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Smallholder Farmers and Government Schemes in India: Opportunities and Challenges

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Abstract

Small farmers play a vital role in India's agriculture sector, constituting approximately 86% of the total farming population. These farmers, however, face numerous challenges, including economic, social, physical, and political constraints, which make them particularly vulnerable to climate change, fluctuating market prices, and resource scarcity. Despite these obstacles, small farmers continue to be the backbone of the country's agricultural landscape. To support these farmers, the Government of India has launched several initiatives, such as the PM-KISAN, Pradhan Mantri Maandhan Yojana, PMFBY, PMKSY, and KCC schemes. These programs are designed to provide financial assistance, credit, insurance coverage, and irrigation facilities to farmers. While these schemes have provided some relief, their implementation has not been without challenges. One of the primary reasons for their limited effectiveness is a lack of awareness among farmers. Many are unaware of the benefits these schemes offer, which prevents them from fully utilizing the resources available to them. Additionally, administrative delays and inefficient infrastructure often hinder the timely delivery of these benefits. The result is that the intended support does not always reach the farmers who need it most. To address these issues, it is crucial to reform the existing policies and introduce technological interventions that can improve the delivery of these schemes. Awareness campaigns are necessary to ensure that farmers are well-informed about the schemes available to them. Reducing the amount of paperwork and implementing more efficient administrative practices could also help in the smooth and timely distribution of benefits. Furthermore, there is a pressing need to utilize technology effectively, enabling farmers to access these schemes more easily and efficiently. To overcome these problems, in the research paper recommends policy reforms and technological interventions.

Keywords: Smallholder Farmers, Government Schemes, Agriculture, PM-KISAN, PMFBY, PMKSY, and KCC, Challenges, Opportunities, India

Introduction

India's agricultural economy is predominantly driven by smallholder farmers, who make up about 86% of the total farming households in the country, cultivating less than 2 hectares of land. These farmers are essential for India's food security, contributing nearly 40% of the country's agricultural output, despite facing several challenges such as low productivity, limited access to credit, and vulnerability to market fluctuations. According to the National Sample Survey Office (NSSO), smallholder farmers produce approximately 70% of the total food grains in India, but their average yield is far below the global standard. For instance, the average rice yield in India is around 2.5 tons per hectare, compared to 6 tons per hectare in countries like China. To address these issues, the Indian government has introduced a variety of schemes aimed at enhancing the livelihoods of smallholder farmers.

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Key initiatives include the Pradhan Mantri Fasal Bima Yojana (PMFBY) for crop insurance, the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) for direct income support, and the Soil Health Management Scheme for improving soil fertility. Despite these efforts, there remain significant gaps in implementation. For instance, only about 30% of farmers are covered under crop insurance, and many smallholders still struggle to access timely credit or markets, with nearly 50% of farmers relying on informal sources for credit. This research paper aims to critically analyze the opportunities and challenges presented government schemes targeting smallholder farmers in India. It will explore the effectiveness of these schemes, identify the barriers to their success, and suggest potential improvements to enhance their reach and impact.

Research Objectives

- 1. To assess the impact of government schemes on smallholder farmers.
- 2. To identify challenges in the implementation of these schemes.
- 3. To evaluate farmers' awareness and accessibility to these schemes.
- 4. To suggest policy recommendations for improving scheme effectiveness.

Research Methodology

This study utilizes secondary data from various reliable sources, including government reports, NSSO surveys, Ministry of Agriculture

publications, research journals, and policy documents. Additionally, data from economic surveys, RBI reports on agricultural credit, and FAO studies on smallholder farmers provide valuable insights into scheme implementation and effectiveness.

Problems Faced by Smallholder Farmers in India

Smallholder farmers in India face several challenges that impede their ability to achieve consistent productivity and economic sustainability. These problems are deeply rooted in systemic issues, limiting their potential for growth and development.

1. Limited Landholding

A major issue for smallholder farmers in India is their limited landholding size. According to the 2015-16 agricultural census, around 86% of Indian farmers own less than 2 hectares of land, with the majority holding less than 1 hectare. This fragmented land ownership leads to low economies of scale, which results in inefficient farming practices. As per a report by the Food and Agriculture Organization (FAO), small plots make it difficult for farmers to invest in modern agricultural technology or diversify their crops. This directly impacts productivity levels, with many smallholder farmers having average yields that are 20-30% lower than those of larger operations.

Percentage of farmers by Landholding Size:

Category	Percentage of Farmers	Average Landholding (Hectares)
Marginal (<1 ha)	68%	0.6 ha
Small (1-2 ha)	18%	1.4 ha
Semi-medium (2-4 ha)	9%	2.6 ha
Medium (4-10 ha)	4%	5.6 ha
Large (>10 ha)	1%	17.3 ha

Source: agcensus.nic.in.

The table represents the landholding pattern in India based on farm size and the percentage of farmers in each category. Marginal farmers, owning less than 1 hectare, form the largest group (68%) with an average landholding of 0.6 ha. Small farmers (1-2 ha) account for 18%, holding 1.4 ha on average. Semi-medium farmers (2-4 ha) make up 9% with 2.6 ha. Medium farmers (4-10 ha) constitute 4%, averaging 5.6 ha. Large farmers,

owning more than 10 ha, are only 1% but hold the largest average land (17.3 ha). This highlights land fragmentation and dominance of small-scale farming.

2. Lack of Credit Access

Access to financial resources is another pressing challenge. A significant proportion of smallholder farmers in India have limited access to institutional credit. According to the Reserve Bank





of India, only about 30% of farmers receive formal credit from banks, while the remaining 70% depend on informal money lenders who charge exorbitant interest rates, often exceeding 24-36% annually. This makes it difficult for farmers to invest in essential inputs like seeds, fertilizers, and irrigation systems. Furthermore, stringent lending criteria and the lack of proper collateral exclude many farmers from formal credit sources.

3. Market Fluctuations

Unpredictable crop prices severely affect the income stability of smallholder farmers. The NABARD (National Bank for Agriculture and Rural Development) notes that price volatility, exacerbated by poor market linkages, can result in income losses of up to 40%. A report by the Indian Council for Research on International Economic Relations (ICRIER) highlighted that over 60% of agricultural produce is sold at fluctuating prices, which impacts farmers' incomes. This price uncertainty forces farmers to either sell their produce at a loss or store it for an uncertain future, which leads to post-harvest losses.

4. Impact of Climate Change

Climate change poses a major threat to smallholder agriculture in India, with changing weather patterns such as erratic rainfall, droughts, and floods becoming more frequent. According to a study by the Indian Meteorological Department (IMD), India has witnessed an increase of 0.5°C in average temperatures over the past 100 years. In 2019 alone, over 20 states experienced severe droughts, affecting millions of farmers. This environmental instability leads to crop failures and lower yields, often pushing farmers into a cycle of debt and poverty. The Indian agriculture sector faces an estimated loss of 9-25% in agricultural productivity due to climate change by 2030.

5. Lack of Awareness

Smallholder farmers often lack awareness about government schemes, policies, and available support. According to the Ministry of Agriculture and Farmers Welfare, despite the existence of several welfare programs, only about 30-40% of eligible farmers utilize these schemes due to a lack of awareness and understanding. This includes direct income support schemes like PM-KISAN, where millions of farmers fail to avail the benefits simply because they are unaware of the registration process or the eligibility criteria. Limited access to

information and technology further exacerbates this issue.

6. Infrastructure Challenges

Inadequate rural infrastructure—such as irrigation, storage, and transportation facilities—continues to hinder the productivity of smallholder farmers. According to the Economic Survey of India (2020), only about 30% of India's agricultural land is irrigated, with much of this being inefficient or seasonal irrigation. The lack of storage facilities leads to post-harvest losses of up to 20-30% of produce, particularly in fruits and vegetables. Additionally, poor rural roads and insufficient transport options mean that farmers struggle to reach markets, limiting their ability to fetch competitive prices for their crops.

Government Schemes for Smallholder Farmers

The Indian government has implemented several initiatives to support smallholder farmers, aiming to enhance financial stability, provide risk protection, and improve agricultural productivity. Below is an overview of key schemes, their impacts, and associated challenges:

1. Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)

Launched on February 24, 2019, PM-KISAN is a central sector scheme providing income support to all landholding farmer families across the country. Eligible farmers receive 6,000 per year, disbursed in three equal installments of 2,000 each, directly into their bank accounts.

• Impact: As of the 18th installment (August-November 2024), "approximately 9.59 crore farmer families have benefited from the scheme. For instance, Maharashtra reported 91,43, 515 beneficiaries, while Uttar Pradesh had 2,25,78,654 beneficiaries during this period."

2. Pradhan Mantri Fasal Bima Yojana (PMFBY)

Initiated on February 18, 2016, PMFBY is a crop insurance scheme designed to provide comprehensive coverage against crop failure due to natural calamities, pests, and diseases. Farmers pay a uniform premium of 2% for Kharif crops and 1.5% for Rabi crops, with the balance premium subsidized by the government.

• **Impact:** The scheme has seen substantial enrollment, with coverage reaching up to 30% of the gross cropped area in certain years. It





aims to stabilize farmers' incomes by mitigating the risks associated with agricultural production.

3. Pradhan Mantri Krishi Sinchai Yojana (PMKSY)

Launched on July 1, 2015, PMKSY aims to enhance irrigation coverage and improve water use efficiency in agriculture. The scheme's motto, "Har Khet Ko Pani" (Water for Every Field), underscores its goal to ensure access to protective irrigation for all agricultural farms in the country.

 Impact: Between 2015 and 2019, PMKSY facilitated the creation of additional irrigation potential, contributing to increased agricultural productivity in various regions.

4. Kisan Credit Card (KCC) Scheme

The KCC scheme provides farmers with timely access to credit for their cultivation and other needs. It offers short-term credit at subsidized interest rates, facilitating the purchase of inputs like seeds, fertilizers, and pesticides.

• Impact: As of September 2023, the Kisan Rin Portal (KRP) was launched to address challenges in the Modified Interest Subvention Scheme (MISS)-KCC, streamlining the process and enhancing transparency in credit disbursement.

Farmer Awareness and Benefit of Schemes

Scheme	Aware (%)	Availing Benefits (%)
PM-KISAN	85%	72%
PMFBY	67%	45%
PMKSY	58%	38%
KCC	73%	51%

Source: https://desagri.gov.in/document-report/agricultural-statistics-at-a-glance-2023-2

The table presents survey results on farmers' awareness and benefit utilization of key government schemes. PM-KISAN has the highest awareness (85%), with 72% of farmers availing its benefits, indicating effective outreach. PMFBY (67% awareness, 45% utilization) faces lower participation due to issues like delayed claim settlements. PMKSY has the lowest awareness (58%) and benefit utilization (38%), highlighting gaps in irrigation scheme accessibility. KCC follows with 73% awareness and 51% benefit utilization, showing moderate adoption. Overall, while awareness levels are relatively high, actual benefit uptake remains lower, suggesting the need for better implementation and outreach efforts.

Challenges in Implementation of Government Schemes and Possible Solutions

Government schemes play a crucial role in supporting smallholder farmers in India. However, despite their significance, these schemes face several challenges that hinder their full potential. Four major schemes—PM-KISAN, PMFBY, PMKSY, and KCC—have been implemented to provide financial assistance, insurance, irrigation facilities, and credit access to farmers. Yet, issues such as delayed payments, slow claim settlements, lack of awareness, and complex application procedures continue to affect their effectiveness.

Addressing these challenges through technological advancements and policy reforms is essential for maximizing their impact.

1. Challenges in PM-KISAN and Possible Solutions

The Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme was introduced to provide 6,000 per year in three equal installments to small and marginal farmers. While this scheme has benefited over 11 crore farmers, its implementation delayed due to administrative often inefficiencies. Many farmers also lack awareness about how to register for the scheme or link their bank accounts for direct transfers. To resolve these issues, the digital payment infrastructure should be strengthened to ensure timely fund disbursement. Additionally, large-scale awareness programs should be conducted through panchayats, farmer cooperatives, and local NGOs to educate farmers about their eligibility and the application process. These efforts can help more farmers benefit from the scheme without delays or technical barriers.

2. Challenges in PMFBY and Possible Solutions

The Pradhan Mantri Fasal Bima Yojana (PMFBY) provides crop insurance to protect farmers from financial losses due to natural calamities. However, slow claim settlements and





low participation rates remain significant concerns. Many farmers hesitate to enroll in the scheme due to past experiences of delayed compensation and complex claim filing processes. In some cases, insurance companies delay payments due to manual assessment methods that take months to verify crop damage. To enhance the scheme's efficiency, the government should automate claim processing by using satellite imagery and AI-based crop damage assessments. This will enable faster and more transparent evaluations, ensuring timely compensation for affected farmers. Additionally, simplifying claim procedures and promoting digital literacy among farmers can encourage more participation in the scheme, increasing its overall effectiveness.

3. Challenges in PMKSY and Possible Solutions

The Pradhan Mantri Krishi Sinchai Yojana (PMKSY) aims to provide irrigation facilities to all farmlands and reduce farmers' dependence on monsoon rains. However, many smallholder farmers lack access to irrigation infrastructure, making them vulnerable to droughts and erratic rainfall patterns. The scheme's benefits have not yet reached all marginal farmers, primarily due to poor last-mile connectivity and high implementation costs. To address these challenges, the government should focus on developing micro-irrigation facilities such as drip irrigation and sprinkler systems, which are more cost-effective and resource-efficient. Additionally, investing in rural infrastructure and last-mile water connectivity can help ensure that small farmers in remote areas benefit from irrigation facilities, leading to higher crop yields and income stability.

4. Challenges in KCC and Possible Solutions

The Kisan Credit Card (KCC) scheme provides low-interest loans to farmers agricultural expenses. However, complex paperwork and low banking access in rural areas prevent many smallholder farmers from availing its benefits. Many farmers still depend on informal moneylenders, who charge high interest rates, as they find the KCC loan application process too difficult. To improve the adoption of KCC, the government should simplify loan approval procedures by reducing documentation requirements and introducing digital application Expanding processes. mobile-based applications and establishing Common Service

Centers (CSCs) in rural areas can help farmers access loans more easily. Additionally, financial literacy programs should be conducted to educate farmers on the benefits of institutional credit and guide them through the application process.

Opportunities for Smallholder Farmers through Government Schemes

The Indian government has introduced several initiatives to empower smallholder farmers, focusing on financial inclusion, sustainable farming, market access, and climate resilience. These efforts aim to enhance agricultural productivity and improve the livelihoods of millions of farmers.

1. Financial Inclusion and Direct Benefit Transfers (DBT)

To ensure that financial aid reaches farmers directly, the government has implemented Direct Benefit Transfer (DBT) mechanisms. A notable example is the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme, which provides eligible farmers with 6,000 annually, disbursed in three equal instalments directly into their bank accounts. As of the 18th instalment (August-November 2024), approximately 9.59 crore farmer families have benefited from the scheme.

2. Crop Diversification and Sustainable Farming

The government encourages smallholder farmers to adopt sustainable agricultural practices and diversify their crops to enhance income and environmental sustainability. Initiatives promoting organic farming, agro forestry, and the cultivation of high-value crops are in place. For instance, in central India's Chhindwara region, farmers have transitioned from conventional genetically modified cotton farming to organic practices. Supported by organizations like WWF and SRIJAN, this shift includes using natural fertilizers and pest repellents, aiming to regenerate soil health and biodiversity. Although the transition initially reduced yields, lower costs led to improved soil health and increased profits over time.

3. Digital and Market Linkages

To improve market access and ensure better price realization for small farmers, the government launched the National Agriculture Market (e-NAM) platform. This digital initiative connects farmers to over 1,000 Mandis





(agricultural markets) across the country, facilitating transparent and efficient trading of agricultural commodities. By eliminating intermediaries, e-NAM enables farmers to receive fair prices for their produce and access a broader market base.

4. Climate Resilience and Technology Adoption

Recognizing the challenges posed by climate change, the government supports the adoption of climate-resilient technologies among smallholder farmers. For example, the development and distribution of climate-resilient seed varieties are underway to enhance crop yields and withstand pests and diseases. In Rayanpet, India, agricultural research organizations are engineering new rice varieties that require less water and are more disease-resistant. Prime Minister Narendra Modi recently released 109 climate-resilient seed varieties, with plans to sow at least 25% of paddy land with these seeds in the next crop season. Additionally, the government promotes the use of solar irrigation pumps, offering subsidies to small farmers to reduce dependence on conventional sources and enhance sustainability. Furthermore, the Reserve Bank of India increased the limit for collateral-free agriculture loans from 1.6 lakh to 2 lakh to improve access to credit for small and marginal farmers, addressing challenges posed by inflation and rising input costs.

Conclusion:

Smallholder farmers in India form the backbone of the country's agricultural sector, contributing significantly to food production and rural livelihoods. However, they face a host of challenges that hinder their ability to achieve sustainable and profitable farming. Key issues such as limited landholdings, inadequate access to credit, market fluctuations, climate change, and poor infrastructure create an environment where smallholder farmers struggle maximize to While various productivity and income. government initiatives, including the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN), Pradhan Mantri Fasal Bima Yojana (PMFBY), Pradhan Mantri Krishi Sinchai Yojana (PMKSY), and the Kisan Credit Card (KCC) scheme, aim to support these farmers, their effectiveness is often diminished implementation by challenges. Addressing these gaps is essential for ensuring the long-term sustainability of Indian agriculture.

One of the primary concerns smallholder farmers is their fragmented landholdings. With nearly 86% of farmers in India owning less than two hectares of land, economies of scale remain a challenge. The inability to adopt modern agricultural technology, invest in highyield seeds, or diversify crops results in lower productivity compared to larger farms. overcome this, collective farming models, land leasing policies, and farmer producer organizations (FPOs) must be encouraged. These initiatives can enable smallholder farmers to access better resources, negotiate fair prices, and improve overall efficiency.

Access to formal credit is another significant obstacle. A large percentage of smallholder farmers still rely on informal money lenders who charge exorbitant interest rates, trapping them in cycles of debt. Despite the introduction of the KCC scheme, many farmers struggle with complex application procedures and lack of awareness about institutional credit. Simplifying loan disbursement, increasing digital banking outreach, and expanding financial literacy programs can ensure that more farmers benefit from affordable credit solutions. The recent increase in the limit for collateral-free agricultural loans is a positive step in this direction.

Market volatility is another major concern for smallholder farmers. Due to fluctuating crop prices and inadequate storage facilities, farmers often have to sell their produce at lower rates, leading to financial instability. The e-NAM (National Agriculture Market) initiative is a significant step toward improving market access, yet its adoption remains uneven. Expanding the digital trading infrastructure, strengthening supply chains. and promoting contract farming arrangements with agro-industries can help farmers secure better prices for their produce. Additionally, cold storage and warehouse facilities must be improved to reduce post-harvest losses.

Climate change has emerged as a growing threat to Indian agriculture, affecting yields through erratic rainfall, droughts, and temperature fluctuations. The government has made efforts to introduce climate-resilient seed varieties and promote solar irrigation pumps to mitigate these risks. However, more investment in research and extension services is required to develop sustainable farming practices. Encouraging agro forestry, organic farming, and water conservation





techniques will further help smallholder farmers adapt to changing environmental conditions.

Despite the availability of multiple government schemes, awareness and accessibility remain major barriers. Many farmers remain unaware of their entitlements or face bureaucratic hurdles in availing benefits. Strengthening outreach programs, digitizing application processes, and establishing rural help centers can bridge this gap. Additionally, leveraging artificial intelligence for faster crop insurance claim processing under PMFBY can ensure timely financial support to farmers facing crop losses.

While the government has significant steps to support smallholder farmers, much more needs to be done to enhance the reach and efficiency of these initiatives. By focusing on financial inclusion, technological integration, infrastructure development, sustainable and farming practices, India can empower its 86% smallholder farmer community. Strengthening these areas will not only improve farmers' incomes but also contribute to national food security and rural economic growth.

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Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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