No	Article	Author	Source	Year
14	Enhancing Accounting Instructions with Excel: A Theoretical Perspective on Learning and Cognitive Load	Yunita Anwar and Martin Mulyadi	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: The paper explores how Microsoft Excel-based instructions can enhance learning in undergraduate accounting through Active Learning Theory and Cognitive Load Theory. Studies on technology-enhanced accounting instruction underscore spreadsheets' utility, yet few examine their theoretical underpinnings. A conceptual approach with classroom examples drawn from Principles of Managerial Accounting and Intermediate Accounting courses was adopted. The finding shows that students were more involved, solved problems in real-time, and had less superfluous work. Well-scaffolded Excel projects enhanced professional skills and conceptual clarity. Including Excel promotes work preparedness, better retention, and practical learning. These results provide both a strong theoretical underpinning and practical guidance for including spreadsheets in accounting courses.

Sl. No	Article	Author	Source	Year
15	India's Green Ledger: A Systematic Review of Literature on the Carbon Credit Market	Sohom Banerjee and Sumanta Dutta	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: This paper presents a systematic review of the development, makeup, and challenges of Indian carbon credit market with a strong focus on project types, policy frameworks, market dynamics, and governance mechanisms. Using PRISMA methodology, 35 peerreviewed studies from 2000 to 2023 were assessed. The review finds that despite the great progress on the part of India in the areas of renewable energy and CDM participation, fundamental challenges continue to exist: regulatory doubts, price instability, and fears about additionality and benefit-sharing. The paper also indicates thematic gaps in literature in the form of lack of publications on agriculture, microenterprises, and socioeconomic effects of carbon projects. Particularly, it brings together views on accounting, audit, and environmental, social and governance (ESG) disclosure frameworks, indicating the need for harmonization of standards and third-party assurance. Making an inventory of unsettled debates and suggesting practical policy recommendations like establishing an independent regulator and updating of ICAI's carbon accounting rules, the study provides a timely knowledge base for the development of Indian carbon market. This review is useful for both academic discussion and policy change, providing a synthesized critical evaluation of India's carbon credit landscape and its preparedness for future compulsory and voluntary markets.

Sl. No	Article	Author	Source	Year
16	Mapping a Decade of Sustainable and Green Finance Research: A Bibliometric Analysis	Sneha Sarah Alex and Garima Sisodia	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: This study aims to systematically map and synthesize existing knowledge in the domain of sustainable and green finance from 2014 to 2024, offering insights into intellectual evolution, thematic structure, and implications for accounting and financial reporting. The study adopts a methodological design that combines bibliometric analysis with a systematic literature review guided by the PRISMA framework. From an initial dataset of 6,144 Scopus- Indexed publications, 184 articles ultimately met the inclusion criteria and were selected for in-depth analysis. Using Biblioshiny (R Studio) and VOSviewer, the study uncovers publication trends, influential sources, the origins, promoters, issues, challenges, and thematic analysis. The findings show a sharp post-2020 surge in

scientific output, driven by regulatory reforms and expanding ESG mandates. The analysis identifies four dominant clusters—Decarbonization, Green Finance & Markets, Integrated reporting, and Climate Change Risk Management—and traces their theoretical foundations through Stakeholder, Institutional, and Legitimacy, and Signaling Theory. The review also highlights research priorities: strengthening reporting standards, improving transparency, mitigating greenwashing, leveraging digital technologies, and enhancing institutional capacity.

Sl. No	Article	Author	Source	Year
17	A Bibliometric Analysis of Research on Green Accounting	Heena Tabasum and Raghunandan G	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: The study examines the existing research on green accounting using a bibliometric approach. Green accounting is a crucial tool for comprehending how company endeavors contribute to economic security and environmental wellbeing. Using green accounting methods, firms can better comprehend and manage the potential for a tradeoff between current environmental aims and traditional accounting goals. Environmental disclosures in annual reports have become a standard practice for many businesses worldwide. Scopus database has been used to retrieve data comprising 1,391 documents published between 2015 and 2024. The bibliometric analysis reveals a rapid growth in green accounting research with publication doubling and reaching a peak of 381 in 2024. Environmental science emerged as the dominant subject area (23.74%), while article constituted the major document type (76.78%). China led the global contributions with 432 publications and 11,715 citations, and Journal of Cleaner Production recorded the highest citation impact. The findings highlight the publication trends, research growth, top contributors (both authors and countries), citation impacts, and future research prospects in the field of green accounting.

Sl. No	Article	Author	Source	Year
18	Corporate Governance as a Mediator Between Firm Performance and CSR Practices: Evidence from Indian Companies Before and During the Pandemic	K Padmasree	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: The Covid-19 pandemic drew attention to the importance of Corporate Social Responsibility (CSR), as companies were urged to go beyond compliance and actively support society. In this context, the role of Corporate Governance (CG) in mediating the relationship between firm performance (FP) and CSR performance becomes critical. The paper explores the impact of CG on CSR in India, particularly in light of the mandatory CSR spending law implemented in 2014. The analysis focuses on Nifty-100 companies, with data from the pre-pandemic period (2015-2018) and the pandemic period (2019- 2021). Using Partial Least Squares-Structural Equation Modeling (PLS-SEM) and Smart-PLS software, the study investigates the mediating role of CG in the relationship between FP (independent variable) and CSR performance (dependent variable). The results indicate that while CG played a mediating role in both periods, its effect was not statistically significant. These findings suggest that while CG influences CSR practices, its role as a mediator between FP and CSR is weak. The pandemic period saw an increase in CSR performance, suggesting that external pressures and mandatory regulations may drive greater CSR engagement. Policymakers and companies should focus on strengthening governance structures to enhance CSR outcomes, ensuring that CSR initiatives are not only compliance-driven but also meaningful and impactful.

Sl. No	Article	Author	Source	Year
19	Predicting Financial Distress in India's Dairy Sector Using Altman Z-Scores	Biki Digar, Brajaballav Pal and S K Sajit	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: The paper investigates financial distress and its impact on firm performance in the Indian dairy industry, a sector that contributes nearly 5% to the national economy and supports millions of livelihoods. The primary objective is to identify financially distressed firms and assess how financial distress influences firm performance. Using data from six listed dairy companies over the period 2017-18 to 2021-22, the Altman Z-score model was employed to measure financial distress, alongside key financial ratios such

as working capital to total assets, EBIT to total assets, retained earnings to total assets, and sales to total assets. Regression analysis using SPSS was conducted to examine the effect of financial distress on firm performance, with return on assets (ROA) as the dependent variable. The findings indicate that Amrit Corp. Ltd., Anik Industries Ltd., and Mahaan Foods Ltd. fall into the financially distressed category, while Vadilal Industries Ltd. lies in the gray zone. Hatsun Agro Product Ltd. and Heritage Foods Ltd. maintain relatively strong financial positions. The regression results reveal a significant positive relationship between Altman Z-scores and ROA (coefficient = 0.289), indicating that financial stability enhances firm performance. The study contributes to literature by linking distress diagnostics with performance outcomes, offering early warning indicators and practical insights for investors, managers, and policymakers navigating financial risk in the dairy sector.

Sl. No	Article	Author	Source	Year
20	Effect of Capital Structure Decision on Firm Profitability: An Empirical Analysis of Listed Indian IT Firms	Jeothilakshmi S K and Saranya P	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: The paper investigates the influence of capital structure decisions on the profitability of listed IT firms in India from 2018-2023. It employs panel data from 20 top NSE-listed IT firms to explore the relationship between capital structure decision and firm profitability using fixed effects regression by controlling firm size and sales growth. The results show a significant negative relationship between debt ratios and profitability, measured by ROE. The findings highlight the unique capital structure characteristics of Indian IT companies, emphasizing the need for conservative debt strategies and leverage policies. The paper offers useful insights for owners, financial managers, operators and lending organizations based on empirical evidence from IT firms.

Sl. No	Article	Author	Source	Year
27	Impact of Credit Risk on the Financial Performance of Small Finance Banks in India	Anu Lohan and Parveen Kumar	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: The paper explores the impact of credit risk, specifically net non-performing assets (NNPA), and capital adequacy ratio (CAR) on the financial performance indicators—return on assets (ROA) and return on equity (ROE)—of small finance banks (SFBs) in India. The empirical analysis was conducted using panel data regression on four SFBs from 2018 to 2023. The findings reveal that there was an insignificant yet positive effect of CAR on ROA and ROE of SFBs in India. Moreover, the study established a negative and significant impact of NNPA on ROA and ROE of SFBs. The study provides valuable insights for investors, banks, and management regarding the financial performance of SFBs and recommends implementing effective credit risk management systems.

Sl. No	Article	Author	Source	Year
22	Liquidity and Profitability Management in UBI and HDFC Bank: A Comparative Analysis	G Usha Sree and V Swapna	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: Commercial banks are the keystones for the financial system of any economy. These banks help the economy by mobilizing funds.

Sl. No	Article	Author	Source	Year
23	IFRS 18: Reshaping Financial Statements	C S Sapana Dey and Debjyoti Dey	The IUP Journal of Accounting Research & Audit Practices Vol: 25 No: 1	2026

Abstract: International Financial Reporting Standards (IFRS) 18 was introduced in April 2024 and is set to become effective from January 1, 2027.

Sl. No	Article	Author	Source	Year
7	Disability-Inclusive Communications and Knowledge Management in Pacific Island Countries: A Comprehensive Framework	Anamul Haque	The IUP Journal of Knowledge Management Vol: 24 No: 1	2026

Abstract: Pacific Island Countries (PICs) face unique challenges in implementing disability-inclusive communications and knowledge management systems due to geographical dispersion, limited resources, and cultural contexts. This paper examines the current state of disability inclusion across 14 Pacific nations, analyzing gaps in communication accessibility and knowledge management frameworks. Drawing on the Innovation to Inclusion (i2i) Program, the Sustainable Education Support for Deaf Children initiative, and UNCRPD implementation efforts, this study proposes a comprehensive framework for enhancing disability-inclusive practices. The findings reveal that approximately 10-15% of Pacific populations (an estimated 1.2-1.8 million people) live with disabilities, yet face systematic exclusion from information access, education, and governance processes. This paper provides evidence-based recommendations for policymakers, development practitioners, and service providers to build more inclusive communication ecosystems that align with sustainable development goals and regional commitments.

Sl. No	Article	Author	Source	Year
2	Integrating Digital Infrastructure and Knowledge Processes in Higher Education: Evidence from Central Asian Universities	Malla Praveen Bhasa	The IUP Journal of Knowledge Management Vol: 24 No: 1	2026

Abstract: Universities are increasingly reliant on digital platforms such as information technology (IT) infrastructure, institutional repositories and learning management systems (LMS) to support teaching and research. However, evidence remains limited on how these technologies translate into academic value, particularly in emerging higher education systems. Drawing on knowledge management (KM) theory, this study examines how digital platforms jointly influence academic outcomes through KM effectiveness in universities across Central Asia. Using survey data collected from 412 respondents across 124 public and private universities in Kazakhstan, Uzbekistan and Kyrgyzstan, the study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) to test a mediation-oriented model. The findings demonstrate that IT infrastructure quality functions as a foundational enabler shaping the maturity of digital repositories and the quality of LMS platforms. Both repositories and LMS platforms significantly enhance KM effectiveness, which in turn exerts a strong positive effect on academic outcomes, including teaching effectiveness, student engagement and research visibility. Mediation analysis confirms that KM effectiveness is the primary mechanism through which digital platforms create academic value. The results highlight that digital technologies do not yield performance improvements through adoption alone but require integration into institutional knowledge processes. By providing comparative evidence from an under-researched regional context, this study contributes to KM and information systems literature by empirically positioning KM effectiveness at the center of digital transformation in higher education. The findings offer actionable implications for university leaders and policymakers seeking to design integrated digital knowledge ecosystems rather than fragmented technology initiatives.

Sl. No	Article	Author	Source	Year
3	Digital Distraction and Student Outcomes: Procrastination and Self-Regulation in the Cyberloafing-Performance Relationship	Shibu N S	The IUP Journal of Knowledge Management Vol: 24 No: 1	2026

Abstract: Smartphones are a constant presence now in classrooms and study spaces. While connectivity improves access to digital learning resources, it also creates opportunities for students to engage in nonacademic online activities during study time. This study investigates how cyberloafing affects academic performance among university students through the mediating role of academic procrastination and the moderating role of self-regulation. Using a cross-sectional design and a multi-city sample from Chennai, Coimbatore, and Tiruchirappalli, data were analyzed using partial least squares structural equation modeling (PLS-SEM). The results show that cyberloafing significantly increases academic procrastination, which in turn reduces academic performance. Cyberloafing also has a direct negative effect on performance. Procrastination partially mediates this relationship. Self-regulation significantly weakens both the cyberloafing-procrastination link and the cyberloafing-performance link, and the conditional indirect effects confirm a moderated mediation pattern. These findings highlight that cyberloafing is not merely an intrusive online activity but a behavior that undermines academic outcomes unless offset by strong self-regulatory skills. The study enriches digital-behavior research in the Indian context and offers practical insights for integrating self-regulation training, redesigning classroom digital policies, and fostering digital discipline in Tamil Nadu's technology-rich learning environments

Sl. No	Article	Author	Source	Year
7	Conservation strategies for Dal lake and its catchment in Himalaya	Khan, I. J.; Rufaida, Mir; Basit, Sofi	Current Science Vol: 130 No: 5	2026

Abstract: Dal lake, situated at 34.13°N latitude and 74.87°E longitude in the Kashmir Himalaya, spans an area of approximately 11.45 km² with a catchment area of 337 km². The lake's water budget is influenced by precipitation, surface inflows, and groundwater interactions, while its drainage pattern is shaped by multiple micro-watersheds, contributing to varied hydrological dynamics. Spring shade areas play a crucial role in maintaining the lake's water balance, aiding in groundwater recharge and regulating land cover stability. However, extensive land-use changes, deforestation, and erosion have increased sedimentation and nutrient loading,

accelerating the lake’s ecological decline. Eutrophication and harmful algal blooms (HABs) have emerged as significant environmental concerns, primarily driven by agricultural runoff, household waste, and industrial discharges. The proliferation of algae and aquatic weeds has led to oxygen depletion (anoxia), reduced water clarity, and habitat degradation. Over the years, unchecked sewage disposal, aquaculture, and encroachments have transformed Dal lake from a pristine water body into a nutrient-rich, stagnant system. To mitigate these impacts, organic farming within the catchment is proposed as a sustainable solution to reduce nutrient runoff and restore the lake’s ecological integrity. By eliminating synthetic fertilisers and pesticides, this approach promotes biodiversity, improves soil health, enhances water conservation, and provides economic benefits to local farmers. Additionally, implementing effective conservation policies, land-use planning, and sustainable agricultural practices can aid in mitigating eutrophication and preserving Dal lake’s long-term ecological health, ensuring sustainable development for local communities.

Sl. No	Article	Author	Source	Year
2	Year-long eddy covariance surface fluxes from a Bay of Bengal mooring compared with operational monsoon mission models	Bhat, G. S.; Jampana, Venkata; Pattabhi Rama Rao, E.; Shiva Prasad, S.; Kumar, Suresh; Praveen Kumar, B.; Srinivasa Kumar, T.; Sengupta, D.; Ravichandran, M.; Edson, J. B.; Farrar, T. J.; Rao Suryachandra, A.; Maheshwar, Pradhan; Jayakumar, A.; Anurose, T. J.	Current Science Vol: 130 No: 5	2026

Abstract: The National Monsoon Mission programme of the Ministry of Earth Sciences, Government of India, was launched in 2012 to improve Indian monsoon forecasts from short-range to seasonal timescales using dynamical models. Two models, namely, the Climate Forecast System version 2 (CFSv2) from the United States National Centers for Environmental Prediction, and United Kingdom’s UKMET Office unified model, were implemented and improvements were made. The initial climatologies of the seasonal predictions showed many biases, including cold biases in the sea surface temperature over the tropical Indian Ocean. The Airsea flux parametrization schemes used in these models, which were not verified under the monsoonal conditions over the North Indian Ocean

due to the lack of relevant in situ observations, were among the possible causes of the bias. To test this, an ocean moored buoy with instrument packages for complete surface energy balance, including eddy-covariance flux sensors, was deployed in the North Bay of Bengal from July 2019 to August 2020. The present article compares measured and model scheme predicted surface fluxes. The surface shear stress is well predicted in both models. The heat loss due to evaporation of water is over-estimated in the 8 to 38 W m⁻² range depending on the parametrization scheme used. The present version of the scheme implemented in CFSv2 has the smallest bias. Whereas a bias of 8 W m⁻² in evaporative heat loss falls in the range of its measurement uncertainty limits, scope for further refinement exists

Sl. No	Article	Author	Source	Year
3	Performance analysis of different machine learning models on groundwater quality prediction for sustainable groundwater management	Jose, Annie; Yasala, Srinivas	Current Science Vol: 130 No: 5	2026

Abstract: Both natural and man-made environmental factors affect the chemical composition of groundwater. A large amount of chemical data is analysed to determine if groundwater is suitable for drinking and other uses. Many machine learning methods are available for evaluating groundwater quality. Using machine learning is considered convenient and cost-effective for analysing large datasets and saving time. The present study compares the performance of logistic regression, k-nearest neighbours, and support vector machine to identify the most suitable algorithm for assessing groundwater quality. The present study area is the Kanyakumari district, Tamil Nadu, India.

Sl. No	Article	Author	Source	Year
4	Multi-wavelength absorption and morphological characteristics of aerosol particles from different biofuel types in India	Kaur, Parminder; Arun, B. S.; Guha, Anirban; Pipal, Atar Singh	Current Science Vol: 130 No: 5	2026

Abstract: The present study characterises aerosol emissions from ten different biofuels used in rural households, examining multi wavelength light absorption properties and morphological characteristics during flaming and smoldering combustion phases. Strong linear correlations ($R^2 = 0.95\text{--}0.99$) were observed between absorption Ångström exponent (AAE) values across all biofuels. Higher absorption coefficients at 880 nm corresponded to lower AAE values, indicating black carbon (BC) dominance during flaming, while brown carbon (BrC) dominated during smoldering. SEM-EDX analysis revealed flaming combustion produced chain-like aggregates of spherical particles (50–300 nm), while smoldering generated irregular, web-like structures. Carbon dominated both phases (50.8–60.3% flaming, 52.4–62.7% smoldering), with higher potassium during flaming. These findings establish frameworks for source apportionment and understanding climate impacts

Sl. No	Article	Author	Source	Year
5	A comparative study on the floristic diversity of forest and grassland ecosystems of Kachchh, an arid region of western India	Pindolia, Tejashwi; Roy Mahato, Arun Kumar	Current Science Vol: 130 No: 5	2026

Abstract: Ecosystems sharing a macroclimate can exhibit markedly different floristic compositions due to structural, edaphic, and biotic factors. The present study compares floristic diversity between tropical thorn forests (Chavda Rakhal and Ler) and the Banni savannah grassland in Kachchh, Gujarat, using quadrat sampling along line transects. The forests supported 201 species ($H' = 2.19$), while the grassland had 29 species ($H' = 1.36$), reflecting expected structural differences. However, Banni's flora was dominated by a few widespread species, with reduced native herbaceous cover. Invasive *Prosopis juliflora*, overgrazing, and habitat alteration were also observed. These results highlight the need for conservation strategies focused on restoring native plant composition and ecological function in the increasingly stressed Banni grassland ecosystem.

Sl. No	Article	Author	Source	Year
6	Phenology of mango (<i>Mangifera indica</i> L.) under varied crop age and management strategies for higher productivity in semi-arid tropics of Indian sub-continent	Krupashree, R.; Shivaramu, H. S.; Thimmegowda, M. N.; Huggi, Lingaraj; Mallikarjuna Gowda, A. P.; Premalatha, B. R.	Current Science Vol: 130 No: 5	2026

Abstract: India owes lion share in the mango (*Mangifera indica* L.) production, contributing ~40% of world's total production. Despite the expansion in cultivated area, yield levels are stagnant, rather diminishing over the recent years in the Indian sub-continent. This paradox is largely ascribed to aging orchards coupled with unscientific management. To address this issue, a field experiment was conducted for two consecutive years (2020–2021 and 2021–2022) to assess the influence of tree age and management drives on two major phenological stages (flowering and fruiting) of mango. Two fruit production cycles (i.e., from vegetative bud initiation to fruit maturity) were studied in a regional dominant mango hybrid (Malika) belonging to two age groups (20 and 28 years old). Pooled analysis revealed that a significantly higher number of panicles (325), hermaphrodite flowers (285), and the least flower drop (96.3%) in 20-year-old trees managed with plant protection chemicals (PPCs). Consequently, significantly higher fruit yield (74.34 kg tree⁻¹), fruit volume (440.3 cm³) and total sugar content (20.03%) were also observed in younger trees managed with PPCs. Further, the final yield levels were a mere reflection of the number of panicles, hermaphrodite flowers, and fruits retained per panicle at different stages, as a strong and positive correlation existed among them.

Sl. No	Article	Author	Source	Year
7	Nutrilens: Visual Calorie Estimation with Multi-Class Food Detection Using Deep Learning	Ch Sekhar, K. Bhashini, D. Manindra Varma , Jami Pradeep , N. Hari Chandana , P. Balakrishna	I-manager's Journal on Future Engineering and Technology Vol: 21 No: 2	2026

Abstract: With increasing awareness towards a healthy lifestyle, the use of digital tools to track daily diet and calorie intake is becoming more popular. To date, most food tracking applications are still based on manual input into the application, which can be tedious, often over-relying on a user's memory, and messy. In order to overcome these challenges the NutriLens system has been

proposed to automatically estimate calorie values from an image using deep learning. This proposed approach utilizes together multi-class food detection and estimation of portion size utilizing YOLOv11 and a reference object for accurately scaling real-world sizes. Each detected food item is matched to a %based food nutrition database to obtain a calorie value once detected from the image. The NutriLens system demonstrated a mean average precision (mAP@50) of 80.8%, which is higher than existing technology and is a strong indication of the accuracy and reliability of the system when estimating caloric content of diverse and complex Indian meals. **Keywords:** Calorie Estimation, Deep Learning, CNN, YOLOv11, Nutrition Analysis.

Sl. No	Article	Author	Source	Year
2	Position Analysis Of Three Degree Of Freedom, 3-Prs Parallel Manipulator	Meghavathu Roopa, N. Mohan Rao	I-manager's Journal on Future Engineering and Technology Vol: 21 No: 2	2026

Abstract: In this article the forward kinematic analysis the 3-PRS parallel manipulator was done. A set of equations were developed for the 3-PRS manipulator were calculated with the known link lengths and joint angles. Since there are many difficulties in solving the system of nonlinear equations in kinematics of manipulators, the numerical solutions like Newton-Raphson are inevitably used. When dealing with any numerical solution, there are two troublesome problems. One is that good initial guesses are not easy to detect and another is related to whether the used method will converge to useful solutions.

Sl. No	Article	Author	Source	Year
3	Engaging Children In The Engineering Design Process During Out Of School Time Program	Angelia Reid-Griffin, Jessica Croson	I-manager's Journal on Future Engineering and Technology Vol: 21 No: 2	2026

Abstract: This phenomenological pilot case study aims to explore the learning experiences of 33 children (ages 10-14) using the Engineering Design Process during a week-long summer STEM camp program. Observations and interviews with the participants and high school student mentors and volunteers revealed trends of collaboration, students using their voice, and confidence with applying

the Engineering Design Process along with science engineering practices (SEPs) to building towers. Findings unveiled the benefits of the experience in building the children’s confidence, sense of engagement, engineering content knowledge and career readiness in the STEM.

Sl. No	Article	Author	Source	Year
4	Neurochip Implants For Sight Recovery: Bridging Neuroscience And Engineering	Vishal Khanna, Priya Khanna	I-manager’s Journal on Future Engineering and Technology Vol: 21 No: 2	2026

Abstract: This paper provides a comprehensive review of state-of-the-art brain neurochip technologies designed to restore visual perception in individuals affected by blindness. The survey encompasses key neural interfacing strategies, including intracortical, epi-retinal, subretinal, and optic nerve stimulation approaches, and highlights their respective advantages, limitations, and clinical applicability. Particular focus is placed on the signal acquisition and processing pipeline, where multimodal sensor data is pre-processed, encoded, and mapped to neural activation patterns. Advanced stimulation paradigms ranging from simple current-based techniques to spatiotemporal patterned stimulation are evaluated in terms of their ability to evoke interpretable precepts. The role of machine-learning algorithms in optimizing visual encoding and decoding is examined, with emphasis on adaptive, patient-specific models that can dynamically improve performance through closed-loop feedback. Building upon these foundations, we propose a prototype framework for a minimally invasive brain neurochip system. The framework integrates hybrid sensing (e.g., camera-based and bio-signal-driven inputs), adaptive stimulation tailored to neural plasticity, and real-time closed-loop feedback for continuous performance optimization. Safety-by-design principles are embedded into the architecture, ensuring resilience against overstimulation, thermal effects, and long-term biocompatibility risks. Furthermore, we outline potential performance metrics—including visual acuity restoration, task-specific functionality, and quality-of-life impact—as well as experimental validation steps necessary to move from laboratory prototypes toward large-scale preclinical and clinical studies. Finally, ethical considerations, regulatory challenges, and translational pathways are discussed to provide a roadmap for accelerating the integration of brain neurochip vision restoration systems into clinical practice.

Sl. No	Article	Author	Source	Year
5	Review Of Advanced Techniques In Underwater Object Detection And Tracking	Venkata Krishna Chaitanya Putrevu, Chandra Bhushana Rao Kota	I-manager's Journal on Future Engineering and Technology Vol: 21 No: 2	2026

Abstract: Detecting and tracking underwater objects is difficult because of the changing water conditions, such as low visibility, color distortion, obstructions, and fast-moving objects. These conditions make it hard for traditional computer vision systems to work well. So, we need strong, flexible, and computationally efficient solutions. This review paper looks at three new and interesting methods for tracking objects underwater in detail and compares them: (1) DeepSeaNet, which combines EfficientDet with a Bi-directional Skip-connected Feature Pyramid Network (BiSkFPN); (2) a lightweight Kernelized Correlation Filter (KCF)-based tracking framework that uses feature fusion and adaptive scale estimation to improve its performance; and (3) an occlusion-aware Adaptive Deep SORT tracker that uses Gaussian Mixture Models (GMM) to find objects and LSTM-based memory management to keep track of identities. We look at architectural design of each method, tracking accuracy, ability to adapt to underwater distortions, and ability to be used in real time. This comparison gives us useful information about how to improve intelligent underwater vision systems in the future. This has effects on environmental monitoring, marine biology, autonomous underwater vehicles, and surveillance applications.

Sl. No	Article	Author	Source	Year
7	Modelling Of Subthreshold Currents In Sb-Cntfets	Anna Gina Perri, Roberto Marani	I-manager's Journal on Electronics Engineering Vol: 16 No: 2	2026

Abstract: In this paper we present a procedure to model and characterize the current voltage characteristics of Schottky Barrier (SB) Carbon NanoTube Field Effect Transistors (SB-CNTFETs) below and above threshold, to evaluate the noise margin, whose values are necessary in the design of digital circuits.

Sl. No	Article	Author	Source	Year
2	Implementation Of Self-Sealing Smart Dustbin Using Iot	Manu D K, Gopalakrishnamurthy C. R. , Pavan K. , Syed Waseem Tabraiz	I-manager's Journal on Electronics Engineering Vol: 16 No: 2	2026

Abstract: The tremendous growth of the population has led to a world of unclean and unhygienic environments. The primary cause of pollution nowadays is garbage overflow. Cleaning the dustbin is an important process that has to be done regularly, but due to the inconsistency in the filling of waste, sometimes it overflows even before the next cleaning process arrives. It is also observed that the garbage gets accumulated due to the irregular removal of garbage present in the dustbin. Sometimes, dustbins are kept open, which produces a bad smell, and also when the dustbin is filled directly, picking up the waste can lead to many diseases. So it is highly essential to take utmost care of the waste being dumped. Hence, a new proposal system is being introduced where the lid of the bin opens when waste is detected by an Ultrasonic Sensor, and it will be closed. There will be continuous level monitoring of the garbage, which can be seen in the mobile application. Here, the dustbins are provided with different IDs, when a dustbin is full message would be sent to the respective authorities indicating the ID of the Dustbin. It has an additional feature where the polybag inside the bin is sealed automatically when the bin is full. The UV Sterilization feature is also used to kill the germs.

Sl. No	Article	Author	Source	Year
3	Design And Simulation Of Microstrip Patch Antenna For Counter-Drone Operations	Prashant Menghal, Sonam Dubey	I-manager's Journal on Electronics Engineering Vol: 16 No: 2	2026

Abstract: The advancement of unmanned aerial systems (UAS) presents both opportunities and challenges, especially in security and defense. Counter-drone operations necessitate compact and efficient antennas capable of detecting and neutralizing drones.. This study presents the development and evaluation of a microstrip patch antenna tailored for these applications. Key performance indicators including gain, directivity, and radiation pattern are assessed to confirm the antenna's effectiveness in counter-drone scenarios A prototype model of 2.4 Ghz band was developed and tested. Hyderabad, India prashant_menghal@yahoo.co.in measurements of emission patterns, gain, and return loss. The experimental findings are analyzed alongside the simulation results to verify the design's

precision and dependability. . II. FUNDAMENTALS OF COUNTER DRONE ANTENNA Counter-drone technologies rely on a diverse set of tools—including radar systems, radio frequency (RF) sensors, acoustic monitoring devices, optical tracking systems, signal jammers, and drone-based interceptors—to identify, monitor, and neutralize unauthorized unmanned aerial vehicles (UAVs). Methods like RF jamming and spoofing of global navigation satellite systems (GNSS) are commonly used to disrupt a drone's communication and navigation, effectively impairing its operation. Within these systems, antennas serve as essential components, enabling both detection and interference by controlling and manipulating RF signals. Various antenna types are tailored to perform distinct roles within these defense setups. Directional antennas, for example, are designed to concentrate interference signals on specific drone targets, while omnidirectional antennas are used to scan wide areas for RF activity. Phased-array antennas, often integrated with radar platforms, provide highprecision tracking and engagement capabilities. The integration of these antenna types allows counter-drone systems to function effectively while limiting unintended impact on nearby electronic systems or communications. One commonly used antenna in these applications is the patch antenna. It typically features one or more narrow metal strips that are much thinner than the corresponding free-space wavelength (λ_0). These strips are placed on the surface of a dielectric (non-conductive) substrate, with a conductive ground layer—usually made from the same or similar metal—attached to the underside. Copper is the standard material for the radiating patch, often coated with metals like gold, tin, or nickel to prevent oxidation and wear. Standard geometries for patch antennas include rectangular and circular shapes, which are chosen based on performance requirements and space constraints. Typically fabricated from thin copper foil, the patch may be coated with protective metals such as gold, tin, or nickel to resist corrosion. Common patch shapes include rectangular and circular designs.

Sl. No	Article	Author	Source	Year
4	Enhanced Direction-Of-Arrival Estimation Using Optimized Coprime Sensor Arrays	Rohini Dakulagi, Kim Ho Yeap	I-manager's Journal on Electronics Engineering Vol: 16 No: 2	2026
Abstract: Direction-of-arrival (DOA) estimation plays a vital role in modern radar, sonar, wireless communication, and intelligent sensing systems. Conventional uniform linear arrays (ULAs) offer good angular resolution but demand a large number of sensors, increasing hardware cost, power consumption, and processing complexity. Coprime arrays have emerged as a promising sparse sensing architecture that achieves a virtual array with significantly enlarged aperture using only a few physical sensors. This paper presents an enhanced DOA estimation method tailored for coprime array geometry, which effectively exploits the non-uniform sensor				

placement to increase the degrees of freedom and provide high-resolution estimation even in low signal-to-noise ratio environments. The proposed approach improves robustness against coherent and closely spaced sources by integrating spatial smoothing with an optimized covariance reconstruction strategy. Simulation results demonstrate superior estimation accuracy, reduced RMSE, and better source distinguishability compared to standard ULA-based and existing coprime-array-based techniques.

Sl. No	Article	Author	Source	Year
5	Smart Vision Sense Rover	Jitendra Kumar Srivastava, Priyanshu Shukla	I-manager's Journal on Electronics Engineering Vol: 16 No: 2	2026

Abstract: This paper presents the design and implementation of an autonomous obstacle-avoiding robotic system utilizing an Arduino Uno microcontroller, an ultrasonic distance measurement module, a servo-based scanning mechanism, an L298N motor driver module, and an ESP32-CAM for real-time visual monitoring. The proposed system is developed to operate without human intervention, using sensor-driven decision making for navigation. The ultrasonic sensor continuously actions the distance to adjacent obstacles, while the servo motor replaces the sensor across left and right directions to obtain multi-directional environmental material. Based on the collected distance data, the Arduino executes a decision algorithm to determine robot movement: moving forward when the path is clear, stopping when an obstacle is detected, and turning left or right dependent on which side offers a free path. The L298N motor driver provides turning and power control to the motors for smooth and stable mobility. Additionally, the ESP32-CAM module delivers live video flowing,remote visual supervision of the robot's surroundings. The overall system is low-cost, energy-efficient, and laidback to construct, production it highly suitable for educational, surveillance, and self-directed navigation claims. Experimental results reveal that the robot performs reliably in real-time environments, showcasing active obstacle detection, path choice, and unremitting video monitoring.

Sl. No	Article	Author	Source	Year
6	Design And Analysis Of Conformal Linear Array Antenna For Mmwave Applications	Muvvala Kalpana, R. Ramana Reddy	I-manager's Journal on Electronics Engineering Vol: 16 No: 2	2026

Abstract: The paper presents the design and analysis of linear arrays of mm-wave conformal patch antenna (MPA) designs. It has a methodology where 37.8 GHz is first designed and later expanded to a four element and five element planar arrays on its superior features. The reflection coefficient, radiation patterns, near-field characteristics and the distribution of current are investigated. The conformal properties are investigated based on the bending analysis of the array setup in a way of assessing the feasibility of the proposed array set up. The 4-element linear array has resulted in a stable frequency response with a little variation during bending, whereas the 5- element linear array has shown the improved gain, but it is also sensitive to feed and deformation effects. The suggested linear antenna arrays boast of a good balance of gain enhancement, area and conformal suitability rendering it suitable to the mmWave applications.

Sl. No	Article	Author	Source	Year
7	Eco-Friendly Machining Techniques For Reducing Carbon Emissions In Industry	Mallela Komaleswararao, Pallavi Paturu, Gandhi Mallela	I-manager's Journal on Mechanical Engineering Vol: 16 No: 1	2026

Abstract: The increase in concern about climate change and the necessity for sustainable manufacturing has resulted in more and more eco-friendly machining processes to reduce the effect of machining on the environment without sacrificing productivity. Traditional machining uses a lot of cutting fluid and has high energy consumption rates, which account for a large portion of total carbon emissions. In this study, alternative turning methods using carbide tools were investigated during the machining of A6063 aluminum alloy on a CNC machine to evaluate their comparative performance under different conditions, including flood cooling, minimum quantity lubrication (MQL), cryogenic cooling, and dry machining. This study evaluated how each of these four methods performed in terms of their respective optimizations measures and the results of the study showed that the eco-friendly methods outperformed traditional machining methods in most instances. Using dry machining, spindle speeds were increased by 30%, there was a reduction in tool wear by 63.3% and surface finish improved by 44%. With respect to energy consumption and CO₂ emissions,

dry machining achieved a reduction of 72% and 75%, respectively. MQL resulted in a 40% reduction in tool wear, improved surface finish at 28%, energy savings between 68% and 70%, and a reduction of 78 to 80% in CO₂ emissions. Cryogenic cooling resulted in similar-performing systems but was more balanced with only a 10% spindle speed increase over dry machining, 48.3% reduction in tool wear, 36% improvement in surface finish, and a savings of 62% in energy and 68.8% in CO₂ emissions compared to dry machining. Although all eco-friendly alternatives required lower feed rates than traditional machining, the remarkable environmental and performance benefits of each of the eco-friendly methods suggest that all four methods are feasible and sustainable alternatives to traditional machining.

Sl. No	Article	Author	Source	Year
2	Machine Learning-Based Motion Optimization In Intelligent Robotic Systems	Vishal Khanna, Priya Khanna, Sheetal Thakur	I-manager's Journal on Mechanical Engineering Vol: 16 No: 1	2026

Abstract: Motion optimization is a critical challenge in intelligent robotic systems, directly influencing efficiency, accuracy, and energy consumption. Traditional control and trajectory planning methods often rely on predefined models and heuristics, limiting their adaptability in dynamic and uncertain environments. This paper presents a machine learning-based approach for motion optimization in intelligent robotic systems, enabling adaptive, data-driven decision making for improved performance. The proposed framework integrates supervised and reinforcement learning techniques to optimize robot trajectories, joint coordination, and actuator control in real time. Sensor data, including position, velocity, and force feedback, are utilized to continuously learn and refine motion strategies. Experimental evaluations conducted on simulated and physical robotic platforms demonstrate significant improvements in trajectory smoothness, task completion time, and energy efficiency compared to conventional control methods. The results highlight the potential of machine learning to enhance autonomy and robustness in intelligent robotic systems, making the approach suitable for applications such as medical robotics, industrial automation, and assistive technologies.

Sl. No	Article	Author	Source	Year
3	A Comprehensive Review On Wire Electrodes, Dielectric Fluids And Application In Electrical Discharge Machining (Edm)	Pankaj Kumar Rawat, Sandip Kumar Singh	I-manager's Journal on Mechanical Engineering Vol: 16 No: 1	2026

Abstract: Spark Erosion (EDM) is a state-of-the-art machine that is significantly used for the high accuracy and perfection of cutting high-performance materials. This study investigates the consequences of different wire electrode materials, such as copper, brass, molybdenum, tungsten, and coated wires, which are examined based on their thermal characteristics, density, and cost-effectiveness, and directly affect the machining performance and efficiency. Moreover, Conventional based dielectrics like kerosene, transformer oil, mineral oil, and paraffin emit greenhouse gases, pollutants, and noxious fumes into the atmosphere, which negative impact on the environment. Therefore, alternative sustainable and green dielectric fluids were examined, emphasizing their advantages. Furthermore, this paper explores the applications of Shape Memory Alloys (SMAs) in medical science, aerospace, civil engineering, automotive, spacecraft, and robotics. This study explore the importance of intelligent material, dielectric fluids and electrode material selection in machining performance.

Sl. No	Article	Author	Source	Year
4	A Hybrid Lean Six Sigma-Tpm Approach For Reducing Defects, Downtime, And Maintenance Losses In Brewery Packaging	Milon Selvam Dennison, Omar Suliman Zaroog, Musiime Benon	I-manager's Journal on Mechanical Engineering Vol: 16 No: 1	2026

Abstract: Brewery packaging operations are susceptible to downtime, process variation, and maintenance inefficiencies, yet evidence on structured improvement approaches in developing manufacturing contexts remains limited. This review examines the combined application of Lean Six Sigma (LSS) and Total Productive Maintenance (TPM) as a hybrid framework to improve efficiency on high-speed bottling lines. The study synthesizes theoretical foundations, empirical findings, and implementation models, highlighting how integrated LSS-TPM practices address persistent challenges, including unstable equipment performance, recurring defects, and

reactive maintenance cultures. Existing literature demonstrates that Lean tools enhance flow and reduce non-value-adding activities, while Six Sigma offers analytical rigor for quality improvement, and TPM strengthens long-term equipment reliability.

Sl. No	Article	Author	Source	Year
5	Development Of A Multi-Objective Optimization Framework For Rotor System Using Utopia Tracking Approach	Joseph Shibu K	I-manager's Journal on Mechanical Engineering Vol: 16 No: 1	2026

Abstract: The aero engine's rotor system exhibits a second critical speed near to self-sustaining speed, indicating a potential design issue. Temperature control of the hot gases near self-sustaining speed requires steady operation, which conflict with the high acceleration requirement to pass the critical speed. The critical speed optimisation of the rotor system, to shift it away from self-sustaining speed, will change deformation of the rotor blade tip and influence the aero-engine performance. Multiobjective optimisation is proposed to solve this problem. The weight is set as a constraint with second critical speed and unbalance response as objectives. A multi-objective optimization framework using Utopia Tracking Approach (UTA) is developed for this practical problem.

Sl. No	Article	Author	Source	Year
7	Primary Barriers To Widespread Adaptation Of Artificial Intelligence In Education In Africa A Case Of Private Universities In Ghana	William Bediako Danso, Frank Banor Tetteh	I-manager's Journal on Educational Technology Vol: 22 No: 4	2026

Abstract: Artificial Intelligence (AI) is reshaping industries across the globe, and Africa is no exception. Adaptation of Artificial intelligence in every aspect of the economy is an opportunity to develop Africa's competitiveness. Can AI help solve the economic problems facing Africa? AI is an emerging technology that has the potential to enhance teaching and learning in higher education greatly. Besides, AI can personalize learning experiences, provide intelligent tutoring systems, facilitate collaboration and automate

grading. Notably, AI in higher education has developed more efficient, adaptive, and effective educational models. Artificial intelligence can also reduce the cost of education by making education accessible to a wide range of students by managing jobs, creating digital textbooks, and providing affordable online courses. However, research has shown that introducing AI in educational settings also presents challenges and potential risks that need to be addressed. Africa faces several known challenges in AI development. Among such challenges are insufficient infrastructure, lack of skilled personnel, limited funding, lack of robust data ecosystems, lack of skilled personnel, limited funding, lack of investment, scarcity of specialised talent, limited access to advanced training opportunities, and a lack of structured mentoring programs, all of which prevent the continent from fully harnessing the power of AI. With the advents of these AI technologies, African nations face both opportunities and challenges, especially in harnessing their potential to transform both the Public and Private Universities across the continent. Again, research has showed that, as AI advances and becomes more sophisticated, it is expected to automate many routine and repetitive jobs, leading to job losses in certain industries. Even though experts believed that, new job opportunities may be created, particularly in AI and data science, engineering, and technology areas. Artificial Intelligence (AI) is poised to have a significant impact on future in Africa, much like in other parts of the world. While the specific effects will depend on various factors including the pace of AI adoption, technological infrastructure, and lack of sustainable government policies, there are several potential impacts to consider: However, the challenges facing the adoption of AI technologies in Africa are numerous and have already crashed many industries. Experts believed that increasing the adoption of AI in Africa requires the development of vibrant ecosystems based on five stakeholders who form the foundation of building AI success including policymakers, universities, large companies, start-ups, and multi-stakeholder partnerships. Without addressing these challenges, Ghana and Africa as a whole will continue to lag behind countries in the global world. This paper therefore revealed the AI challenges faced by most Africa countries and especially Private Universities in Ghana. In Ghana and around the World, Universities are embracing AI applications like the ChatGPT, Bard, Deepseek and Midjourney each offering new capacity for research, creativity and Classroom engagement. However, their rapid adaptation trigger debate about ethical usage, equitable access and regulatory oversight. This research aims to inform policy decisions, share best practices and invite robust dialogue among educator, policy makers and technologist seeking to innovation with responsible governance The research began with a review of literature on the complex nature of Artificial Intelligence adaptation, its challenges and opportunities on Future Education in Africa. The main source of information was secondary resources on the emerging and transformative technology (AI). A Primary data was also gathered from a field survey using interview questionnaires of Fifty (50) faculty members from Five (5) different Private Universities in Accra, Ghana to unearth some of the challenges faced by the Industry player on the adaptation of AI.

Sl. No	Article	Author	Source	Year
2	Fostering Professional Development Of Teachers Through Artificial Intelligence (Ai): A Systematic Review	Soumya Ranjan Das, Madhusudan J. V.	I-manager's Journal on Educational Technology Vol: 22 No: 4	2026

Abstract: Teacher is a continuous learner, and fulfilling personalised learning need has become the work of contemporary technological world. Now modern technology, like, Artificial Intelligence (AI) are supporting personalised learning and finding answers to all our queries. Considering the popularity and usage of AI in education field, an attempt has been made to find out its significant role in professional development (PD) of teachers. The systematic literature review (SLR) following PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis technique) was applied in this study. The findings revealed three themes: usage of AI, its benefits, and challenges. Teacher utilized the AI technologies for the purposes of generating teaching-learning materials, planning the lesson, assessment, getting ideas for curriculum designing and research. Several benefits they also realized during their usage, such as, personalized learning, saving time, enhancing engagement, motivation, improving teaching methods, and boosting creative as well as critical thinking. On the other hand, excessive overreliance, unavailability of technological infrastructure, lack of AI literacy, ethical concerns, and deterioration of creative as well as critical thinking are emerging challenges associated with the AI usage for teachers PD.

Sl. No	Article	Author	Source	Year
3	Application Of Machine Learning Technologies In English Language Teaching At The Schools Of Tamilnadu	Arul Lawrence A S, S. Dhilip	I-manager's Journal on Educational Technology Vol: 22 No: 4	2026

Abstract: In classrooms, ESL teachers use cutting-edge technology. After considerable training, English language teachers deploy modern technologies in their classrooms. Intentionally or unintentionally, English language teachers have been using machine learning technologies towards achieving pedagogical objectives. Therefore, this study aims to probe the application of machine learning technologies in English language teaching at the Schools of Tamilnadu. In 2020-2021, an online survey was used to collect data from 350 English language teachers across Tamilnadu, using convenient sampling in schools. Machine Learning Technologies Utilisation

Scale by Teachers (MLTsUS) was used to assess the utilisation of machine learning technologies for teaching English by the teachers. The obtained data were exported as a spreadsheet in Google Forms and scored, using IBM SPSS. Statistical procedures, including mean, standard deviation, t-test, F-test, Duncan's Multiple Range Test, and chi-square were used to analyse the data. To test hypotheses, table values were consistently 5% significant. The findings show that the majority of English language teachers, according to this survey, use machine learning techniques in their classrooms. In the application of machine learning technology in English language education, gender, location, degree of instruction, nature of school, board of school, and age do not show statistically significant differences.

Sl. No	Article	Author	Source	Year
4	Teaching Introductory Research For Graduate Education Students: A Scaffolded Approach	Dr. Gina Cicco	I-manager's Journal on Educational Technology Vol: 22 No: 4	2026

Abstract: This article highlights the importance of preparing educators and counselors in the study of research methodology. Suggestions for faculty instructors of research for breaking through the stigma of the feared research course by careful and purposeful delivery of course objectives will be discussed. Five steps for building positive classroom climate and culture in research courses are explained, and if implemented these may ultimately result in an improved sense of self-efficacy for students and future leaders in the use of research skills. Preparation for conducting and utilizing empirical research is essential for advancing education and counseling professions, emphasizing accountability, and demonstrating evidence-based best practices in outcomes research. It is an ethical responsibility for faculty instructors of research methods and statistics to engage graduate education students in actual research proposal work to generate a new generation of competent researchers who will be motivated to conduct meaningful research and contribute to the research literature for the benefit of practitioners, students, and clients in education and mental health institutions and agencies.

Sl. No	Article	Author	Source	Year
5	Exploring The Impact Of Wpacq-Structured Flipped Learning On Problem-Solving, Self-Efficacy, And Perceived Cooperative Learning Practices In Programming Education	Zafer Kadirhan	I-manager's Journal on Educational Technology Vol: 22 No: 4	2026

Abstract: This research investigates how the WPACQ-based flipped classroom model—featuring components such as Watch, Peer-Summary, Assessment, Correction, and Question—can support the development of essential skills in programming education, namely problem-solving, programming self-efficacy, and perceived cooperative learning practices. A randomized controlled design with pretest and posttest assessments was employed in this study, which included 90 first-year programming students from a public university in Türkiye. While the experimental group engaged in a pedagogically structured flipped classroom guided by the WPACQ cycle, the control group received conventional lecture-based instruction. The MANCOVA results revealed that the flipped classroom participants significantly outperformed the control group in all measured outcomes, favoring the flipped condition, with moderate to large effect sizes, particularly for programming self-efficacy and problem-solving. These findings suggest that structured flipped models like WPACQ can enhance learning outcomes in programming education. This study adds to the existing body of knowledge by highlighting how the WPACQ-structured model fosters students' strategic thinking, programming self-efficacy, and cooperative engagement, particularly in cognitively demanding contexts like introductory programming courses, which require high levels of abstraction and problem-solving. Implications for instructional design, curriculum development, and future research are discussed, offering practical guidance for educators and a foundation for future studies exploring scaffolding strategies in computer science education.

Sl. No	Article	Author	Source	Year
1	Year-long eddy covariance surface fluxes from a Bay of Bengal mooring compared with operational monsoon mission models	Bhat, G. S.; Jampana, Venkata; Pattabhi Rama Rao, E.; Shiva Prasad, S.; Kumar, Suresh; Praveen Kumar, B.; Srinivasa Kumar, T.; Sengupta, D.; Ravichandran, M.; Edson, J. B.; Farrar, T. J.; Rao Suryachandra, A.; Maheshwar, Pradhan; Jayakumar, A.; Anurose, T. J.	Current Science Vol: 130 No: 5	2026

Abstract: The National Monsoon Mission programme of the Ministry of Earth Sciences, Government of India, was launched in 2012 to improve Indian monsoon forecasts from short-range to seasonal timescales using dynamical models. Two models, namely, the Climate Forecast System version 2 (CFSv2) from the United States National Centers for Environmental Prediction, and United Kingdom's UKMET Office unified model, were implemented and improvements were made. The initial climatologies of the seasonal predictions showed many biases, including cold biases in the sea surface temperature over the tropical Indian Ocean. The Airsea flux parametrization schemes used in these models, which were not verified under the monsoonal conditions over the North Indian Ocean due to the lack of relevant in situ observations, were among the possible causes of the bias. To test this, an ocean moored buoy with instrument packages for complete surface energy balance, including eddy-covariance flux sensors, was deployed in the North Bay of Bengal from July 2019 to August 2020. The present article compares measured and model scheme predicted surface fluxes. The surface shear stress is well predicted in both models. The heat loss due to evaporation of water is over-estimated in the 8 to 38 W m⁻² range depending on the parametrization scheme used. The present version of the scheme implemented in CFSv2 has the smallest bias. Whereas a bias of 8 W m⁻² in evaporative heat loss falls in the range of its measurement uncertainty limits, scope for further refinement exists

Sl. No	Article	Author	Source	Year
2	Performance analysis of different machine learning models on groundwater quality prediction for sustainable groundwater management	Jose, Annie; Yasala, Srinivas	Current Science Vol: 130 No: 5	2026

Abstract: Both natural and man-made environmental factors affect the chemical composition of groundwater. A large amount of chemical data is analysed to determine if groundwater is suitable for drinking and other uses. Many machine learning methods are available for evaluating groundwater quality. Using machine learning is considered convenient and cost-effective for analysing large datasets and saving time. The present study compares the performance of logistic regression, k-nearest neighbours, and support vector machine to identify the most suitable algorithm for assessing groundwater quality. The present study area is the Kanyakumari district, Tamil Nadu, India.

Sl. No	Article	Author	Source	Year
3	Multi-wavelength absorption and morphological characteristics of aerosol particles from different biofuel types in India	Kaur, Parminder; Arun, B. S.; Guha, Anirban; Pipal, Atar Singh	Current Science Vol: 130 No: 5	2026

Abstract: The present study characterises aerosol emissions from ten different biofuels used in rural households, examining multi-wavelength light absorption properties and morphological characteristics during flaming and smoldering combustion phases. Strong linear correlations ($R^2 = 0.95\text{--}0.99$) were observed between absorption Ångström exponent (AAE) values across all biofuels. Higher absorption coefficients at 880 nm corresponded to lower AAE values, indicating black carbon (BC) dominance during flaming, while brown carbon (BrC) dominated during smoldering. SEM-EDX analysis revealed flaming combustion produced chain-like aggregates of spherical particles (50–300 nm), while smoldering generated irregular, web-like structures. Carbon dominated both phases (50.860.3% flaming, 52.4–62.7% smoldering), with higher potassium during flaming. These findings establish frameworks for source apportionment and understanding climate impacts.

Sl. No	Article	Author	Source	Year
4	A comparative study on the floristic diversity of forest and grassland ecosystems of Kachchh, an arid region of western India	Pindolia, Tejashwi; Roy Mahato, Arun Kumar	Current Science Vol: 130 No: 5	2026

Abstract: Ecosystems sharing a macroclimate can exhibit markedly different floristic compositions due to structural, edaphic, and biotic factors. The present study compares floristic diversity between tropical thorn forests (Chavda Rakhal and Ler) and the Banni savannah grassland in Kachchh, Gujarat, using quadrat sampling along line transects. The forests supported 201 species ($H' = 2.19$), while the grassland had 29 species ($H' = 1.36$), reflecting expected structural differences. However, Banni's flora was dominated by a few widespread species, with reduced native herbaceous cover. Invasive *Prosopis juliflora*, overgrazing, and habitat alteration were also observed. These results highlight the need for conservation strategies focused on restoring native plant composition and ecological function in the increasingly stressed Banni grassland ecosystem.

Sl. No	Article	Author	Source	Year
5	Phenology of mango (<i>Mangifera indica</i> L.) under varied crop age and management strategies for higher productivity in semi-arid tropics of Indian sub-continent	Krupashree, R.; Shivaramu, H. S.; Thimmegowda, M. N.; Huggi, Lingaraj; Mallikarjuna Gowda, A. P.; Premalatha, B. R.	Current Science Vol: 130 No: 5	2026

Abstract: India owes lion share in the mango (*Mangifera indica* L.) production, contributing ~40% of world's total production. Despite the expansion in cultivated area, yield levels are stagnant, rather diminishing over the recent years in the Indian sub-continent. This paradox is largely ascribed to aging orchards coupled with unscientific management. To address this issue, a field experiment was conducted for two consecutive years (2020–2021 and 2021–2022) to assess the influence of tree age and management drives on two major phenological stages (flowering and fruiting) of mango. Two fruit production cycles (i.e., from vegetative bud initiation to fruit maturity) were studied in a regional dominant mango hybrid (Mallika) belonging to two age groups (20 and 28 years old). Pooled analysis revealed that a significantly higher number of panicles (325), hermaphrodite flowers (285), and the least flower drop (96.3%)

in 20-year-old trees managed with plant protection chemicals (PPCs). Consequently, significantly higher fruit yield (74.34 kg tree⁻¹), fruit volume (440.3 cm³) and total sugar content (20.03%) were also observed in younger trees managed with PPCs. Further, the final yield levels were a mere reflection of the number of panicles, hermaphrodite flowers, and fruits retained per panicle at different stages, as a strong and positive correlation existed among them.

Sl. No	Article	Author	Source	Year
7	Thrombus-targeted microbubbles for thrombosis diagnosis	Zhou, Nanqian; Zhao, Yuzhen; Wu, Ming; Ding, Xiao; Yuan, Jianjun; Zhu, Haohui	Current Science Vol: 130 No: 7	2026

Abstract: Thrombosis remains a significant cause of morbidity and mortality in many cardiovascular and cerebrovascular diseases, and thrombolysis stands out as a promising treatment method. However, the slow diffusion of thrombolytic agents within thrombi leads to delayed recanalisation. Additionally, these agents face limitations in clinical application due to their short circulation time and the risk of hemorrhagic side effects. To address these challenges, we have developed an innovative thrombolytic drug delivery platform for integrated diagnosis and treatment. This platform utilises microbubbles (MB) conjugated with RGDS (Arg-GlyAsp-Ser) peptide (RGDS-MB). The RGDS-MB system targets thrombi through interaction with $\alpha\text{IIb}\beta 3$ in activated platelets, ensuring accurate thrombus site diagnosis. These thrombus-targeted MB serve as promising carriers for efficient drug delivery, offering a potential platform for the development of thrombolytic nanomedicines with prospects for clinical translation.

Sl. No	Article	Author	Source	Year
2	Investigation for water-ice within lunar polar PSR using Chandrayaan-2 DFSAR data	Shukla, Shital; Shroff, Urvi; Patel, Piyush; Mohan, Shiv	Current Science Vol: 130 No: 7	2026

Abstract: Multi-frequency polarimetric observations from dual frequency synthetic aperture radar (DFSAR) and miniaturised synthetic aperture radar (Mini-SAR) were used to investigate four craters named as C1–C4 within the permanently shadowed Faustini

crater floor, near the lunar south pole. Amongst these four craters, C1 exhibits plausibility of shallow subsurface water ice with enhanced circular polarisation ratio (CPR) at Sband and low mean cross-polarised backscattering coefficient. CPR greater than unity at L-band has been detected in an unnamed sub-km-scale crater (C2). Further, the CPR signature characterising the interior and exterior of the crater at L-band is observed to be unambiguously distinct, non-overlapping, and separated by a margin of 0.63. This distinct CPR signature is not observed at S-band, emphasising the plausibility of water ice in deeper layers. The crater C3 indicates erosion associated with subdued backscatter returns. The penetration ability of the L-band signal reveals buried rocks inside crater C4 associated with depolarised cross-polarisation (VH) returns, enhanced CPR, and high co-polarised backscattering coefficient. Polarimetric decomposition methods were used to emphasise the dominance of volume scattering in the deeper layer.

Sl. No	Article	Author	Source	Year
3	Groundwater simulation and recharge impact on availability in the Yamuna-Krishni interfluve region	Kumar, Praveen; Mohan Singh, Raj; Yadav, Anurag	Current Science Vol: 130 No: 7	2026

Abstract: Groundwater serves as a critical source of water for agricultural, domestic, and industrial purposes in the western part of Uttar Pradesh, India. In recent decades, rapid population growth has led to a significant increase in groundwater extraction, causing aquifers to suffer due to inadequate water resource management practices. Understanding groundwater recharge, flow behaviour, and yearly variations in recharge is essential to assess groundwater potential. The present study employs the hydrological Soil and Water Assessment Tool (SWAT) model to estimate recharge in the Yamuna-Krishni interfluve region. The SWAT model was calibrated and validated using evapotranspiration (ET) data, achieving coefficient of determination (R^2), Nash–Sutcliffe efficiency coefficient (NSE), percent bias (P-bias), and root mean standard deviation ratio (RSR) values of 0.75, 0.61, 7.0, and 0.52 during the calibration period, and 0.62, 0.53, 6.8, and 0.49 during the validation period, indicating satisfactory model performance. Groundwater flow modelling was carried out using Visual MODFLOW, based on the estimated recharge and geological data of the present study area. This model was also calibrated and validated with observation well head data, yielding correlation coefficients of 0.98 for the calibration period and 0.97 for the validation period. Additionally, the study examined the impact of a 20% uncertainty in recharge under different scenarios to predict aquifer responses. The recharge was estimated at approximately 170 mm/year, and the projected drawdown in the study region could reach approximately 13.42 m by 2027 under a scenario. The findings of the present study provide valuable insights for

developing sustainable water resource management strategies to optimise groundwater use for agricultural, domestic, and industrial purposes.

Sl. No	Article	Author	Source	Year
4	Quantifying geomorphic change and forecasting channel shifts in the Kosi River Basin using integrated GIS and ARIMA-ETS-Prophet modelling	Kumar, Rakesh; Singh, Jagdish	Current Science Vol: 130 No: 7	2026

Abstract: The present study quantifies three decades of geomorphic change in the Kosi River Basin (1990–2024) and forecasts channel dynamics to 2050 using integrated geographic information systems (GIS) and time-series models: auto-regressive integrated moving average (ARIMA), exponential smoothing state space (ETS), and Prophet. Multi-temporal Landsat–Sentinel datasets across 43 cross-sections reveal progressive stabilisation, marked by declining sinuosity and confined migration. Of the three-modelling methods, Prophet achieved the lowest RMSE, accurately capturing non-linear channel evolution. Forecasts indicate reduced lateral activity (approx.0.15 km yr⁻¹) and a 12%–18% decline in channelwidth variability by 2050. The results demonstrate a transition toward a semi-confined, quasi-equilibrium regime and establish a replicable geomorphic forecasting framework for flood-prone alluvial systems.

Sl. No	Article	Author	Source	Year
5	Promoting good occupational health outcomes among farmwomen: evidence of a community-based strategy from North-Western Himalayan region, India	Joshi, Kushagra; Pandey, B. M.; Jethi, Renu; Kant, Lakshmi	Current Science Vol: 130 No: 7	2026

Abstract: Limited studies have been conducted addressing the occupational health of farm women in poorly mechanised hill farming, where women are de facto farmers. The present study describes an enhancement in the occupational health of hill farm women by

targeting their nutrition and workloads through a wellplanned strategy. A three-year quasi-experimental study was conducted to promote occupational health by implementing interventions focused on nutrition education, ergonomic training, and safety demonstrations. Different levels of intervention were tested. To evaluate impact, data on dietary diversity scores (DDS) and knowledge, attitude, and practice (KAP) were collected. A significant difference in DDS was observed between the control and full intervention groups, while no statistically significant difference was found between the control and partial intervention groups. Repeated-measures analysis also revealed significant improvements in KAP scores between the control and full intervention groups ($P = 0.005$) and between the partial and full intervention groups ($P = 0.009$). The results suggest that only the full intervention, which included demonstrations along with information, education, and communication (IEC), was effective in producing significant changes over time. The strategy was found effective as the farm women who received full intervention gained maximum benefit. To optimise the benefits to farm women, the IEC strategy, along with the nutrition gardens, training, and demonstrations, should be scaled up.

Sl. No	Article	Author	Source	Year
7	Approaches, determinants, constraints, and strategic pathways for farm innovation adoption: a systematic review	Venkattakumar, R.; Gills, Reshma; Srinivasa Rao, Ch.; Venkatesan, P.; Rathore, Surya; Shirur, Mahantesh; Lal, Gopal; Meera, Shaik N.; Lalitha Navya, Ch.; Rajitha, B.	Current Science Vol: 130 No: 8	2026

Abstract: Farm innovation adoption is essential for improving agricultural productivity, sustainability, and resilience under growing population pressure, climate variability, and resource constraints. However, adoption remains uneven across farming systems and regions. The present article gives a systematic review of 110 studies, conducted following the PRISMA 2020 guidelines, to synthesise evidence on adoption patterns, analytical approaches, determinants, constraints, and strategic pathways influencing farm innovation adoption across crops, livestock, fisheries, and allied sectors. The review indicates that research is largely concentrated on adoption levels and behaviour assessments, with comparatively fewer studies examining diffusion processes, impact evaluations, experimental interventions, policy analysis, and theory development. Adoption is influenced by human and economic capacity, behavioural attributes, institutional and extension support, technology characteristics, social networks, and market conditions. Key constraints include gaps in knowledge and skills, weak extension systems, financial and labour limitations, infrastructure and market inefficiencies,

risk perceptions, and institutional barriers. The findings underscore the need for integrated, systems-oriented research and policy approaches to strengthen adoption, improve extension effectiveness, and promote sustainable agricultural livelihoods.

Sl. No	Article	Author	Source	Year
2	Synthetic CT generation technology for prostate cancer radiotherapy based on neighbourhood attention-enhanced generative adversarial network	Wen-Sheng, Fu; Bo, Pang; Zhi-Yong, Yang; Ya-Fei, Chen; Chao-Feng, Wang; Xi-Jun, Wu	Current Science Vol: 130 No: 8	2026

Abstract: Cone beam computed tomography (CBCT), a key tool in image-guided radiotherapy, is limited in direct dose calculation for adaptive radiotherapy due to inherent issues such as scattering noise, low contrast, and Hounsfield unit (HU) value distortion. The present study proposes a neighbourhood attention-enhanced generative adversarial network (NA-EGAN) to achieve high-precision conversion of CBCT to synthetic computed tomography (sCT). By systematically comparing the performance of four models (U-Net, cycleGAN, cGAN, and NA-EGAN), we validate the clinical value of NA-EGAN in prostate cancer radiotherapy. Based on a dataset of CBCT and Planning CT (pCT) images from 78 prostate cancer patients, the data were divided into training, testing, and validation sets at a ratio of 63:10:5. NA-EGAN integrates multi-channel input and introduces a self-attention mechanism: channel attention dynamically calibrates feature weights, while spatial attention focuses on dose sensitive regions—significantly enhancing the perception of image boundaries and the anatomical consistency of HU values. Additionally, geometric perception data augmentation (elastic deformation and 3D rotation) was applied to improve the model’s robustness to anatomical variations. Finally, dynamic memory-mapped loading technology was used to enhance the efficiency of large-scale data processing. Experimental results showed that NA-EGAN achieved the best performance in global image quality assessment: the mean absolute error (MAE) was reduced to 6.68 ± 0.92 HU, the peak signal to noise ratio (PSNR) reached 56.34 dB, the structural similarity index (SSIM) increased to 96%, and all dice similarity coefficients (DSC) exceeded 0.97. Dosimetric evaluation indicated that the sCT generated by NA-EGAN had a γ pass rate (2%/2mm) of 99.50%. The single-fraction target doses D95 and Dmean were 1.92 Gy and 2.03 Gy, respectively, with no significant difference compared to pCT, verifying its clinical equivalence. The study shows that NA-EGAN achieves high-fidelity reconstruction of CBCT images through neighbourhood feature fusion and attention-guided mechanisms. The generated sCT can fully replace pCT in terms of dose calculation accuracy, providing a reliable technical solution for the online dynamic optimisation of adaptive radiotherapy.

The model’s memory optimisation strategy and geometric enhancement method offer innovative insights for the engineering application of medical image reconstruction, with significant potential for clinical translation.

Sl. No	Article	Author	Source	Year
3	Comparative evaluation of empirical and regression-based models for predicting blast-induced ground vibrations in Indian coal surface mines	Choudhary, Bhanwar Singh; Deressa, Geleta Warkisa; Gupta, Shikhar	Current Science Vol: 130 No: 8	2026

Abstract: Blasting is the most economical rock fragmentation method in surface mining, but the resulting ground vibrations pose safety and environmental challenges, requiring reliable predictions of peak particle velocity (PPV). The present study evaluates empirical and regression-based models for predicting blast-induced ground vibration in coal surface mines. Widely used empirical predictors, including the United States Bureau of Mines, Ambraseys–Hendron, Indian Standard Predictor, and Langefors–Kihlström equations, were evaluated using field-monitored vibration data. Regression models for site-specific and multi-mine purposes were developed using key blast parameters, including the maximum cooperating charge per delay (Qmax) and the total mass of charge per round (QT). The Ambraseys–Hendron model showed superior predictive performance, with higher coefficients of determination (R²) at the Jarangdih (0.714), Joyrampur (0.728), and Bokaro (0.788) mines, and consistent accuracy for total charge per round across multi-mine conditions. Using this model and industry-prescribed PPV limits (5–15 mm/s), the maximum allowable charge per delay (Qmax) was estimated for 25–500 m. Controlling the maximum allowable charge is required at short distances (25–50 m), whereas higher charges can be safely used beyond 200 m; at 100 m, Qmax ranged from 41.6 to 240.5 kg depending on allowable PPV. These findings provide a practical framework for optimising blast design, limiting PPV, and enhancing both environmental and operational sustainability in surface coal mining.

Sl. No	Article	Author	Source	Year
4	Identification of flood hazard zones of Uttarakhand	Diwakar, Manoj Kumar; Varshwal, Prajwal; Chaturvedi, Ashutosh	Current Science Vol: 130 No: 8	2026

Abstract: Flooding is among the world's most damaging natural disasters, wreaking havoc on natural and man-made structures yearly. Therefore, the identification of flood hazard zones for each flood-prone region is essential. The present study focuses on identifying flood hazard zones in Uttarakhand using a geographic information system (GIS)-based analytical hierarchy process. The study considers six key flood-inducing factors—elevation, slope, drainage density (DD), topographic wetness index (TWI), land use and land cover (LULC), and precipitation—weighted and integrated within a GIS framework to delineate flood hazard zones. The flood hazard zones are categorised into four subdivisions (i.e., low, moderate, high, and severe) based on their severity of flood hazards. Flood hazard zones are delineated using annual maximum precipitation and average annual maximum precipitation over the study period. This approach identified larger areas under high and severe hazard categories compared to zones derived from multi-year average annual maximum precipitation, highlighting the system's greater sensitivity to extreme events. The present study highlights that slope, elevation, and precipitation are the dominant factors influencing flood occurrence, whereas LULC, TWI, and DD have a comparatively smaller impact. The flood hazard maps developed in the study provide useful information for supporting flood hazard planning and mitigation work.

Sl. No	Article	Author	Source	Year
5	Hydroclimatic controls on groundwater quality evolution in basaltic aquifers: process-based insights from a state-scale dataset in India	Chaturvedi, Richa; Goel, Ojsi; Prawesh, Shankar; Sen, Indra Sekhar	Current Science Vol: 130 No: 8	2026

Abstract: Hydroclimatic variability influences groundwater quality evolution in semi-arid hard-rock aquifers. Using a multi-year (2016–2018) WRIS dataset from basaltic aquifers in India, the present study evaluates spatiotemporal groundwater chemistry through D-Piper diagrams, Gibbs plots and the Oregon water quality index. Groundwater quality deteriorated during the 2017 drought, when reduced recharge coincided with a sharp rise in NO₃ -exceedances (~40% of samples) alongside elevated total dissolved solids and total hardness, whereas late-season rainfall in 2018 promoted dilution and recovery. Results indicate a dilution–mobilisation

mechanism linking hydroclimatic variability with rock-water interactions and anthropogenic inputs, emphasising adaptive groundwater management across basaltic aquifer systems globally.

Sl. No	Article	Author	Source	Year
7	ERGIC3 promotes tumour progression and modulates immune microenvironment in head and neck squamous cell carcinoma	Gao, Ru; Zhang, Cheng; Hu, Lao; Feng, Qiaolei	Current Science Vol: 130 No: 9	2026

Abstract: In the present study, we examined the role of ERGIC3 in head and neck squamous cell carcinoma (HNSCC) by combining the Cancer Genome Atlas (TCGA)-based bioinformatic analyses with validation in HNSCC cell lines, aiming to clarify its regulatory relevance and potential therapeutic value. Public TCGA datasets were used to profile ERGIC3 across cancers and to determine its relationships with prognosis and clinicopathological features in HNSCC. Genes co-expressed with ERGIC3 were identified, and differential expression between ERGIC3-high and ERGIC3-low tumours was computed in R, followed by GO/KEGG and GSEA enrichment analyses. Tumour immune infiltration was estimated with CIBERSORT, while candidate drug response was inferred with onco Predict. Finally, ERGIC3 was silenced in HNSCC cell lines to evaluate changes in proliferation/viability, migration, and invasion in vitro. ERGIC3 was upregulated in many malignancies and was markedly increased in HNSCC. Patients with high ERGIC3 expression showed poorer overall and progression-free survival. ERGIC3 expression was strongly co-expressed with NFS1 in HNSCC. Enrichment analyses suggested that ERGIC3-associated transcriptional changes were linked to immune-related processes, and ERGIC3 levels were associated with CD8+ T-cell infiltration. Immunotherapy scores were reduced in the ERGIC3-high group, implying a comparatively better response in patients with low ERGIC3 expression. Drug prediction indicated differential sensitivity to LGK974 between ERGIC3 strata. In cell experiments, ERGIC3 knockdown attenuated HNSCC cell viability, migration, and invasion. ERGIC3 expression is associated with clinical characteristics and immune infiltration patterns in HNSCC. In addition, LGK974 may represent a potential therapeutic option for tumours with high ERGIC3 expression.

Sl. No	Article	Author	Source	Year
2	Altitudinal variations in floristic composition and stand structure of teak farm forestry plantations in the Eastern Himalayan foothills	Shahina, N. N.; Siril, Sajitha; Shijith Nair, S.; Singh, Manendra; Shukla, Gopal; Chakravarty, Sumit	Current Science Vol: 130 No: 9	2026

Abstract: Teak-based farm forestry plantations represent a vital land management practice in the Eastern Himalayan foothills of West Bengal, India, and play a key role in conserving biodiversity and providing ecosystem services. However, despite their importance, the floristic diversity of these land use systems, particularly across different altitudinal gradients, remains inadequately documented. The present study investigates floristic composition, species richness, community structure, and diversity patterns in teak-farm forestry plantations across three altitudinal classes (AC): ACI (low; 0–200 m above sea level), ACII (mid; 200–500 m), and ACIII (high; over 500 m). Phytosociological assessments were conducted using a stratified random nested quadrat approach. A total of 50 species, belonging to 28 families, represented by 2,227 individuals, were recorded, with species richness decreasing progressively from ACI (43species) to ACIII (34 species). Corresponding decreases were observed in key diversity indices, including Menhinick (2.26), Margalef (7.35), and Shannon–Wiener (3.13); all values were highest in low-altitude plantations. Species evenness remained relatively high across altitude classes (0.79–0.83), indicating balanced species distribution. Sorenson similarity values showed moderate overlap, with the greatest similarity occurring between ACII and ACIII (0.57). Diversity profile (hill number) analyses further confirmed consistently higher diversity in ACI across all q-orders. In addition to teak, several associated species, such as *Bombax ceiba*, *Macaranga pustulata*, and *Swietenia macrophylla*, contributed substantially to the overall stand structure. The study demonstrates that the teak-based farm forestry plantations can support substantial biodiversity, and the findings offer valuable insights for optimising plantation design, integrating biodiversity within production systems, and formulating elevation-specific management strategies that enhance both livelihood benefits and ecological sustainability in the Eastern Himalayan foothills.

Sl. No	Article	Author	Source	Year
3	Spatio-temporal patterns of human-wildlife conflict in North Wayanad Forest Division, India	Surendran, Dilgith; Shaji, M.; Sneha, V. V.; Radhakrishnan, P.; Nameer, P. O.	Current Science Vol: 130 No: 9	2026

Abstract: Human-wildlife conflict presented a substantial and intricate challenge in India, emanating from the overlapping interests and interactions between human communities and diverse wildlife species inhabiting the country. The escalating competition for space, resources, and habitat between human populations and wildlife emerged as a primary driver of these conflicts. The surge in urbanisation and the encroachment of human activities into wildlife habitats contributed to heightened conflicts between humans and wildlife. Furthermore, the expansion of agricultural activities was identified as a major catalyst for alterations in land use and the destruction of habitats. The scrutiny of spatiotemporal data pertaining to human-wildlife conflict incidents within the North Forest Division of Wayanad district in Kerala, India, from 2014 to 2018 was conducted. Over the study duration, a cumulative count of 3,869 conflicts transpired, involving diverse wildlife species encompassing Asian elephants, bonnet macaques and wild pigs. Asian elephants constituted nearly half of the aggregate conflict incidents spanning from 2014–15 to 2018–19, registering the preeminent number of occurrences. Within the North Wayanad Forest Division, the bonnet macaque emerged as the second-most vexatious species among the quintet causing the most issues, with recorded conflicts tallying 1,399 in the North Wayanad Forest Division.

Sl. No	Article	Author	Source	Year
4	Potential impact of the climate parameters on the yield and climate suitability for tea (<i>Camellia sinensis</i> (L.) O. Kuntze) in North-East India	Bhowmik, Chiranjit; Bhattacharya, Paritosh; Mishra, Umesh; Kishore Mani, Jugal	Current Science Vol: 130 No: 9	2026

Abstract: India, particularly the northeastern region, plays a crucial role in the global tea industry, significantly contributing to its production and supply. Maintaining a high yield of quality tea in tea gardens necessitates careful regulation of various supporting factors. To predict the potential effects of climate change on crop production, it is essential to develop models that assess how crops respond to varying weather conditions. One common approach involves employing different modelling techniques trained on historical yield data and standardised meteorological variables, such as minimum temperatures (Tmin) and maximum temperatures (Tmax),

rainfall, sunshine hours, average wind speed and mean evaporation. Additionally, climatic parameters like ozone, sulphur dioxide, carbon dioxide and nitrogen dioxide are often included in these models. The present study collected and analysed data from 2010 to 2021 across four tea-growing regions of Assam: Borsillah, Borkatonee, Tezpur and Koomber, using statistical and schematic modelling methods. The analysis revealed that climatic conditions had a significant influence on tea production. Meteorological parameters and atmospheric components were found to strongly affect tea yields in these regions. Among the statistical approaches applied, time-series analysis and multiple linear regression models demonstrated the best fit for predicting monthly tea yields. These findings suggest that multivariate time-series models may be more effective in capturing both long-term trends and short-term fluctuations in the yield data. Statistical evaluations indicated that crop and climatic parameters had the most substantial impact compared to other initially considered variables, which were progressively excluded based on their P-values. This highlights the pivotal role of environmental and atmospheric factors in influencing tea production and emphasises the need for tailored predictive models to ensure sustainable yields amidst changing climatic conditions.

Sl. No	Article	Author	Source	Year
5	Improved earthquake locations in a reservoir-triggered seismic zone: insights from the Koyna borehole seismic network	Shashidhar, D.; Mallika, K.; Gupta, Sandeep; Laxman, B.	Current Science Vol: 130 No: 9	2026

Abstract: The Koyna-Warna region, located in the Deccan Volcanic Province on the west coast of India, is the world’s most prominent example of reservoirtriggered seismicity. The region experienced its largest earthquake, magnitude 6.3, on 10 December 1967, and seismicity continues to occur to this day. The Council of Scientific and Industrial Research National Geophysical Research Institute, Hyderabad, has established a first-of-its-kind deep-borehole seismic network in the region to precisely monitor and locate earthquakes. In the present study, we analyse data recorded from surface broadband and borehole networks for the period 2015–2024, which indicate a substantial improvement in earthquake detection, achieving epicentral errors of the order of ~ 200 m and a magnitude completeness (M_c) of 0.1 for microearthquakes. Further, these earthquake arrival times are utilised for local earthquake tomography, which reveals prominent velocity variations in P-wave velocity (VP) structure up to seismogenic depths, indicating subsurface signatures of the Donachiwada fault.

Sl. No	Article	Author	Source	Year
6	Genetic behaviour of rancidity traits in pearl millet (<i>Pennisetum glaucum</i> (L.) R. BR.)	Sanjana Reddy, P.; Pallavi, M.; Tara Satyavathi, C.	Current Science Vol: 130 No:9	2026

Abstract: Pearl millet is a climate-resilient and nutritionally rich cereal, but rapid flour rancidity restricts utilisation. Genetic improvement combining high yield with low rancidity offers a sustainable solution. In the present study, 32 hybrids derived from eight cytoplasmic nuclear male sterile lines and four restorers were evaluated across three environments. The results from the GGE biplot showed strong agreement (>70%) with conventional Line × Tester analysis methodology. The lines L 1, L 3, L 4, L 6 and L 8 exhibited favourable general combining ability for reduced rancidity, with L1 also showing high yield potential. Several heterotic crosses were identified for yield and low alcoholic acidity.

Sl. No	Article	Author	Source	Year
7	Identification of cuproptosis-related lncRNAs for prognostic markers in glioma	Sun, Zhimin; Yan, Linlin; Yao, Zhigang; Li, Peng; Han, Qing; Hao, Liang; Gao, Mingming; Zhang, Zhao	Current Science Vol: 130 No: 10	2026

Abstract: Glioma represents a frequent intracranial malignancy characterised by a dismal clinical outcome. Cuproptosis, a recently identified type of cellular demise, has garnered significant interest within the oncological community. The specific functions of cuproptosis associated genes in glioma remain undefined. Herein, we utilised Cox regression modelling to detect 7 prognostic long non-coding RNAs (lncRNAs) and developed a risk framework based upon those molecules. Patients were stratified into high-risk and low-risk groups based upon the median risk score. Regardless of personal age, gender, tumour grade, or O6-methylguanineDNA methyltransferase methylation state, the survival prospects of the high-risk cohort were considerably poorer compared to those of the low-risk cohort. Cox proportional hazards modelling verified that this model functions as an independent prognostic tool for glioma patients. Receiver operating characteristic curve evaluation indicated that this system maintains superior accuracy for predicting survival among the Cancer Genome Atlas participants. Functional enrichment analysis using Gene Ontology and Kyoto Encyclopedia of Genes and Genomes was performed to determine the biological roles of differentially expressed genes. Furthermore, it was noted that the cuproptosis-related lncRNAs risk signature correlates with tumour mutation burden and the immune landscape.

To summarise, we developed a prognostic risk model centred around cuproptosis-associated lncRNAs, which demonstrates solid capacity for predictive assessment.

Sl. No	Article	Author	Source	Year
2	Tube-dwelling diatom <i>Nitzschia martiana</i> from the mangrove ecosystem of South Andaman, India	Manjumol, C. C.; Jayaraj, K. A.	Current Science Vol: 130 No: 10	2026

Abstract: The present study reports the occurrence of the marine tube-dwelling diatom *Nitzschia martiana* in Indian waters, specifically within the mangrove habitats of South Andaman, Andaman and Nicobar Islands. Samples collected from Flat Bay, Port Blair, revealed colonies of diatoms encased in mucilaginous tubes, measuring 4–10 mm in length and 40–45 µm in width. Individual cells display linear valves with rounded apices and chloroplasts arranged diagonally, evenly distributed across the cell (16–18 per cell). Cohabitation with other *Nitzschia* species was also observed. The study provides a novel record of *N. martiana* from Indian coastal waters, thereby contributing to the understanding of diatom diversity in mangrove ecosystems.

Sl. No	Article	Author	Source	Year
3	A preliminary investigation of the endoparasitic load among cattle near Pobitora Wildlife Sanctuary, Assam, Northeastern India	Hazarika, Violina; Chamlagain, Debanjan; Kalita, Himangshu; Islam, Saidul; Sharma, Narayan	Current Science Vol: 130 No: 10	2026

Abstract: Wildlife conservation efforts often overlook the potential impact of parasites on wildlife populations. The emergence of novel diseases has become a growing concern in recent years, particularly at the interface between livestock and wildlife. Assessing parasitic prevalence through faecal surveys is crucial in livestock and wildlife management. The present study investigates the prevalence of gastrointestinal parasites in co-grazing cattle near Pobitora Wildlife Sanctuary in Assam. We collected 122 faecal samples between March 2018 and May 2018 from cattle of different age groups and sexes and analysed them using flotation and sedimentation

techniques for the presence of parasites. We found that 72.95% of the tested samples were positive for gastrointestinal parasites. The identified parasites included eight different helminth species and one coccidian species. Among them, Amphistome sp. was the most prevalent (54.09%), followed by Eimeria sp. (9.83%) and Fasciola gigantica (7.37%). The present study provides critical information and has crucial conservation implications as Pobitora Wildlife Sanctuary houses other mega-herbivores, including greater one-horned rhinoceros and water buffalo.

Sl. No	Article	Author	Source	Year
4	Chloroplast genome variation and phylogenetic insights across Moraceae with the complete chloroplast genome of <i>Streblus asper</i>	Chetri, Bimal K.; Senapati, Alok; Sonu, S. S.; Shelke, Rahul G.; Mitra, Sudip; Rangan, Latha	Current Science Vol: 130 No: 10	2026

Abstract: The present study presents a comparative analysis of 76 Moraceae chloroplast genomes, including a chloroplast genome for *Streblus asper* and an independent assembly for *Ficus hispida*. We identified notable structural variations, particularly significant gene truncations in *ndhD* and *ycf1* in *S. asper*. Our 76-species phylogenetic analysis robustly places *S. asper* in a clade with *Trophis caucana* and *Antiaris toxicaria*, resolving a key taxonomic uncertainty. The placement of *F. hispida* within the *Ficus* clade is also confirmed. These findings provide crucial genomic resources, clarify evolutionary relationships, and deepen our understanding of genomic evolution in Moraceae.

Sl. No	Article	Author	Source	Year
5	Using rice anther culture for the production of doubled haploid lines with increased induction frequencies	Sharma, Manmohan; Sharma, Mamta; Lone, Javed Ahmad; Shikari, Asif B.; Pandey, Saurabh; El-Badri, Ali Mahmoud; Al-Ashkar, Ibrahim; Gharzeddinm, Kifah; El Sabagh, Ayman; Salgotra, R. K.	Current Science Vol: 130 No: 10	2026

Abstract: Developing doubled haploid (DH) lines through anther or microspore culture is an important strategy for shortening breeding cycles and accelerating crop improvement. The present study aimed to enhance the regeneration of rice haploids through anther culture-induced calli and subsequently convert them into DH bacterial leaf blight (BLB)-resistant lines. Eleven lines expressing resistance against prevalent strains of *Xanthomonas oryzae* pv. *oryzae* were crossed as male parents with elite high-yielding basmati and non-Basmati varieties to develop F1s for collecting anthers at the appropriate stage of pollen development. Optimum callus induction in 36.45% of the genotypes was obtained on N6 medium supplemented with maltose (40 g/l), 2,4-D (2.5 mg/l), and kinetin (0.5 mg/l), and further callus proliferation was enhanced in the presence of amino acids, particularly a combination of cysteine and tryptophan. High scores of haploid regeneration frequency were obtained in MS medium augmented with sucrose (30 g/L), BAP (2.0 mg/l), kinetin (0.5 mg/l), and NAA (0.5 mg/l). Fortification of regeneration medium with tryptophan (25 mg/l) and cysteine (40 mg/l) resulted in maximum regeneration of calli. Ranbir Basmati, Saanwal Basmati, Basmati 564, Ranbir Basmati × IRBB53, Ranbir Basmati × IRBB60, Basmati 564 × IRBB57, and Basmati 370 × IRBB56 were observed to be the most responsive genotypes for haploid regeneration. An average of 76.34% DH induction frequencies were obtained in colchicine (0.1%) treatment, while 41.56% were spontaneously induced DHs. Consequently, using anther culture to develop DH lines is a promising approach for genomic resources and elite varieties in a shorter breeding period.

Sl. No	Article	Author	Source	Year
6	Effect of synthetic fertilisers and organic manures on soil physico-chemical properties and soil nutrient status under rice-wheat cropping system of western Uttar Pradesh, India	Sirohi, Dushyant; Singh, P. K.; Ujjwal, Akshay; Kumar, Mukesh; Singh, S. P.	Current Science Vol: 130 No: 10	2026

Abstract: Long-term sustainability is the concern of today's agriculture. A field experiment was conducted in western Uttar Pradesh during the rabi season of 2021–22 to evaluate the combined effect of different combinations of synthetic (nitrogen, phosphorus and potassium (NPK) and ZnSO₄) and organic fertilisers (vermicompost, Azotobacter + phosphorus solubilising bacteria (PSB)) on soil physico-chemical properties under a rice-wheat cropping system. The experiment consisted of ten treatment combinations with variable sources of nutrients and biofertilisers such as T1 (Control), T2 (75% Recommended dose of fertilisers (RDF) NPK), T3 (100% (RDF-150:75:60 kg ha⁻¹) NPK), T4 (75% (RDF) NPK + ZnSO₄ (25 kg/ha.) T5 (75% (RDF) NPK + Vermicompost @ 2.5 t/ha), T6 (75% (RDF) NPK + ZnSO₄ + Vermicompost @ 2.5 t/ha), T7 (75% (RDF) NPK + Azotobacter+PSB), T8 (75% (RDF) NPK + ZnSO₄ + Vermicompost @ 2.5 t/ha + Azotobacter+PSB), T9 (100% (RDF) NPK + ZnSO₄) and T10 (100% (RDF) NPK + Azotobacter+PSB). It was observed that combined application of organic and synthetic fertiliser resulted in a positive influx of macro- and micronutrients by increasing electrical conductivity, soil aggregation, organic carbon content, available nitrogen, phosphorus, potassium and zinc of soil. The lowest physico-chemical properties were recorded in the control except soil pH and soil bulk density; the highest were recorded due to combined application of synthetic fertiliser along with organic manure. The highest organic carbon (0.51%), available N (186.0 kg ha⁻¹), P (21.4 kg ha⁻¹), K (131.1 kg ha⁻¹), Zn (0.85 mg kg⁻¹) were recorded under the treatment of 75% (RDF) NPK + ZnSO₄ + Vermicompost @ 2.5 t ha⁻¹ + Azotobacter + PSB, followed by 100% (RDF) NPK + ZnSO₄ while bulk density (1.52 g cc⁻¹) and particle density (2.65 g cc⁻¹) were found highest in the control. In this way the results clearly suggested that integrated use of balanced synthetic fertilisers in combination with organic manure in a rice-wheat cropping system improves soil physico-chemical properties and thereby has the potential to enhance soil sustainability.