Routledge Studies in the Modern World Economy

INDIAN AGRICULTURE AFTER THE GREEN REVOLUTION

CHANGES AND CHALLENGES

Edited by
Binoy Goswami, Madhurjya Prasad Bezbaruah and Raju Mandal
The Green Revolution turned India from a country plagued with chronic food shortages into a food grain self-sufficient nation within the decade of 1968–1978. By contrast, the decade of 1995–2005 witnessed a spate of suicides among farmers in many parts of the country. These tragic incidents were symptomatic of the severe stress and strain that the agriculture sector had meanwhile accumulated. The book recounts how the high achievements of the Green Revolution had overgrown to a state of ‘agrarian crisis’. In the process, the book also brings to fore the underlying resilience and innovativeness in the sector which enabled it not just to survive through the crisis but to evolve and revive out of it. The need of the hour is to create an environment that will enable the agricultural sector to acquire the robustness to contend with the challenges of lifting levels of farm income and with climate change. To this end, a multi-pronged intervention strategy has been suggested. Reviving public investment in irrigation, tuning agrarian institutions to the changed context, strengthening market institutions for better farm-to-market linkage and financial access of farmers, and preparing the ground for ushering in technological innovations should form the major components of this policy paradigm.

**Binoy Goswami** is Assistant Professor in the Faculty of Economics, South Asian University, New Delhi, India.

**Madhurjya Prasad Bezbaruah** is Professor in the Department of Economics, Gauhati University, Guwahati, India.

**Raju Mandal** is Assistant Professor in the Department of Economics, Assam University, Silchar, India.
Contents

List of figures vii
List of tables ix
List of contributors xi
Preface xiii

1 Introduction 1
BINOY GOSWAMI

2 Indian agriculture after the Green Revolution: an overview 8
KIRTTI RANJAN PALTASINGH, PHANINDRA GOYARI
AND KIRIL TOCHKOV

3 Rental market of agricultural land: changing context and need for tenancy reform 29
BINOY GOSWAMI

4 Emerging factor markets in Indian agriculture: water and rental of capital goods 46
ANUP KUMAR DAS AND JITU TAMULI

5 Implications of credit-insurance interlinked contracts: an evaluation of crop insurance schemes in India 63
PRAVAT KUMAR KURI AND ARINDAM LAHA

6 Transition of agricultural marketing in India 78
RAJIB SUTRADHAR

7 Irrigation in India: the post-Green Revolution experience, challenges and strategies 96
MRINAL KANTI DUTTA
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Technology adoption in Indian agriculture and its determinants: an inter-state analysis</td>
<td>112</td>
</tr>
<tr>
<td></td>
<td>BIBHUNANDINI DAS AND AMARENDRA DAS</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Trade liberalization and Indian agriculture</td>
<td>130</td>
</tr>
<tr>
<td></td>
<td>SMITHA FRANCIS, ANIRBAN DASGUPTA AND MURALI KALLUMMAL</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Indian agriculture through the turn of the century: gathering stress and farmers’ distress</td>
<td>152</td>
</tr>
<tr>
<td></td>
<td>M. P. BEZBARUAH AND MOFIDUL HASSAN</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Shift of rural work force from farm to non-farm employment: some determinants</td>
<td>168</td>
</tr>
<tr>
<td></td>
<td>UPASAK DAS AND UDAYAN RATHORE</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Environmental consequences of the Green Revolution in India</td>
<td>183</td>
</tr>
<tr>
<td></td>
<td>SURYA BHUSHAN</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Climate change and Indian agriculture: impacts on crop yield</td>
<td>198</td>
</tr>
<tr>
<td></td>
<td>RAJU MANDAL AND HIRANYA K. NATH</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>The way forward</td>
<td>216</td>
</tr>
<tr>
<td></td>
<td>M. P. BEZBARUAH</td>
<td></td>
</tr>
</tbody>
</table>

*Index* 227
Contributors

Amarendra Das is Assistant Professor in the School of Humanities and Social Sciences, National Institute of Science Education and Research (NISER), HBNI, Off Campus Centre, Bhubaneswar, India.

Anirban Dasgupta is Associate Professor in the Faculty of Economics, South Asian University, New Delhi, India.

Anup Kumar Das is Assistant Professor in the Department of Economics, Rajiv Gandhi University, Itanagar, India.

Arindam Laha is Assistant Professor in the Department of Commerce, University of Burdwan, Burdwan, India.

Bibhunandini Das is Assistant Professor in the School of Management, Centurion University of Technology and Management, Bhubaneswar, India.

Binoy Goswami is Assistant Professor in the Faculty of Economics, South Asian University, New Delhi, India.

Hiranya K. Nath is Professor in the Department of Economics and International Business, College of Business Administration, Sam Houston State University, Huntsville, USA.

Jitu Tamuli is Assistant Professor in the Department of Economics, T.H.B. College, Jamugurihat, India.

Kiril Tochkov is Associate Professor in the Department of Economics, Texas Christian University, Fort Worth, USA.

Kiratti Ranjan Paltasingh is Assistant Professor in the Department of Economics, SMVD University, Jammu, India.

Mofidul Hassan is Assistant Professor in the Department of Economics, Pandit Deendayal Upadhyaya Adarsha Mahavidyalaya, Bongaigaon, India.

M. P. Bezbaruah is Professor in the Department of Economics, Gauhati University, Guwahati, India.

Mrinal Kanti Dutta is Professor in the Department of Humanities and Social Sciences, Indian Institute of Technology, Guwahati, India.
Contributors

Murali Kallummal is Associate Professor at the Centre for WTO Studies, Indian Institute of Foreign Trade, New Delhi, India.

Phanindra Goyari is Professor in the School of Economics, University of Hyderabad, Hyderabad, India.

Pravat Kumar Kuri is Professor in the Department of Economics, University of Burdwan, Burdwan, India.

Rajib Sutradhar is Assistant Professor at the OKD Institute of Social Change and Development, Guwahati, India.

Raju Mandal is Assistant Professor in the Department of Economics, Assam University, Silchar, India.

Smitha Francis is an economist based in New Delhi.

Surya Bhushan is Associate Professor at the Development Management Institute (DMI), Patna, India.

Udayan Rathore is Research Associate at the Indira Gandhi Institute of Development Research, Mumbai, India.

Upasak Das is a Post-Doctoral Fellow at the University of Pennsylvania and primarily based in New Delhi.