

# **Growth, Poverty and Developmental Aspects of Agriculture**

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# **Growth, Poverty and Developmental Aspects of Agriculture: Countries' Perspectives**

EDITED BY

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INVESTOR IN PEOPLE

*In memory of my colleagues  
Dr Kamal Ray and Sanat Kumar Chakraborty*

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# Contents

List of Abbreviations	<i>xi</i>
About the Editor	<i>xix</i>
About the Contributors	<i>xxi</i>
Foreword	<i>xxvii</i>
Preface	<i>xxix</i>

## Section I: Growth Aspects of Agriculture Across the Countries and Groups

<b>Chapter 1 Growth, Poverty and Developmental Aspects of Agriculture: An Introductory Note</b>	<b>3</b>
<i>Ramesh Chandra Das</i>	
<b>Chapter 2 Assessing Efficiency of Food Grain Production Across Indian States: An Investigation Based on Data Envelopment Analysis</b>	<b>11</b>
<i>Soumyajit Adhikari and Nilendu Chatterjee</i>	
<b>Chapter 3 Fostering Agricultural Growth Sustainability: The Critical Role of Bank Financing in Nigeria</b>	<b>27</b>
<i>Olalekan Charles Okunlola and Olumide Abiodun Ayetigbo</i>	
<b>Chapter 4 Do FDI Inflow, Forest Coverage and CO2 Emission Stimulate Agriculture Sector Productivity? Empirical Evidence From ICU Economies</b>	<b>41</b>
<i>Prasenjit Makur</i>	

<b>Chapter 5 The Agricultural Exports on the Renegotiation of USCM: The Case of Sinaloa</b>	63
<i>José G. Vargas-Hernández, Elsa Patricia Orozco Quijano and M. C. Omar C. Vargas-González</i>	
<b>Chapter 6 Role of Crop Insurance in Sustainable Agriculture Practices: A Global Perspective</b>	79
<i>Saheli Bhattacharya and Bappaditya Biswas</i>	
<b>Chapter 7 Interpreting Potato Price Volatility Through GARCH Estimation: A Novel Evidence</b>	93
<i>Madhabendra Sinha, Partha Mukhopadhyay and Durlav Sarkar</i>	
<b>Chapter 8 Growth and Stability in Paddy Production and Irrigation Facilities: A State-Level Analysis in India With Special Reference to the Blocks of Paschim Medinipur District in West Bengal</b>	107
<i>Somdip Bhukta, Sunanda Das and Ramesh Chandra Das</i>	
<b>Section II: Poverty, Food Security and Developmental Aspects of Agriculture Across the Countries and Groups</b>	
<b>Chapter 9 Unemployment, Food Insecurity and the Misery of Flood-Affected People in Bangladesh: How Do the Government and NGOs Respond?</b>	123
<i>Tulshi Kumar Das and Md Mahmud Hasan</i>	
<b>Chapter 10 Understanding the Problem of Food Security of the G-20 Countries From the Nexus Between Food Price and Food Production</b>	143
<i>Sudipta Jha and Biswajit Nayak</i>	
<b>Chapter 11 Has Indian Agricultural Growth Manage Food Security in India Successfully in the Last Decade? An Empirical Investigation</b>	163
<i>Tanushree Gupta, Jennifer Fernandes and Susobhan Maiti</i>	
<b>Chapter 12 Pakistan: Food Insecurity in a National Security State</b>	177
<i>Syed Sikander Mehdi</i>	



<b>Chapter 13 Determinants and Regional Imbalance of Food Security for the Selected States in India</b>	191
<i>Saddam Hossain Mondal and Arup Kumar Chattopadhyay</i>	
<b>Chapter 14 Food Security in Pakistan and Afghanistan: Investigating the Lacunae of Domestic Policy and Foreign Policy</b>	211
<i>Debasish Nandy</i>	
<b>Chapter 15 Understanding the Linkage Between Household Poverty and Food Security: Insights From the Indian State of Odisha</b>	225
<i>Arpita Das and Bidur Paria</i>	
Index	249

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# List of Abbreviations

## *Chapter 1*

ARDL	Auto Regressive Distributed Lag
DEA	Data Envelopment Analysis
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
ICU	India, China and United States of America
NGO	Non-Government Organization
TMEC	Tratado entre México, Estados Unidos y Canadá
USCM	United States-Canada-Mexico

## *Chapter 2*

ATMA	National Mission on Agriculture Extension
DAM	Digital Agriculture Mission
DEA	Data Envelopment Analysis
DMU	Decision Making Unit
EMDE	Emerging Market and Developing Economy
FPO	Farmer Producer Organizations
GATT	General Agreement on Tariffs and Trade
MSP	Minimum Support Price
NABARD	National Bank for Agriculture and Rural Development
PMFBY	Pradhan Mantri Fasal Bima Yojana
PMKISAN	Pradhan Mantri Kisan Samman Nidhi
RWBCIS	Restructure Weather Based Crop Insurance Schemes
SFA	Stochastic Frontier Analysis
TE	Technical Efficiency
WTO	World Trade Organization

*Chapter 3*

ABP	Anchor Borrowers' Programme
ACGSF	Agricultural Credit Guarantee Scheme Fund
AGDP	Agricultural Gross Domestic Product
ALAB	Agricultural Labour
ALAN	Agricultural Land Area
AMACH	Agricultural Machinery
ARDL	Auto Regressive Distributed Lag
BF	Bank Financing
CACS	Commercial Agriculture Credit Scheme
CBA	Commercial Bank's loan to the Agricultural sector
ECM	Error Correction Term
FDI	Foreign Direct Investment
FMARD	Federal Ministry of Agriculture and Rural Development
FSD	Financial Sector Development
GDP	Gross Domestic Product
INT	Interest Rate
NIPC	Nigerian Investment Promotion Commission

*Chapter 4*

ARDL	Auto Regressive Distributed Lag
BP	British Petroleum
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> E	Carbon Dioxide Emission
CUSUM	Cumulative Sum
ECM	Error Correction Model
EKC	Environmental Kuznets Curve
FAO	Food and Agriculture Organization
FC	Forest Coverage
FDI	Foreign Direct Investment
FDI_AGR	FDI Inflows in Agriculture Sector
GHG	Greenhouse Gas
GtCO <sub>2</sub>	Gigatonnes Carbon Dioxide
ICU	India, China and United States of America

IPCC	Intergovernmental Panel on Climate Change
Ln	Natural Log
MEA	Millennium Ecosystem Assessment
OECD	Organization for Economic Cooperation and Development
REC	Renewable Energy Consumption
SDG	Sustainable Development Goals
TEEB	The Economics of Ecosystems and Biodiversity
UN	United Nations
USA	United States of America
US	United States
VECM	Vector Error Correction Model
VEC	Vector Error Correction
VA_AGR	Value Added in Agriculture Sector
WPP	World Population Prospects

*Chapter 5*

AMEG	Mexican Association of Livestock Fattening
GDP	Gross Domestic Product
NAFTA	North American Free Trade Agreement
TMEC	Tratado entre México, Estados Unidos y Canadá
USCM	United States-Canada-Mexico

*Chapter 6*

AGROSE	Agrupación Española de Entidades Aseguradoras de los Seguros Agrarios Combinados, Spain
AUSAID	Australian Agency for International Development
AUTP	Asuransi Usaha Tani Padi, Indonesia
CCIS	Comprehensive Crop Insurance Scheme
CNY	Chinese Yuan Renminbi
CPIS	Coconut Palm Insurance Scheme
ECIS	Experimental Crop Insurance Scheme
FIIS	Farm Income Insurance Scheme
FNGCA	National Agricultural Disaster Fund, France
JICA	Japan International Cooperation Agency

MNAIS	Modified National Agricultural Insurance Scheme
MPCI	Multi-Peril Crop Insurance
NAIS	National Agricultural Insurance Scheme
NBS	Nature Based Solutions
NCIP	National Crop Insurance Programme
NDVI	Normalized Difference Vegetation Index
NGO	Non-Government Organization
NTB	Negusa Tenggara Barat, Indonesia
PCIS	Pilot Crop Insurance Scheme
PICC	Peoples Insurance Company of China
PMFBY	Pradhan Mantri Fasal Bima Yojana
PPP	Public–Private Partnerships
PROAGRO	Programa de Garantia da Actividade Agropequária, Guarantee Programme for Agricultural Activities, Brazil
PRONAF	Programa Nacional de Fortalecimento da Agricultura Familiar, Brazil
PSSCI	Pilot Scheme on Seed Crop Insurance
SEAF	Seguro da Agricultura Familiar, Insurance for Family Agriculture, Brazil
USD	United States Dollar
UT	Union Territory
WBCIS	Wather Based Crop Insurance Scheme

*Chapter 7*

AIC	Akaike (1969) Information Criterion
GARCH	Generalized Autoregressive Conditional Heteroscedasticity
MGARCH	Multivariate Generalized Autoregressive Conditional Heteroscedasticity
ARCH	Autoregressive Conditional Heteroscedasticity
MANOVA	Multivariate Analysis of Variance
RML	Reuters Market Light

*Chapter 8*

AIBP	Accelerated Irrigation Benefit Programme
ANOVA	Analysis of Variance

NPK	Nitrogen, Phosphorus, and Potassium
RBI	Reserve Bank of India
TFPG	Total Factor Productivity Growth

*Chapter 9*

CDMP	Comprehensive Disaster Management Programme
CPP	Cyclone Preparedness Programme
DMB	Disaster Management Bureau
DM	Disaster Management
DRR	Disaster Risk Reduction
ERM	Emergency Response Management
FAP	Flood Action Plan
FGD	Focus Group Discussion
GR	Gratuitous Relief
LGIs	Local Government Institutions
MoDMR	Ministry of Disaster Management and Relief
NDMC	National Disaster Management Council
NGO	Non-Governmental Organization
NPDM	National Plan for Disaster Management
OMS	Open Market Sale
SOD	Standing Orders on Disaster
SSNP	Social Safety Net Programs
SPSS	Statistical Package for the Social Sciences
UP	Union Council
VGD	Vulnerable Group Development
VGf	Vulnerable Group Feeding

*Chapter 10*

ADF	Augmented Dickey-Fuller
ARDL	Autoregressive Distributed Lag
ECT	Error Correction Term
FAO	Food and Agriculture Organization
OECD	Organisation for Economic Co-operation and Development
PP	Phillips-Perron

VAR	Vector Autoregressive
VECM	Vector Error Correction Model

*Chapter 11*

ASHA	Accredited Social Health Activist
CAGR	Compound Annual Growth Rate
CSAPs	Climate-Smart Agricultural Practices
DAC & FW	Department of Agriculture, Cooperation and Farmers Welfare
DES	Directorate of Economics and Statistics
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GHI	Global Hunger Index
GVA	Gross Value Added
ICDS	Integrated Child Development Services
Kg	Kilograms
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MT	Million Tonnes
NABARD	National Bank for Agriculture and Rural Development
NFSA	National Food Security Act
PDS	Public Distribution System
PMGKY	Pradhan Mantri Garib Kalyan Yojana
PPP	Public Private Partnership
R&D	Research & Development
RFID	Radio Frequency Identification
SEZ	Special Economic Zones
TISM	Total Interpretive Structural Modelling
TPDS	Targeted Public Distribution System
WFP	World Food Programme
WFS	World Food Summit

*Chapter 13*

ACC	Accessibility
ADF	Augmented Dickey-Fuller



AFF	Affordability
ARDL	Autoregressive Distributed Lag Model
AV	Availability
AWW	Agricultural Wage of Women Worker
CI	Cost of Education
CV	Coefficient of Variation
DFE	Difference Fixed Effect
ECM	Error Correction Model
EPWRF	Economic and Political Weekly Research Foundation
FAO	Food and Agricultural Organization
IBRD	International Bank for Reconstruction and Development
KMO	Kaiser–Meyer–Olkin
MDFSI	Multidimensional Food Security Index
MG	Mean Group
NFHS	National Family Health Survey
NIA	Net Irrigated Area
NSDP	Net State Domestic Product
NSSO	National Sample Survey Organization
PCA	Principal Component Analysis
PCE	Per Capita Electric Consumption
PMG	Pooled Mean Group
RBI	Reserve Bank of India
SDG	Sustainable Development Goals
STA	Stability
TLR	Total Length of the Road
UNDP	United Nations Development Programme
WFPR	Workforce Participation Rate

*Chapter 14*

ADB	Asian Development Bank
BHA	Bureau for Humanitarian Assistance
UNDP	United Nation Development Programme
USAID	United States Agency for International Development

*Chapter 15*

SDG	Sustainable Development Goal
GSDP	Gross State Domestic Product
FINP	Food Insecure but Non-Poor
FSP	Food Secure but Poor
FIP	Food Insecure and Poor
FSNP	Both Food Secure & Non-Poor
MPI	Multidimensional Poverty Index
OLS	Ordinary Least Squares
HCR	Head Count Ratio

## About the Editor

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## Foreword

In an era defined by rapid technological advancements and shifting global dynamics, the importance of agriculture remains undiminished. It is both the foundation of economies and the frontline in the battle against poverty and food insecurity. This makes *Growth, Poverty and Developmental Aspects of Agriculture: Countries' Perspectives*, edited by Professor Ramesh Chandra Das, a timely contribution to the ongoing dialogue on how agriculture can continue to fuel development, sustain populations and alleviate poverty across various regions, particularly in developing and emerging countries. Professor Das, along with a distinguished panel of contributors, provides a compendium of research that navigates through the multifaceted role of agriculture in economic growth and development. The book is structured in two insightful sections, with the first focusing on the growth dynamics of agriculture and the latter delving into the intertwined issues of poverty, food security and development.

The relevance of this book cannot be overstated. At a time when global food security faces threats from climate change, political instability and economic disparities, the studies contained within offer crucial insights. The research not only assesses current agricultural practices and their efficiencies, such as in the production of food grains across Indian states and the sustainability of agricultural growth in Pakistan, Bangladesh, Nigeria like countries and G20 Groups, but also addresses complex global issues like food price volatility and the economic theories surrounding food production and security.

What sets this book apart is its global perspective, capturing experiences from Nigeria, Mexico, Pakistan and India, among others, along with several groups of economies. Each chapter contributes to a richer understanding of the local challenges and solutions that define agricultural growth and its impact on poverty reduction and food security. For instance, the investigation of agricultural exports under renegotiated trade agreements offers a keen look at how international policies influence local agricultural practices and outcomes. The timing of this publication is particularly significant. As nations grapple with the Sustainable Development Goals (SDGs), understanding the link between agricultural practices and poverty alleviation is critical. This book not only contributes to academic and policymaking discourses but also serves as a vital resource for stakeholders aiming to forge a path towards sustainable agricultural practices that

support economic growth and ensure food security. Emerald Publishing should be commended for bringing such a crucial piece of scholarly work to the public, aiding in the dissemination of knowledge that could very well dictate the quality of life and economic stability for billions of people worldwide.

*Hasan Dincer*

## Preface

It is still verifiable that the agricultural sector has been the vivacious decider within the progression of a country, indeed within the period of technological advancements. With the presentation of innovative headways within the sector, most of the nations from the south are currently experiencing greater well-being, less poverty and destitution and food security. The impacts got boosted when the universal exchange perspective of the division was taken into consideration. Assisted by the development of agrarian yield, numerous nations of the world have made it conceivable to diminish the wage crevices between the less created and the created nations through wage joining. Having a critical share in add up to yield of an economy, its instability in production, abdicate rates, costs, etc. may moreover cause the same for the full economy. Consequently, solidness issue along the related agro-variables gets to be one of the critical plans of the present research attempt.

Under the milieu, the present edited book titled *Growth, Poverty and Developmental Aspects of Agriculture: Countries' Perspectives* throws light upon compiling studies related to the growth, stability, crop insurance, poverty and food security aspects of the agricultural growth in the countries and groups, especially from the developing world.

The book is compiled of 15 chapters which are divided into two broad sections. Section I covers the growth aspects of agriculture across the countries and groups, containing eight chapters including this introductory chapter, and Section II captures the studies related to the poverty, food security and developmental aspects of agriculture across the countries and groups covering seven remaining chapters.

The summary observations are that the countries have improved their growth in the agricultural sector leading to food insecurity and poverty reductions that helped in the overall development of the citizens. The institutional factors such as credit, insurance, irrigation and good governance have instigated the growth process of the sector. Besides the glorious achievements, the sector has faced fluctuations and instability in its production and productivity in several crops at the country as well as regional levels, which lead to hurdles in achieving sustainability in the sector. In addition, in some regions of India, it was observed that the non-poor section of the society is relatively less food-secured compared to the poor section of the society, making the social imbalance in the reverse directions. Thus, the overall impression from the book is that the governments of the countries, states and local regions should come forward with proper governance

and institutional facilities to overcome the sustainability problems arising out of the agriculture sector.

The contents of the book may provide thought-provoking solutions to the existing problems of growth, poverty, food security and overall developmental issues of the agriculture sector, and there may be the possibilities of value addition to the existing literature in this area. Readers and policymakers will benefit immensely from the contents of the book.

While carrying out the book project, the editor got tremendous support from different corners of the academic and social world. The editor acknowledges the support of the entire Emerald Team, the contributing authors and the Foreword writer. In addition, the editor is indebted to his parents, wife, daughter and other members of the family for their sacrifice and support to unveil the title. However, the editor is solely responsible for any error still left in the book.

*Ramesh Chandra Das*