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AGRICULTURAL REFORMS AND RURAL DEVELOPMENT IN TELANGANA: EVIDENCE FROM A PRIMARY SURVEY

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Abstract
Agricultural transformation plays a pivotal role in driving rural development, especially in predominantly agrarian regions like Telangana. The study titled "Agricultural Reforms and Rural Progress: A Primary Data-Based Analysis in Telangana State" explores the transformative impact of government-led agricultural reforms on rural development across Telangana. Since the state's formation in 2014, a series of policy initiatives such as Rythu Bandhu, Rythu Bima, and Mission Kakatiya have been implemented to uplift the agricultural sector and improve the socio-economic conditions of rural communities. This study uses primary data collected from 450 farmers across diverse agro-climatic regions of Telangana through structured questionnaires and interviews. The research assesses farmers' awareness and utilization of these schemes, their effects on agricultural productivity, and indicators of rural development including income enhancement, credit access, infrastructure, and market linkages.

Descriptive statistics, mean scores, standard deviations, and simple linear regression were employed to analyze the data. The findings reveal a high level of awareness and moderate to high utilization of government schemes. Farmers reported improved irrigation, increased crop yields, adoption of modern practices, and greater financial inclusion. Regression analysis indicates a significant positive relationship between awareness of schemes and rural development outcomes. However, the study also identifies persistent challenges such as climate change, inadequate support for tenant farmers, and rising input costs. The demand for increased government support for sustainable practices is evident. The study concludes that while reforms have brought meaningful progress, equitable and inclusive strategies are required to address regional disparities and evolving challenges. It emphasizes the importance of grassroots-level policy evaluation and the need for continuous investment in agricultural innovation and rural infrastructure to ensure sustainable rural transformation.

Key Words: Agricultural Reforms, Rural Development, Government Schemes.

1. Introduction

Agriculture remains the backbone of rural India, providing livelihood to nearly 60% of the population. In this context, Telangana, a predominantly agrarian state, has undergone several policy-driven reforms since its formation in 2014. These agricultural reforms — ranging from land record digitization, irrigation projects like Mission Kakatiya and Kaleshwaram, to financial support through the Rythu Bandhu scheme — aim to rejuvenate the rural economy and improve the socio-economic conditions of farmers. The reforms are intended to address long-standing issues such as water scarcity, lack of credit access, outdated farming techniques, and fragmented land holdings.

Rural progress, meanwhile, is not merely a function of agricultural output, but also of improvements in infrastructure, education, healthcare, and market access. The interplay between agricultural development and overall rural transformation is crucial in understanding the true impact of reforms. Telangana has witnessed significant changes in cropping patterns, farmer incomes, land use, and employment in recent years, making it an ideal case for study.

This study employs primary data collected from rural households across different districts in Telangana to assess the tangible outcomes of these reforms. It explores how far government interventions have reached the grassroots, the extent to which they have been effective, and what gaps persist in realizing inclusive rural progress. Through a micro-level analysis, this research attempts to bridge the knowledge gap between policy formulation and its practical impact on rural communities. Telangana's agrarian landscape is diverse, comprising rainfed regions, irrigated zones, tribal belts, and semi-arid districts. Recognizing this heterogeneity, the state government has introduced region-specific policies and schemes to improve agricultural productivity and rural livelihoods. Programs like Rythu Bandhu (investment support scheme), Rythu Bima (life insurance for farmers), Mission Bhagiratha (drinking water supply), and Dharani (land record management system) have been instrumental in reshaping the agricultural sector and facilitating integrated rural development. These initiatives represent a shift from subsistence-level interventions to more holistic support mechanisms that consider the socio-economic well-being of rural families.

However, the effectiveness of such reforms cannot be assessed purely through secondary data or government reports. Ground-level realities often differ significantly from policy intentions. For instance, while Rythu Bandhu has provided timely financial aid to many farmers, questions remain about its inclusivity, especially for tenant farmers and landless laborers. Similarly, irrigation projects have enhanced water availability in several regions, but disparities persist in water distribution and usage. These nuanced dynamics underscore the need for a primary data-based analysis that captures voices from the field and presents a realistic assessment of rural progress.

The state's rural development is also closely tied to migration patterns, education levels, women's participation in agriculture, and access to technology and institutional credit. In this regard, primary data collected from sample households can offer rich insights into how different rural communities perceive and experience reforms. The present study not only documents these experiences but also attempts to correlate agricultural development indicators with broader rural transformation variables such as income levels, asset creation, employment shifts, and access to welfare schemes. In essence, this research seeks to answer critical questions: Have agricultural reforms in Telangana translated into tangible improvements in rural life? Are the benefits equitably distributed across socio-economic strata? What are the existing challenges and opportunities for sustainable rural progress? By adopting a bottom-up approach and analyzing first-hand data, this study provides a more grounded understanding of the evolving rural narrative in Telangana

2. Review of Literature

Several scholars have investigated the impact of agricultural reforms on rural progress in Telangana, offering both macro- and micro-level perspectives. Reddy and Rani (2021) focused on the socio-economic outcomes of major reforms, particularly the Rythu Bandhu scheme. Their primary data analysis from Nalgonda and Karimnagar revealed that while financial assistance improved the affordability of inputs, it had limited influence on overall productivity unless accompanied by complementary infrastructure. Similarly, Kumar and Srinivas (2020) conducted a comparative study on land reforms before and after the formation of Telangana. Their evaluation of the Dharani land record management system highlighted improved land security and ownership clarity, yet they raised concerns about the exclusion of tenant farmers and bureaucratic bottlenecks.

Patel and Narayana (2019) studied the Mission Kakatiya project using GIS tools and farmer interviews. They reported a 15–20% improvement in groundwater levels and yields, though benefits were found to be skewed in favor of medium and large-scale farmers. Saxena and Bhargavi (2022)

explored the linkage between agricultural credit and rural development through data collected from Medak and Mahbubnagar. Their findings suggest improved access to formal credit institutions post-reform, but tenant farmers still faced difficulties due to lack of documentation and collateral, which sustained the dominance of informal credit channels.

Chand and Joshi (2018) conducted an econometric study using data from across India, including Telangana, to evaluate the role of Minimum Support Prices (MSP) and procurement infrastructure. Their research indicated that while paddy procurement mechanisms in Telangana were relatively efficient, the absence of similar support for pulses and oilseeds hindered diversification and sustainable income growth. Lalitha and Devi (2023) analyzed the implementation of Rythu Bima, an insurance scheme for farmers, using primary household data. The scheme improved risk perception and insurance coverage, but challenges persisted in tribal belts and remote areas where documentation and awareness remained low.

Deshmukh and Rao (2021) examined employment trends and migration patterns in rural Telangana. Their findings suggest that the introduction of irrigation and support schemes contributed to a slight decline in rural-to-urban migration in districts where the schemes were effectively implemented. However, they advocated for skill development programs to sustain employment within rural areas. Bhandari and Prasad (2017), through a macro-level analysis using NSSO and NABARD data, found a positive growth trend in Telangana's agricultural GDP post-reforms. Nonetheless, they observed that unequal landholding patterns still limited the reach of development benefits to marginal and small farmers.

Yadav and Prameela (2020) conducted fieldwork in Warangal and Khammam to assess the impact of agricultural extension services. Their research demonstrated that access to extension workers and information dissemination increased adoption of improved agricultural practices. Yet, these services were inconsistently delivered due to understaffing and lack of infrastructure. Finally, Raju and Meenakshi (2022) investigated the role of women in agriculture post-reform, finding increased participation in farming tasks. However, women remained largely excluded from land ownership and agricultural decision-making, pointing to ongoing gender inequalities in rural development. These studies collectively highlight that while Telangana's agricultural reforms have led to considerable rural progress in specific areas, challenges such as inclusion, equity, credit access, and gender gaps continue to impede holistic development. A detailed primary data-based analysis can thus provide deeper insights into these unresolved issues and help bridge the gap between policy and practice.

3. Objectives of the Study

1. To Study the Awareness and Utilization levels of various schemes in Telangana State.
2. To Analyse the impact of awareness and utilization on Rural Development and Progress.

4. Research Methodology

The present study is based on primary data collected from 450 farmers across different agro-climatic zones of Telangana state. A structured questionnaire was administered using the Likert five-point scale to assess awareness and utilization of government schemes, impact on agricultural practices, rural development indicators, and key challenges faced by farmers. The sampling was conducted using the purposive sampling method, focusing on regions where major agricultural reforms have been implemented. Data were analyzed using descriptive statistics, mean, standard deviation, and simple linear regression to examine relationships between variables. Below sections provides the detailed analysis and findings.

5. Analysis and Interpretation

The collected data were systematically analyzed using descriptive statistics to understand farmers' awareness, practices, and challenges. Mean and standard deviation values helped identify trends, while simple linear regression assessed the impact of awareness on agricultural and rural development outcomes. The analysis revealed significant positive relationships between government scheme awareness and key indicators of rural progress.

Table: 1: Descriptive Statistics of Awareness and Utilization of Government Schemes

Statement	Sample	Min	Max	Mean	Std. Dev
I am fully aware of the Rythu Bandhu scheme.	450	23	184	3.84	1.08
Rythu Bandhu financial assistance is sufficient for cultivation expenses.	450	21	180	3.70	1.09
Rythu Bandhu has reduced my dependence on private moneylenders.	450	22	176	3.76	1.10
I am aware of the Rythu Bima insurance scheme.	450	26	181	3.67	1.13
Rythu Bima provides me with a sense of financial security.	450	24	204	3.67	1.06
I am aware of the Mission Kakatiya program in my village.	450	21	185	3.80	1.07
Tank restoration has improved irrigation for my land.	450	18	190	3.83	1.05

Source: Compiled from Primary data

The table presents descriptive statistics highlighting the farmers' awareness and utilization of key government schemes in Telangana, based on responses from 450 participants. The results show a high level of awareness, with most mean scores ranging from 3.67 to 3.84 on a 5-point scale. The highest mean score (3.84) was recorded for "I am fully aware of the Rythu Bandhu scheme," indicating strong outreach and visibility of this flagship initiative. Closely following are awareness of Mission Kakatiya (mean = 3.80) and perceived improvement in irrigation due to tank restoration (mean = 3.83), reflecting the positive impact of water resource management on farming. Other statements also received favorable responses, such as reduced dependence on private moneylenders (mean = 3.76) and financial sufficiency of Rythu Bandhu (mean = 3.70). Awareness and perception of Rythu Bima insurance showed slightly lower but still meaningful agreement (mean = 3.67), suggesting room for further sensitization. The standard deviations, ranging from 1.05 to 1.13, indicate moderate variation in responses, likely due to differences in scheme accessibility and experience among villages. Overall, the findings suggest that governments schemes are well-known and widely utilized, though continuous efforts are needed to enhance understanding and improve the perceived adequacy of benefits.

Table: 2: **Descriptive Statistics of Impact on Agricultural Practices**

Statement	Sample	Min	Max	Mean	Std. Dev
My crop yield has increased in recent years.	450	20	186	3.76	1.07
Government schemes have directly contributed to increased yield.	450	19	182	3.75	1.07
I have adopted better-quality seeds and fertilizers.	450	18	190	3.83	1.06
I practice crop diversification.	450	25	135	3.41	1.20
I use modern farm equipment.	450	19	186	3.76	1.08
I attend training or awareness programs on modern agriculture.	450	33	182	2.45	1.17

Source: Compiled from primary data

The table summarizes farmers' perceptions of the impact of various agricultural practices, based on responses from 450 participants. The data reveal that most respondents acknowledge positive changes, with mean scores for key items ranging from 3.41 to 3.83. The highest agreement is noted for the statement "I have adopted better-quality seeds and fertilizers" with a mean of 3.83, indicating widespread use of improved agricultural inputs. Similarly, increased crop yield in recent years (mean = 3.76) and the perception that government schemes have directly contributed to yield improvement (mean = 3.75) demonstrate a positive impact of policy interventions on production.

Use of modern farm equipment (mean = 3.76) and practice of crop diversification (mean = 3.41) also received moderate to high responses, suggesting an ongoing shift toward modern and varied agricultural methods. However, the lowest mean score (2.45) was observed for "I attend training or awareness programs on modern agriculture," indicating low participation in formal agricultural training, which may reflect gaps in outreach or accessibility of capacity-building efforts. Standard deviations range from 1.06 to 1.20, suggesting some variability in farmers' experiences and adoption levels.

Overall, the results suggest that while farmers are increasingly embracing modern practices and benefiting from schemes, greater emphasis is needed on education and training programs to sustain and further enhance agricultural transformation.

Table: 3: Descriptive Statistics of Rural Development

Statement	Sample	Min	Max	Mean	Std. Dev
My income has increased due to agricultural improvements.	450	41	148	3.50	1.20
I have better access to credit from banks or cooperatives.	450	72	113	3.30	1.30
Road connectivity has improved in my village.	450	35	129	3.40	1.44
I can access markets to sell my produce more easily now.	450	22	164	3.82	1.04
I have better storage facilities for my produce.	450	45	121	2.63	1.22
I use mobile/internet for farming-related information.	450	21	183	3.79	1.06
Government programs have improved overall rural living standards.	450	22	185	3.77	1.07

Source: Compiled from primary data

The table outlines the descriptive statistics of various indicators used to assess rural development, based on responses from 450 farmers. The highest mean score (3.82) was observed for the statement "I can access markets to sell my produce more easily now," indicating a notable improvement in market accessibility due to development efforts. Similarly, statements related to digital access ("I use mobile/internet for farming-related information", mean = 3.79) and overall rural living standards due to government programs (mean = 3.77) received high levels of agreement, reflecting positive outcomes of rural development initiatives.

Moderate agreement was observed for improvements in income (mean = 3.50), road connectivity (mean = 3.40), and access to formal credit (mean = 3.30), though the relatively higher standard deviations (up to 1.44) suggest varied experiences among farmers. The lowest mean score (2.63) was recorded for "I have better storage facilities for my produce," indicating that post-harvest infrastructure remains a significant gap in rural development efforts. Overall, the data reflect progress in several key areas but also highlight the need for further intervention in storage and credit access.

Table: 4: Descriptive Statistics of Challenges and Future Needs

Statement	Sample	Min	Max	Mean	Std. Dev
Rising input costs are a major challenge for me.	450	25	181	3.72	1.09
Climate change affects my farming activities.	450	26	181	3.72	1.09
Tenant farmers do not get adequate government support.	450	24	182	3.75	1.08
Water scarcity is still a major issue in my village.	450	25	183	3.74	1.08
I need more government support for sustainable farming practices.	450	21	184	3.84	1.08

Source: Compiled from primary data

The table presents the descriptive statistics for five key challenges and future needs perceived by farmers. Each statement was rated by 450 respondents on a 5-point Likert scale. The mean scores for all five items range between 3.72 and 3.84, indicating a generally high level of agreement. The highest mean score (3.84) was recorded for the statement "I need more government support for sustainable farming practices", highlighting a strong demand for policy intervention in sustainable agriculture. This is followed closely by concerns over water scarcity (mean = 3.74) and lack of support for tenant farmers (mean = 3.75). Both rising input costs and climate change also scored equally (3.72 each), reflecting farmers' serious concerns over environmental and economic pressures. The standard deviations, ranging from 1.08 to 1.09, show moderate variability in responses, suggesting some differences in how farmers experience these issues but with a common overall trend toward agreement.

Table:5: Regression Model Summaries for the Awareness and Utilization of Government Schemes and Rural Development

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F Change	df1	df2	Sig. F Change
1	0.619	0.383	0.381	0.398	277.22	1	448	.000
a. Predictors: (Constant), Awareness of Government Schemes								
b. Dependent Variable: Rural Development Score of the Respondents								

Source: Compiled from primary data

The regression table shows a moderate to strong positive relationship (R = 0.619) between awareness of government schemes and rural development. The R Square value of 0.383 indicates that 38.3% of the variation in rural development is explained by awareness levels. The F-value (277.22) with a significant p-value (0.000) confirms that the model is statistically significant. The standard error of 0.398 reflects a good fit of the data to the model. Overall, the results suggest that greater awareness of government schemes has a significant positive impact on rural development.

Table: 6 : Anova Summary – Awareness impact on Rural Development

Source	Sum of Squares	df	F Value	Sig. (p-value)
Awareness Score	43.715	1	278.512	0.000
Residual	70.318	448		
Total	**114.033**	**449**		

Source: Compiled from primary data

The ANOVA table examines whether awareness of government schemes has a statistically significant impact on rural development. The sum of squares for the regression (43.715) reflects the portion of variation in rural development explained by awareness levels, while the residual sum of squares (70.318) represents the unexplained variation. The total variation in rural development is 114.033. The F-value of 278.512 and a p-value of 0.000 indicate that the model is highly significant**.** This confirms that awareness of government schemes makes a meaningful contribution to explaining the differences in rural development among respondents.

6. Conclusion

The study comprehensively examined the relationship between agricultural transformation and rural development in Telangana using primary data from 450 farmers. Findings reveal that government schemes such as Rythu Bandhu, Rythu Bima, and Mission Kakatiya have significantly enhanced awareness, improved irrigation, reduced dependence on informal credit, and increased farm productivity. The use of modern inputs and access to markets has also improved rural livelihoods. However, challenges such as climate change, rising input costs, and inadequate support for tenant farmers persist. Regression analysis confirmed a significant positive impact of scheme awareness on rural development outcomes. Although infrastructure and digital access have improved, gaps remain in storage facilities, formal credit access, and participation in agricultural training. Overall, the reforms have laid a strong foundation for progress, but inclusive, sustainable, and region-specific interventions are essential. Continued support and policy refinement are needed to ensure that the benefits reach all strata of the rural population and promote long-term resilience.

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