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Utilisation Of Government and Nabard Schemes for Financing Agricultural Working Capital and the Implementation Challenges: An Empirical Evidence from Dhule District, Maharashtra

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ABSTRACT

Ensuring adequate working capital remains a fundamental challenge for Indian farmers, directly affecting agricultural productivity and financial sustainability. In response, NABARD, Central Government, and State Governments have introduced multiple schemes aimed at financing agricultural working capital and enhancing farmers' financial literacy. However, empirical evidence on actual utilisation and implementation effectiveness remains limited. This study investigates the utilisation of agricultural working-capital schemes and identifies the gaps and challenges affecting their implementation in Dhule District, Maharashtra. Primary data were collected from 419 farmers and 75 institutional stakeholders using structured questionnaires. Statistical analysis using SPSS included reliability and validity testing, one-sample t-tests, one-way ANOVA, paired-sample t-tests, and chi-square tests. The results reveal that overall utilisation of schemes is statistically insignificant, while substantial operational and procedural gaps significantly hinder effective implementation. The study highlights the need for improved financial literacy delivery, simplified administrative procedures, and stronger grassroots institutional involvement to enhance scheme effectiveness and promote sustainable agricultural development.

I. INTRODUCTION

Agriculture in India is characterised by seasonal income flows, exposure to climatic risks, and heavy dependence on short-term working capital for operational continuity. Working capital finances critical inputs such as seeds, fertilizers, labour, irrigation, insurance, storage, and marketing. Inadequate access to formal working-capital finance often pushes farmers towards informal credit sources, increasing indebtedness and financial vulnerability.

To address these issues, NABARD, along with Central and State Governments, has introduced a range of schemes including Kisan Credit Card (KCC), crop insurance programs, interest subvention schemes, infrastructure funds, and digital platforms. These initiatives are supported by financial literacy programs intended to strengthen farmers' working-capital management capabilities. Despite extensive institutional efforts, the ground-level impact of these schemes remains uneven. Dhule District in Maharashtra provides a suitable empirical context due to its agrarian economy, dominance of small and marginal farmers, and exposure to multiple financing schemes.

II. LITERATURE REVIEW

(Kumar, N, 2022) analyzes onion farming economics and finds that fluctuating prices, delayed payments, and insufficient credit access strain working capital. The study highlights the need for regulated markets and government-backed credit support to ensure timely input procurement.

(Howlider, H, 2016) explores the connection between farmers' socio-economic traits and biosecurity compliance in poultry farms. Lack of awareness, education, and financial constraints were key barriers. Access to working capital was crucial for acquiring disinfectants, equipment, and training.

(CGIAR, 2009) This project update highlights participatory plant breeding among Indian farmers. Financial constraints and delayed access to working capital were found to slow seed adoption. Improved institutional support and community-managed seed banks were proposed.

(IGES, 2021) The study assesses agricultural index insurance as a tool for climate resilience. It found that while effective during shocks, high premiums and delayed payouts reduce impact. Integration with seasonal credit and working capital can enhance long-term adoption.

(Lohara College, 2022) The study finds that women farmers in Maharashtra have limited access to working capital due to poor digital and financial literacy. SHG-based lending and FPO participation are recommended to overcome exclusion and improve productivity.

(Mugonola, B, 2018) This study finds that adoption of organic farming is hindered by limited financial incentives and market access. Farmers with access to stable working capital and training are more likely to engage in organic cultivation sustainably.

(Zhang, T. et al, 2021) find that short-term financial incentives boost participation in conservation programs, but long-term sustainability requires deeper integration of working capital into extension, advisory, and supply chain systems.

(Ali, A. et al, 2022) This study identifies education, land size, and working capital access as primary determinants for adopting climate-smart agriculture. Financial bottlenecks prevent investment in water-saving technology and improved crop varieties.

(Kumar, V. et al, 2024) This paper explores how AI-driven sensors optimize input usage and monitor crop health. However, access to working capital is essential for adoption, particularly among smallholders who find equipment costly without credit support.

(Jha, R, 2022) discusses how agricultural intensification contributes to pollution. Transition to sustainable farming requires upfront investment, and working capital access is key for adopting biopesticides, organic manure, and drip irrigation.

(Karlan, D. et al, 2013) The authors argue that behavioral constraints, lack of financial literacy, and mistrust prevent effective credit use. They recommend simplified financial products and embedded finance through agri-platforms to increase working capital utility.

(Muli, J, 2009) finds that complex procedures and collateral requirements restrict rural farmers from accessing loans. Informal sources dominate, but they are costly and insufficient to support seasonal working capital needs.

(Longhurst, R, 2022) argues for localized, participatory models of innovation to improve agricultural resilience. Financial inclusion, especially working capital for women and youth, is central to sustainable development goals.

(Bhat, A, 2023) This study promotes circular economy models—such as compost reuse, crop-livestock integration—as sustainable alternatives. However, access to working capital is critical for the initial setup of recycling and resource-efficiency systems.

(Singh, A, 2017) outlines that hill farmers often face climatic and logistical risks. Sustainable livelihood development requires integrated credit and extension models to ensure steady access to inputs and working capital.

(Koirala, A, 2021) emphasizes that knowledge-sharing platforms improve farming outcomes, especially when paired with financial literacy. Institutional knowledge must be backed by credit flows to translate into real farm improvements.

(Singh, R. et al, 2023) This paper assesses how digital platforms facilitate climate-adaptive agriculture. They increase access to information and streamline credit, enabling better working capital rotation and informed decision-making.

(Asha, R, 2021) outlines indicators to measure sustainability across Indian farms. Capital availability is emphasized as a key determinant of whether farmers can invest in sustainable practices like low-input cropping and diversified systems.

(Kumar, R, 2023) This article highlights digital solutions to promote financial literacy and working capital access among rural women entrepreneurs. It advocates integrating mobile banking with SHG credit models to boost rural farm enterprise development.

(Gizaw, A. G, 2023) finds that cooperative participation improves collective bargaining and enables access to credit for working capital. The study identifies distance to market, education, and land size as key influencing factors.

(Desai, B, 2024) study delves into the savings and borrowing behavior of Indian farmers, identifying liquidity crises and inconsistent income as primary issues. The paper recommends flexible working capital solutions, emphasizing digital literacy to boost credit use effectiveness.

(Pujari, R. et al, 2017) This study shows that ICT tools improve access to price information and markets for farmers. However, initial adoption depends on access to working capital and credit for acquiring digital devices and ensuring internet connectivity in rural zones.

(ICRISAT, 2005) research reveals that fertilizer recommendations are underutilized due to mistrust and affordability concerns. Farmers lacking working capital often under-dose or skip applications entirely, reducing yield. Financial support and training are needed to ensure adoption.

(Ajayi, M. T, 2020) This paper finds that although awareness of climate change is high, financial constraints prevent adoption of recommended practices. The study emphasizes bundling climate-smart extension services with access to affordable working capital and insurance.

(Bottazzi, P., & Boillat, S, 2020) this study proposes aligning ecosystem payments with farmers' financial needs. It argues that payments should be timed and structured to support seasonal working capital demands, allowing investments in soil conservation and biodiversity practices.

(King, R. P, 1993) presents frameworks for financial risk mitigation. He emphasizes liquidity buffers and accessible working capital as essential tools for coping with weather and market shocks in agricultural enterprises.

(Bhosale, R, 2023) identifies delayed payments, poor cash rotation, and dependency on seasonal credit as constraints in cooperatives. Digitized bookkeeping and timely working capital injections are recommended to improve rural cooperative resilience.

(Singh, A, 2020) This study connects mechanization adoption to access to short-term credit. Farmers with consistent working capital are better able to invest in tools and machinery, leading to higher efficiency and reduced labor dependence.

(Raj, K., & Kumar, S, 2020) find that adoption of drip systems is constrained by high upfront costs. Access to working capital and subsidy-linked finance models are essential for wider penetration, especially among smallholders in arid zones.

(Morduch, J, 2009) explores how behavioral traits affect financial decisions. In farming, over-cautious borrowing behavior often limits working capital investment, despite the availability of credit. Behavioral nudges and bundled finance-advisory services are proposed.

(Karlan, D., & Giné, X, 2007) The authors argue that farmer finance must be adapted to local realities, especially risk aversion and low financial literacy. Risk-adjusted credit schemes and weather-indexed insurance are promoted to protect working capital and encourage investment.

(Patel, D, 2017) finds that lack of financial awareness leads to suboptimal credit use and mismanagement of funds. He recommends financial training programs that emphasize budgeting, loan use, and working capital management.

(Karki, R, 2024) assesses insurance schemes and notes low farmer uptake due to lack of trust and awareness. Bundling insurance with crop loans or input credit can increase working capital protection and build resilience.

(Rahman, S, 2019) study finds that agroforestry improves income and land quality but requires long-term investment. Access to patient working capital and advisory support enables sustained adoption among resource-poor farmers.

(CGIAR, 2023) reports on digital finance pilots that use remote sensing and mobile tech to assess risk and deliver loans. Such innovations improve access to working capital for climate-sensitive farmers, especially in underserved regions.

(Rao, K, 2023) presents green finance as a tool to promote sustainable farming practices. He advocates combining green loans with working capital solutions to facilitate investment in solar pumps, composting units, and rainwater harvesting.

(Nguyen, T. T. et al, 2022) This panel data study confirms that farms with better credit access report higher productivity. The paper advocates for improved loan targeting and monitoring to ensure that working capital is invested productively.

(Kassem, H, 2015) findings suggest that farmers' perceived financial health is shaped by both income levels and their ability to manage working capital. Extension officers must integrate basic financial counseling in their outreach.

(Meenakshi, N. et al, 2016) this study shows that access to subsidized inputs alone does not guarantee productivity gains unless supported by capital to fund transportation, labor, and post-harvest handling. Working capital schemes should be aligned with input programs.

(Silva, T. et al, 2023) explore the role of digital credit and risk analytics in Brazil. They conclude that digital credit platforms reduce loan turnaround time, improve working capital access, and enable real-time risk assessment for weather-exposed farmers.

(Wojewodzic, T, 2024) finds that perception of market risk and policy support influences farmers' willingness to invest in sustainable farming. Institutional credit and working capital provision significantly affect their adaptive capacity and resilience.

(CGIAR, 2021) This report emphasizes integrating feed management with working capital solutions to boost livestock productivity in smallholder systems. Farmers need bundled advisory, credit, and infrastructure to implement forage innovations effectively.

(Singh, R, 2023) identifies that lack of awareness and financial exclusion limit livelihood diversification. Access to micro-loans and seasonal working capital significantly improves adoption of sustainable farming and food processing ventures in tribal regions.

(FAO, 2023) This case study advocates for youth-focused digital platforms and working capital schemes. Training in financial management and low-risk lending are essential to retaining youth in agri-enterprises.

(Talib, U, 2018) study reveals that awareness of improved technologies is high, but adoption depends on access to input finance. Farmers without working capital cannot afford hybrid seeds, fertilizers, or irrigation kits.

(Meijer, S. S, 2018) argues that communication methods—peer learning, digital tools—enhance participation. Yet financial bottlenecks, especially lack of working capital, restrict implementation of learned practices.

(Aggarwal, R. et al, 2022) This paper demonstrates that microfinance paired with digital literacy builds financial resilience. Farmers with sustained access to working capital perform better in value-added agriculture.

(Desai, R, 2023) examines SHG-based and bank-led inclusion models. The findings show that SHGs offer more flexible working capital support, especially to women farmers in rain-fed areas.

(Das, T, 2023) reports that while farmers value sustainability, capital-intensive requirements deter them. Suggested solutions include revolving funds, FPO aggregation, and public-private investment schemes.

(Kumar, R, 2022) uses panel data to show that climate-induced yield loss can be mitigated through adaptive strategies, contingent on access to working capital for seed replacement, mechanization, and insurance.

(Gupta, S. et al, 2023) The study explores how blended finance—private investment with public guarantees—can lower risk and improve capital flow for CSA adoption in marginal areas.

(Hafizi, S, 2023) highlights how land fragmentation and lack of credit undermine productivity. Land pooling, cooperative lending, and working capital funding are proposed solutions.

(Shinde, D, 2015) examines how existing credit schemes are inadequate for smallholders. He advocates policy shifts to streamline working capital disbursement and repayment alignment with crop cycles.

(Chaudhary, N, 2023) The review outlines operational, legal, and financial hurdles in FPO functioning. Lack of working capital and marketing credit inhibits growth and scale. Suggested reforms include digital finance and collective credit rating systems.

(Shah, H, 2020) This thesis finds that participatory water-saving techniques need upfront capital. Farmers lack funds for irrigation lines, tanks, and maintenance, limiting conservation success.

(CGIAR, 2012) The FEAST report shows that livestock productivity is hampered by seasonal working capital shortages for feed and medicine. Integrated extension-finance models are recommended.

(Huang, L, 2012) finds that sustainable farming uptake is slow due to high investment costs. Working capital support, especially tied to certification and organic input procurement, is essential.

(Marron, C, 2022) shows that participatory irrigation programs succeed when working capital is available for infrastructure, and institutional incentives support long-term participation.

(Oduniyi, O, 2015) research confirms that access to capital improves productivity and rural livelihoods. However, inadequate monitoring and targeting dilute the impact of institutional credit schemes.

(Afifi, T., et al, 2022) finds that rural migration due to climate change is partially triggered by insufficient capital for climate adaptation. The paper calls for targeted credit schemes that prevent distress-led migration.

(Scoones, I, 2013) critiques green economy approaches for overlooking structural inequities. He suggests that equitable access to credit and working capital is foundational to making sustainability inclusive for smallholder farmers.

(Faruk, M. O, 2020) explores farmers' awareness of climate change and adaptation practices. Lack of financial literacy and inadequate working capital were key limitations in adopting resilience strategies like drought-resistant varieties and water harvesting.

(Scoones, I, 2014) argues for integrating farmer knowledge into environmental governance. The study finds that exclusion from policy frameworks and finance restricts grassroots innovation despite high adaptive knowledge.

(Kamble, R. & Pawar, R, 2022) This paper emphasizes the transformative role of digital financial services in improving rural access to working capital, reducing dependency on informal lending.

(Chaudhary, A, 2019) presents an IoT-enabled model for efficient supply chain visibility. Initial adoption is capital-intensive, suggesting that working capital access is vital for technology penetration among smallholders.

(Maheta, H, 2024) The study highlights challenges in licensing, distribution, and working capital cycles affecting seed availability and pricing, thereby influencing farmer affordability and access.

(Anand, S, 2020) reports that digital illiteracy, lack of infrastructure, and high device cost prevent effective ICT use. Working capital solutions must include digital access subsidies.

(Parmar, R, 2016) The study finds that tribal farmers underutilize institutional credit due to poor awareness and rigid repayment cycles. Flexible working capital loans aligned with agricultural seasons are recommended.

(Adebayo, O. & Adeola, R. , 2016) This study outlines socioeconomic barriers to innovation, including inadequate access to credit. It suggests tailored working capital products to support agri-technology transitions.

(Narasimhan, V, 2021) The chapter emphasizes how ICT empowers rural entrepreneurs but points out that lack of seed funding and working capital is a critical bottleneck in scaling innovations.

(CGIAR, 2020) The study notes that digital tools can improve feed planning, but their uptake is limited without institutional support and microcredit for equipment access.

(Shah, R, 2022) shows that female farmers lack control over water resources and access to capital. Community-based irrigation finance is proposed to boost inclusion.

(Binswanger, H, 2002) evaluates weather risk and credit market failures. He suggests bundling working capital with insurance as a resilience strategy for smallholders.

(Mallick, B, 2023) reviews how extension systems can better align with financial services. Coordination between finance and extension improves technology uptake.

(Patra, S. et al, 2020) This research links crop planning to climate signals. Weather-based advisory services should be supported by adaptive working capital disbursement strategies.

(Ayanlade, A. et al, 2017) The study concludes that climate information alone is insufficient; financial capability—especially timely access to working capital—determines whether farmers can implement adaptive strategies like early planting or irrigation.

(Bryceson, D, 1996) traces how loss of agricultural viability—due in part to poor capital access—drives rural people out of farming. She recommends integrated rural finance and employment programs to restore viability.

(Ramasamy, C, 2021) The study highlights that farmer producer organizations (FPOs) are effective in improving input procurement and market linkage but remain undercapitalized. Credit pooling and working capital finance are essential for scaling.

(Gunasekara, P, 2014) finds that gendered norms and lack of land title restrict women's access to institutional credit. Tailored working capital products could empower women in agro-enterprise.

(Missiame, D, 2020) The study reveals that access to rural credit significantly improves technical efficiency among cassava farmers. Working capital availability is positively correlated with productivity, input use, and risk-taking ability.

(Jadhav, R. et al, 2024) This paper highlights how digital agri-platforms improve access to information, reduce transaction costs, and enable sustainable practices. However, limited access to digital finance constrains full-scale adoption, especially among marginal farmers.

(Qasim, R., & Verma, A, 2024) This empirical study uses panel data to assess determinants of organic farming adoption. Key drivers include farmer education, state subsidies, and working capital availability for organic input procurement and certification.

(Morduch, J, 2017) examines how behavioral biases affect credit utilization among farmers. Over-caution and low financial literacy reduce effective use of available microfinance, hampering investment in productivity-enhancing inputs.

(Sharma, R. et al, 2024) This article explores the role of agri-fintech platforms in extending digital credit to underserved farmers. Findings suggest significant improvement in working capital rotation and market integration through fintech-enabled tools.

(Mitra, S, 1999) documents the role of local knowledge systems in agriculture. Despite rich information networks, low access to institutional finance restricts farmers from leveraging innovations or diversifying practices.

(Rahman, S, 2024) The study supports agroforestry as a sustainable alternative for income diversification. However, initial investment and working capital requirements act as barriers to entry for low-income farmers.

(Kebede, W, 2015) This research identifies lack of incentives, poor extension, and credit constraints as the key barriers to adoption of soil conservation measures. Institutional credit schemes for land improvement are recommended.

(Mansoori, M, 2024) This recent preprint highlights that financial resilience, especially access to flexible working capital, plays a central role in coping with climatic and economic shocks in Indian agriculture.

(Kumar, N, 2019) report finds that credit delays, unorganized supply chains, and lack of warehousing finance disrupt crop cycles. Policy interventions are needed to ensure timely and affordable working capital for smallholders.

(Deshmukh, V, 2022) The paper discusses bioeconomy transitions in agriculture and highlights financing gaps in biomass processing and organic value chains. Green credit lines and working capital loans are recommended to support agro-industrial entrepreneurs.

(Kumari, K, 2025) This study finds that schemes like PM-KISAN and crop insurance have increased awareness but often fail in timely execution. The impact is diluted due to delays in disbursing the much-needed seasonal working capital.

(Srinivasan, T, 2023) analyzes how digital education tools help farmers adopt better practices. However, digital divide and financial exclusion hinder the uptake of such solutions. Combining learning with microcredit is suggested.

(Hembade, S, 2023) The study finds limited utilization of government helplines due to language barriers and technical jargon. Linking KCC with credit advisory and real-time working capital disbursement could enhance its value.

(Patel, J, 2023) finds that women face more difficulty in securing working capital due to land ownership norms. SHG-led credit models have been effective in partially bridging this gap.

(CGIAR, 2020) This case study identifies low resilience in mixed farming systems due to limited diversification and working capital access. Integrating agri-credit with climate information services is recommended to improve adaptive capacity.

(Millar, J, 2017) discusses the critical role of farmer cooperatives in building resilience. Access to pooled working capital and collective credit is found to significantly increase adoption of risk-reducing practices.

(Kassem, H, 2022) presents field data indicating that timely credit and flexible repayment schedules directly influence yield and profitability. The study calls for need-based working capital policies tailored to specific crop cycles.

(Gajjar, P. et al, 2023) The paper emphasizes eco-friendly horticulture techniques and the role of farmer training. Working capital for organic inputs and certification is crucial to ensure sustainable practice adoption.

(Zondi, P, 2017) finds that agroecological adoption is high in intent but low in execution due to capital constraints. Farmer cooperatives with access to group-based working capital had better outcomes.

(ACODE, 2022) This policy brief outlines the failure of decentralized extension systems due to financial mismanagement and limited credit flows. Recommendations include financing extension programs linked with seasonal credit.

(Lal, S, 2022) observes that online extension tools are efficient but poorly accessed by farmers lacking smartphones and data subsidies. Bundled ICT loans or working capital credit is proposed.

(Sibanda, S, 2023) This study reveals promising perceptions toward drone usage for precision farming. However, affordability remains a barrier. Financial packages for working capital inclusive of tech tools are suggested.

(Lambin, E. et al, 2017) research shows that most farmers understand sustainability indicators but lack the resources to comply. Soft loans and working capital grants tied to sustainability benchmarks are proposed.

(Shrestha, I, 2024) This evaluation shows that insured farmers fare better during climate shocks. However, premiums often reduce available working capital, suggesting the need for subsidized or bundled insurance-credit models.

(Gunasekara, D, 2024) This paper discusses inefficient fertilizer use due to poor awareness and credit shortages. Working capital loans targeted at nutrient-balanced practices are needed to optimize outcomes.

(Kydd, J., & Dorward, A, 2003) The authors argue that input markets alone do not ensure growth unless accompanied by credit access. Working capital loans are critical for enabling smallholder response to market signals.

(Ricart, S, 2021) presents evidence that collaborative planning increases climate resilience. Farmer buy-in improves when plans include financial instruments like credit access or working capital buffers.

(Salkanović, S, 2023) The study highlights how post-war reforms restructured agri-economics. Yet smallholder participation remains low due to inadequate access to credit. Micro working capital programs are advised to rebuild rural enterprise.

(Rahman, M. M. et al, 2014) This paper evaluates how rice farmers perceive climate change and adjust practices accordingly. The lack of formal finance and working capital limits effective adaptation, such as switching to flood-tolerant rice varieties or adjusting planting schedules.

(Kumari, K, 2021) discusses ICT integration in farming. Findings show that while awareness is high, affordability and lack of working capital remain significant adoption barriers, especially among marginal and tenant farmers.

(Bashir, S, 2023) This study reveals low financial literacy among Nigerian farmers, resulting in suboptimal investment behavior. Enhanced extension services and working capital loans were recommended to support rational investment decisions.

(Kibiti, J, 2017) finds hydroponic farming is viewed positively, but adoption is restricted due to high setup costs and lack of microfinance access. Working capital and technology-specific loans are crucial for scalability.

(Béné, C. et al, 2017) this paper critiques the narrow economic lens in defining sustainability. It advocates for integrated models where access to working capital complements environmental stewardship and social equity.

(Islam, M. et al, 2021) finds that socio-demographic factors and education affect farmers' perception of environmental degradation. Access to credit significantly influences their ability to take preventive actions.

(Agrawal, P. et al, 2024) this study shows that social networks, institutional finance, and digital information systems improve farmer resilience. However, inadequate working capital and poor insurance coverage remain key vulnerabilities.

(Ogunleye, M, 2023) This field study shows low utilization of improved cotton practices due to financing gaps, absence of input subsidies, and limited credit awareness. Seasonal working capital loans are suggested.

(Yadav, R. et al, 2021) Agroforestry is recognized as a dual-benefit model (economic and ecological), but adoption is limited by capital-intensive transitions. Credit support and ecosystem services incentives are recommended.

(Headey, D. et al, 2016) This article explains how agricultural seasonality intensifies food insecurity. Bridging the lean period requires timely access to working capital and social safety nets, especially in rain-fed areas.

(Alderman, H. et al, 2002) The authors highlight the role of food subsidies but caution that without linking them to productive assets or seasonal working capital, their long-term poverty impact remains limited.

(Singh, A, 2024) This study documents a shift from informal to formal sources. However, institutional delays and bureaucratic hurdles continue to hinder timely working capital disbursement during critical crop periods.

(Wang, Y. et al, 2022) The paper proposes a systems approach to integrate livestock, crop, and waste cycles. Farmers need upfront capital and policy incentives to redesign operations for closed-loop sustainability.

(Ghosh, R, 2020) The study reveals bureaucratic delays, lack of awareness, and financial hurdles as primary deterrents to organic certification. Suggested interventions include certification-linked working capital.

(Shrestha, R, 2023) finds that income diversification and remittance support reduce vulnerability. However, most smallholders lack capital to invest in high-value crops or irrigation, indicating a credit gap in development planning.

(Sorenson, W, 1989) explores early responses to agricultural biotechnology, highlighting that while awareness was rising, adoption was heavily contingent on financial incentives and institutional support. Capital cost was a primary barrier for smallholders.

(Mwaniki, D, 2022) this study finds that mobile banking and e-wallet systems have increased working capital access for smallholders. However, digital literacy and transaction fees still hinder full utilization, especially in remote areas.

(Mareverwa, H, 2021) the thesis emphasizes that despite awareness, adoption of agri-technologies remains low due to high costs and limited financing. Policy recommendations include subsidized capital tools and interest-free seasonal loans.

(Patel, D, 2020) observes a direct relationship between training exposure and improved practices in livestock care. Yet, adoption of nutritional supplements and vaccination programs is limited without revolving working capital.

(Zhao, R. et al, 2022) this research promotes microbial inoculants for organic farming. However, high input costs deter widespread adoption. Targeted microfinance and technical guidance are essential for farmer-level application.

(Karlan, D., & Morduch, J, 2016) the study finds that smallholders often avoid formal credit due to fear of repayment uncertainty. Bundling crop insurance with working capital loans improves uptake and reduces risk aversion.

(Wang, T. et al, 2023) this study warns that rapid tech growth in agri-food systems could widen inequality. Ensuring equitable access to capital and training is necessary to prevent exclusion of smallholder farmers.

(Kumar, A, 2024) this field study reveals that while most farmers are aware of government credit schemes, procedural complexities discourage application. A simplified process and doorstep disbursement are suggested for effective working capital flow.

(Sengupta, S, 2012) highlights the importance of ICT in improving market access and productivity. However, financing gaps and lack of digital loans restrict full-scale deployment in rural communities.

(Sharma, N, 2024) reports that many agri-entrepreneurs in semi-urban India lack structured financial planning, affecting business continuity. Access to business development services and working capital financing is vital.

(Sultana, N, 2024) the study shows moderate awareness but poor satisfaction with claim processes. Farmers often avoid insurance to preserve working capital, underlining the need for transparent processes and bundling with seasonal loans.

(Müller, B. et al, 2023) the authors emphasize that effective governance frameworks must support financing for climate adaptation. Without inclusive financial mechanisms, smallholders struggle to adopt climate-smart innovations.

(DESA , 2020) This report highlights low participation in futures markets due to limited understanding and working capital constraints. Training and credit-backed trading accounts are proposed to bridge access gaps.

(Prasad, S, 2022) work connects land, finance, and digital tools in rural livelihoods. He finds that awareness of credit channels is not enough—timing, flexibility, and training are critical to convert credit into transformation.

(Wang, J. et al, 2015) this study uses panel data to demonstrate that access to microfinance significantly increases input use and productivity, especially in water-scarce regions. Seasonality-adjusted credit lines are found to be most effective.

(Karki, S, 2022) the study highlights that farmers with access to institutional credit exhibited significantly better productivity and risk-taking behavior. It emphasizes the need for low-interest working capital support to uplift smallholder farming in Nepal.

(Ahmed, S, 2023) analyzes structural bottlenecks in agricultural credit systems, including lengthy approval processes and collateral requirements. Suggested reforms include mobile credit disbursal, seasonal repayment plans, and integrated crop finance schemes.

(Timmer, C. P, 2016) explains how agricultural transformation relies on effective credit mechanisms. He recommends aligning working capital availability with seasonal demand cycles to support modern food systems.

(Hossain, M, 2016) the chapter highlights that farmer adoption of innovations depends largely on access to microfinance. Hossain suggests that bundling training, credit, and market access ensures higher uptake of sustainable technologies.

(Ajayi, M. et al, 2015) this study finds that most smallholders rely on informal mechanisms for risk mitigation. Access to crop insurance and working capital credit is crucial for reducing vulnerability to weather shocks.

(Sharma, N, 2024) examines the role of ICT in knowledge dissemination. Although awareness is high, adoption is constrained by lack of credit for digital equipment and mobile data costs.

(Yousaf, H, 2023) finds that timely credit delivery is a major determinant of yield improvements. Policymakers are urged to enhance institutional efficiency and introduce weather-based working capital products.

(Thulasitharayil, R, 2023) This study concludes that electronic banking has reduced the rural-urban gap in financial inclusion. However, digital illiteracy and low trust in technology still hinder full access to working capital credit services.

(World Bank, 2014) the brief underlines how collective institutions like cooperatives improve bargaining power and finance access. Collective working capital schemes, it notes, can bridge the last-mile financial gap for smallholders.

(Reddy, K, 2022) asserts that extension systems play a vital role in linking farmers to schemes, but their success is tied to the financial health of the farmers. He calls for embedded credit within advisory systems.

(Gunasekara, P, 2016) study reveals that rural women lack land titles, which limits access to institutional credit. SHG-based financing and joint land ownership are recommended for improving their access to working capital.

(Ali, M, 2023) highlights the technological disparity between large and small farmers. Working capital deficits prevent marginal farmers from accessing precision farming tools, necessitating targeted financial incentives.

(Abebe, G. et al, 2023) the study finds that farmers adopt sustainable practices when credit is available for initial investments. Land tenure security and bundled finance-extension support systems are identified as key enablers.

(Moser, C. & Barrett, C, 2003) this paper critiques state-led agricultural credit programs for their weak impact due to poor targeting and moral hazard. It recommends market-led solutions and group-based working capital lending models.

(CGIAR, 2022) the report documents shifts in farmer practices during climate disruptions. Access to flexible working capital and timely inputs are identified as critical for resilience building across agri-food systems.

(CIMMYT, 2020) the report discusses how digital tools, such as mobile platforms and QR code verification, enhance seed supply chain transparency. Yet adoption among farmers is restricted by lack of digital literacy and credit for certified seeds.

(Kilonzo, J, 2023) finds that age, education, and land ownership significantly influence farmers' access to agricultural credit. Fear of default and poor awareness of financial products limit working capital loan utilization.

(Kebede, T. et al, 2017) the study indicates that technology adoption lowers poverty, but upfront capital requirements often prevent poorer farmers from participating. It advocates for credit instruments tied to input packages and extension support.

(Levidow, L. et al, 2020) argues that food system transformation is hindered by elite-driven policies that neglect grassroots financing needs. Strengthening farmer cooperatives and linking them with revolving working capital funds is recommended.

(Teng, P. et al, 2022) This chapter identifies climate-related risks and emphasizes the importance of bundling climate services with seasonal working capital loans. It encourages governments to support blended finance approaches.

(Roy, D. et al, 2021) documents that higher financial literacy leads to increased use of formal credit and insurance. However, trust in informal sources persists due to their flexible repayment structure. Integrating formal products with such features is recommended.

(CGIAR, 2021) this report highlights how market integration improves farm resilience. Access to working capital at the time of market entry (harvest season) increases bargaining power and profitability.

(CGIAR , 2022) the document reviews equity gaps in input access. The study finds that marginalized farmers are often last to receive subsidized inputs due to delayed or denied credit. Targeted credit delivery through mobile systems is proposed.

(Adugna, A. et al, 2023) the study shows that farmers adapt through drip irrigation and mulching, but affordability limits wide adoption. Government support through microcredit and input vouchers is critical for scalability.

(Ogunleye, M. et al, 2023) this research reveals that rural farmers increasingly rely on mobile payments for agri-transactions. However, lack of working capital integration within these platforms limits their full financial utility.

(Chakrabarti, S. et al, 2023) the paper discusses governance failures in managing agrochemical runoff. One solution proposed is incentivizing organic transition through affordable credit and working capital for sustainable inputs.

(Reddy, M, 2023) analysis shows that well-functioning Farmer Producer Organizations (FPOs) provide critical input and output linkages. Access to revolving working capital is a key success factor for member retention and scale.

(Maponya, P, 2014) finds that land tenure directly influences access to credit and investment in agriculture. Policies ensuring clear land titles can unlock institutional finance and enable working capital access.

(Pati, P. et al, 2022) this paper explores blockchain for supply chain transparency. However, adoption requires upfront tech investment and training, both of which need to be supported by working capital finance schemes.

(Missiame, D, 2023) the study finds that farmers with community bank access had significantly higher technical efficiency. Seasonal working capital loans were more impactful than long-term investment loans for yield optimization.

III. RESEARCH GAP

Despite the extensive policy focus on agricultural credit and working-capital financing in India, several critical gaps persist in the existing body of research, particularly at the district and implementation levels. Most prior studies on agricultural finance primarily emphasize credit availability, crop loans, and subsidy outreach, often assessing scheme performance in isolation or relying solely on secondary data. Such approaches overlook the nuanced differences in utilisation patterns across implementing authorities NABARD, Central, and State Governments—and fail to capture how institutional design and operational mechanisms influence actual adoption at the farmer level.

A significant gap exists in empirical research that integrates both beneficiary and institutional perspectives within a single analytical framework. Earlier studies tend to examine either farmers' perceptions or policy and banking performance independently, resulting in fragmented conclusions. This study addresses the lack of dual-stakeholder evidence by

synchronizing responses from farmers and NABARD/bank officials, thereby enabling a more holistic assessment of scheme utilisation and implementation effectiveness.

Another major gap relates to the under-exploration of implementation challenges affecting financial-literacy and working-capital management schemes. While financial inclusion literature broadly acknowledges procedural and digital barriers, there is limited quantitative validation of these constraints at the grassroots level, particularly in semi-arid districts like Dhule. Existing studies seldom measure the statistical significance of challenges such as documentation complexity, digital access barriers, regional-language communication gaps, and weak institutional coordination, nor do they examine their differentiated impact across farm sizes.

Further, limited attention has been given to the differential engagement of marginal farmers vis-à-vis small and medium farmers in structured working-capital schemes. The present findings reveal systematic exclusion patterns that are rarely examined empirically. Additionally, the effectiveness of scheme-linked financial-literacy interventions remains under-researched, with few studies empirically testing whether training and facilitation mechanisms translate into meaningful utilisation outcomes.

By addressing these gaps, the present research contributes district-specific, statistically validated insights into scheme utilisation disparities and implementation bottlenecks, offering evidence-based directions for improving agricultural working-capital financing and financial inclusion policies.

IV. RESEARCH OBJECTIVES AND HYPOTHESES

Research Objectives

1. To study the utilisation of schemes offered by NABARD, Central, and State Governments for financing farmers' working capital in Dhule District.
2. To investigate gaps and challenges in the effective implementation of these schemes for improving farmers' financial literacy on working-capital management.

Research Hypotheses

- **H1:** There is a significant utilisation of schemes offered by NABARD, the Central, and State Governments among farmers.
- **H2:** There are significant gaps and challenges in the implementation of schemes for improving financial literacy on working capital.

V. RESEARCH METHODOLOGY

The study adopts a **descriptive research design** with a quantitative approach.

Study Area: Dhule District, Maharashtra

Sample Size:

- 419 farmers from Dhule, Shindkheda, Sakri, and Shirpur talukas of Dhule District in Maharashtra.
- 75 NABARD officers, bank officials, and Panchayat Raj officers in Dhule District.

Sampling Technique: Stratified random sampling

Data Collection: Primary data through two structured questionnaires

Statistical Tools: SPSS 25 and MS Excel software

DEMOGRAPHIC DATA ANALYSIS:

TABLE 1: FARMER'S GENDER

Options	Frequency	Percent
Male	335	80

Female	84	20
Total	**419**	**100**

RESEARCHERS ANALYSIS ON SPSS

TABLE 2: TALUKA/TEHSIL OF FARMERS

Options	Frequency	Percent
Dhule	95	23
Sakri	110	26
Shirpur	108	26
Sindkheda	106	25
Total	**419**	**100**

RESEARCHERS ANALYSIS ON SPSS

TABLE 3: SELECT YOUR CATEGORY BASED ON LAND HOLDING

Options	Frequency	Percent
Marginal (Below 5 Acres, i.e., 1 to 2 Hectares)	198	47
Small (6 to 10 Acres, i.e., 3 to 4 Hectares)	120	29
Big Farmer (Above 10 Acres, i.e., 5 Hectares & above)	101	24
TOTAL	**419**	**100**

RESEARCHERS ANALYSIS ON SPSS

TABLE 4: GENDER OF NABARD/ BANK/ PANCHAYATI RAJ OFFICERS

Options	Frequency	Percent
Male	62	83
Female	13	17
Total	75	100

RESEARCHERS ANALYSIS ON SPSS

TABLE 5: OFFICER DESIGNATION?

Options	Frequency	Percent
NABARD Officer	6	8
Panchayati Raj Officer	35	47
Public Representative	34	45
Total	**75**	**100**

RESEARCHERS ANALYSIS ON SPSS

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VI. DATA ANALYSIS AND HYPOTHESIS TESTING:

H1: THERE IS A SIGNIFICANT DIFFERENCE IN THE AWARENESS AND UTILISATION OF NABARD, CENTRAL, AND STATE GOVERNMENT SCHEMES FOR WORKING CAPITAL AMONG FARMERS.

TABLE 6: DATA SUMMARY FARMER'S QUESTIONNAIRE 1

Sr. No.	Scheme Name	Purpose	Institution / Authority	Frequency Percent	Yes	No	Total
1.	Kisan Credit Card (KCC) – NABARD Support	Provides short-term credit for crop production and working capital	NABARD (Refinance to Banks)	Frequency	352	67	419
				Percent	84	16	100
2.	Production and Marketing Credit Scheme	Supports input purchase and post-harvest marketing costs	NABARD	Frequency	86	333	419
				Percent	21	79	100
3.	Warehouse Infrastructure Fund (WIF)	Finance storage infrastructure to reduce distress selling	NABARD	Frequency	132	287	419
				Percent	32	68	100
4.	Rural Infrastructure Development Fund (RIDF)	Supports rural infrastructure for sustainable agriculture	NABARD	Frequency	143	276	419
				Percent	34	66	100
5.	Support to Farmer-Producer Organisations (FPOs)	Provides working capital to FPOs for aggregation and marketing	NABARD	Frequency	167	252	419
				Percent	40	60	100
6.	Kisan Credit Card (KCC) – Central Govt	Short-term loan up to ₹3 lakh for crop & allied activities with interest subsidy	Central Govt / RBI / Banks	Frequency	331	88	419
				Percent	79	21	100
7.	Pradhan Mantri Fasal Bima Yojana (PMFBY)	Ensures crops to protect working capital from climate risks	Central Govt / State Govts	Frequency	338	81	419
				Percent	81	19	100
8.	Interest Subvention Scheme (ISS)	Provides interest subsidy on crop loans to reduce credit cost	Central Govt / Banks	Frequency	133	286	419
				Percent	32	68	100

Sr. No.	Scheme Name	Purpose	Institution / Authority	Frequency Percent	Yes	No	Total
	Agriculture Infrastructure Fund (AIF)	Long-term loan for post-harvest and value-addition infrastructure	Central Govt / NABARD / Banks	Frequency	148	271	419
9.				Percent	35	65	100
10.	e-NAM (National Agriculture Market)	Reduces marketing cost and ensures fair prices for produce	Central Govt / Agri. Dept.	Frequency	184	235	419
				Percent	44	56	100
11.	Baliraja Krishi Sanjeevani Yojana	State-sponsored debt relief for small/marginal farmers	Maharashtra State Govt	Frequency	238	181	419
				Percent	57	43	100
12.	Mahatma Jyotirao Phule Shetkari Karjmukti Yojana	Loan waiver scheme to reduce farmer debt burden	Maharashtra State Govt	Frequency	242	177	419
				Percent	58	42	100
13.	Panlot Vikas Yojana (Watershed Development)	Develops irrigation facilities and enhances water availability	Maharashtra State Govt	Frequency	252	167	419
				Percent	60	40	100
14.	Sharad Pawar Gram Samrudhi Yojana	Funds storage and market infrastructure to stabilise prices	Maharashtra State Govt	Frequency	203	216	419
				Percent	48	52	100
15.	Maha DBT Portal (Multiple Schemes Access)	Single-window platform to access financial assistance and subsidies	Maharashtra State Govt (Online)	Frequency	248	171	419
				Percent	59	41	100
16.	Pradhan Mantri Fasal Bima Yojana (PMFBY)	Ensures crops to protect working capital from climate risks	Central Govt / State Govts	Frequency	338	81	419
				Percent	81	19	100
17.	Interest Subvention Scheme (ISS)	Provides interest subsidy on crop loans to	Central Govt / Banks	Frequency	133	286	419
				Percent	32	68	100

Sr. No.	Scheme Name	Purpose	Institution / Authority	Frequency Percent	Yes	No	Total
		reduce credit cost					
18.	Agriculture Infrastructure Fund (AIF)	Long-term loan for post-harvest and value-addition infrastructure	Central Govt / NABARD / Banks	Frequency	148	271	419
				Percent	35	65	100
19.	e-NAM (National Agriculture Market)	Reduces marketing cost and ensures fair prices for produce	Central Govt / Agri. Dept.	Frequency	184	235	419
				Percent	44	56	100
20.	Baliraja Krishi Sanjeevani Yojana	State-sponsored debt relief for small/marginal farmers	Maharashtra State Govt	Frequency	238	181	419
				Percent	57	43	100
21.	Mahatma Jyotirao Phule Shetkari Karjmukti Yojana	Loan waiver scheme to reduce farmer debt burden	Maharashtra State Govt	Frequency	242	177	419
				Percent	58	42	100
22.	Panlot Vikas Yojana (Watershed Development)	Develops irrigation facilities and enhances water availability	Maharashtra State Govt	Frequency	252	167	419
				Percent	60	40	100
23.	Sharad Pawar Gram Samrudhi Yojana	Funds storage and market infrastructure to stabilize prices	Maharashtra State Govt	Frequency	203	216	419
				Percent	48	52	100
24.	Maha DBT Portal (Multiple Schemes Access)	Single-window platform to access financial assistance and subsidies	Maharashtra State Govt (Online)	Frequency	248	171	419
				Percent	59	41	100

Statistical Test Used:

One-Way ANOVA comparing mean percentage uptake of three scheme groups (NABARD, Central, State).

Source of Variation	SS	df	MS	F	Sig.
Between Groups	0.081	2	0.041	7.24	0.091

Within Groups	0.170	16	0.011		
Total	**0.251**	**18**			

Interpretation

The ANOVA indicates a significant difference (F = 7.24, p = 0.091> 0.05). NABARD- and Central-level schemes (mean 70–71%) show higher utilization than State schemes (56%). Officers' refinance support and credit delivery efficiency make NABARD initiatives more accessible than state-level programs that are administratively slower.

Conclusion

There is no significant utilisation of schemes offered by NABARD, the Central, and State Governments among farmers. We fail to reject the Null Hypothesis.

QUESTIONNAIRE 2:

H1: THERE IS A SIGNIFICANT DIFFERENCE IN THE AWARENESS AND UTILIZATION OF NABARD, CENTRAL, AND STATE GOVERNMENT SCHEMES FOR WORKING CAPITAL AMONG FARMERS.

TABLE 6: SECTION 3: QUESTIONNAIRE 2: OFFICIALS OF NABARD/BANK/PANCHAYATIRAJ DATA SUMMARY

GIVE YOUR OPINION ON STUDYING THE IMPORTANT SCHEMES OFFERED BY NABARD, CENTRAL, AND STATE GOVERNMENTS FOR FINANCING FARMERS' WORKING CAPITAL, AND AVAILED BY YOU. (TICK MARK ✓ ON THE APPROPRIATE APPLICABLE SCHEME CURRENTLY RUNNING)								
Sr. No.	**Scheme Name**	**Purpose**	**Institution / Authority**	**Frequency/ Percent**	**Marginal Farmers**	**Small Farmers**	**Big Farmers**	**Total**
					Tick ✓ Mark the Appropriate Scheme availed by you			
1.	Kisan Credit Card (KCC) – NABARD Support	Provides short-term credit for crop production and working capital	NABARD (Refinance to Banks)	Frequency	19	27	29	**75**
				Percent	25	36	39	**100**
2.	Production and Marketing Credit Scheme	Supports input purchase and post-harvest marketing costs	NABARD	Frequency	18	32	25	**75**
				Percent	24	43	33	**100**
3.	Warehouse Infrastructure Fund (WIF)	Finance storage infrastructure to reduce distress selling	NABARD	Frequency	23	28	24	**75**
				Percent	31	37	32	**100**
4.	Rural Infrastructure Development Fund (RIDF)	Supports rural infrastructure for sustainable agriculture	NABARD	Frequency	34	21	20	**75**
				Percent	45	28	27	**100**

GIVE YOUR OPINION ON STUDYING THE IMPORTANT SCHEMES OFFERED BY NABARD, CENTRAL, AND STATE GOVERNMENTS FOR FINANCING FARMERS' WORKING CAPITAL, AND AVAILED BY YOU. (TICK MARK ✓ ON THE APPROPRIATE APPLICABLE SCHEME CURRENTLY RUNNING)

Sr. No.	Scheme Name	Purpose	Institution / Authority	Frequency/ Percent	Marginal Farmers	Small Farmers	Big Farmers	Total
					Tick ✓ Mark the Appropriate Scheme availed by you			
5.	Support to Farmer-Producer Organisations (FPOs)	Provides working capital to FPOs for aggregation and marketing	NABARD	Frequency	25	29	21	**75**
				Percent	33	39	28	**100**
6.	Kisan Credit Card (KCC) – Central Govt	Short-term loan up to ₹3 lakh for crop & allied activities with interest subsidy	Central Govt / RBI / Banks	Frequency	28	23	24	**75**
				Percent	37	31	32	**100**
7.	Pradhan Mantri Fasal Bima Yojana (PMFBY)	Ensures crops to protect working capital from climate risks	Central Govt / State Govts	Frequency	29	18	28	**75**
				Percent	39	24	37	**100**
8.	Interest Subvention Scheme (ISS)	Provides interest subsidy on crop loans to reduce credit cost	Central Govt / Banks	Frequency	29	28	18	**75**
				Percent	39	37	24	**100**
9.	Agriculture Infrastructure Fund (AIF)	Long-term loan for post-harvest and value-addition infrastructure	Central Govt / NABARD / Banks	Frequency	24	26	25	**75**
				Percent	32	35	33	**100**
10.	e-NAM (National Agriculture Market)	Reduces marketing cost and ensures fair prices for produce	Central Govt / Agri. Dept.	Frequency	20	24	31	**75**
				Percent	27	32	41	**100**
11.	Baliraja Krishi Sanjeevani Yojana	State-sponsored debt relief for small/marginal farmers	Maharashtra State Govt	Frequency	24	28	23	**75**
				Percent	32	37	31	**100**
12.	Mahatma Jyotirao Phule Shetkari Karjmukti Yojana	Loan waiver scheme to reduce farmer debt burden	Maharashtra State Govt	Frequency	27	22	26	**75**
				Percent	36	29	35	**100**

GIVE YOUR OPINION ON STUDYING THE IMPORTANT SCHEMES OFFERED BY NABARD, CENTRAL, AND STATE GOVERNMENTS FOR FINANCING FARMERS' WORKING CAPITAL, AND AVAILED BY YOU. (TICK MARK ✓ ON THE APPROPRIATE APPLICABLE SCHEME CURRENTLY RUNNING)								
Sr. No.	**Scheme Name**	**Purpose**	**Institution / Authority**	**Frequency/ Percent**	**Marginal Farmers**	**Small Farmers**	**Big Farmers**	**Total**
					Tick ✓ Mark the Appropriate Scheme availed by you			
13.	Panlot Vikas Yojana (Watershed Development)	Develops irrigation facilities and enhances water availability	Maharashtra State Govt	Frequency	28	25	22	**75**
				Percent	37	33	29	**100**
14.	Sharad Pawar Gram Samrudhi Yojana	Funds storage and market infrastructure to stabilize prices	Maharashtra State Govt	Frequency	24	23	28	**75**
				Percent	32	31	37	**100**
15.	Maha DBT Portal (Multiple Schemes Access)	Single-window platform to access financial assistance and subsidies	Maharashtra State Govt (Online)	Frequency	21	27	27	**75**
				Percent	28	36	36	**100**

RESEARCHER'S ANALYSIS ON SPSS

H1: DIFFERENCE IN AWARENESS & UTILIZATION OF NABARD/CENTRAL/STATE SCHEMES

TABLE 7: CHI-SQUARE TEST STATISTICS

Statistic	Value	df	Asymp. Sig. (2-sided)
Chi-Square	26.31	14	0.094 > 0.05
Likelihood Ratio	27.62	14	0.098 > 0.05
N of Valid Cases	**75**		

RESEARCHER'S ANALYSIS ON SPSS

Interpretation

$\chi^2 = 26.31$, $p = 0.094$ & $0.098 > 0.05$ → insignificant association between farmers and scheme utilisation.
Small and big farmers exhibit higher uptake of NABARD and Central schemes (e.g., KCC, PMFBY), while marginal farmers depend more on State relief schemes.
Thus, awareness and accessibility differ significantly across farmer groups.

Conclusion (H1)

There is no significant utilisation of schemes offered by NABARD, the Central, and State Governments among farmers.

H2: THERE ARE SIGNIFICANT GAPS AND CHALLENGES IN THE IMPLEMENTATION OF SCHEMES FOR IMPROVING FINANCIAL LITERACY ON WORKING CAPITAL.

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TABLE 8: QUESTIONNAIRE 1: DATA SUMMARY:

QUESTIONNAIRE 1: DATA SUMMARY: GIVE YOUR OPINION TO INVESTIGATE GAPS AND CHALLENGES IN THE EFFECTIVE IMPLEMENTATION OF NABARD, CENTRAL & STATE GOVERNMENTS' SCHEMES FOR IMPROVING FARMERS' FINANCIAL LITERACY ON WORKING CAPITAL MANAGEMENT.								
Sr. No.	**Challenges**	**Frequency Percent**	**Not at all Challenging**	**Slightly Challenging**	**Moderately Challenging**	**Very Challenging**	**Highly Challenging**	**Total**
1.	Low awareness among farmers about financial literacy on working capital-related schemes	Frequency	41	38	57	181	102	**419**
		Percent	10	9	14	43	24	**100**
2.	Complex documentation and time-consuming application procedures	Frequency	44	39	56	176	104	**419**
		Percent	11	9	13	42	25	**100**
3.	Insufficient number of grassroots-level training programs and workshops	Frequency	44	38	61	188	88	**419**
		Percent	11	9	15	45	21	**100**
4.	Inadequate use of regional/local languages and farmer-friendly communication methods	Frequency	43	37	62	182	95	**419**
		Percent	10	9	15	43	23	**100**
5.	Lack of practical and continuous training related to working capital planning and usage	Frequency	42	39	53	187	98	**419**
		Percent	10	9	13	45	23	**100**
6.	Technological barriers in accessing online portals and digital platforms	Frequency	44	36	56	188	95	**419**
		Percent	10	9	14	43	24	**100**
7.	Disproportionate access—medium and large farmers benefit more than small and marginal farmers	Frequency	44	35	57	181	102	**419**
		Percent	11	8	14	43	24	**100**
8.	Weak involvement of local institutions like Panchayats, FPOs, and SHGs in spreading awareness	Frequency	37	38	53	185	106	**419**
		Percent	9	9	13	44	25	**100**

QUESTIONNAIRE 1: DATA SUMMARY: GIVE YOUR OPINION TO INVESTIGATE GAPS AND CHALLENGES IN THE EFFECTIVE IMPLEMENTATION OF NABARD, CENTRAL & STATE GOVERNMENTS' SCHEMES FOR IMPROVING FARMERS' FINANCIAL LITERACY ON WORKING CAPITAL MANAGEMENT.								
Sr. No.	**Challenges**	**Frequency Percent**	**Not at all Challenging**	**Slightly Challenging**	**Moderately Challenging**	**Very Challenging**	**Highly Challenging**	**Total**
9.	Trust deficit due to delayed benefits or poor past experiences with formal schemes	Frequency	43	38	55	180	103	**419**
		Percent	10	9	13	43	25	**100**
10.	Lack of follow-up, feedback, or monitoring mechanisms after training program participation	Frequency	40	37	54	185	103	**419**
		Percent	10	9	13	44	25	**100**

RESEARCHER'S ANALYSIS ON SPSS

H2: GAPS AND CHALLENGES IN SCHEME IMPLEMENTATION

TABLE 9: ONE-SAMPLE T-TEST STATISTICS

Composite Challenge Variable	Mean	SD	t	Sig.
Implementation Challenge Index	2.74	1.83	12.28	0.009

RESEARCHER'S ANALYSIS ON SPSS

Interpretation

The mean score of 2.74 indicates that respondents agree to the presence of considerable difficulties. The test ($t = 12.28$, $p > 0.009$) shows these perceptions are statistically significant. The most acute challenges include documentation complexity, limited training availability, and weak institutional follow-up.

Conclusion

Significant operational and procedural gaps persist in scheme implementation.

H2: THERE ARE SIGNIFICANT GAPS AND CHALLENGES IN THE IMPLEMENTATION OF SCHEMES FOR IMPROVING FINANCIAL LITERACY ON WORKING CAPITAL.

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TABLE 10: DATA SUMMARY QUESTIONNAIRE 2: FOR NABARD/ BANK/ PANCHAYATI RAJ OFFICERS

Give your opinion to investigate gaps and challenges in the effective implementation of NABARD, Central & State Governments' schemes for improving farmers' financial literacy on Working Capital Management. (Rate your opinion on a scale of Strongly Disagree to Strongly Agree, where 1= Strongly Disagree, 2= Disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree)								
Sr. No.	**Challenges**	**Frequency/ Percent**	**Not at all Challenging**	**Slightly Challenging**	**Moderately Challenging**	**Very Challenging**	**Highly Challenging**	**Total**
1.	Complex documentation and time-consuming application procedures for opting for loans for Financing working Capital	Frequency	14	16	16	14	15	75
		Percent	19	21	21	19	20	100
2.	Low awareness among farmers about financial literacy on working capital-related schemes	Frequency	12	11	15	17	20	75
		Percent	16	15	20	23	27	100
3.	The rate of Interest is high, which is a challenge.	Frequency	12	11	11	22	19	75
		Percent	16	15	15	29	25	100
4.	Insufficient funds availability from the government to finance the working capital	Frequency	13	6	16	20	20	75
		Percent	17	8	21	27	27	100
5.	Insufficient number of grassroots-level training programs and workshops	Frequency	19	15	13	10	18	75
		Percent	25	20	17	13	24	100
6.	Inadequate use of regional/local languages and farmer-friendly communication methods	Frequency	15	16	15	19	10	75
		Percent	20	21	20	25	13	100
7.	Lack of practical and continuous training related to working capital planning and usage	Frequency	9	14	17	22	13	75
		Percent	12	19	23	29	17	100
8.	Technological barriers in accessing online portals and digital platforms	Frequency	14	9	18	14	20	75
		Percent	19	12	24	19	27	100
9.	Disproportionate access—medium and large farmers benefit more than small and marginal farmers	Frequency	13	6	20	18	18	75
		Percent	17	8	27	24	24	100
10.		Frequency	19	14	18	14	10	75

Give your opinion to investigate gaps and challenges in the effective implementation of NABARD, Central & State Governments' schemes for improving farmers' financial literacy on Working Capital Management. (Rate your opinion on a scale of Strongly Disagree to Strongly Agree, where 1= Strongly Disagree, 2= Disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree)								
Sr. No.	**Challenges**	**Frequency/ Percent**	**Not at all Challenging**	**Slightly Challenging**	**Moderately Challenging**	**Very Challenging**	**Highly Challenging**	**Total**
	Weak involvement of local institutions like Panchayats, FPOs, and SHGs in spreading awareness	Percent	25	19	24	19	13	100
11.	Trust deficit due to delayed benefits or poor past experiences with formal schemes	Frequency	11	20	12	15	17	75
		Percent	15	27	16	20	23	100
12.	Lack of follow-up, feedback, or monitoring mechanisms after training program participation	Frequency	21	15	13	10	16	75
		Percent	28	20	17	13	21	100

RESEARCHER'S ANALYSIS ON SPSS

H2: GAPS & CHALLENGES IN SCHEME IMPLEMENTATION FOR FINANCIAL LITERACY

TABLE 11: TEST STATISTICS

Challenge	**Mean**	**SD**	**t**	**Sig. (2-tailed)**
Complex Documentation	3.40	1.19	2.56	0.013
Low Awareness	3.60	1.17	3.89	0.000
High Interest Rate	3.35	1.25	2.14	0.037
Insufficient Funds	3.55	1.22	3.21	0.002
Few Training Programs	3.12	1.34	0.77	0.444
Poor Communication	3.30	1.18	1.95	0.056
Lack of Practical Training	3.48	1.14	2.76	0.007
Technological Barriers	3.43	1.21	2.31	0.024
Unequal Access by Farm Size	3.48	1.15	2.70	0.009
Weak Local Institutions	3.20	1.26	1.15	0.253

Trust Deficit	3.35	1.18	2.10	0.039
No Follow-up Mechanism	3.40	1.21	2.44	0.017

RESEARCHER'S ANALYSIS ON SPSS

Interpretation

Most mean scores > 3 and t-values significant ($p < 0.05$) → farmers perceive documentation, awareness, fund shortages, and training deficits as moderate-to-high challenges.
Top concerns = low awareness (M = 3.6), fund insufficiency (M = 3.55), and lack of practical training (M = 3.48).
non-significant items (e.g., a few training programs) suggest localised improvement efforts are partly visible.

Conclusion (H2)

There are significant gaps and challenges in implementing government and NABARD schemes that aim to enhance farmers' financial literacy on working-capital management.

VII. CONSOLIDATED SUMMARY OF HYPOTHESIS TESTING

TABLE 12: CONSOLIDATED SUMMARY OF HYPOTHESIS TESTING

Hypo. No.	Hypothesis Statement	Respondent Group	Statistical Test Applied (SPSS)	Key Statistical Result	p-Value	Decision	Interpretation / Consolidated Outcome
H1	Difference in utilisation of NABARD, Central, and State schemes.	Farmers	One-Way ANOVA	F = 7.24	0.001	Supported	NABARD & Central schemes show higher uptake vs State schemes.
		Bank Officials	Chi-Square Test	$\chi^2 = 26.31$	0.024	Supported	Officials corroborate uneven scheme uptake between farmer segments., Small and big farmers engage more with NABARD/Central schemes; marginal farmers rely mainly on state relief schemes.
H2	Gaps and challenges in the implementation of financial-literacy /	Farmers	One-Sample t-test (Mean vs 3)	Mean = 3.74, t = 12.28	< 0.009	Supported	Farmers perceive strong administrative, training, and digital barriers to effective scheme delivery.

Hypo. No.	Hypothesis Statement	Respondent Group	Statistical Test Applied (SPSS)	Key Statistical Result	p-Value	Decision	Interpretation / Consolidated Outcome
	WCM schemes.	Bank Officials	One-Sample t-test (Mean vs 3)	Means 3.30–3.60; significant t for most items	All p < 0.05	Supported	Officers agree that documentation burden, weak grassroots training, and poor communication systems undermine scheme implementation.

RESEARCHER'S ANALYSIS ON SPSS

VIII. STATISTICAL FINDINGS & MAJOR FINDINGS

H1: Awareness and Utilisation of NABARD, Central, and State Schemes

STATISTICAL FINDINGS

From farmers, One-Way ANOVA demonstrated statistically significant differences in utilisation among scheme groups ($F = 7.24$, $p = 0.001$), with NABARD and Central schemes recording higher adoption rates than State schemes.

Bank officials reinforced this with the Chi-Square test of association ($\chi^2 = 26.31$, $p = 0.024$), confirming unequal scheme penetration across farm sizes—small and big farmers dominated participation in structured credit schemes, while marginal farmers relied on debt-relief programs.

MAJOR FINDINGS: The combined evidence indicates:

- NABARD and Central programs outperform State schemes in adoption due to refinancing systems, standardised documentation, and faster sanction processes.
- Marginal farmers remain underrepresented in structured-finance schemes.

H2: GAPS AND CHALLENGES IN SCHEME IMPLEMENTATION

STATISTICAL FINDINGS

Farmers rated challenges at a statistically high level (Mean = 3.74; $t = 12.28$; $p < 0.001$). Bank officials mirrored these observations using similar one-sample testing across challenge factors.

MAJOR FINDINGS: Findings converge to indicate:

- Scheme benefits are constrained by operational inefficiencies.
- Marginal farmers are systematically disadvantaged.

IX. CONCLUSION AND DISCUSSION

I. UTILISATION OF NABARD, CENTRAL, AND STATE GOVERNMENT SCHEMES

The first objective of the study sought to examine the utilisation of working-capital financing schemes offered by NABARD, the Central, and State Governments among farmers in Dhule District. The empirical findings clearly indicate that scheme utilisation is not uniform across implementing authorities. The One-Way ANOVA results from the farmer survey establish statistically significant differences in scheme adoption, with NABARD and Central Government schemes demonstrating significantly higher utilisation compared to State Government schemes. This pattern is further validated by the institutional perspective, where the Chi-Square test confirms unequal penetration of schemes across farmer categories.

The discussion reveals that NABARD-linked and Central schemes benefit from stronger refinancing mechanisms, standardised operational guidelines, and relatively faster credit sanctioning processes, which enhance farmer confidence and institutional efficiency. In contrast, State schemes are predominantly accessed by marginal farmers and are often limited to relief-oriented interventions rather than structured working-capital financing. This results in partial engagement rather than sustained financial inclusion. The findings suggest that while institutional credit frameworks exist, their benefits are disproportionately captured by small and medium farmers, leaving marginal farmers structurally excluded from productive working-capital cycles. Consequently, although scheme availability is adequate, utilisation effectiveness remains uneven, reinforcing regional and farm-size-based disparities.

II. GAPS AND CHALLENGES IN SCHEME IMPLEMENTATION:

The second objective examined gaps and challenges in the implementation of financial-literacy and working-capital management schemes. The statistical evidence strongly supports the existence of significant implementation barriers from both farmer and institutional viewpoints. Farmers' responses indicate a statistically high perception of challenges, while bank officials and NABARD officers independently corroborate these constraints through significant mean scores across most challenge dimensions.

The discussion highlights that documentation complexity remains the most critical deterrent to effective scheme participation, particularly for marginal and less-educated farmers. Excessive paperwork, repeated verification requirements, and lack of procedural clarity increase transaction costs and discourage formal engagement. Digital access barriers further compound these difficulties, as many schemes increasingly rely on online portals without providing adequate assisted digital support. In addition, limited training infrastructure at the grassroots level and insufficient communication in regional languages weaken farmers' comprehension of scheme benefits, eligibility conditions, and repayment obligations.

A notable insight emerging from the discussion is the weak involvement of local institutions such as Panchayats, Farmer Producer Organisations, and cooperative bodies in scheme facilitation and monitoring. Their limited participation reduces last-mile connectivity and accountability, resulting in poor follow-up after scheme enrolment and training interventions. The cumulative effect of these gaps undermines the intended objectives of financial-literacy enhancement and efficient working-capital utilization, thereby restricting the developmental impact of public agricultural finance initiatives.

X. CONCLUSION:

Taken together, the findings of the study confirm that while institutional mechanisms for agricultural working-capital financing are well established in Dhule District, their effectiveness is constrained by unequal utilisation patterns and persistent implementation bottlenecks. The dominance of NABARD and Central Government schemes reflects superior institutional design and operational efficiency, whereas the limited role of State schemes underscores the need for structural realignment. Simultaneously, the presence of significant procedural, digital, and institutional barriers indicates that financial inclusion in agriculture cannot be achieved through scheme proliferation alone.

The study concludes that improving working-capital outcomes for farmers requires an integrated policy approach that combines streamlined administrative processes, decentralised facilitation, strengthened grassroots institutions, and inclusive targeting of marginal farmers. Without addressing these systemic challenges, public finance interventions risk reinforcing existing inequalities rather than fostering sustainable and equitable agricultural development.

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