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Rural Agricultural Resilience in India: A Case Study of Agricultural Practices and Constraints in Ukhali Village, Vidarbha

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Abstract

Agriculture is the backbone of India's economy, employing over 50% of the workforce and contributing approximately 16.4% to the gross domestic product (GDP) in 2024 (World Bank, 2024). Despite its significance, rural farmers, specifically in regions like Vidarbha in Maharashtra, face multifaceted challenges like water scarcity, debt burdens and climate variations. This study examines these issues through a qualitative case study of Ukhali Village in Hingna Taluka, Nagpur District, using secondary data to explore agricultural practices, persistent problems and the role of government schemes. The findings reveal that while Ukhali's farmers cultivate diverse crops like cotton, pulses, and horticultural produce, they face the issues of inadequate irrigation, rising input costs, and limited access to credit. The National Mission for Sustainable Agriculture's (NMSA) sub-schemes related to soil health management and rainfed area development offer potential for resilience but suffer from implementation gaps at the local level. This study highlights the novelty of micro-level analysis in linking policy design to village-specific outcomes. The implications of the findings for agricultural management include enhanced stakeholder engagement and technology adoption to ensure sustainability.

Keywords: *sustainable agriculture, farmer challenges, policy implementation, rural management, Vidarbha region, NMSA*

1. Introduction

India predominantly relies on agriculture as its backbone. It serves as the primary source of income for approximately 58% of the population and fulfils the basic needs of both humans and animals (National Statistical Office, 2021). The agricultural sector contributes significantly, accounting for 16.4% of India's GDP in 2024, down from 17-18% in earlier years due to the expansion of services and industry (World Bank, 2024).

India's geographical diversity, including flat terrain, fertile soil, extended growing seasons, and varying climatic conditions, provides favourable conditions for agriculture. The country continually adopts innovative practices, incorporating science and technology to enhance production (Saikanth et al., 2023). India holds the top position as a global producer of many crops, categorised into food grains (rice, wheat, maize, millets, and pulses), cash crops (cotton, jute, sugarcane, tobacco, and oilseeds), plantation crops (tea, coffee, coconut, and rubber), and horticulture crops like fruits and vegetables (FAO, 2023).

Despite these strengths, the sector's contribution to GDP has been decreasing, yet it remains vital for food security, employment, and economic stability (Birthal et al., 2022). Agriculture is a major employer in India, providing livelihoods to more than 50% of the population and supporting millions of farmers and their families (NITI Aayog, 2024). India has one of the largest net cropped areas in the world, surpassing the US and China, allowing for a diverse range of crops (Pratap, 2023). As a notable agricultural exporter, with products sent to over 120 countries, India ranked seventh-largest globally in 2013 and sixth-largest net exporter, with exports essential for developing and least developed nations (APEDA, 2024). International reach extends to Japan, Southeast Asia, SAARC countries, the European Union, and the United States, signifying India's importance in the international agricultural market (WTO, 2024).

The diversity of India's agriculture encompasses not only crop cultivation but also animal husbandry, forestry, and fisheries, allowing resilience in the face of changing market demands and climatic conditions (Rao et al., 2023). Agriculture is deeply ingrained in India's socio-economic fabric, influencing culture, traditions, and the daily lives of a substantial portion of the population (Gupta & Singh, 2022). As India continues to develop, there is a need to improve the efficiency, infrastructure and sustainability of the agricultural sector to ensure its continued contribution to the nation's well-being.

In Maharashtra, nearly 82% of its rural population depends on agriculture for their livelihood (Directorate of Economics and Statistics, 2024). The state cultivates both food and cash crops, including rice, jowar, bajra, wheat, pulses, turmeric, onions, cotton, sugarcane and various oilseeds like groundnut, sunflower, and soybean. Maharashtra's tropical climate results in varying patterns of rainfall, with the Konkan and hilly Sahyadri region receiving concentrated rainfall, while central Maharashtra faces sporadic rainfall, leading to water scarcity and drought in approximately 24% of the state (Commissionerate of Agriculture, 2024). Some regions experience over-extraction of groundwater, especially for cash crops like sugarcane, bananas, grapes, and oranges.

While the total irrigated area is 33,500 square kilometres, accounting for only 18% of the Gross Cropped Area, Maharashtra has shifted focus towards high-value horticulture, with significant portions dedicated to fruit and vegetable cultivation, offering tremendous export potential (Directorate of Horticulture, 2024). The state has established Agri Export Zones and leads as the largest producer of onions (63%), bananas (75%), mandarin oranges (75%), tomatoes (42%), pomegranates, Alphonso mangoes (90%), and seedless grapes (78%) (APEDA, 2024). The sugar industry thrives with about 150 productive cooperative sugar mills.

Narrowing to Hingna Taluka in Nagpur District, agriculture significantly contributes to the local economy. According to the 2011 census, the total population was 242,198, with 128,693 males and 113,505 females. Literacy of the region stood at 76.31%, and the workforce included 10,699 cultivators and 22,713 agricultural labourers (Census of India, 2011). Soil types vary from medium black to medium-heavy and light, suitable for cotton and oranges. Cotton, jowar, soybean, tur, mung, urid, and paddy are the key crops of this region.

Ukhali Village, a small hamlet in Hingna Taluka with 990 residents (536 males, 454 females) as per the 2011 census, exemplifies these dynamics (Census of India, 2011). Covering 401.55 hectares with 139 households, the village's literacy rate is 91.37%, surpassing the state average of 82.34%. Of the 331 employed residents, 19 rely completely on farming, cultivating cotton, pulses like tur and soybean, cash crops like mangoes, oranges, and flowers, alongside vegetables such as brinjal, lady's fingers, radish, cucumber, pumpkins, drumsticks, various gourds, and green vegetables.

However, farmers in Ukhali and similar villages face acute challenges: inadequate water supply, high debt, falling crop prices, and crop failures due to rain dependency. These issues

are exacerbated by climate change, leading to increased suicides in Maharashtra (Anjali & Kumar, 2025). Government interventions like NMSA aim to address these through sustainable practices, yet implementation gaps persist (Kumar et al., 2024).

This study addresses a critical gap in the agricultural management literature, viz., the scarcity of micro-level case studies that connect national policies to outcomes at the village level in the Vidarbha region (Saikanth et al., 2023). It pursues several interconnected objectives: profiling the agricultural practices prevalent in Ukhali Village, pinpointing the primary challenges encountered by local farmers, assessing the relevance of the National Mission for Sustainable Agriculture (NMSA) to these contexts, and deriving actionable management implications to guide future interventions. Through its emphasis on localised insights, the research advances sustainable rural management by bridging theoretical policy frameworks with practical, ground-level realities.

2. Literature Review

Sustainable agriculture in India has emerged as a vital response to escalating environmental degradation, resource depletion, and socio-economic inequities, as highlighted in recent scholarship (Kumar & Manshi, 2023). At its core, sustainable agriculture refers to farming systems designed to sustain productivity over the long term while minimising ecological harm, with a strong emphasis on integrated practices such as crop rotation, water conservation, and organic inputs (FAO, 2023). In a country where agriculture underpins the livelihoods of 58% of the population yet occupies just 2.4% of the world's arable land, achieving sustainability is not merely desirable but essential for safeguarding food security and alleviating poverty (Birthal et al., 2022).

Despite these imperatives, the sector confronts profound challenges that undermine its viability. Climate variability, manifested through erratic monsoons, disrupts 60% of India's rainfed areas and precipitates yield losses ranging from 20% to 30% annually (IPCC, 2022). Compounding this, water scarcity afflicts 70% of irrigated lands, while soil degradation has compromised over 120 million hectares of farmland (NITI Aayog, 2024). Financial strains further exacerbate vulnerabilities, with average household indebtedness reaching INR 74,121 and contributing to more than 10,000 farmer suicides each year (NSSO, 2023). These pressures are particularly acute in Maharashtra, where droughts and floods have surged since 2022, culminating in 1,500 reported suicides in the Vidarbha region alone during 2024 (Hindustan Times, 2024; Anjali & Kumar, 2025).

The literature consistently illuminates the precarious position of smallholder farmers, who dominate India's agricultural landscape. Fragmented landholdings, averaging a mere 1.08 hectares, constrain access to mechanisation and amplify exposure to market volatility, steadily eroding incomes (Pratap, 2023). Rapid urbanisation has also diminished youth engagement in farming, with only 20% of individuals under 30 participating actively (Rao et al., 2023). In response, policies such as the National Food Security Act of 2013 have enhanced procurement mechanisms, yet they fall short in mitigating storage losses that affect up to 30% of harvested produce (Gupta & Singh, 2022).

Central to these policy efforts is the National Mission for Sustainable Agriculture (NMSA), initiated in 2014 as part of the National Action Plan on Climate Change to foster climate-resilient farming practices (Government of India, 2014). NMSA's core objectives centre on bolstering productivity across rainfed areas—which constitute 68% of India's arable land—through targeted sub-schemes, including Soil Health Management for promoting balanced fertilisation and Rainfed Area Development for enhancing water-use efficiency (Kumar et al., 2024). Initial evaluations suggest promising outcomes, with the mission encompassing 10 million hectares and yielding productivity gains of 15-20% in pilot sites; however, adoption remains stalled at around 40%, hampered by persistent gaps in awareness and inadequate extension services (Xu et al., 2024; Chauhan & von Wehrden, 2025).

Within NMSA's framework, initiatives like the Paramparagat Krishi Vikas Yojana have certified half a million organic farmers, curbing chemical inputs by 25%, though challenges in scaling persist due to prohibitive certification costs (Singh, 2019). Complementing this, the National Rainfed Area Authority advances policy measures for 80 million households in rainfed zones, synergising with programs such as the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) to advance watershed development (UPPCS Magazine, 2025). Region-specific research in Vidarbha highlights these dynamics, as in the case of the adoption of Bt cotton in Nagpur, which elevated yields but simultaneously intensified water demands (CRDA India, 2020).

Empirical case studies from Nagpur District further reveal evolving land-use patterns, including a 15% decline in agricultural cover between 2000 and 2020, driven by urban expansion, which has disproportionately affected soybean and cotton cultivation (Pratap, 2023). Investigations into sewage irrigation practices highlight risks of soil contamination, reinforcing the urgency of NMSA's soil survey components (ISSLUP, 2018), while analyses

of livestock marketing expose inefficiencies in value chains that result in 40% income leakage for producers (Patil, 2020).

Anchoring these empirical insights are theoretical lenses that provide deeper analytical depth. The Sustainable Livelihoods Approach (SLA), for example, prioritises the interplay of capabilities, assets, and strategies in building resilience (DFID, 1999). Applying it to India, it demonstrates how policies can fortify human capital and still neglect financial vulnerabilities (Saikanth et al., 2023). Similarly, transition theory outlines pathways from conventional intensive agriculture to regenerative models, advocating for multi-stakeholder governance to navigate these shifts (PMC, 2023).

However, notable gaps exist in the literature. Macro-level analyses predominate, leaving a dearth of village-scale investigations that rigorously assess policy impacts (Suresh et al., 2022). In this review, we weave together these disparate threads, framing Ukhali Village as a critical vantage point for examining sustainable agricultural management in practice.

3. Methodology Adopted

This study adopts a qualitative case study design to investigate sustainable agricultural management in Ukhali Village. It draws directly from Yin's (2018) framework, which supports detailed and context-specific examinations of real-world phenomena. This method is particularly well-suited to management research because it allows researchers to explore how policies are put into practice in everyday environments (Eisenhardt, 1989). Given the exploratory nature of the work, the study focuses mainly on secondary data sources. These sources help outline key agricultural practices, the main challenges faced by farmers, and the performance of related government schemes. By relying on secondary data, the analysis avoids the difficulties that often arise when collecting primary data in remote rural areas, such as limited access or logistical barriers.

The data come from a range of reliable secondary materials. These include official reports, for example, from the Census of India (2011) and the Commissionerate of Agriculture (2024). Government documents, such as the guidelines for the National Mission for Sustainable Agriculture (NMSA) from 2014, also form a core part of the sources. In addition, peer-reviewed articles were selected through general searches on academic databases like Scopus and Web of Science. The review process was straightforward and involved identifying relevant publications from 2011 to 2025. These publications needed to connect directly to themes in the Vidarbha region and Nagpur District, ensuring a focused scope. In

total, about twenty-five sources contributed to the study. A thematic analysis was then applied to these materials, grouping them into four main categories: (1) profiles of agricultural activities, (2) challenges encountered in farming, (3) policy interventions designed to address those challenges, and (4) outcomes related to sustainability.

Throughout the study, ethical principles guided the work. This meant presenting all data accurately, without any creation or alteration of information to fit preconceived ideas. Such care ensures that the findings remain trustworthy and true to the original sources. However, a key limitation is the absence of direct interviews with primary participants, like local farmers. This gap was mitigated by cross-checking information against up-to-date reports, such as those from NITI Aayog (2024), to strengthen reliability.

The analysis combined two approaches: deductive and inductive. In the deductive phase, the findings were mapped onto established concepts from the Sustainable Livelihoods Approach (SLA), which provides a structured way to examine how assets and strategies support rural livelihoods. At the same time, the inductive element allowed new patterns to emerge specifically from the Ukhali context, leading to insights that are grounded in the village's unique setting. This balanced method helps connect broader theoretical ideas to practical details on the ground, offering a clear path for understanding sustainable management in this specific case.

4. Findings

4.1. Agricultural Profile of Ukhali Village

Ukhali serves as a small village or hamlet within Hingna Taluka of Nagpur District, Maharashtra, India. It falls under the Ukhali Panchayat and lies in the Vidarbha region as well as the Nagpur Division (Census of India, 2011). The village has 990 residents, with a sex ratio of 847 females per 1,000 males. It includes 86 children under the age of six, who represent 8.69% of the population, and a literacy rate of 91.37%, where males show 92.53% literacy and females 89.98%. These figures exceed the state averages for Maharashtra, which has a sex ratio of 929 and a literacy rate of 82.34%. The village spans 401.55 hectares and contains 139 households. It sits 4.5 km from Hingna and 18 km from Nagpur, and it belongs to the Hingna assembly constituency as well as the Ramtek parliamentary constituency.

Among the 331 employed residents, 19 rely entirely on agriculture for their income, making it a key economic driver for the community. The main crops grown include cotton and pulses such as tur and soybean, alongside cash crops like mangoes, oranges, and flowers. A wide

variety of vegetables also thrive there, including brinjal, lady's fingers, radish, cucumber, pumpkins, drumsticks, various gourds, and green leafy vegetables. This range of produce reflects Maharashtra's broader movement toward high-value horticulture. It takes advantage of the local soil types, where medium black soils support cotton and lighter soils favour orange cultivation (Masare, 2015).

4.2. Challenges Faced by Farmers

Farmers in Ukhali face a range of systemic problems that echo patterns seen across India and Maharashtra. A primary issue is the inadequate and irregular supply of water, which forces heavy dependence on rainfall for irrigation. In Maharashtra, only 18% of the cropped area receives irrigation (Commissionerate of Agriculture, 2024). Droughts in the Vidarbha region, which affect about 24% of the state, worsen these conditions and lead to frequent crop failures, as observed during the floods and droughts from 2022 to 2024 (Hindustan Times, 2024).

Small landholdings, typically less than 1 hectare on average, limit farmers' ability to adopt advanced machinery. Overproduction of staple crops like cotton creates storage and sales difficulties, while also causing shortages of other essential produce (New Indian Express, 2025). Poor storage facilities drive down market prices, and limited transportation options compel farmers to sell locally at reduced rates. Regional estimates suggest the average debt levels of INR 2-3 lakh per household, which often exacerbates the cases of suicide. In Maharashtra, 1,500 such cases occurred in 2024, many of which were tied to climate-related shocks (France 24, 2025; Anjali & Kumar, 2025).

Complex procedures for institutional credit further disadvantage small and marginal farmers, and government subsidies frequently fail to reach those in greatest need. Urbanisation reduces young people's interest in farming, and ongoing issues in irrigation, weak price support systems, and limited political commitment persist (Kourtit et al., 2024). In Ukhali specifically, farmers deal with unpredictable yields, increasing input costs, declining crop prices, barriers to loans, water shortages, reliance on rain, and inadequate crop insurance (Census of India, 2011). Factors such as below-average rainfall, frequent power outages, poverty, pressure from moneylenders, and job scarcity for the next generation add to these burdens (Directorate of Economics and Statistics, 2024).

4.3. Government Schemes: Focus on NMSA

To support farmer welfare, the Government of India has introduced various schemes, including the National Mission for Sustainable Agriculture (NMSA). This initiative forms one of eight missions under the National Action Plan on Climate Change (Government of India, 2014). NMSA seeks to encourage sustainable farming methods that can adapt to and reduce the impacts of climate change. It emphasises integrated farming systems, improved water use efficiency, soil health management, and resource conservation, with a special focus on rainfed areas (Kumar et al., 2024).

Key sub-schemes under NMSA cover specific needs. Soil Health Management promotes balanced fertilisation and soil testing to improve nutrient efficiency. Rainfed Area Development works to raise crop yields and water efficiency in regions dependent on rainfall. The Soil and Land Use Survey provides essential data for better agricultural decisions. Paramparagat Krishi Vikas Yojana supports organic farming to cut down on chemical use. The National Centre for Organic Farming aids the growth of organic practices nationwide. Finally, the National Rainfed Area Authority develops policies to enhance livelihoods in rainfed zones (Chauhan & von Wehrden, 2025). Eligibility covers all Indian citizen farmers, who can apply online or through local Rural Agricultural Extension Officers by submitting documents like Aadhaar cards, bank passbooks, and land records.

Implementation relies on state agriculture departments, with involvement from Panchayati Raj Institutions and input from bodies such as the Indian Council of Agricultural Research (ICAR), State Agricultural Universities (SAUs), Krishi Vigyan Kendras (KVKs), and non-governmental organisations (NGOs). A cluster-based strategy targets areas with existing water resources developed through programs like the National Watershed Development Project for Rainfed Areas (NWDPRA), Rashtriya Krishi Vikas Yojana (RKVY), Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), and Integrated Watershed Management Programme (IWMP). Over a five-year period, subsidies aim to transfer directly to beneficiaries using Aadhaar-linked systems where infrastructure allows (Singh, 2019).

NMSA holds clear potential for Ukhali, where rainfed area development could ease drought risks and soil management would fit the black soils well. Yet uptake remains limited, with just 30% of farmers in Vidarbha using these sub-schemes due to low awareness (Xu et al., 2024). Although Maharashtra ranks first nationally with over 60% of its area under drip irrigation, smallholders in Ukhali experience uneven access (UPPCS Magazine, 2025).

5. Discussion

The findings from this case study shed light on the agricultural dynamics in Ukhali Village and position them within wider discussions on sustainability in rural India. The village demonstrates notable crop diversity, spanning staple crops like cotton and pulses to high-value horticultural products such as mangoes, oranges, and various vegetables. This variety serves as a practical example of resilience strategies outlined in the Sustainable Livelihoods Approach (SLA), which highlights how diversified farming can strengthen asset bases, particularly natural capital like soil and water resources (DFID, 1999; Rao et al., 2023). By spreading risks across different crop types, farmers in Ukhali can better cope with environmental fluctuations, much like broader patterns seen in rainfed regions. However, persistent challenges, such as water scarcity, closely mirror national trends where approximately 68% of arable land depends on rainfed agriculture, thereby heightening vulnerability to climate risks like erratic monsoons and droughts (IPCC, 2022). In the Vidarbha region specifically, the widespread adoption of Bt cotton has led to higher yields in areas like Nagpur, but it has also increased demands on groundwater extraction, as evidenced in local studies that underscore the trade-offs between productivity gains and resource depletion (CRDA India, 2020; Masare, 2015).

These environmental pressures intersect with deep socio-economic issues that undermine farmer well-being. High levels of debt and the tragic incidence of suicides point to systemic shortcomings in financial assets, where access to timely and affordable credit remains elusive. For instance, the Pradhan Mantri Fasal Bima Yojana (PMFBY), intended to provide crop insurance, has seen its effectiveness diminish since 2020 due to prolonged delays in claim settlements, leaving farmers exposed during crop failures (Anjali & Kumar, 2025). Such financial strains are further aggravated by weak price support mechanisms, where inadequate storage and transportation infrastructure result in low local sales prices that steadily diminish household incomes (Pratap, 2023). Compounding these difficulties is the impact of rapid urbanisation on human capital, as younger generations show declining interest in farming, posing a threat to the long-term sustainability of agricultural knowledge and practices across generations (Gupta & Singh, 2022). In Ukhali, these factors create a cycle of vulnerability, where small landholdings and limited mechanisation amplify the effects of market instability and environmental shocks.

Amid these challenges, the National Mission for Sustainable Agriculture (NMSA) stands out as a key government intervention designed to build resilience through targeted support. Its sub-schemes directly tackle core problems in villages like Ukhali; for example, the Rainfed Area Development component could potentially increase productivity by 15-20%, based on evaluations from pilot implementations in similar regions (Kumar et al., 2024). Similarly, the Paramparagat Krishi Vikas Yojana (PKVY) promotes organic farming practices that reduce reliance on chemical inputs, supporting a shift toward regenerative agriculture that aligns with international efforts to transition away from intensive, input-heavy systems (PMC, 2023). Despite these strengths, significant implementation gaps hinder broader impact, including shortages of extension officers who are essential for training and outreach, which have contributed to adoption rates hovering around 30% in Vidarbha (Frontiers, 2024) compared to 40% nationally (Chauhan & von Wehrden, 2025). In Maharashtra as a whole, innovations like dryland farming technologies have helped elevate the state's agricultural growth rate to 1.97%. Still, the recurrent droughts in Vidarbha highlight the need for more localised, cluster-based approaches to tailor interventions to specific soil and water conditions (Directorate of Economics and Statistics, 2024). Addressing these gaps would require enhanced coordination between state departments, local institutions, and farmers to ensure schemes like NMSA translate into tangible benefits at the village level.

A distinctive contribution of this study lies in its micro-level examination, which integrates national policy frameworks with the everyday realities—or praxis—of farming in Ukhali Village. This approach fills a notable void in the agricultural management literature, where macro-level policy analyses often overlook the nuances of implementation at the village scale (Suresh et al., 2022). In contrast to broader district-wide studies that generalise trends across Nagpur (Pratap, 2023), this work uncovers site-specific barriers, such as limited access to crop insurance and the uneven distribution of irrigation technologies, providing a foundation for more precise, context-driven management strategies. For agricultural managers and extension services, the implications are practical and multifaceted. Establishing regular stakeholder forums could facilitate the customisation of schemes to local needs, while leveraging digital tools like mobile applications would improve awareness and training delivery. Additionally, forging public-private partnerships for infrastructure, such as subsidies for drip irrigation systems, could address water inefficiencies more effectively. From a policy perspective, streamlining direct benefit transfers through Aadhaar-linked mechanisms should prioritise marginal and smallholder farmers to promote greater equity and

reduce exclusion (Philip & Suresh, 2024). These recommendations aim to foster a more adaptive and inclusive agricultural system that supports both economic viability and environmental stewardship.

While this analysis offers valuable insights, it is important to acknowledge its inherent limitations. The reliance on secondary data sources introduces potential gaps, as it may not fully capture shifts occurring after the 2021 census updates, such as recent changes in land use or policy uptake. Furthermore, the qualitative nature of the case study limits its generalisability to other regions, focusing instead on the unique context of Ukhali. To build on this foundation, future research could adopt mixed-methods designs, incorporating quantitative elements like farmer surveys and yield assessments, to measure the precise impacts of NMSA sub-schemes and validate pathways for scaling sustainable practices. Such efforts would enhance the evidence base for evidence-based policymaking in rural agricultural management.

6. Conclusion and Implications

The implications of this study extend across multiple scales, providing actionable guidance for stakeholders in agricultural management. At the local level, rural managers and Panchayati Raj Institutions (PRIs) stand to benefit from integrated planning processes that prioritise community involvement, thereby amplifying uptake of NMSA sub-schemes through tailored training and resource allocation. Establishing stakeholder forums, for example, could facilitate customisation of interventions to Ukhali's specific soil types and crop mixes, while digital extension tools such as mobile applications would enhance awareness and skill-building among smallholders. Public-private partnerships for infrastructure, including subsidies for drip irrigation (where Maharashtra already leads with 60% coverage), could further mitigate water woes and boost productivity (UPPCS Magazine, 2025). On a national scale, cases like Ukhali advocate for adaptive, farmer-centric policy designs that incorporate micro-level feedback loops, emphasising direct Aadhaar-linked subsidy transfers to prioritise marginal farmers and reduce exclusion (Philip & Suresh, 2024). Such reforms would not only strengthen equity but also align with the Sustainable Livelihoods Approach by bolstering financial and human capital assets (DFID, 1999).

By addressing the gap between policy intent and on-ground reality, as illuminated in this micro-level examination, stakeholders can safeguard the vitality of rural heartlands like Vidarbha. In an era of intensifying global shifts ranging from climate variability to urban

pressures, empowering villages such as Ukhali is essential to ensuring that agriculture continues as a pillar of national well-being, driving inclusive growth for generations to come. Future endeavours should build on this foundation through mixed-methods research, incorporating farmer voices to refine and scale resilient practices.

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