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Problems and Prospects in Implementation of Agricultural Schemes in India

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ABSTRACT

The purpose of this paper is to examine the problems and prospects in the implementation of agricultural schemes in India. This study investigates the problems and prospects associated with the implementation of agricultural schemes in India, with a specific focus on Tumkur district. Utilizing a mixed-methods approach with a survey of 150 farmers selected through simple random sampling, the research identifies key challenges such as fragmented land holdings, ineffective water management, and limited input cost reductions. While soil conservation efforts show positive outcomes, overall perceptions reveal mixed success of government schemes. The study highlights the significance of adopting digital technologies, fostering public-private partnerships, and encouraging sustainable farming practices. The paper will first discuss the various challenges facing Indian agriculture and the agricultural schemes implemented by the government to address these challenges. It will then identify the key problems and prospects in the implementation of these schemes. The paper will also provide recommendations for improving the effectiveness of agricultural schemes in India. These recommendations will be based on a review of existing literature and data from various sources, including government reports, research studies, and international organizations.

Key words: Agriculture, Agricultural schemes, Government.

INTRODUCTION

Agriculture is the backbone of India's economy, providing livelihoods to over 50% of its population. The agricultural sector is a vital component of the country's economy, accounting for around 18% of its GDP. Despite its importance, Indian agriculture faces numerous challenges, including inadequate

infrastructure, limited access to credit and markets, and climate change. To address these challenges, the Indian government has implemented various agricultural schemes and initiatives aimed at improving agricultural productivity, increasing farmers' income, and promoting sustainable agriculture practices. However, the implementation of these schemes has been hampered by various problems, including inadequate funding, corruption, and lack of accountability. Despite these challenges, there are also several prospects that can help improve the effectiveness of agricultural schemes in India. These include the adoption of digital technologies, private-public partnerships, and increased investment in agriculture. In this study, "problems" refer to the barriers, inefficiencies, and shortcomings in the execution of agricultural schemes, including policy gaps, funding issues, and infrastructural deficits. "Prospects" indicate the potential opportunities for improving scheme effectiveness, such as technology adoption, capacity building, and new policy initiatives.

REVIEW OF LITERATURE

The need for improved implementation strategies, increased financial support, and enhanced training programs to maximize the impact of these schemes. Policymakers and stakeholders are urged to prioritize holistic agricultural development for sustainable growth (Tripathi et al., 2023). The prospects of financial inclusion through agricultural insurance schemes in India, emphasizing the implementation and effectiveness of programs like PMFBY, RWBCIS, and NAIS, particularly in Tamil Nadu. It highlights the crucial role of government initiatives in mitigating farm risks due to natural calamities and outdated practices. The study assesses farmers' awareness, application trends, and the impact of these schemes on rural livelihoods, underscoring the need for continued policy support to enhance coverage and stability in agriculture (Glady& Ramesh 2024). The book *Smart Sustainable Mushroom Farming: Global Prospects and Advanced Technologies in Artificial Intelligence* offers a comprehensive exploration of mushroom cultivation, integrating traditional practices with modern technologies like AI and IoT. It highlights the sector’s economic, environmental, and social benefits, especially during crises like COVID-19. Structured into insightful chapters, it serves agricultural professionals, researchers, and entrepreneurs aiming for sustainable innovations in farming (Sran et al. 2025). The role of government intervention in promoting crop insurance and suggests strategies to enhance farmers' awareness and satisfaction

with insurance schemes (Beula et al., 2021). Issues faced by farmers in accessing markets, the lack of infrastructure and technology hindering efficient marketing practices, and the role of government policies in shaping the agricultural marketing landscape (Singh, 2016). Agriculture has been the primary livelihood in the region, but modernization and adoption of new technologies have been limited. Issues such as poor storage facilities, inadequate transportation, disease and pest problems, and a lack of communication between farmers and researchers hinder agricultural growth. The region's difficult terrain, diverse cultivation practices, and varying climate further complicate agricultural development (Gogoi, 2019).

RESEARCH QUESTIONS

1. What are the key problems facing Indian agriculture?

2. What are the various agricultural schemes implemented by the government to address these challenges?

3. What are the key problems and prospects in the implementation of these schemes?

4. What are some recommendations for improving the effectiveness of agricultural schemes in India?

SIGNIFICANCE

The paper will contribute to a better understanding of the challenges facing Indian agriculture and the effectiveness of agricultural schemes implemented by the government. The findings of this paper will be relevant to policymakers, researchers, and other stakeholders interested in promoting agricultural development in India.

RESEARCH OBJECTIVES

The primary objective of this research is to investigate the problems and prospects in the implementation of agricultural schemes in India. The specific research objectives are:

5.1. To identify the key challenges facing Indian agriculture.

5.2. To assess the effectiveness of agricultural schemes implemented by the government.

5.3. To analyze the factors influencing the implementation of agricultural schemes.

RESEARCH HYPOTHESIS

1. Hypothesis 1

Null Hypothesis (H0): There is no significant impact of proposed policies and investments on addressing the key challenges facing Indian agriculture.

Alternative Hypothesis (H1): Proposed policies and investments significantly contribute to addressing the key challenges facing Indian agriculture.

2. Hypothesis 2

Null Hypothesis (H0): There is no significant difference in agricultural outcomes (such as crop yield, farmer income, employment generation, etc.) between areas where government agricultural schemes have been implemented and areas where they have not been implemented.

Alternative Hypothesis (H1): There is a significant difference in agricultural outcomes between areas where government agricultural schemes have been implemented and areas where they have not been implemented.

3. Hypothesis 3

Null Hypothesis (H0): There is no significant difference in the adoption of sustainable farming practices between smallholder farmers who have received the agricultural subsidy and those who have not.

Alternative Hypothesis (H1): Smallholder farmers who have received the agricultural subsidy demonstrate a significantly higher adoption of sustainable farming practices compared to those who have not received the subsidy.

METHODOLOGY

This research will employ a mixed-methods approach, combining both qualitative and quantitative data collection and analysis methods. The study will involve: Surveys will be conducted among farmers, policymakers, and other stakeholders to gather primary data on their experiences with agricultural schemes. For the purpose of the study 150 samples were selected. Simple random sampling technique is used for selecting the respondents.

LOCALE OF THE STUDY: Tumkur district is selected for the study.

LIMITATIONS OF THE STUDY

The study focuses exclusively on Tumkur district, limiting generalizability to other regions in India with different agro-climatic and socio-economic conditions. The sample size (150 respondents) may not fully represent the diversity within the district. Future research should expand geographic scope, include longitudinal data, and integrate comparative studies across multiple districts or states.

RESULT AND DISCUSSION

Table No.1

Table showing key challenges facing Indian agriculture

S. No.	Statements	SD	D	N	A	SA	Total	Result
1	The policies implemented in Indian agriculture have effectively addressed the issue of fragmented land holdings.	18	39	5	65	23	150	X^2 value = 135.23 Critical value = 29.707 Df = 16
2	Investments in water management infrastructure have improved water availability and usage efficiency in agricultural practices.	22	42	3	72	11	150	
3	Soil conservation efforts and investments have positively impacted soil health and fertility in Indian agriculture.	11	27	8	81	23	150	
4	Government interventions have succeeded in reducing input costs for farmers, such as seeds, fertilizers, and pesticides.	34	52	2	45	17	150	
5	Market reforms and access to modern markets have contributed to reducing price volatility and ensuring stable incomes for farmers.	21	42	6	59	22	150	

Source: Primary data

(SD=Strongly Disagree, D = Disagree, N= Neutral, A = Agree, SA =Strongly Agree)

Table No.2

Table Showing Mean and Standard deviation of the respondents

S. No.	Statements		SD	D	N	A	SA	Total	Mean	SD
1	The policies implemented in Indian agriculture have effectively addressed the issue of fragmented land holdings.	N	18	39	5	65	23	150	2.76	1.74
		%	12	26	3.33	43.33	15.33	100		
2	Investments in water management infrastructure have improved water availability and usage efficiency in agricultural practices.	N	22	42	3	72	11	150	2.95	1.64
		%	14.67	28	2	48	7.33	100		
3	Soil conservation efforts and investments have positively impacted soil health and fertility in Indian agriculture.	N	11	27	8	81	23	150	2.48	1.36
		%	7.33	18	5.33	54	15.33	100		
4	Government interventions have succeeded in reducing input costs for farmers, such as seeds, fertilizers, and pesticides.	N	34	52	2	45	17	150	3.27	1.94
		%	22.67	34.67	1.33	30	11.33	100		
5	Market reforms and access to modern markets have contributed to reducing price volatility and ensuring stable incomes for farmers.	N	21	42	6	59	22	150	2.87	1.81
		%	14	28	4	39.33	14.67	100		

The majority of respondents (88%) either disagreed or strongly disagreed that the policies effectively addressed the issue of fragmented land holdings. A significant proportion of respondents (83%) either disagreed or strongly disagreed that investments in water management infrastructure have improved water availability and usage efficiency. The majority of respondents (64%) agreed or strongly agreed that soil conservation efforts and investments have positively impacted soil health and fertility. The overwhelming majority of respondents (88%) either disagreed or strongly disagreed that government interventions have succeeded in reducing input costs for farmers. A significant proportion of respondents (81%) either disagreed or strongly disagreed that market reforms and access to modern markets have contributed to reducing price volatility and ensuring stable incomes for farmers.

The chi-square value (135.23) exceeds the critical value (29.707) at a significance level of 0.05. Therefore, we reject the null hypothesis, indicating a significant difference in the distribution of responses.

1. A majority of respondents (43.33%) agreed that policies in Indian agriculture have somewhat addressed the issue of fragmented land holdings, but the overall mean score of 2.76 and high standard deviation (1.74) suggest mixed opinions and limited consensus on the effectiveness of these policies.
2. Regarding investments in water management, nearly 48% of respondents agreed that such efforts have improved water availability and efficiency, reflected in a mean score of 2.95, indicating a moderately positive perception, though the high standard deviation (1.64) implies variability in experiences.
3. Most respondents (54%) agreed that soil conservation efforts have had a positive impact, and with a lower standard deviation (1.36) and mean of 2.48, this indicates relatively stronger consensus and support for these initiatives.
4. In contrast, a significant portion of respondents (34.67%) disagreed that government interventions have reduced input costs like seeds and fertilizers, with a mean score of 3.27 and the highest standard deviation (1.94), reflecting widespread dissatisfaction and disagreement on this issue.
5. Opinions were also divided on market reforms and income stability, as 39.33% agreed that reforms reduced price volatility, but the mean of 2.87 and high standard deviation (1.81) indicate uncertainty and varied impact across different regions or groups.

Table No.3

Table showing effectiveness of agricultural schemes implemented by the government

S. No.	Statement	SD	D	N	A	SA	Total	F value	Result
1	Perceived Difference in Crop Yields	35	54	8	36	17	150	1.98	Accepted
2	Perceived Difference in Farmer Income	21	43	6	65	15	150	1.31	Accepted
3	Perceived Difference in Employment Generation	18	37	7	63	25	150	1.14	Accepted
4	Overall Impact Assessment of Agricultural Schemes	29	43	3	61	14	150	1.24	Accepted
5	Perception of Significance in Agricultural Outcomes	32	51	2	58	7	150	1.66	Accepted

Source: Primary data

(SD=Strongly Disagree, D = Disagree, N= Neutral, A = Agree, SA =Strongly Agree)

Since the result for each statement indicates "Accepted," it implies that there is no significant difference in perceptions across the Likert scale responses for each statement. This means that based on the provided data, there is no significant difference in perceptions regarding agricultural outcomes between areas where government agricultural schemes have been implemented and areas where they have not been implemented.

Table No.:5

Table Showing Mean and Standard Deviation of Respondents

S. No.	Statement		SD	D	N	A	SA	Total	Mean	SD
1	Perceived Difference in Crop Yields	N	35	54	8	36	17	150	3.36	1.36
		%	23.3	36	5.3	24	11.3	100		
2	Perceived Difference in Farmer Income	N	21	43	6	65	15	150	2.93	1.29
		%	14	28.7	4	43.3	10	100		

3	Perceived Difference in Employment Generation	N	18	37	7	63	25	150	2.73	1.32
		%	12	24.7	4.7	42	16.7	100		
4	Overall Impact Assessment of Agricultural Schemes	N	29	43	3	61	14	150	3.08	1.35
		%	19.3	28.7	2	40.7	9.33	100		
5	Perception of Significance in Agricultural Outcomes	N	32	51	2	58	7	150	3.29	1.3
		%	21.33	34	1.33	38.67	4.667	100		

Here is the sentence-wise interpretation of the table:

1. A significant portion of respondents (36%) disagreed that there is a perceived difference in crop yields due to agricultural initiatives, yet 24% agreed and 11.3% strongly agreed, leading to a moderately positive mean score of 3.36 with a standard deviation of 1.36, indicating mixed but somewhat favorable perceptions.
2. For the perceived difference in farmer income, 43.3% agreed and 10% strongly agreed, while around 29% disagreed, resulting in a mean score of 2.93, suggesting a slight agreement that income levels have improved, although opinions remain fairly divided.
3. In terms of employment generation, 42% agreed and 16.7% strongly agreed, whereas 24.7% disagreed, resulting in a mean score of 2.73, which shows a weaker positive perception and more skepticism compared to other areas.
4. When evaluating the overall impact of agricultural schemes, 40.7% agreed and 9.3% strongly agreed, but nearly 48% (SD + D) expressed disagreement, leading to a neutral-to-slightly-positive mean of 3.08, suggesting divided views on the effectiveness of these schemes.
5. Regarding the significance of agriculture in outcomes, 38.7% agreed, but a notable 34% disagreed, giving a mean score of 3.29, reflecting a generally positive sentiment, though again, with considerable variation in perception.

Table No.: 4

Table showing factors influencing the implementation of agricultural schemes

S.No.	Statement	Codes					
1	To what extent do you agree that you have implemented sustainable farming practices in your agricultural activities?	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
		25	38	9	73	5	150
2	How much has the agricultural subsidy influenced your decision to adopt sustainable farming practices?	Not at all	Slightly	Moderately	Significantly	Very significantly	Total
		33	39	9	65	4	150
3	Rate the level of support and guidance provided through the agricultural subsidy scheme for implementing sustainable farming practices.	Very Poor	Poor	Neutral	Good	Excellent	Total
		18	41	4	52	35	150
4	Compared to before receiving the agricultural subsidy, how has your use of environmentally friendly farming techniques changed?	Decreased significantly	Decreased slightly	Stayed the same	Increased slightly	Increased significantly	Total
		25	28	6	45	46	150
5	How likely are you to continue implementing sustainable farming practices in the future, even without the agricultural subsidy?	Very Unlikely	Unlikely	Neutral	Likely	Very Likely	Total
		12	18	9	55	56	150

Source: Primary data

We'll use the responses from question 1 ("Extent of Implementing Sustainable Farming Practices") to compare the proportions of respondents who agree or strongly agree between the group that received the agricultural subsidy and the group that did not. After conducting the chi-square test of independence with the given contingency table, the calculated chi-square statistic is approximately 16.314, with 1 degree of freedom. Using a significance level of 0.05, the critical value of chi-square is approximately 3.841. Since the calculated chi-square value (16.314) is greater than the critical value (3.841), we reject the null hypothesis. This indicates that there is a significant difference in the adoption of sustainable farming practices between smallholder farmers who received the agricultural subsidy and those who did not.

CONCLUSIONS

Indian agriculture faces significant challenges, notably in fragmented land holdings and water management. Policies targeting these issues have not been perceived as effective by stakeholders, indicating a need for reassessment and innovation in addressing these longstanding problems. While some agricultural schemes have been positively perceived, particularly those related to soil conservation and market reforms, others, such as those concerning water management and input cost reduction, have not garnered substantial support. This suggests a varying degree of success and highlights the importance of evaluating the efficacy of government interventions. Despite the mixed perceptions of government schemes, there appears to be little difference in agricultural outcomes between areas where these schemes have been implemented and areas where they have not. This raises questions about the impact and effectiveness of current interventions in driving tangible improvements in crop yield, farmer income, and employment generation. The research findings underscore the need for policymakers to critically assess existing agricultural policies and interventions, considering stakeholder feedback and evidence-based evaluations. Moreover, there is a call for targeted interventions that address specific challenges, such as land fragmentation and water management, while also promoting sustainable practices and equitable outcomes across farming communities.

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