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Book Review

Indian Agriculture after the Green Revolution: Changes and Challenges

Binoy Goswami, Madhurjya Prasad Bezbaruah, and Raju Mandal (Editors)

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This book attempts to capture the challenges faced by Indian agriculture through the post Green Revolution period and assesses its readiness to face emerging challenges. Through 14 chapters, the book weaves together the passage of the Indian agriculture through its various achievements, and emphasizes on the past five decades. Each of the chapters can also be read in isolation with ample references for further readings. Overall, it is well written and can be used as a good study material for both undergraduate and graduate level courses on agricultural development in India.

The Green Revolution (GR) and its impacts have been well documented in agriculture literatures. Amidst this vast pool of available data and content, this book makes its contribution effective by presenting an organized, updated (usage of most updated sets of secondary data) and comprehensive

sketch of the entire farming sector with its emerging challenges and interventions needed to overcome these challenges. Agriculture and its allied sectors continue to remain as the largest source of employment accounting for 54.6 percent of the population (Census 2011) and contributing 17.4 percent to the country's Gross Value Added (at current price 2014–2015 and 2011–2012 series). The agriculture sector not only contributes to the overall growth of the economy but is also critical for achieving poverty alleviation and food security. But the most important component of this sector, the farmers, seem to be losing their interest in farming due to the following: low income as compared to non-farming sectors (as per National Sample Survey Office 2005, more than 40% of farmers expressed desire to quit farming given a chance); challenges pertaining to access to formal credit and insurance; lack

of capacity-building programs on modern farm equipment and practices; limited or no access to irrigation, fertilizers, pesticides, certified seeds, and other inputs; and absence of markets for selling produce. At the same time, they also suffer from social disadvantages like gender, caste and geographical remoteness.

The first two chapters present an overview of the performance of Indian agriculture in the post-GR period. They focus on growth of agricultural gross domestic product (GDP) and its declining share in overall GDP, and employment generation over time. In addition, it includes performance of different sub-sectors of agriculture such as crops, livestock, forestry, and fisheries and discusses changes in regional level cropping pattern and crop diversification. The next three chapters (3, 4, and 5) dwell into discussion on agriculture factor markets (land, water, capital goods, credit, and insurance) and their effects on farm production and efficiency. Chapter 3 analyzes the alterations in the extent and pattern of the agricultural land lease market over time, determinants of leasing decisions of rural households and their implications for rural development. The discussion also satisfactorily reflects upon the existence of two types of land leasing options in the Indian system, i.e., sharecropping and fixed rent, and the different contexts under which the two types of land leasing options operate. The land rental or lease market facilitates transfer of land for use from land-abundant households to land-scarce households or individuals. But what this chapter misses to discuss in detail are the reasons why the benefits of formal tenancy laws have been realized only marginally and why informal tenancy still prevails, or why both land owners and tenants' do not prefer to officially record their tenancy contracts. Chapter 4 focuses on the water market and rental market of capital goods. A large part of India is still monsoon dependent for its agriculture, hence, water scarcity is still a very critical problem.

Chapter 4 very aptly discusses that the water market in India is still an informal institutional arrangement (Shah 1993); it is not uniform and is implemented in few states only. However, the chapter does not shed much light on how the farmers, in the water scarce area or states, cope at the micro-level—specially the small farmers of Eastern and Northeastern India, where the ground water-based irrigation systems or canal irrigation were never effectively implemented. This chapter also discusses how the factor markets of water and capital goods facilitate consolidation of small and fragmented holdings into viable cultivation units.

The discussion of factor markets touches upon all the relevant and important issues, but missed to dwell into understanding agriculture factor markets and its challenges through a gender lens. Male and female farmers sometimes face different types of challenges in different factor markets. Female farmers with the help of self-help saving groups, and federations and agriculture cooperatives are able to avail credit services for their farm operations, but find it difficult to access the rental market for farm machinery. Female farmers also find it difficult to access the land rental market with the exception of the members of women self-help groups (SHGs). Lease farming by SHG/neighborhood groups is slowly attaining importance in poverty eradication programs. In Kerala, lease farming by neighborhood groups of women is a part of Kudumbashree (Sajesh and Ramasundarm 2013).

Chapter 6 primarily reviews the functioning of agricultural marketing system in the pre- and post-reform periods (pre-reform period until late 1980s). The chapter draws a special focus on the entry of supermarkets and the other organized actors in the agri-food supply chain. Retail is one of India's emerging industries, receiving attention from both global players like Metro, Tesco, etc. and domestic giants like Reliance, Aditya Birla Group, and Bharti

Group, etc. The following chapter (chapter 7) scrutinizes the trend of growth in irrigated areas across sources and across states, as well as issues in the management of irrigation infrastructure. Using NSS survey data, it concludes that the majority of the small and marginal farmers are yet to be beneficiaries of advancement in new agricultural technologies and improved production practices. Reliance on spillover effects of new technologies can be understood as a failed approach, when we look at the complexity and poverty trapped status of farmers in India.

Chapter 8 uses secondary data collected by NSS 70th round (January-December 2013) to examine technology adoption of farmers across different states and understand factors influencing the adoption of modern technology by farmers. The authors conclude that a large proportion of Indian farmers have low technological capability and their capability could be increased by providing information on latest technologies to farmers. The next chapter (Chapter 9) discusses the structural adjustment of agricultural sector during the post-liberalization era after 1991. The authors focused on changes in the agricultural trade policy during the period and analyzed change in trade flow of major agricultural commodities by linking them to fluctuations in international prices and changes in trade policies.

Chapters 10 to 13 discussed the various challenges and social issues confronted by the agriculture sector today. Chapter 10 examines the causes for rising farmer distress across the country, especially focusing on the burning issue of farmer suicide. Chapter 13 touches upon not only a social issue but one of the most debated global issues of present times, the impacts of climate change on agriculture.

Drawing from secondary data and existing literature, the chapter examines the effects of climate variability on rice and wheat yields.

The final chapter discusses the policy interventions needed for improving the future scenario of Indian agriculture. As the final chapter, the expectation was more detailed and in-depth discussion into various interventions that are required to address the issues and challenges discussed in the preceding chapters. But the author has touched upon only a few critical areas of intervention with a very generic discussion without much attention to the fact that every intervention—be it about improving irrigation infrastructure, financial inclusion of farmers or strengthening post-harvest value chains, etc.—requires specific customizing according to the local context of agricultural development of each state and the type of farmer group we are trying to address. Be these male or female, tenant farmer or land owner, small and marginal farmer or owners of big commercial farms. Interested readers can complement or supplement the discussion on various interventions that are required to address the challenges of present day agriculture (a specific coverage on rice) by referring to "The Future Rice Strategy for India", edited by Mohanty et al. (2017).

Perhaps the specific weakness of this book is that none of the chapters (except for Chapter 11) present any gender disaggregated data or insight. Understanding the specific challenges faced by man, women, and youth farmers is very essential for effective adoption of new technologies and practices. Overall, this book is a comprehensive source of updated data and provides a well-structured overview of the challenges faced by Indian agriculture in the post Green Revolution period.

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