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Impact on India's Sustainable Food Security for Small and Marginal Farmers, with a Focus on Bihar and West Bengal

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Abstract

Agriculture continues to be the backbone of the Indian economy and a key source of income for rural households, mostly small and marginal farmers, who also provide the security of food and nutrition. These farmers experience numerous issues with loans, input availability, proper market integration, and other issues. The use of drudgery reduction technologies by women farmers is lagging behind and hence the nutrition and well-being of farmer families. Indian agriculture made unique contributions to both food security and employment security. Over half of our population depends on it for their livelihoods, reducing poverty as a result. Particularly noteworthy is the sector's contribution to the supply of food grains, fruits, and vegetables. Food grain, fruit, and vegetable output reached roughly 265 and 280 million tonnes, respectively, last decade, making the sector's contribution to the supply of these items particularly notable. The current study focuses on the national policies that range from yield to overall farmer productivity and food security to nutrition security. The importance of sustainable agriculture in ensuring India's food security in a world with climate constraints would be made clearer.

Keywords: *Small and marginal farmer land holding, sustainable employment food grain.*

INTRODUCTION

In most nations where agriculture is the principal employment of the rural population, agriculture is the foundation of general growth. For these nations to reduce poverty and provide food security, agriculture must expand. Report on World Development, Given that their production exceeded 265 and 280 billion tonnes, respectively, in the last ten years, the sector has contributed to the supply of food grains, fruits, and vegetables stands out. The current study focuses on the national policies that range from yield to overall farmer productivity and food security to nutrition security. It would make it easier to understand how crucially important sustainable agriculture is to ensuring India's food security.

According to the World Development Report 2008, in order for small farming to successfully combat poverty and food insecurity in these countries, agriculture must become competitive. In many developing countries, the great majority of farms are small agricultural holdings (FAO, 2010). According to studies using data from the World Programmed of Census of Agriculture 2000, the Asia and Pacific area has the smallest holding sizes worldwide. 87 percent of the 500 million farms worldwide, according to estimates, are located in Asia and the Pacific (Hazel et al., 2007). The current study examines the number of holdings, operated area, and average size of marginal farms in Indian states and contrasts and compares fundamental characteristics of marginal farmers in West Bengal and Bihar with those at the national level in order to highlight the significance of small and marginal farmers in the agricultural sector of developing countries (Hossen et al., 2026).

Indian Scenario

Due to demographic reasons and the naturally growing population in the region where existing holdings are located, the number of marginal farmers has been rising steadily over time. During 2000-01 and 2010-11, there was a noticeable rise in the number of holdings on a nationwide scale. Additionally, it is shown that during this time, the average size of holdings for all classes has declined. In 2000–01, the average size of all size classes was 1.33 hectares; this size then fell to 1.22 hectares in 2005–06; and finally, to 1.15 hectares in 2010–11. They are essential to preserving the viability of agriculture and food security. In light of this backdrop, the following region will look at the proportion of holdings, operating area, and average holding size of marginal farms in significant Indian states. It is discovered that between 2000–2001 and 2010–2011, the average size of marginal farmers' land holdings decreased from 0.40 hectare to 0.38 hectare on a countrywide scale. Indian agriculture made unique contributions to both food security and employment security. It helps to alleviate poverty by providing a living for more than half of our population. Given that their production reached around 265 and 280 million tonnes, respectively, in the previous ten years, the sector's contribution to the supply of food grains, fruits, and vegetables stands out.

The improvement and development in the agriculture sector in India cannot be overlooked, even though the sector's contribution to the nation's GDP has decreased. However, despite this improvement, there are still many issues that Indian small- and marginal-farmers must deal with, some of which are man-made and others related to the environment (Alam et al., 2025).

Some of these issues include:

1. Absence of institutional credit entry.
2. Expensive input costs.
3. The absence of crop failure insurance.
4. Lack of irrigation water and decreasing groundwater levels.
5. Inadequate income security since the mandis affects price.
6. The lack of a backup income during the off-season, droughts, etc.

Study of the literature

According to Ashwinikulkarni and Sudha Narayan's (2015) study, 4,881 users of the more than 4,100 works produced by the Mahatma Gandhi National Rural Employment Guarantee Schemes were surveyed. Varun Gandhi (2013) The Working Group on Marginal Farmer recommended that procurement from small and marginal farmers should be protested, particularly through regulation for multi-brand retail. Marginal cultivators could be encouraged to join farmer producer originations (FPOS), which can provide interest subvention on loan for a five-year period and exemption from the agricultural produce market committees. Gaiha and Thapa (2011). Agricultural technology are scale neutral but not resource neutral, it may be noted (singh et al.2002) Cost reduction without a loss in yields

should be a priority in research and extension focused on smallholders. According to Chand (2011), the composition of land holdings India is a nation of subsistence farmers. Out of the 120 million total land households in the nation, 98 million were thought to be small and marginal holdings, according to the Agricultural Census 2000-2001. According to Swaminathan (2010), it is now more important than ever to implement an evergreen revolution's strategies, as mentioned by Swami Nathan (2010). There are two main strategies to encourage an evergreen uprising, among other things. According to Ch. Radhika Rani and P. Praveen (2008), small farmers are more vulnerable to crop production risk than area risk for crops including maize, sunflower, peanut, and red gramme. For medium-sized and large-scale farmers, the production risk is higher with regard to oil seed crops like castor and groundnut (Mohd Pauzi & Shahadat Hossen, 2025). In their study, Ch. Radhika Rani and P. Praveen noticed the financial risk as a drop in marketable surplus for all crops. They believe that land leasing has shown to be a crucial tool for boosting the base of production and raising the level of revenue for small and medium farmers (Rashed et al., 2025).

Aims of the research

- i. To describe the history of the idea and the current situation of small and marginal farmers.
- ii. To comprehend and recognize the land ownership of small and marginal farmers in West Bengal, Bihar, and throughout India.
- iii. To clarify and determine the sustainable employment and food supply of small and marginal farmers in West Bengal, Bihar, and throughout India.

Hypothesis:

- i. Government programmes and policies are raising small farmers' standards of living.
- ii. Small and marginal farmers have an overall impact on food grain production and sustainable employment.

METHODOLOGY

Primary data will be gathered from journals, books, reports, and other publications as well as from the Agricultural Census, the Agriculture Census Division, the Department of Agriculture, Cooperation & Farmers Welfare, and the Government of India in the years 2000–01, 2005–06, 2010–11, and 2015–16. Secondary data will be gathered from other studies and will be used to supplement the primary data in the study. On the other hand, the Land and Land Reforms Department and Evaluation Wing, Directorate of Agriculture, Government of West Bengal, have collected district data on land holdings, operating area, and average size of land holding of marginal farms (Alam et al., 2025).

RESULTS AND DISCUSSION

According to the Agricultural Census and other surveys, smaller holdings predominate in Indian agriculture, and the size of operational holdings has been decreasing to unprofitable levels. With the exception of Jharkhand, which has a large tribal population, more than 90% of operating holdings are tiny or marginal. The typical farm measures 0.38 to 0.43 hectares. The average farm size in Bihar and West Bengal is between 0.25 and 0.38 hectares, which is the same as or significantly less than the national average of 0.38 hectare in the year 2015–16. Bihar and West Bengal scored lower than the national level of 0.4 in 1970–71. I should also point out that sharecropping and tenancy are common in small and marginal properties in West Bengal and Bihar. West Bengal's average farm size is the same as the national average, and it has been falling over time in each of these states. In WB, the average farm size of the large size group is nearly four times that of the marginal size group. In fact, the average farm size in these states was smaller than the national average. In Bihar, the average amount of land owned by large landowners is significantly lower. Despite the fact that it varies from state to state, the average farm size tends to

fall towards the medium size ranges. Differences in average farm size between the Marginal and Large size groups can be largely blamed for the variation in average size classes among states.

Table: 1. The comparison of Small and Marginal Farmers share in output.

State	2002-03	2010-11
	Share in output	Share in output
Bihar	69.2	78.26
West Bengal	83	90.89
All India	51.2	57.78

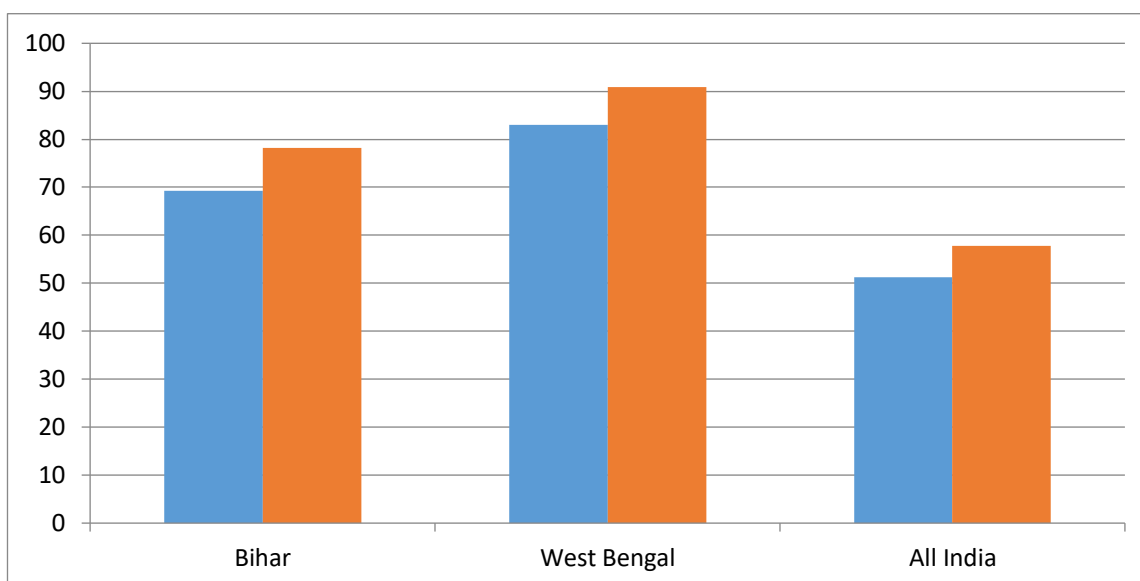


Figure 1: **Source:** Ministry of Agriculture, Agriculture census at a glance, 2014.

The contribution of small and marginal farmers to output shares from 78.26 per cent in Bihar to 90.89 percent in West Bengal and all India shares only 57.78 percent in 2010-11. Large farmers are cultivating many crops and they prefer high value crops which involves high cost and modern input. Studies have shown that cropping intensity is a major source of productivity increase and agriculture growth in the country (Rahman et al., 2025). And so, the rise in cropping intensity across all size classes, in particular amongst small and marginal land holding classes, is a wholesome development.

CONCLUSION

This reflects the nature of India's economic development in the years following 1990; briefly, a significant urban migration, a lack of farm labour, periodic falls in trade terms against agriculture, and the unattractiveness of farming as a profession have all contributed to the decreased cultivation of arable land. According to studies, cropping intensity is a key factor in the nation's rising agricultural productivity. Accordingly, the increase in cropping intensity across all size classes, but especially among small and marginal land holding classes, is a positive trend.

Although cropping intensity has increased through time, it is discovered that cropping intensity is inversely related to the extent of land holdings (Hossen et al., 2023). The average farm size for the year is similar to or significantly less than the national average. The majority of marginal holdings in Bihar and West Bengal are under tenancy, primarily sharecropping, which I would want to draw attention to here. The national policy prioritizes yield to overall farm production as well as food security, nutrition security, and yield. The importance of sustainable agriculture in ensuring India's food security in a world with climate constraints would be made clearer.

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Declarations: This manuscript has not been published to any other journal or online sources.

Data Availability: The author has all the data employed in this research and is open to sharing it upon reasonable request.

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