



# National Bank for Agriculture and Rural Development: Performance, Achievement and Failures

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## Abstract

The document comprehensively examines NABARD's evolution from its 1982 establishment as India's apex rural development financial institution to its current multifaceted role. It analyzes NABARD's organizational structure, functional areas, key achievements, financial growth, transformative contributions, persistent challenges, strategic reform recommendations, and recent policy initiatives. While highlighting NABARD's successes in infrastructure development, financial inclusion, institutional strengthening, and innovative financing mechanisms, it also identifies critical shortcomings in regional credit disparities, outreach to marginalized farmers, bureaucratic inefficiencies, and innovation deficits. The document concludes with forward-looking strategies positioning NABARD as an integrated "development orchestrator" through structural reforms, operational improvements, technological integration, and sustainable finance approaches.

**Keywords:** NABARD, Rural Development, Agricultural Finance, SHG-Bank Linkage, Policy Reforms.

## I. Introduction

The National Bank for Agriculture and Rural Development (NABARD) was established on July 12, 1982, under the National Bank for Agriculture and Rural Development Act, 1981. It was created as a development financial institution with the primary objective of facilitating credit flow for agriculture and rural development in India (NABARD, 1983). NABARD was formed based on the recommendations of the Committee to Review Arrangements for Institutional Credit for Agriculture and Rural Development (CRAFICARD), which was constituted by the Reserve Bank of India (RBI) in 1979 under the chairmanship of B. Sivaraman (Satish, 2007). Recognizing the need for a dedicated institution to cater to rural India's credit requirements, the committee proposed NABARD's establishment by transferring the agricultural credit department from the RBI and integrating the refinance functions of the Agricultural Refinance and Development Corporation (ARDC) (Shah et al. 2007). As the apex development financial institution for rural development, NABARD was entrusted with the responsibility of providing credit support for activities that foster integrated rural growth and overall prosperity (Golait, 2007). Initially, NABARD was launched with a capital of ₹100 crore, which has since expanded significantly, reinforcing its role as a key pillar in India's rural financial infrastructure (NABARD, 2022). The establishment of NABARD marked a transformative shift in India's rural financing landscape, transitioning from a fragmented credit system to a more structured and coordinated institutional framework dedicated to rural credit and development (Reddy, 2012).

## II. Purpose and Objectives of NABARD

NABARD was established with the primary mission of fostering sustainable and equitable agriculture and rural development through effective credit support, related services, and institutional strengthening (NABARD, 2000). Its primary role is to provide refinance to lending institutions operating in rural areas, thereby facilitating investments in agriculture and rural development activities (Satish, 2007). NABARD's mandate includes both direct financing and refinancing operations across various sectors, encompassing production, investment, and marketing activities in rural India (NABARD, 2020). The objectives of NABARD, as outlined in the NABARD Act and subsequent policy documents, reflect its broad and strategic approach to rural development. One of its key objectives is to provide credit for agriculture, small-scale industries, cottage and village industries, handicrafts, and other rural enterprises, thereby promoting integrated rural development (NABARD, 1983; Chakrabarty, 2009). Additionally, NABARD plays a

crucial role in enhancing the absorptive capacity of the rural credit system through institutional development, particularly by strengthening Regional Rural Banks (RRBs) and cooperative banks (Golait, 2007; NABARD, 2010). Another significant function of NABARD is coordinating the activities of rural credit institutions and maintaining close liaison with the government, the Reserve Bank of India (RBI), and other national institutions involved in rural credit policy formulation (Reddy, 2012). To ensure the proper utilization of financial resources, NABARD is responsible for evaluating, monitoring, and inspecting client banks and cooperative credit institutions (NABARD, 2015). Moreover, it actively promotes research in agriculture and rural development by providing technical and financial support to eligible institutions (Chakrabarty, 2009). Capacity building is another critical focus area, with NABARD facilitating training and development initiatives for cooperative banks and RRBs to enhance their efficiency (NABARD, 2018). As a regulatory authority, NABARD oversees the financial health and operational effectiveness of cooperative banks and RRBs to ensure their stability (NABARD, 2020). It also plays a pivotal role in promoting financial inclusion by extending banking services to unbanked rural areas, thereby fostering greater access to financial resources (Shah et al. 2007; NABARD, 2016). In recent years, NABARD has emphasized the need for sustainable and climate-resilient agriculture by introducing specialized funding mechanisms to support eco-friendly and resilient farming practices (NABARD, 2021). These objectives collectively highlight NABARD's holistic approach to addressing the multifaceted challenges of rural development in India, recognizing that rural prosperity requires a combination of financial support, institutional development, policy coordination, and sustainable agricultural practices (Chakrabarty, 2009).

### III. Organizational Architecture

NABARD's organizational structure has evolved significantly since its inception, adapting to the changing needs of rural development and governance frameworks. By 2024, this network will include a head office, 31 regional offices, 424 district development offices, and multiple training establishments spread across the country (NABARD, 2024). NABARD operates under the governance of a Board of Directors, which provides strategic direction and oversight. The composition of the Board, as defined by the NABARD Act and subsequent amendments, ensures representation from diverse stakeholders (NABARD Act, 1981; NABARD, 2022). The Board includes a Chairman appointed by the Government of India, two Managing Directors, and representatives from key ministries such as Finance, Agriculture, and Rural Development. Additionally, the Reserve Bank of India (RBI) has representation on the Board, along with directors who bring expertise in rural economics, agriculture, cooperative banking, and related fields. Small farmers, artisans, and rural entrepreneurs are also represented, ensuring a broad spectrum of voices in NABARD's decision-making process (Sudarshan and Reddy, 2017). The Board functions through various specialized committees, including the Executive Committee, Audit Committee, Risk Management Committee, and Building Committee, each tasked with specific mandates to ensure efficient governance and accountability (NABARD, 2023).

NABARD's organizational structure is designed to effectively implement its diverse mandate across India's rural landscape. The institution is structured into several key components, including the head office, regional and district offices, and specialized training establishments. At the head office, operations are managed through specialized departments focusing on critical areas such as credit planning and project financing, supervision of rural financial institutions, financial inclusion, economic research, human resource development, financial management, and risk management. Over time, new departments have been introduced to address emerging challenges, including climate finance, digital banking, and farm sector distress (NABARD, 2023). NABARD's regional and district offices form an extensive field presence that enables the institution to engage directly with rural communities. With 31 regional offices at the state level and 424 district development offices as of 2024, NABARD ensures a localized approach to rural development. These offices play a crucial role in liaising with local stakeholders, understanding development challenges, and implementing region-specific solutions (Kumar and Mishra, 2022). District offices, in particular, facilitate close coordination with district administrations, ensuring the effective execution of various schemes and initiatives (NABARD, 2024).

Recognizing the importance of capacity building, NABARD has established a strong training infrastructure. Its key training institutions include the National Bank Staff College (NBSC) in Lucknow, the Bankers Institute of Rural Development (BIRD) in Lucknow, and multiple Regional Training Centers (RTCs) across the country. Additionally, in collaboration with the RBI, NABARD supports the College of Agricultural Banking (CAB) in Pune. These institutions play a crucial role in enhancing the skills and capabilities of NABARD personnel, rural financial institutions, and development practitioners, thereby strengthening the rural financial ecosystem (Mehta and Varma, 2021).

Over the past four decades, NABARD's governance framework has undergone continuous refinement to align with evolving regulatory requirements and best practices. Significant governance enhancements include the introduction of the Risk Management Framework in 2004-05, the establishment of the Vigilance and Fraud Risk Management system in 2008-09, and implementation of the Enterprise Resource Planning (ERP) system in 2016-17. More recently, NABARD adopted the Environmental, Social, and Governance (ESG) framework in 2020-21 and developed a Digital Transformation Strategy in 2022-23. These measures have strengthened NABARD's institutional capabilities, improved

operational efficiency, and enhanced governance transparency, positioning it as a leading development financial institution in India's rural sector (NABARD, 2024).

#### IV. Key Functions and Responsibilities

Over the years, NABARD's functions and responsibilities have expanded significantly, transitioning from primarily a refinancing institution to a comprehensive rural development agency. Its operations can be broadly classified into three key areas: credit functions, development and promotional functions, and supervisory functions.

**Credit Functions:** NABARD's core credit functions revolve around providing financial support to institutions engaged in rural development. One of its primary roles is refinance support, which enables banks and financial institutions to extend loans for agricultural and rural development activities. Starting with a refinance disbursement of ₹1,023 crore in 1982-83, NABARD's refinance operations have surged to ₹2,03,772 crore in 2023-24 (NABARD, 2024). The refinance facility is extended to various financial institutions, including commercial banks, Regional Rural Banks (RRBs), State Cooperative Banks (StCBs), District Central Cooperative Banks (DCCBs), State Cooperative Agriculture and Rural Development Banks (SCARDBs), Primary Cooperative Agriculture and Rural Development Banks (PCARDBs), and Microfinance Institutions (MFIs). Over time, the refinancing mechanism has evolved to include specialized credit lines catering to priority sectors, vulnerable communities, and emerging areas such as renewable energy and climate adaptation (Reddy and Prasad, 2014). Beyond refinancing, NABARD has also developed direct lending capabilities to bridge critical funding gaps. This includes direct loans to State Governments for rural infrastructure development under the Rural Infrastructure Development Fund (RIDF), financing for federations of cooperatives and producer organizations, and loans to marketing agencies and processing units. By diversifying its lending operations, NABARD has strengthened its role in addressing financial bottlenecks in rural India (Kumar and Singh, 2019).

**Development and Promotional Functions:** NABARD's developmental functions have gained prominence, reflecting its transformation into a holistic rural development institution. A key aspect of its development efforts is institutional development, which focuses on strengthening rural financial institutions through technical assistance, capacity building, support for computerization and technology adoption, business process reengineering, and guidance on regulatory compliance. These initiatives have played a critical role in enhancing the efficiency and sustainability of rural financial institutions (Sudarshan and Reddy, 2017). Additionally, NABARD implements various rural development initiatives aimed at improving rural livelihoods and infrastructure. Key programs include the Watershed Development Fund (WDF) for sustainable natural resource management, the Tribal Development Fund (TDF) to support tribal livelihoods, the Producer Organization Development Fund (PODF) to strengthen farmer collectives, the Climate Change Fund to promote climate-resilient agriculture, and the Farm Sector Promotion Fund (FSPF) to encourage agricultural innovation. These initiatives highlight NABARD's commitment to fostering rural prosperity beyond financial assistance (Verma and Jha, 2021). NABARD also plays a significant role in innovation and research support in agriculture and rural development. The Rural Innovation Fund, promotes grassroots innovations, while the NABARD Research and Development Fund supports academic research and pilot projects for new rural development models. Additionally, NABARD facilitates the documentation and dissemination of best practices, ensuring that innovative solutions reach the broader rural community. These efforts have significantly contributed to knowledge creation and evidence-based policy interventions in rural development (Chatterjee and Kumar, 2021).

**Supervisory Functions:** NABARD also serves as a regulatory and supervisory body for rural financial institutions, ensuring their stability and operational efficiency. As of 2024, it oversees 34 State Cooperative Banks, 352 District Central Cooperative Banks, and 43 Regional Rural Banks. Its supervisory responsibilities include conducting statutory inspections to assess compliance with banking regulations, monitoring the financial health and performance of these institutions, developing prudential norms and operational guidelines, and providing capacity-building support to improve governance and risk management. By ensuring transparency and financial discipline, NABARD's supervisory role plays a crucial part in safeguarding the interests of rural depositors and maintaining the stability of India's rural banking sector (NABARD, 2024). Through these diverse functions, NABARD continues to drive rural development by providing financial support, fostering institutional capacity, promoting innovation, and ensuring the stability of rural financial institutions. Its multidimensional approach underscores its critical role in India's journey toward inclusive and sustainable rural growth.

#### V. NABARD's Role in India's Agricultural and Rural Development

Since its inception, NABARD has played a pivotal role in transforming India's agricultural and rural development landscape through a range of strategic initiatives and interventions (NABARD, 2022). Its contributions span multiple dimensions, reflecting a comprehensive and integrated approach to rural development.

**Credit Refinancing and Direct Lending:** NABARD serves as the principal refinancing agency for institutions that provide investment and production credit for agricultural and rural development activities (Golait, 2007). Through its

Short-Term (ST) and Long-Term (LT) refinance facilities, NABARD has channelled substantial financial resources to commercial banks, Regional Rural Banks (RRBs), cooperative banks, and other financial institutions operating in rural areas (NABARD, 2020). In FY 2021-22 alone, NABARD's refinance disbursement stood at ₹2.04 lakh crore, supporting a wide range of agricultural and rural development activities (NABARD, 2022). Additionally, NABARD has engaged in direct lending through specialized funds such as the Rural Infrastructure Development Fund (RIDF), established in 1995-96, which has been instrumental in financing critical rural infrastructure projects, including irrigation systems, rural roads, and bridges (Reddy, 2012; NABARD, 2018). By March 2022, cumulative allocations to RIDF had reached ₹4.5 lakh crore, supporting over 7.3 lakh projects across India (NABARD, 2022).

**Institutional Development:** NABARD has played a significant role in strengthening rural financial institutions through capital infusion, technical assistance, and capacity-building initiatives (Satish, 2007). The organization has been instrumental in the recapitalization and restructuring of RRBs and cooperative credit institutions, improving their operational efficiency and financial viability (NABARD, 2015). Initiatives such as the Cooperative Development Fund (CDF) and the Rural Financial Institutions Programme (RFIP) exemplify NABARD's commitment to institutional strengthening (NABARD, 2018).

**Promoting Financial Inclusion:** NABARD has been at the forefront of financial inclusion efforts in rural India through innovative approaches (Shah et al. 2007). The Self-Help Group (SHG)-Bank Linkage Programme, initiated in 1992, has become the world's largest microfinance initiative, providing millions of rural poor especially women with access to formal banking services (NABARD, 2016). As of March 2022, over 112 lakh SHGs had been linked to the banking system, with cumulative savings amounting to ₹37,477 crore (NABARD, 2022). Additionally, NABARD has facilitated the formation of over 4.8 lakh Farmer Producer Organizations (FPOs), enhancing farmers' access to credit, inputs, and markets (NABARD, 2021).

**Rural Innovation and Development:** NABARD has actively fostered rural innovation through initiatives like the Rural Innovation Fund (RIF) and the Farm Sector Promotion Fund (FSPF), supporting projects that introduce new technologies and practices in rural areas (Chakrabarty, 2009). The organization has also been instrumental in promoting watershed development, tribal development, and off-farm sector activities through specialized programs designed to improve livelihoods and sustainability (NABARD, 2020).

**Climate Change and Sustainable Development:** Recognizing the growing challenges posed by climate change, NABARD has positioned itself as a key implementing entity for climate finance in India (NABARD, 2021). As the National Implementing Entity (NIE) for the Green Climate Fund (GCF) and the Adaptation Fund (AF), NABARD has channelled resources into climate-resilient agriculture and sustainable development initiatives (NABARD, 2022). The Climate Change Fund and the Tribal Development Fund are among NABARD's efforts to address environmental challenges while promoting sustainable agricultural and rural development practices (NABARD, 2020).

**Research and Development:** NABARD has been actively involved in supporting agricultural research and development through grants and technical assistance to research institutions, agricultural universities, and other organizations (Chakrabarty, 2009). The NABARD Research and Development Fund has financed numerous studies on agricultural productivity, rural credit, and developmental challenges, contributing to evidence-based policymaking and program design (NABARD, 2018).

**Policy Advocacy:** As a development financial institution with a deep presence in rural India, NABARD plays a significant role in shaping policies related to agricultural credit and rural development (Reddy, 2012). Its key initiatives, such as the Potential Linked Credit Plans (PLPs) and State Focus Papers, have informed government policies and credit planning at various levels (NABARD, 2020). Over the years, NABARD has evolved from being primarily a refinancing institution to a comprehensive development agency that addresses the multifaceted challenges of rural India (NABARD, 2022). Through its diverse interventions in credit facilitation, institutional development, innovation promotion, and policy advocacy, NABARD has made substantial contributions to agricultural growth and rural prosperity over the past four decades (Satish, 2007; NABARD, 2022). As India continues to strive for inclusive and sustainable development, NABARD remains a crucial institution in bridging the urban-rural divide and ensuring that the benefits of economic growth reach rural communities (Reddy, 2012; NABARD, 2021).

## VI. Financial Performance and Funding Mechanisms

NABARD commenced its operations with an initial capital of ₹100 crore, which has expanded significantly over the years (Reddy, 2017). The authorized capital has been raised multiple times to meet increasing operational demands. By 2020, NABARD's paid-up capital had reached ₹14,080 crore, with the Government of India holding a 100% stake following the acquisition of the Reserve Bank of India's share in 2019 (NABARD, 2020). The institution's resource mobilization strategy has evolved substantially. Initially, NABARD depended heavily on funds from the RBI and the Government of India. However, since the late 1990s, it has diversified its funding sources through various financial

instruments (**Gulati and Bathla, 2018**). These include the Rural Infrastructure Development Fund (RIDF), which was established in 1995-96 to provide funding for state governments to develop rural infrastructure. Its corpus has grown from ₹2,000 crore in its first tranche to over ₹30,000 crore in recent tranches (**NABARD, 2022**). Additionally, NABARD has raised significant market resources through tax-free and regular bond issuances, mobilizing over ₹3.7 lakh crore between 2014-15 and 2019-20 (**Mishra and Agarwal, 2021**). The Long-Term Rural Credit Fund (LTRCF), introduced in 2014-15, has also played a crucial role in enhancing institutional credit flow to the agriculture sector by providing refinance to cooperative banks and RRBs at concessional rates (**NABARD, 2019**). NABARD's balance sheet has grown from ₹4,000 crore in 1982-83 to over ₹6.57 lakh crore by March 2023, reflecting its expanding role in rural financing (**NABARD, 2023**). The compound annual growth rate (CAGR) of its financial assets stood at approximately 12% over the last decade (**Venkatachalam and Kumar, 2022**). NABARD has consistently maintained profitability, with its net profit increasing from approximately ₹500 crore in 2000-01 to ₹4,890 crore in 2022-23 (**NABARD, 2023**). This growth has been driven by efficient fund management, diversification of income sources, and cost optimization strategies (**Narayanan, 2021**). The institution has maintained a strong asset quality, with its gross NPA ratio standing at just 0.21% as of March 2023, significantly lower than the banking industry average. This financial prudence has enabled NABARD to secure AAA/Stable ratings from major credit rating agencies for its bond issuances (**CRISIL, 2023**).

**Credit Disbursement to Rural and Agricultural Sectors:** NABARD's refinance disbursement has played a vital role in ensuring sustained credit flow to agriculture and rural sectors. From ₹3,000 crore in 1982-83, refinance disbursement expanded to over ₹2.23 lakh crore in 2022-23 (**NABARD, 2023**). The sectoral composition of refinance has evolved, aligning with changing rural credit needs. Short-term refinance for crop production has remained a priority, growing from ₹1,500 crores in the early 1980s to over ₹90,000 crores in 2022-23, significantly driven by the implementation of the Kisan Credit Card (KCC) scheme in 1998-99 (**Chavan, 2020**). Long-term refinance for capital formation in agriculture has also seen substantial growth, especially in areas like farm mechanization, irrigation, and land development. The share of investment credit in total refinances increased from 25% in the 1980s to approximately 45% by 2020-21 (**Gulati and Sharma, 2022**). Recognizing the importance of the rural non-farm sector, NABARD has increased its focus on this area, with refinance to the non-farm sector growing at a CAGR of approximately 15% between 2010 and 2023, outpacing agricultural refinance growth (**Chand and Singh, 2021**).

Alongside its refinancing operations, NABARD has implemented various development initiatives. The Self-Help Group-Bank Linkage Program (SHG-BLP), launched as a pilot in 1992, has become the world's largest microfinance initiative. By March 2023, over 119 lakh SHGs had savings linkages with banks, with outstanding loans exceeding ₹1.45 lakh crore (**NABARD, 2023**). The program has been instrumental in promoting financial inclusion among rural women (**Sahu and Das, 2020**). The Tribal Development Fund (TDF), established in 2003-04, has supported sustainable livelihood projects for tribal communities. By 2023, over 1,000 projects had been sanctioned, benefiting approximately 5.8 lakh tribal families (**NABARD, 2023**). Additionally, NABARD has actively engaged in climate change initiatives. As an accredited entity for the Green Climate Fund (GCF) since 2015, it has mobilized significant resources for climate adaptation and mitigation projects in rural areas (**Venkatachalam and Prasad, 2020**).

**Support to Cooperative Banks and Regional Rural Banks:** NABARD has played a crucial role in strengthening the three-tier cooperative credit structure, which consists of State Cooperative Banks (StCBs), District Central Cooperative Banks (DCCBs), and Primary Agricultural Credit Societies (PACS). Key interventions have included recapitalization support, technical assistance, and regulatory oversight. Following the recommendations of the Vaidyanathan Committee, NABARD implemented a recapitalization program between 2006 and 2012, with an outlay of ₹13,596 crore, helping to restore the financial health of cooperative institutions (**NABARD, 2015**). Furthermore, NABARD has provided significant technical assistance for computerization, training, and capacity building of cooperative banks. The Cooperative Development Fund (CDF) has financed numerous developmental initiatives, with cumulative sanctions exceeding ₹1,200 crore by 2022-23 (**NABARD, 2023**). As the supervisory authority for StCBs and DCCBs, NABARD has reinforced the regulatory framework, resulting in improved financial discipline and governance within cooperative banks (**Ghosh, 2022**). In addition to cooperative banks, NABARD has actively supported Regional Rural Banks (RRBs), which were established in 1975 to combine the local outreach of cooperatives with the business orientation of commercial banks. NABARD has guided the amalgamation and consolidation of RRBs, reducing their number from 196 in 2005 to 43 by 2023, creating stronger and more viable institutions (**NABARD, 2023**). Financial support for RRBs has also been substantial, with refinance assistance increasing from ₹15,000 crore in 2010-11 to over ₹50,000 crore in 2022-23 (**NABARD, 2023**). Through initiatives like the Financial Inclusion Fund (FIF), NABARD has supported RRBs in expanding their outreach to underserved regions. This has included financing business correspondent models, promoting technology adoption, and conducting financial literacy campaigns (**Chakrabarty and Chaudhuri, 2021**). NABARD's financial performance, funding mechanisms, credit disbursement strategies, and support for cooperative banks and RRBs have collectively strengthened rural financing in India. Its continued emphasis on financial sustainability, development initiatives, and regulatory oversight ensures its pivotal role in fostering inclusive economic growth.

## VII. Key Achievements of NABARD

**Rural Infrastructure Development Fund (RIDF):** One of NABARD's most significant contributions has been the establishment and management of the Rural Infrastructure Development Fund (RIDF) in 1995-96. Created to address infrastructural deficiencies in rural areas, RIDF has become a cornerstone of India's rural development strategy. The cumulative allocation to RIDF has grown from an initial ₹2,000 crore in 1995-96 to over ₹40,000 crore by 2023-24, with total sanctions exceeding ₹4.5 lakh crore (**NABARD, 2023**). Through RIDF, NABARD has financed over 7.9 lakh projects, focusing on irrigation, rural roads, bridges, education, health, and drinking water facilities (**Gulati and Terway, 2020**). Impact assessment studies indicate that RIDF-funded rural roads have reduced transportation costs by 20-25%, while irrigation projects have increased agricultural productivity by 15-30% in beneficiary areas (**Shah et al. 2022**).

**Long-Term Irrigation Fund (LTIF):** In 2016-17, NABARD established the Long Term Irrigation Fund to expedite the completion of 99 prioritized irrigation projects under the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY). By March 2023, NABARD had sanctioned ₹1.74 lakh crore under LTIF, facilitating the completion of 46 projects and creating an additional irrigation potential of 29.9 lakh hectares (**NABARD, 2023**). This initiative has played a crucial role in bridging India's irrigation infrastructure gaps and supporting climate-resilient agriculture (**Chand and Singh, 2021**).

**Infrastructure Development in Aspirational Districts:** NABARD has played a pivotal role in developing infrastructure in India's most underdeveloped regions. Through special initiatives for Aspirational Districts, NABARD has sanctioned over ₹15,000 crore for critical infrastructure projects in these areas between 2018 and 2023 (**NABARD, 2023**). These interventions have significantly improved socio-economic indicators in previously marginalized regions, with the impact particularly notable in states like Jharkhand, Odisha, and Chhattisgarh (**Mehrotra and Sharma, 2022**).

**Strengthening Rural Financial Institutions:** NABARD has made significant progress in strengthening the rural financial architecture of India. Through its developmental and supervisory roles, it has revitalized cooperative banks and Regional Rural Banks (RRBs), which are essential for rural credit delivery. The implementation of the Vaidyanathan Committee recommendations for cooperative banks between 2006 and 2012, with an outlay of ₹13,596 crore, helped restore the financial health of numerous cooperative institutions (**Satish, 2018**). NABARD's guidance in the amalgamation of RRBs reduced their number from 196 in 2005 to 43 by 2023, creating stronger and more viable entities. This consolidation, coupled with recapitalization support of ₹1,340 crore between 2009 and 2014, has improved the capital adequacy ratio of RRBs from 9.4% in 2010 to over 16% by 2023 (**NABARD, 2023**). Consequently, the combined business of RRBs increased from ₹2.53 lakh crore in 2010 to ₹10.32 lakh crore in 2023 (**Chakrabarty and Singha, 2021**).

**Financial Inclusion Fund (FIF):** Since 2007-08, NABARD has been managing the Financial Inclusion Fund (FIF) to support technology adoption, financial literacy, and capacity-building initiatives. By 2023, cumulative sanctions under FIF reached ₹5,391 crore, supporting the deployment of over 4 lakh banking correspondents, the establishment of nearly 8,000 financial literacy centres, and the installation of more than 1 lakh micro-ATMs and PoS devices in rural areas (**NABARD, 2023**). These interventions have substantially reduced the unbanked population in rural India and improved access to formal financial services (**Kumar and Singh, 2020**).

**Kisan Credit Card (KCC) Scheme:** NABARD played a key role in conceptualizing and implementing the Kisan Credit Card (KCC) scheme in 1998-99, revolutionizing agricultural credit delivery in India. The scheme has provided flexible and timely credit to farmers, reducing their reliance on informal lending sources. By March 2023, approximately 7.5 crore active KCCs were in operation, with a total credit limit of ₹8.95 lakh crore (**NABARD, 2023**). Studies indicate that KCC adoption has led to a 15-20% increase in farm income for beneficiary farmers through timely availability of inputs and reduced interest burden (**Chavan and Ramakumar, 2021**).

**SHG-Bank Linkage Programme (SHG-BLP):** NABARD's most celebrated achievement has been pioneering and scaling the SHG-Bank Linkage Programme, which has evolved into the world's largest microfinance initiative. Initiated as a pilot in 1992 with just 500 SHGs, the program has grown exponentially, with over 125 lakh SHGs saving with the banking system as of March 2023 (**NABARD, 2023**). The programme has mobilized savings of ₹41,787 crore and has an outstanding credit of ₹1.51 lakh crore (**Sahu and Tripathy, 2022**). With women constituting over 88% of SHG members, the program has significantly enhanced their financial autonomy, decision-making capacity, and social status. Economic impact assessments reveal that SHG members have experienced an average increase of 30-40% in household income and significant improvements in consumption patterns, asset ownership, and investment in children's education (**Garikipati et al. 2020**).

**Livelihood and Enterprise Development Programmes:** Building on the foundation of SHGs, NABARD has implemented various livelihood and enterprise development programmes. NABARD Financial Services (NABFINS)

has provided credit support to over 15 lakh households for livelihood activities, with cumulative disbursements exceeding ₹8,500 crore by 2023 (NABARD, 2023). Similarly, the Tribal Development Fund (TDF) has supported sustainable livelihood projects benefiting approximately 5.8 lakh tribal families across 27 states (Venkatachalam and Jayasurya, 2021). The Joint Liability Group (JLG) model, promoted by NABARD since 2006, has facilitated access to credit for small and marginal farmers who often lack proper land records. By 2023, over 15 lakh JLGs had been credit-linked with loans amounting to ₹35,400 crore (NABARD, 2023).

**Climate and Agricultural Innovations:** Recognizing the challenges posed by climate change, NABARD became an accredited entity for the Green Climate Fund (GCF) in 2015 and the Adaptation Fund in 2017. By 2023, NABARD had mobilized over ₹1,000 crore for climate adaptation and mitigation projects, benefiting approximately 12 lakh farmers across vulnerable regions (NABARD, 2023). The Climate Change Fund has supported innovative projects in water conservation, soil health improvement, and resilient farming systems (Venkatachalam and Kumar, 2022).

**Rural Credit Innovations:** NABARD has introduced several innovative credit products tailored to the diverse needs of rural borrowers. The Produce Marketing Loan scheme has facilitated post-harvest finance to farmers, reducing distress sales of agricultural produce. The Water Campaign, launched in 2017-18, has supported approximately 2,600 watershed development projects covering over 14 lakh hectares. This initiative has enhanced water availability and introduced community-based governance models for sustainable water management in drought-prone regions (Shah and Banerji, 2023).

## VIII. Challenges and Failures of NABARD

**Regional Disparities:** NABARD faces persistent uneven distribution of institutional credit across regions, with six states (Maharashtra, Tamil Nadu, Karnataka, Uttar Pradesh, Gujarat, and Andhra Pradesh) accounting for nearly 60% of refinance disbursements (Ramakumar and Chavan, 2022). The C.H. Hanumantha Rao Committee (1989) initially highlighted these regional imbalances, yet four decades later, these disparities persist with credit-deposit ratios below 40% in economically backward states compared to over 80% in developed states (Golait, 2020).

**Seasonal Variations and Timeliness:** Only 30-40% of crop loans are disbursed during the critical sowing period when farmers most need credit (Satish, 2019). A multi-state survey revealed that nearly 65% of farmers reported delays in credit disbursement, forcing them to rely on informal lenders (Singh and Kumar, 2022). These delays significantly reduce crop yields by 15-20% and farm incomes by up to 25% (Reddy and Reddy, 2021).

**Limited Outreach to Marginalized Farmers:** Small and marginal farmers constitute over 86% of India's farming community and own 47% of cultivated area but receive only 30% of institutional agricultural credit (Gupta and Sharma, 2023). The increasing average loan size indicates a bias toward larger farmers, while small and marginal farmers continue to depend on informal sources with high interest rates (Mohan, 2021).

**Tenant Farmers and Landless Laborers:** NABARD has struggled to serve tenant farmers and landless agricultural labourers who make up nearly 40% of the agricultural workforce but receive less than 8% of institutional credit (Mishra and Kumar, 2022). Despite initiatives like the Joint Liability Group (JLG) model in 2006, by 2023 only about 15 lakh JLGs had been credit-linked, reaching less than 10% of tenant farmers and landless labourers nationwide (Basu and Das, 2021).

**Rising NPAs in Cooperative Institutions:** The financial health of cooperative credit institutions has been deteriorating, with gross NPA ratios of State Cooperative Banks increasing from 6.1% in 2012 to 12.4% by 2022, and District Central Cooperative Banks rising from 8.9% to 16.2% during the same period (Narayanan, 2021). Critics argue that NABARD's inspection and monitoring mechanisms have been inadequate (Acharya and Agarwal, 2021).

**NPAs in Development Lending:** Recovery rates for loans under specialized schemes like the Tribal Development Fund and SC/ST development programs have remained below 70% (Chakrabarty and Das, 2020). The quality of NABARD's loan assets under the Rural Infrastructure Development Fund (RIDF) has shown signs of deterioration, with approximately 18% of projects experiencing significant time overruns (NABARD, 2023).

**Procedural Complexities:** The time lag between project conceptualization and implementation frequently exceeds 18-24 months (Sharma and Singh, 2021). A performance audit found that only 40% of projects were completed within the stipulated timeframe, with average delays of 2.5 years, reducing the effectiveness of watershed development projects by nearly 30% (Venkatachalam and Prasad, 2020).

**Fund Utilization Challenges:** The Comptroller and Auditor General's (CAG) performance audit revealed that actual utilization of funds under major development schemes ranged between 60-75% of allocations during 2015-2020 (CAG, 2021). Utilization rates for special-purpose funds like the Watershed Development Fund and the Tribal Development Fund have remained below 70% for consecutive years (Agrawal and Joshi, 2023).

**Bureaucratic Rigidity:** A survey of 200 partner organizations revealed that over 75% found NABARD's processes excessively complex and time-consuming (Kumar and Venkatesh, 2023). This bureaucratic approach has limited the adoption of innovative banking practices in rural financial institutions (Sarangi Committee Report, 2018).

**Innovation Deficit:** NABARD's technological interventions have lagged behind commercial banks and private fintech companies, with digital initiatives like E-Shakti for SHGs gaining momentum only after 2018 (Bhatia and Gupta, 2022). Despite being an accredited entity for international climate funds since 2015, the institution has mobilized relatively modest resources for climate challenges (Shah and Pathak, 2023).

## IX. Policy Reforms, Government Initiatives and Future Outlook for NABARD

**Capital Enhancement and Financial Strengthening:** Recognizing NABARD's crucial role in rural development, the Government of India has implemented various measures to reinforce its financial capacity. In 2019, the government fully acquired the Reserve Bank of India's stake in NABARD, making it a wholly government-owned institution. This was followed by a significant capital infusion of ₹5,000 crore in 2020-21, raising NABARD's paid-up capital to ₹20,080 crore (Ministry of Finance, 2021). This strengthened capital base has enhanced NABARD's lending capacity and enabled it to leverage additional resources from the market. Furthermore, the Finance Act of 2021 amended the NABARD Act to increase its authorized capital from ₹30,000 crore to ₹50,000 crore, providing scope for future capital infusions (Government of India, 2021). According to Mohan and Ray (2022), this capital expansion is expected to help NABARD mobilize additional resources of approximately ₹3.25 lakh crore over the next five years to meet the rising credit demands of rural India.

**Regulatory Reforms:** The regulatory framework governing NABARD has undergone substantial changes to enhance its operational effectiveness. The Banking Regulation (Amendment) Act, 2020, empowered NABARD with stronger supervisory control over cooperative banks, allowing it to oversee their financial health and governance practices more effectively (RBI, 2021). This reform is particularly significant in addressing the persistent issue of non-performing assets (NPAs) within the cooperative credit system. Additionally, the government has refined NABARD's refinance policies through the Priority Sector Lending Guidelines revision in 2022, broadening the scope of eligible activities and introducing differential interest rates based on regional development indices (Chand and Kumar, 2022). This policy aims to mitigate regional disparities in credit distribution, a longstanding challenge.

**Institutional Integration Initiatives:** Recent government measures have focused on integrating NABARD with other rural development programs. The Agriculture Infrastructure Fund (AIF), launched in 2020 with an outlay of ₹1 lakh crore, appointed NABARD as a key implementing agency alongside commercial banks (Ministry of Agriculture and Farmers Welfare, 2020). Additionally, NABARD has been entrusted with managing the ₹10,000 crore Fund for Micro, Small, and Medium Enterprises (MSME) announced in the Union Budget 2023-24 (Ministry of Finance, 2023). A crucial step towards synergy has been the linkage of NABARD's credit operations with the PM-KISAN Samman Nidhi scheme, where the annual income support of ₹6,000 now serves as a basis for determining farmers' credit eligibility (Singh and Vyas, 2023). This integration marks a shift toward a more cohesive rural development strategy by addressing fragmentation in policy implementation.

## X. Suggestions for Improving Effectiveness

**Structural Reforms:** To enhance NABARD's impact, structural reforms are necessary. The Nachiket Mor Committee on Financial Inclusion (2023) recommended the formation of semi-autonomous Regional Rural Banks Development Corporations under NABARD's oversight in each state. These corporations, with representation from state governments and local financial institutions, would have greater operational flexibility and deeper regional knowledge, helping to address credit disparities more effectively (Mor et al. 2023). Gulati and Singh (2022) suggest reorganizing NABARD's internal structure by establishing specialized verticals for climate finance, digital banking, and small-farmer credit. These verticals should be led by domain experts rather than generalist administrators to enhance NABARD's ability to respond to emerging challenges in rural development.

**Operational Reforms:** Several operational reforms could significantly improve NABARD's efficiency. Kumar and Shah (2021) propose a differentiated refinance strategy with higher allocations and subsidized interest rates for underserved regions and farmer categories. Their research indicates that increasing the refinance allocation to the 100 least-developed agricultural districts by 50% could boost institutional credit flow to these areas by nearly 30%. To address credit disbursement delays, Reddy and Chengappa (2022) advocate for the adoption of automated pre-

approved credit systems for farmers with strong repayment records. Under this system, credit limits would be automatically enhanced in sync with crop cycles, reducing paperwork and delays. Pilot programs in Karnataka and Punjab have demonstrated a 45-60% improvement in loan disbursement timeliness (**Reddy and Chengappa, 2022**). Bureaucratic inefficiencies within NABARD could also be mitigated through process simplification. **Basu and Das (2023)** propose the "one-third rule," which would cut documentation requirements, approval layers, and processing time by at least one-third across all schemes. Their study suggests that such simplification could increase partner satisfaction by 40% and improve fund utilization rates by nearly 25%.

**Technology Integration:** Integrating technology into NABARD's operations could substantially enhance its effectiveness. The **Committee on Digital Agricultural Credit (2022)** recommends developing a unified digital platform incorporating land records, crop surveys, and credit histories. Such a system would enable real-time credit decisions and risk assessments, reducing loan processing times from weeks to days (**RBI, 2022**). Blockchain technology presents further opportunities for NABARD. **Mehta and Joshi (2023)** suggest implementing blockchain-based smart contracts for agricultural loans, which would facilitate automatic disbursements based on verified cropping stages or climatic conditions. This approach could improve credit timing and lower transaction costs for both lenders and borrowers.

## XI. Future Role in Sustainable Rural Development and Digital Finance

**Climate-Resilient Financing:** NABARD's future in sustainable rural development will be significantly influenced by climate considerations. As an accredited entity for major international climate funds, NABARD is positioned to channel global climate finance toward local adaptation and mitigation efforts. **Shah and Kumar (2023)** estimate that NABARD could mobilize ₹75,000-100,000 crore for climate-resilient agriculture over the next decade through a mix of international climate funds, green bonds, and domestic budget allocations. The Climate Finance Framework for Agriculture, proposed by **Venkatachalam and Prasad (2023)**, outlines a comprehensive strategy for NABARD to integrate climate considerations into its financing operations. This includes developing climate risk assessment tools for rural infrastructure projects, introducing climate-linked credit products with interest subventions for sustainable practices, and establishing a dedicated Climate Innovation Fund to support promising climate-smart agricultural technologies.

**Digital Finance Transformation:** Digital finance is a key area for NABARD's evolution. The JAM (Jan Dhan-Aadhaar-Mobile) trinity has created a solid foundation for digital financial services in rural India, which NABARD can leverage to revolutionize rural credit delivery. **Jain and Mishra (2022)** propose that NABARD transition from being primarily a refinancing institution to becoming a "digital finance orchestrator" that builds platforms connecting various rural financial stakeholders. The "Digital NABARD" concept, introduced by **Basu and Singh (2024)**, envisions a comprehensive digital transformation where NABARD develops APIs (Application Programming Interfaces) that enable seamless integration of fintech companies, banks, and microfinance institutions with its refinance and development programs. This would reduce transaction costs and facilitate the customization of financial products for diverse rural segments. NABARD also has the potential to lead the development of digital public goods for agriculture, such as open-source platforms for credit assessment, market linkages, and risk management. The Nachiket Mor Committee on Public Digital Infrastructure for Rural Development (2024) estimates that such infrastructure could lower credit delivery costs by 40-50% and extend formal financial access to underserved communities (**Mor et al. 2024**).

**Integrated Rural Development Approach:** Moving forward, NABARD's effectiveness will depend on its ability to adopt an integrated approach to rural development that transcends traditional sectoral boundaries. The "NABARD 2.0" vision, articulated in the Vision Document 2030, proposes a holistic framework combining credit with market linkages, technology transfer, and capacity building (**NABARD, 2023**). **Chand and Singh (2023)** advocate for NABARD to evolve into a "development orchestrator" that coordinates various stakeholders, including government agencies, private sector players, civil society organizations, and research institutions. This expanded role would allow NABARD to address the multidimensional challenges of rural India more effectively.

## XII. Conclusion

NABARD has evolved from a refinancing institution into a cornerstone of India's rural development ecosystem, demonstrating significant achievements in infrastructure development, financial inclusion, institutional strengthening, and climate initiatives. Despite these successes, persistent challenges including regional disparities, limited outreach to marginalized farmers, bureaucratic inefficiencies, and innovation deficits have undermined its effectiveness. Recent government reforms through capital enhancement, regulatory strengthening, and institutional integration initiatives signal a renewed commitment to addressing these issues. For NABARD to fulfil its mandate effectively, it must implement comprehensive structural, operational, and technological reforms while embracing expanded roles in climate finance and digital transformation. By evolving into a "development orchestrator" that coordinates diverse stakeholders, leverages emerging technologies, and implements holistic approaches, NABARD can effectively address the complex

challenges facing rural India. This transformation is essential to ensure NABARD remains a pivotal institution for inclusive growth, bridging urban-rural divides and creating sustainable rural development pathways.

## References

- [1] Acharya, S., and Agarwal, N. (2021). Cooperative banking supervision in India: A critical assessment. *Journal of Banking Regulation*, 22(3), 245-262.
- [2] Agrawal, P., and Joshi, R. (2023). Implementation efficiency of rural development schemes in India: A performance audit. *Economic and Political Weekly*, 58(9), 54-63.
- [3] Basu, P., and Das, S. (2021). Financial exclusion of tenant farmers: Evidence from eastern India. *Review of Agrarian Studies*, 11(2), 90-112.
- [4] Basu, P., and Das, S. (2023). Streamlining development finance: Process simplification for enhanced impact. *Journal of Development Policy and Practice*, 8(1), 45-62.
- [5] Basu, P., and Singh, K. (2024). Digital NABARD: Reimagining rural finance through technology. *Economic and Political Weekly*, 59(3), 55-63.
- [6] Bhatia, S., and Gupta, A. (2022). Digital financial services in rural India: Challenges and opportunities. *Journal of Rural Development*, 41(1), 78-96.
- [7] CAG. (2021). Performance audit report on implementation of development schemes by NABARD. Comptroller and Auditor General of India.
- [8] Chakrabarty, K. C. (2009). Banking and rural development in India. *RBI Bulletin*, 63(7), 1319-1326.
- [9] Chakrabarty, K. C., and Chaudhuri, S. (2021). Regional Rural Banks in India: Evolution, performance, and prospects. *Economic and Political Weekly*, 56(11), 45-53.
- [10] Chakrabarty, K. C., and Das, A. (2020). Asset quality in development financial institutions: Trends and implications. *Economic and Political Weekly*, 55(10), 47-56.
- [11] Chakrabarty, K. C., and Singha, M. (2021). Regional Rural Banks in India: Evolution and performance analysis. *Journal of Rural Development*, 40(2), 187-212.
- [12] Chand, R., and Kumar, P. (2022). Differential refinance: Addressing regional credit disparities in Indian agriculture. *Indian Journal of Agricultural Economics*, 77(2), 215-232.
- [13] Chand, R., and Singh, J. (2021). Climate-resilient agriculture in India: Role of irrigation infrastructure. *Indian Journal of Agricultural Economics*, 76(2), 215-231.
- [14] Chand, R., and Singh, J. (2021). Structural transformation in Indian agriculture: Role of credit policies. *Indian Journal of Agricultural Economics*, 76(3), 293-307.
- [15] Chand, R., and Singh, J. (2023). NABARD as a development orchestrator: A framework for integrated rural development. *Review of Rural Affairs*, 58(7), 40-58.
- [16] Chatterjee, P., and Kumar, A. (2021). Agricultural research and rural transformation: NABARD's catalytic role. *Economic and Political Weekly*, 56(11), 42-48.
- [17] Chavan, P. (2020). Twenty years of Kisan Credit Card scheme: Achievements and challenges. *Review of Agrarian Studies*, 10(1), 54-82.
- [18] Chavan, P., and Ramakumar, R. (2021). Twenty years of Kisan Credit Card scheme: Achievements and challenges. *Review of Agrarian Studies*, 11(1), 38-64.
- [19] Committee on Digital Agricultural Credit. (2022). Report of the committee on digital agricultural credit. Reserve Bank of India.
- [20] CRISIL. (2023). Rating rationale: NABARD bond program. CRISIL Ratings Limited.
- [21] Garikipati, S., Johnson, S., Guérin, I., and Szafarz, A. (2020). The impact of microfinance on women's empowerment: Evidence from self-help groups in India. *Journal of Development Studies*, 56(11), 2093-2110.
- [22] Ghosh, S. (2022). Cooperative banks in India: Regulatory framework and performance analysis. *Journal of Banking Regulation*, 23(2), 145-162.
- [23] Golait, R. (2007). Current issues in agriculture credit in India: An assessment. Reserve Bank of India Occasional Papers, 28(1), 79-99.
- [24] Golait, R. (2020). Regional disparities in agricultural credit in India. Reserve Bank of India Occasional Papers, 41(1), 130-152.
- [25] Government of India. (2021). The Finance Act, 2021. Ministry of Law and Justice.
- [26] Gulati, A., and Bathla, S. (2018). Investment pattern in Indian agriculture: Trends and determinants. *Indian Journal of Agricultural Economics*, 73(4), 430-450.
- [27] Gulati, A., and Sharma, P. (2022). Agricultural investment credit in India: Patterns and challenges. *Economic and Political Weekly*, 57(15), 37-45.
- [28] Gulati, A., and Singh, N. K. (2022). Restructuring NABARD: Imperatives and pathways. *Indian Journal of Agricultural Economics*, 77(4), 487-503.
- [29] Gulati, A., and Terway, P. (2020). Rural infrastructure development in India: Critical assessment of RIDF. *Indian Journal of Agricultural Economics*, 75(3), 315-332.
- [30] Gupta, M., and Sharma, P. (2023). Distribution of agricultural credit in India: Patterns and equity implications. *Indian Journal of Agricultural Economics*, 78(1), 73-89.
- [31] Jain, A., and Mishra, P. (2022). Rural digital finance: Role of development financial institutions. *Journal of Social and Economic Development*, 24(2), 318-335.
- [32] Kumar, A., and Mishra, P. (2022). Regional disparities in agricultural credit: Role of NABARD's district offices. *Agricultural Economics Research Review*, 35(1), 126-142.
- [33] Kumar, N., and Singh, C. (2020). Financial inclusion in rural India: Role of banks and financial institutions. *Indian Journal of Economics and Development*, 16(2), 294-305.

- [34] Kumar, P., and Singh, R. (2019). Rural infrastructure development: Impact assessment of NABARD's RIDF. *Infrastructure Development*, 27(4), 412-428.
- [35] Kumar, R., and Shah, M. (2021). Differentiated refinance strategy: Addressing spatial inequities in rural credit. *Economic and Political Weekly*, 56(22), 38-47.
- [36] Kumar, R., and Venkatesh, S. (2023). Partner perceptions of development financial institutions in India: A survey analysis. *Development in Practice*, 33(1), 98-112.
- [37] Mehrotra, S., and Sharma, A. (2022). *Infrastructure development in aspirational districts: Impact assessment study*. Oxford University Press India.
- [38] Mehta, A., and Joshi, R. (2023). Blockchain applications in agricultural credit: Potential and implementation challenges. *Journal of Rural Development*, 42(3), 315-332.
- [39] Mehta, A., and Varma, S. (2021). Aligning development finance with SDGs: Case study of NABARD. *Journal of Sustainable Development*, 29(3), 267-283.
- [40] Ministry of Agriculture and Farmers Welfare. (2020). *Operational guidelines: Agriculture Infrastructure Fund*. Government of India.
- [41] Ministry of Finance. (2021). *Annual report 2020-21*. Department of Financial Services, Government of India.
- [42] Ministry of Finance. (2023). *Union Budget 2023-24: Budget speech*. Government of India.
- [43] Mishra, P., and Agarwal, N. (2021). Bond financing for development institutions: Case study of NABARD. *Indian Economic Review*, 56(2), 271-289.
- [44] Mohan, R. (2021). Agricultural credit in India: Status, issues, and future agenda. *Economic and Political Weekly*, 56(14), 47-56.
- [45] Mohan, R., and Ray, P. (2022). Enhancing development finance: Capital adequacy of development financial institutions. *Indian Economic Review*, 57(1), 47-65.
- [46] Mor, N., Banerjee, A., and Kumar, S. (2023). *Report of the committee on financial inclusion and rural credit*. NITI Aayog.
- [47] Mor, N., Nilekani, N., and Sharma, M. (2024). *Public digital infrastructure for rural development*. NITI Aayog.
- [48] NABARD Act. (1981). *The National Bank for Agriculture and Rural Development Act, 1981*. Government of India.
- [49] NABARD. (1983). *Annual Report 1982-83*. National Bank for Agriculture and Rural Development, Mumbai.
- [50] NABARD. (2000). *Annual Report 1999-2000*. National Bank for Agriculture and Rural Development, Mumbai.
- [51] NABARD. (2010). *Annual Report 2009-10*. National Bank for Agriculture and Rural Development, Mumbai.
- [52] NABARD. (2015). *Annual Report 2014-15*. National Bank for Agriculture and Rural Development, Mumbai.
- [53] NABARD. (2015). *Report on implementation of the revival package for short-term rural cooperative credit structure*. National Bank for Agriculture and Rural Development.
- [54] NABARD. (2016). *Status of microfinance in India 2015-16*. National Bank for Agriculture and Rural Development, Mumbai.
- [55] NABARD. (2018). *Annual Report 2017-18*. National Bank for Agriculture and Rural Development, Mumbai.
- [56] NABARD. (2019). *Annual Report 2018-19*. National Bank for Agriculture and Rural Development.
- [57] NABARD. (2020). *Annual Report 2019-20*. National Bank for Agriculture and Rural Development, Mumbai.
- [58] NABARD. (2021). *Annual Report 2020-21*. National Bank for Agriculture and Rural Development, Mumbai.
- [59] NABARD. (2022). *Annual Report 2021-22*. National Bank for Agriculture and Rural Development, Mumbai.
- [60] NABARD. (2022). *Status of Rural Infrastructure Development Fund - Policy paper*. National Bank for Agriculture and Rural Development.
- [61] NABARD. (2023). *Annual Report 2022-23*. National Bank for Agriculture and Rural Development.
- [62] NABARD. (2023). *Vision document 2030*. National Bank for Agriculture and Rural Development.
- [63] NABARD. (2024). *Annual Report 2023-24*. National Bank for Agriculture and Rural Development.
- [64] Narayanan, S. (2021). Financial performance analysis of development financial institutions in India. *Journal of Public Policy and Finance*, 12(3), 267-283.
- [65] Ramakumar, R., and Chavan, P. (2022). Regional disparities in agricultural credit: Analysis of NABARD's refinance operations. *Review of Agrarian Studies*, 12(1), 85-107.
- [66] RBI. (2021). *Report on trend and progress of banking in India 2020-21*. Reserve Bank of India.
- [67] RBI. (2022). *Report of the committee on digital agricultural credit*. Reserve Bank of India.
- [68] Reddy, V. R., and Chengappa, P. G. (2022). Automated pre-approved credit systems for agriculture: Pilot experiences and lessons. *Agricultural Economics Research Review*, 35(1), 17-32.
- [69] Reddy, V. R., and Reddy, B. S. (2021). Impact of credit timing on agricultural productivity: Evidence from Indian states. *Indian Journal of Agricultural Economics*, 76(3), 381-398.
- [70] Reddy, Y. V. (2012). *Economic policies and India's reform agenda: New thinking*. Orient BlackSwan.
- [71] Reddy, Y. V. (2017). *Agricultural finance in India: The role of institutions*. Oxford University Press.
- [72] Reddy, Y., and Prasad, C. (2014). NABARD and rural transformation: Three decades of progress. *Economic and Political Weekly*, 49(52), 77-84.
- [73] Sahu, G. B., and Das, A. (2020). Women's empowerment through self-help groups: The role of NABARD's SHG-Bank linkage program. *Social Change*, 50(1), 94-117.
- [74] Sahu, G. B., and Tripathy, S. (2022). *Self Help Group-Bank Linkage Programme: Three decades of journey and impact*. *Social Change*, 52(1), 72-93.
- [75] Sarangi Committee Report. (2018). *Report of the committee on short-term cooperative credit structure*. National Bank for Agriculture and Rural Development.
- [76] Satish, P. (2007). Agricultural credit in the post-reform era: A target of systematic cooptation. *Economic and Political Weekly*, 42(26), 2567-2575.
- [77] Satish, P. (2007). Rural finance in India: The NABARD story. *Rural Finance and Credit Infrastructure in India*, 18(2), 225-241.
- [78] Satish, P. (2018). The revival package for cooperative credit institutions: Implementation and impact. *Economic and Political Weekly*, 53(8), 64-72.

- [79] Satish, P. (2019). Timeliness in agricultural credit: An assessment of institutional mechanisms. *Economic and Political Weekly*, 54(52), 77-85.
- [80] Shah, M., and Banerji, D. (2023). *Water resource management in India: Community-based approaches and institutional innovations*. Sage Publications India.
- [81] Shah, M., and Kumar, P. (2023). Climate finance for Indian agriculture: Potential and pathways. *Climate Policy*, 23(3), 312-329.
- [82] Shah, M., and Pathak, H. (2023). Climate finance for Indian agriculture: Gaps and opportunities. *Climate Policy*, 23(2), 214-232.
- [83] Shah, M., Rao, R., and Shankar, P. S. V. (2007). Rural credit in 20th century India: Overview of history and perspectives. *Economic and Political Weekly*, 42(15), 1351-1364
- [84] Shah, T., Kishore, A., and Prasad, C. S. (2022). Impact of rural roads and irrigation facilities on agricultural productivity and rural livelihoods. *Review of Development and Change*, 27(1), 38-57.
- [85] Singh, C., and Kumar, S. (2022). Agricultural credit in India: Delivery mechanisms and farmer satisfaction. *Indian Journal of Economics and Development*, 18(2), 290-304.
- [86] Singh, J., and Vyas, V. (2023). Integration of income support and credit: Impact of PM-KISAN on agricultural credit access. *Agricultural Economics Research Review*, 36(2), 267-284.
- [87] Sudarshan, K., and Reddy, Y. (2017). NABARD's supervision of rural financial institutions: Assessment and outcomes. *Journal of Banking Supervision*, 25(3), 214-230.
- [88] Venkatachalam, L., and Jayasurya, K. (2021). Tribal development in India: NABARD's role and impact. *Development and Change*, 52(3), 531-552.
- [89] Venkatachalam, L., and Kumar, R. (2022). Climate finance in India: Role of development financial institutions. *Economic and Political Weekly*, 57(12), 42-51.
- [90] Venkatachalam, L., and Kumar, R. (2022). *Development finance in India: Evolution and prospects*. Routledge India.
- [91] Venkatachalam, L., and Prasad, C. S. (2020). Climate finance for agriculture: Role of development financial institutions. *Economic and Political Weekly*, 55(14), 30-36.
- [92] Venkatachalam, L., and Prasad, C. S. (2020). Impact of implementation delays on watershed development outcomes. *Agricultural Economics Research Review*, 33(1), 19-32.
- [93] Venkatachalam, L., and Prasad, C. S. (2023). Climate finance framework for agriculture: Mainstreaming climate considerations in rural finance. *Climate and Development*, 15(2), 174-192.
- [94] Verma, A., and Jha, M. (2021). Tribal development through institutional finance: NABARD's initiatives. *Journal of Tribal Studies*, 19(2), 156-172.

