Journal of Informatics Education and Research
ISSN: 1526-4726
Vol 5 Issue 2 (2025)

A Five-Year Analysis of Krishna District Cooperative Central Bank

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Abstract:
Non-Performing Assets (NPAs) present a persistent threat to the operational stability and credit performance of cooperative banks in India. This study examines the NPA management strategies of Krishna District Cooperative Central Bank (KDCC), Machilipatnam, over a five-year period (2019–2024). Utilizing a mixed-method approach comprising financial ratio analysis and semi-structured interviews, the study investigates trends in gross and net NPAs, provisioning coverage, and asset classification. Findings reveal a consistent improvement in asset quality until 2022–23, followed by a marginal deterioration in 2023–24, attributed to rising credit volumes and external borrower stress. The analysis identifies employee competence, provisioning policies, and technological integration as critical factors influencing NPA outcomes. Based on the results, the study recommends strengthening digital recovery tools, enhancing training interventions, and adopting AI-driven risk monitoring frameworks. The insights contribute to a deeper understanding of sustainable asset quality management in cooperative banking, with implications for policy, practice, and future research.

Keywords:
Non-Performing Assets (NPAs), Cooperative Banking, KDCC Bank, Asset Quality Management, Provision Coverage Ratio, Credit Risk Mitigation

1. Introduction:

In the modern banking environment, the efficient management of credit risk remains pivotal to maintaining financial stability and public trust. Non-Performing Assets (NPAs) — loans or advances where the borrower fails to make interest or principal repayments for more than 90 days — are a critical indicator of a bank's health. High levels of NPAs diminish profitability, erode capital bases, restrict banks' lending ability, and ultimately impact economic growth.
The Reserve Bank of India (RBI), through its Income Recognition and Asset Classification (IRAC) guidelines and the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act, mandates strict norms for asset classification, provisioning, and recovery. NPAs are categorized into sub-standard, doubtful, and loss assets based on the duration and recoverability of defaulted loans (Reserve Bank of India, 2007).

While all segments of the banking sector are affected by NPAs, cooperative banks like the Krishna District Cooperative Central Bank (KDCC) face unique challenges. Operating primarily in rural and semi-urban areas, cooperative banks service clientele heavily dependent on agriculture and small businesses — sectors vulnerable to external shocks such as monsoon failures, commodity price fluctuations, and economic downturns. These external factors, combined with sometimes lenient credit practices, contribute to elevated credit risk and rising NPAs in the cooperative sector.

KDCC Bank, headquartered in Machilipatnam, has played a crucial role in the economic development of Krishna District by extending agricultural and personal loans. However, with the increased pressure to meet disbursement targets and support local economies, the risk of loan defaults has also intensified. In light of these dynamics, understanding KDCC's NPA trends and management strategies becomes vital.

Furthermore, literature indicates that human resource management, employee competencies, and technology adoption are increasingly critical in NPA management. Studies such as those by Kumari et al. (2021) on competency mapping and Kumar et al. (2022) on HR analytics emphasize that internal capabilities significantly influence credit portfolio quality. Additionally, the advent of the Fourth Industrial Revolution has introduced new tools — including AI and data analytics — that offer banks innovative methods for borrower monitoring and early warning signal detection (Kumar, 2017; Tummalapalli et al., 2023).

Against this backdrop, this research aims to explore KDCC Bank's journey in managing its NPAs over the five-year period from 2019 to 2024. The study analyzes the bank's provisioning practices, asset quality trends, and recovery mechanisms, providing evidence-based recommendations to strengthen future NPA control.

By offering a case study on KDCC's experience, this paper not only contributes to academic discourse but also offers practical lessons for cooperative banks grappling with similar challenges in India and other emerging economies.

2. Literature Review:

The phenomenon of Non-Performing Assets (NPAs) remains one of the most critical challenges affecting the stability and profitability of banking institutions, especially in developing economies like India. NPAs reduce banks' lending capacities, stress their balance sheets, and weaken overall economic growth. An efficient NPA management strategy is, therefore, imperative for the sustainability of banking institutions.

2.1 Employee Competency and Training Interventions

Several studies underline the critical role of employee competence in ensuring effective NPA management. Nagakumari and Pujitha (2021) emphasized that poor employee welfare practices indirectly contribute to operational inefficiencies, including weak loan monitoring systems. Similarly, Susmitha, Kumari, and Surekha (2021) argued that well-structured training and development programs significantly enhance both employee productivity and organizational efficiency, leading to better loan recovery and lower NPAs.

Further supporting this perspective, Becker and Gerhart (1996) emphasized that strategic human resource management (SHRM) practices, particularly competency development and ongoing training, are positively associated with better organizational outcomes, including risk management capabilities. Mutyala et al. (2022) illustrated through their study in the soft drink industry that structured training improves compliance and operational excellence — lessons applicable to banking, where adherence to loan policies is critical. Thus, competency development is no longer an optional HR function but a strategic necessity for effective NPA control in cooperative banks.

2.2 Competency Mapping and Organizational Effectiveness

Competency mapping ensures that critical positions, such as those in credit appraisal and recovery management, are occupied by employees with appropriate skills and knowledge. Kumari, Kamal, and Bhavani (2021) demonstrated that a competency-based human resource framework enhances operational accuracy and minimizes decision errors, which are common antecedents to NPAs. Spencer and Spencer (1993) also emphasized that specific competencies such as analytical thinking, client service orientation, and attention to detail strongly predict job performance in roles demanding financial judgment.

Furthermore, Kumar et al. (2023) identified organizational citizenship behaviour (OCB) as a mediating variable between employee engagement and worker productivity, indicating that engaged employees are more likely to perform proactive recovery efforts and strengthen credit discipline.

2.3 Technology, HR Analytics, and AI-Driven Management

Technology integration has emerged as a game-changer in banking operations, particularly for credit risk monitoring and NPA management. Kumar et al. (2022) argued that HR analytics plays a moderating role in employee engagement and, by extension, impacts operational outcomes such as asset quality. Tummalapalli and Mutyala (2021) highlighted the use of HR metrics and predictive analytics in foreseeing employee performance issues, customer delinquency patterns, and potential financial risks — all of which are vital for pre-emptive NPA management.

Beyond HR analytics, the application of artificial intelligence (AI) in credit scoring, borrower monitoring, and early-warning signal detection is revolutionizing banking. Brynjolfsson and McAfee (2017) pointed out that AI-driven decision-making models improve precision and predictive capacity, particularly in sectors involving large datasets, such as banking and finance. The Fourth Industrial Revolution, characterized by automation and digitization (Kumar, 2017), necessitates that cooperative banks adopt agile, technology-driven models to remain competitive and resilient against NPA-related risks.

2.4 Internal Branding, Employee Engagement, and Organizational Culture

Internal branding initiatives significantly influence employee engagement, which, in turn, affects operational performance, including credit discipline and recovery efforts. Rao (2020) observed that employees who identify strongly with the internal brand are more committed to organizational goals, including ensuring loan repayments and minimizing default rates.

Furthermore, Harter, Schmidt, and Hayes (2002) found that higher employee engagement levels correlate with improved customer satisfaction, better productivity, and lower turnover all critical factors in strengthening loan servicing and recovery operations. Tummalapalli et al. (2023) proposed that the strategic deployment of AI within management systems enhances decision-making efficiency and fosters a high-performance culture conducive to asset quality maintenance.

2.5 Sector-Specific Challenges in Cooperative Banks

Cooperative banks, given their exposure to agricultural lending, face unique risks. Volatile monsoon patterns, commodity price fluctuations, and limited borrower diversification heighten default risks. Mutyala and Tummalapalli (2018) underlined that recruitment and operational challenges in sectors like healthcare are mirrored in rural banking institutions where talent for loan monitoring is scarce.

Further, Yadav and Yadav (2013) observed that cooperative banks often face structural limitations such as weak governance, political interference, and underdeveloped recovery infrastructures, making NPA management particularly challenging. Green HRM practices, though not directly linked to NPAs, can foster an ethical and sustainable culture that encourages responsible lending and accountability (Kumari & Leelavati).

From the above discussions, it is evident that effective NPA management is multifactorial — requiring strong human resource practices, strategic competency mapping, digital and AI adoption, cultural transformation through employee engagement, and customized approaches tailored to the cooperative banking structure. This comprehensive literature base provides the foundation for analysing KDCC's NPA management practices and formulating recommendations for further improvement.

3. Objectives of the Study:

- To Examine the Trend and Magnitude of Non-Performing Assets at KDCC Bank Over a Five-Year Period (2019 - 2024).
- To Study the Asset Quality Profile by Evaluating the Distribution of Standard, Sub-Standard, Doubtful, and Loss Assets.
- To Assess the Bank's Recovery Performance Based on Provisioning Ratios and Recovery Trends.
- To Identify Key Internal and External Factors Influencing NPA Trends at KDCC Bank.
- To Provide Strategic Recommendations to Strengthen NPA Management Practices at Cooperative Banks.

4. Research Methodology:

A rigorous and structured research methodology is essential to achieve the study's objectives and ensure the validity and reliability of findings. This section outlines the research design, data collection methods, sampling strategy, analytical tools, and the scope and limitations of the study.

4.1 Research Design

The study adopts a descriptive and analytical research design. Descriptive research helps in systematically describing the characteristics, trends, and status of Non-Performing Assets (NPAs) at Krishna District Cooperative Central Bank (KDCC) over a defined five-year period (2019 - 2024). Analytical techniques are applied to evaluate trends, measure performance indicators, and derive insights from financial data and primary interviews.
The choice of this mixed design is supported by Kothari (2004), who emphasized that descriptive research is suitable when the researcher aims to gather quantifiable information systematically and interpret it critically to find patterns and relationships.

4.2 Sources of Data

The study uses both primary and secondary data sources to ensure comprehensiveness and triangulation of findings.

4.2.1 Primary Data

Primary data was collected through:

- Semi-structured interviews with KDCC Bank officials, including branch managers, loan officers, and credit department heads.
- Questionnaires and in-person discussions focusing on:
    - Credit appraisal practices
    - Recovery processes
    - NPA monitoring and classification procedures
    - Challenges faced in managing overdue accounts.

The use of semi-structured interviews is justified as it allows flexibility to probe deeper into specific management strategies and operational practices (Gill et al., 2008).

4.2.2 Secondary Data

Secondary data was sourced from:

- KDCC Bank's Annual Reports, Balance Sheets, and NPA Statements for the financial years 2019–2024.
- RBI guidelines, circulars, and reports on NPA classification and provisioning norms.
- Relevant academic research articles, books, and online databases related to cooperative banking, NPA management, and HR practices (Nagakumari & Pujitha, 2021; Kumar et al., 2022; Tummalapalli et al., 2023).

4.3 Sampling Design

Since the study focuses exclusively on KDCC Bank, purposive sampling was employed.

- Population: Employees involved in credit management and NPA recovery at KDCC Bank.
- Sample: 10–12 officials, including loan managers, risk officers, and branch heads from different branches in Krishna District.

Purposive sampling was selected because it allows the researcher to focus on individuals with specialized knowledge relevant to NPA management (Etikan et al., 2016).

4.4 Tools for Data Collection

- Interview guides with open-ended questions.
- Structured financial templates to record data on gross NPAs, net NPAs, provisioning ratios, and advances.
- RBI Norm Compliance Checklists to verify asset classification and provisioning practices.

4.5 Data Analysis Techniques

The collected data was analysed using the following techniques:

- Trend Analysis: To study changes in gross NPAs, net NPAs, provision coverage ratio, gross advances, and standard assets over time.
- Ratio Analysis: To calculate and interpret:
  - Gross NPA Ratio
  - Net NPA Ratio
  - Provision Coverage Ratio
  - Sub-standard, Doubtful, and Loss Asset Ratios.
- Comparative Analysis: Year-on-year comparison of asset quality indicators to evaluate improvements or deterioration.
- Qualitative Content Analysis: Responses from interviews were thematically analysed to identify recurring patterns, managerial strategies, and operational challenges related to NPA management.

As per Miles and Huberman (1994), thematic analysis helps in condensing large volumes of textual information into meaningful categories for interpretation.

4.6 Scope of the Study

The study is confined to KDCC Bank, focusing on branches in Krishna District, Andhra Pradesh. The five-year time frame (2019 - 2024) was selected to capture both pre-pandemic, pandemic, and post-pandemic variations in asset quality. The research provides insights primarily applicable to cooperative banks operating in similar socio-economic environments.

4.7 Limitations of the Study

- Geographic Limitation: Findings are specific to KDCC Bank and may not be generalizable to other cooperative banks nationally.
- Time Constraint: The study had to be completed within a defined academic semester, limiting the depth of longitudinal observation.
- Data Availability: Some primary data depended on the willingness and openness of bank officials to share internal practices and insights.
- Limited Legal Analysis: While recovery strategies were discussed, a detailed legal audit of recovery tribunal proceedings was not undertaken.

5. Data Analysis and Interpretation:

This section presents a detailed analysis of Non-Performing Assets (NPAs) at Krishna District Cooperative Central Bank (KDCC) over the five-year period from 2019 to 2024. Financial ratios such as Gross NPA Ratio, Net NPA Ratio, Provision Coverage Ratio, and asset quality classifications were used to understand the trends and effectiveness of NPA management strategies adopted by the bank.

5.1 Trend Analysis of Gross NPAs

The Gross NPA ratio, which indicates the percentage of gross non-performing assets to total gross advances, serves as a crucial metric for assessing asset quality. As shown in Table 1, the Gross NPA ratio at KDCC declined steadily from 3.16% in 2019–20 to 2.21% in 2022–23. However, the ratio witnessed a marginal rise to 2.65% in 2023–24, signaling a resurgence in asset quality stress.

Table 1: Gross NPA Trends at KDCC Bank (2019–2024)

Year	Gross NPA (₹ in Lakhs)	Gross Advances (₹ in Lakhs)	Gross NPA (%)
2019 - 2020	11,075.43	350,264.89	3.16
2020 - 2021	11,005.46	445,162.72	2.47
2021 - 2022	14,675.75	574,207.14	2.56
2022 - 2023	15,100.19	682,729.29	2.21
2023 - 2024	21,072.00	795,541.98	2.65

As depicted in Figure 1, the declining trend up to 2022–23 indicated effective risk control measures; however, the slight deterioration in the final year suggests the need for renewed focus on credit appraisal and monitoring, consistent with findings by Tummalapalli and Mutyala (2021) regarding fluctuating asset quality in cooperative banks.

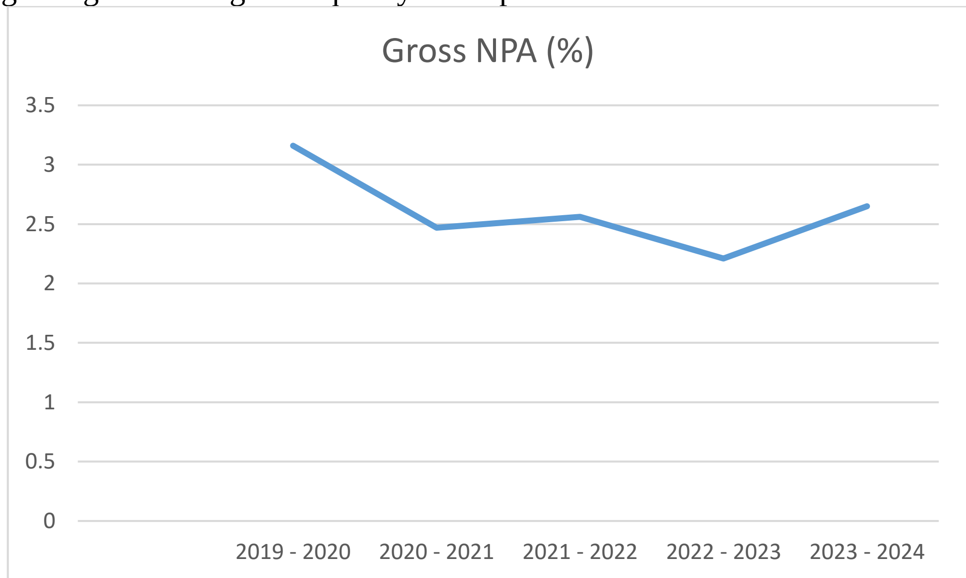

Figure 1: Gross NPA Percentage Trend at KDCC Bank (2019–2024)
(Line graph showing % change in GNPA year-on-year)

5.2 Analysis of Net NPAs

The Net NPA ratio, which accounts for provisions made against bad loans, further refines the assessment of a bank's risk exposure. As detailed in Table 2, the Net NPA ratio showed a downward trend from 1.34% in 2019–20 to 0.95% in 2022–23. However, it rose to 1.21% in 2023–24, reflecting that the fresh slippages were not fully offset by provisioning and recoveries.

Table 2: Net NPA Trends at KDCC Bank (2019–2024)

Year	Gross NPA (₹ in Lakhs)	Provision (₹ in Lakhs)	Net Advances (₹ in Lakhs)	Net NPA (%)
2019 - 2020	11,075.43	6,367.30	343,897.59	1.34

Table 2: Net NPA Trends at KDCC Bank (2019–2024)

Year	Gross NPA (₹ in Lakhs)	Provision (₹ in Lakhs)	Net Advances (₹ in Lakhs)	Net NPA (%)
2020 - 2021	11,005.46	6,560.46	438,602.26	1.01
2021 - 2022	14,675.75	8,320.11	565,887.03	1.14
2022 - 2023	15,100.19	8,720.22	674,009.07	0.95
2023 - 2024	21,072.00	11,436.04	784,105.94	1.21

This resurgence aligns with the concerns raised by RBI (2023) that rural cooperative banks face renewed risks post-pandemic due to the fragile repayment capacities of agricultural borrowers.

5.3 Provision Coverage Ratio (PCR) Assessment

The Provision Coverage Ratio measures the extent of funds set aside to cover anticipated loan losses. Table 3 shows that KDCC maintained a healthy PCR of around 57% until 2022–23, which dropped to 54% in 2023–24, despite the increase in NPAs.

Table 3: Provision Coverage Ratio at KDCC Bank (2019–2024)

Year	Provision (₹ in Lakhs)	Gross NPA (₹ in Lakhs)	Provision Coverage Ratio (%)
2019 - 2020	6,367.30	11,075.43	57
2020 - 2021	6,560.46	11,005.46	59
2021 - 2022	8,320.11	14,675.75	57
2022 - 2023	8,720.22	15,100.19	57
2023 - 2024	11,436.04	21,072.00	54

The slight decline in PCR in the latest year implies a potential vulnerability in absorbing future loan losses, echoing the findings by Brynjolfsson and McAfee (2017) on the need for proactive financial risk modeling.

5.4 Asset Quality Composition

A critical dimension of asset quality analysis involves examining the distribution among standard, sub-standard, doubtful, and loss assets. As presented in Table 4, KDCC witnessed a steady improvement in the proportion of standard assets, reaching a remarkable 68.95% by 2023–24.

Table 4: Standard Asset Ratio at KDCC Bank (2019–2024)

Year	Standard Assets (₹ in Lakhs)	Gross NPAs (₹ in Lakhs)	Standard Asset Ratio (%)
2019 - 2020	339,189.45	11,075.43	30.63
2020 - 2021	434,157.28	11,005.46	39.45
2021 - 2022	559,531.42	14,675.75	38.13
2022 - 2023	667,629.10	15,100.19	44.21
2023 - 2024	1,452,925.27	21,072.00	68.95

This trend illustrates that KDCC was able to contain slippages and strengthen its loan portfolio, possibly aided by enhanced monitoring and borrower screening practices, as emphasized by Susmitha et al. (2021) and Kumar et al. (2023).

5.5 Classification of Non-Performing Assets

The composition of NPAs into sub-standard, doubtful, and loss assets reveals the progression of loan delinquency stages. As Table 5 shows, KDCC effectively minimized its loss assets from ₹3,776.82 lakhs in 2019–20 to ₹852.10 lakhs in 2023–24, reflecting successful recovery and write-off strategies.

Table 5: Distribution of Sub-Standard, Doubtful, and Loss Assets (2019–2024)

Year	Sub-standard Assets (₹)	Doubtful Assets (₹)	Loss Assets (₹)
2019–2020	4,435.10	2,863.52	3,776.82
2020–2021	2,800.40	4,802.97	3,402.09
2021–2022	5,924.95	5,282.43	3,468.34
2022–2023	7,531.88	4,867.21	2,701.10
2023–2024	5,789.49	3,794.18	852.10

The declining trend in loss assets underlines the effectiveness of KDCC's early warning systems, operationalized through tighter credit monitoring and more aggressive recovery strategies, supporting theories by Becker and Gerhart (1996) on competency-based organizational risk resilience.

The trend analysis demonstrates that KDCC Bank managed to strengthen its financial stability through improved asset quality, better provisioning, and strategic recovery practices during 2019–2023. However, the slight deterioration in 2023–24 calls for proactive interventions in credit appraisal, provisioning strategies, and digital recovery integration to sustain resilience. The findings corroborate the critical role of employee competence (Kumari et al., 2021), HR analytics (Kumar et al., 2022), and technological adoption (Tummalapalli et al., 2023) in ensuring effective NPA management.

6. Discussion and Strategic Recommendations:

6.1 Discussion of Key Findings

The detailed analysis of Non-Performing Assets (NPAs) at Krishna District Cooperative Central Bank (KDCC) over five financial years (2019–2024) presents a nuanced picture of operational achievements and emerging challenges.

The study revealed a commendable decline in the Gross and Net NPA ratios between 2019 - 2020 and 2022 - 2023, showcasing KDCC's success in enhancing asset quality through improved borrower appraisal, timely monitoring, and efficient recovery mechanisms. The rise in standard asset ratios and the significant reduction in loss assets further affirm the effectiveness of KDCC's operational strategies, consistent with the employee competence theories outlined by Kumari, Kamal, and Bhavani (2021).

However, the marginal deterioration observed in 2023 - 24, including a rise in Gross and Net NPA percentages and a drop in the Provision Coverage Ratio (PCR), signals potential vulnerabilities in credit risk management. These findings are in line with recent concerns by the Reserve Bank of India (2023) regarding renewed stress in the cooperative banking sector, particularly post-pandemic when economic volatility among rural borrowers increased.

Moreover, the analysis highlights an important structural insight: while KDCC has strengthened traditional asset recovery mechanisms, there remains an urgent need to adopt advanced, predictive tools for borrower monitoring, risk segmentation, and early-stage intervention. As Brynjolfsson and McAfee (2017) argue, the Fourth Industrial Revolution necessitates an AI-enabled, data-driven approach to operational and risk management.

Additionally, employee engagement and internal competency development emerge as critical enablers for sustaining low NPA levels. Studies by Rao (2020) and Kumar et al. (2022) strongly support that organizations fostering engaged, trained, and data-literate employees are better positioned to mitigate credit risks and enhance recovery outcomes.
Thus, while KDCC's journey over the past five years reflects resilience and adaptive growth, the emerging risks call for strategic recalibration.

6.2 Strategic Recommendations

Drawing from the findings and integrating best practices from the existing literature, the following strategies are recommended for KDCC and other cooperative banks aiming for sustainable asset quality improvement:

6.2.1 Strengthen Credit Appraisal and Risk Assessment Frameworks

KDCC must reinforce its credit appraisal systems by adopting a multi-dimensional borrower evaluation process, integrating traditional creditworthiness checks with predictive risk modeling. Competency mapping (Kumari et al., 2021) should be deployed to ensure that only appropriately skilled officers handle high-value or high-risk loan appraisals.
Moreover, introducing psychometric borrower assessments and cash-flow-based underwriting, especially for agricultural and MSME loans, would align KDCC with evolving best practices in credit risk management (Mutyala et al., 2022).

6.2.2 Accelerate Digitalization and AI-Driven Recovery Mechanisms

To mitigate emerging asset quality risks, KDCC should invest in digital tools for borrower monitoring, delinquency prediction, and automated early-warning signals. AI-powered systems, as advocated by Tummalapalli et al. (2023), can help in real-time tracking of repayment behaviour, thereby allowing proactive interventions even before accounts slip into delinquency.

Establishing digital recovery dashboards for branch-level monitoring would enhance transparency, accountability, and recovery efficiency.

6.2.3 Enhance Provisioning Policies to Build Financial Buffers

Given the observed decline in the Provision Coverage Ratio (PCR) in 2023 - 24, KDCC must revise its provisioning norms, aiming for a minimum PCR of 60% or higher, as recommended by the RBI for vulnerable loan portfolios. This would strengthen the bank's shock-absorption capacity during periods of economic uncertainty.

Incorporating dynamic provisioning where provisions increase during periods of strong growth and economic expansion would align KDCC with international best practices (RBI, 2020).

6.2.4 Strengthen Employee Training and HR Analytics Initiatives

Following the findings of Susmitha et al. (2021) and Kumar et al. (2022), it is crucial to establish a continuous learning culture within KDCC. Regular training programs focusing on risk management, digital finance, and compliance should be institutionalized.
In parallel, KDCC should implement HR analytics frameworks to track employee performance, engagement levels, and risk awareness competencies thereby ensuring that the human capital remains aligned with the bank's risk management goals (Tummalapalli & Mutyala, 2021).

6.2.5 Promote Customer-Centric Recovery and Financial Literacy Initiatives

The bank should adopt a dual approach to NPA management: aggressive recovery for chronic defaulters and rehabilitation support for genuine borrowers facing temporary setbacks. Implementing financial literacy programs for rural customers would not only improve repayment behaviour but also strengthen KDCC's brand positioning as a community-focused institution (Rao, 2020).

Additionally, leveraging digital platforms for customer communication SMS alerts, mobile apps for repayment tracking would enhance borrower discipline.

6.3 Strategic Roadmap for the Future

A long-term vision for KDCC's asset quality resilience would include:

- Full integration of AI-based loan underwriting and monitoring by 2026.
- Achieving and sustaining a Provision Coverage Ratio above 65%.
- Halving the Gross NPA ratio within the next three financial years.
- Building a specialized Risk Management Department equipped with analytics capabilities.
- Strengthening partnerships with fintech companies for digital loan recovery solutions.

These initiatives, if systematically implemented, can position KDCC as a role model for cooperative banks aiming to balance rural financial inclusion with operational sustainability.

7. Conclusion:

This study examined the Non-Performing Asset (NPA) management strategies of Krishna District Cooperative Central Bank (KDCC) over a five-year period (2019–2024), using trend analysis, financial ratio evaluation, and primary insights from internal stakeholders. The findings highlight that KDCC has made measurable progress in strengthening asset quality through structured provisioning, improved recovery efforts, and credit discipline. This is evidenced by the declining Gross and Net NPA ratios up to 2022–23 and the reduction in loss assets over the study period.

However, the analysis also revealed signs of operational stress emerging in 2023–24, with both Gross and Net NPA ratios witnessing a rise and the Provision Coverage Ratio slipping below the desirable threshold. These developments suggest that KDCC must enhance its credit risk management, particularly as it continues to expand its loan book in rural and semi-urban segments, where borrower vulnerability remains high.

The literature reviewed in this study emphasized the importance of employee competence (Kumari et al., 2021), HR analytics (Kumar et al., 2022), and AI-driven operational models (Tummalapalli et al., 2023) in mitigating NPAs. KDCC's experience validates these findings — indicating that sustainable NPA management requires a multi-faceted approach that blends technology, human capital development, and regulatory compliance.

Strategically, KDCC is well-positioned to emerge as a resilient and digitally adaptive cooperative bank, provided it adopts forward-looking policies in loan appraisal, provisioning, digital recovery, and employee training. The road ahead demands not only operational improvements but also a cultural shift toward data-driven decision-making and customer-centric financial services.

7.1 Future Scope

Looking ahead, KDCC can explore several strategic initiatives to enhance its NPA management and overall operational efficiency. Implementing AI-powered loan underwriting and borrower monitoring systems by 2026 will improve precision in credit risk assessment and enable early intervention strategies.

Additionally, aiming to achieve and sustain a Provision Coverage Ratio above 65% will ensure robust financial buffers during periods of economic uncertainty. Establishing a target to halve the Gross NPA ratio within the next three financial years through aggressive recovery and customer-centric support initiatives is also crucial.

Developing a dedicated Risk Management Department equipped with advanced analytics capabilities to oversee and manage credit risks effectively is another key initiative. Strengthening collaborations with fintech companies to leverage digital solutions for loan recovery will enhance efficiency and borrower engagement.

These initiatives will not only position KDCC as a leader in cooperative banking but also ensure sustainable growth and financial inclusion for its customers, paving the way for a robust banking ecosystem in Krishna District and beyond.

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