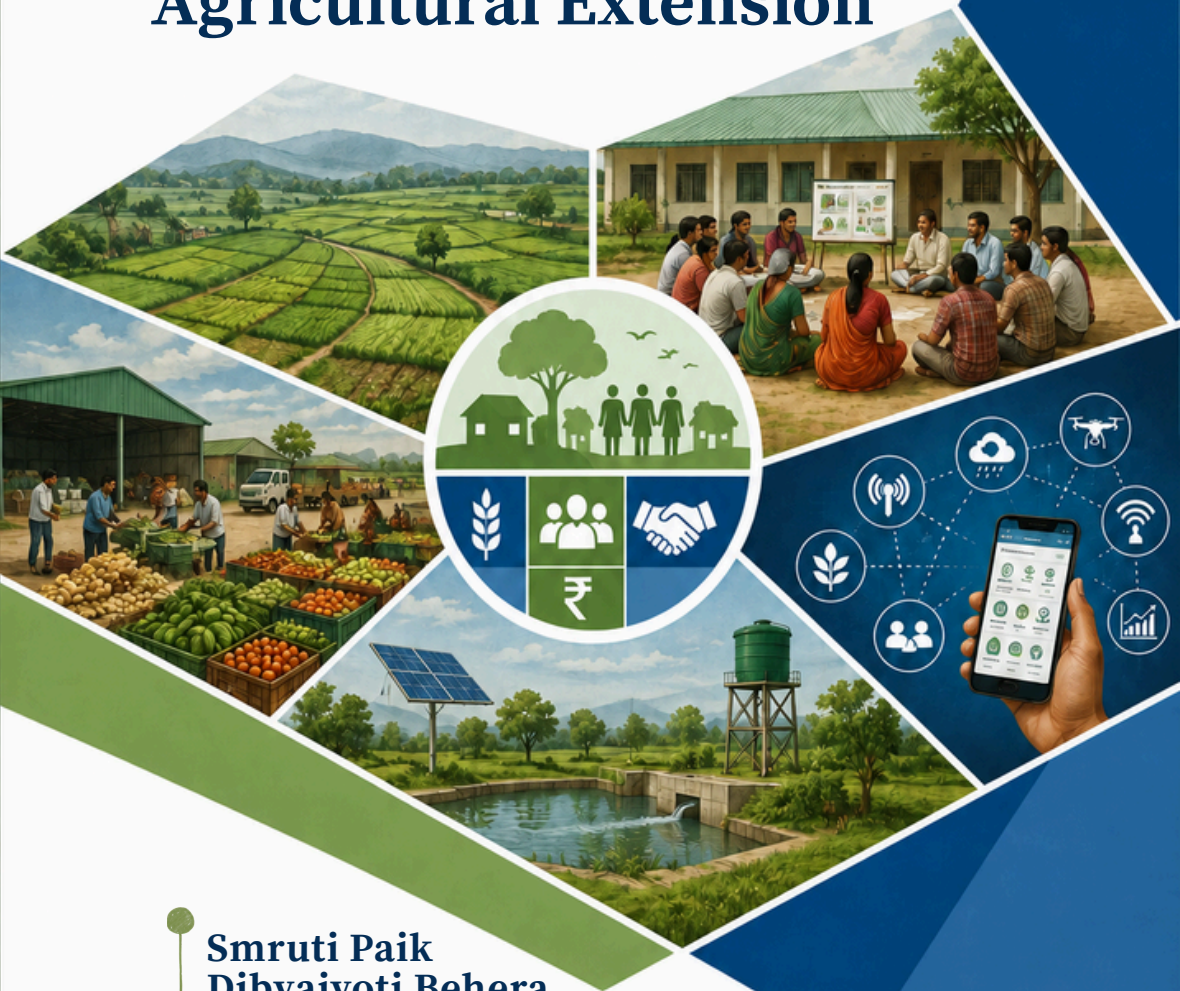


Livelihood Development and Rural Transformation

Perspectives from Agricultural Extension



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Ms. Smruti Paik is a Ph.D. Research Scholar in the Department of Agricultural Extension and Communication, Faculty of Agricultural Sciences, Siksha 'O' Anusandhan Deemed to be University (SOA), Bhubaneswar, Odisha. Her research focuses on agripreneurship, agricultural innovation systems, gender-inclusive livelihood development, stakeholder engagement, and sustainable rural development.

She has contributed two book chapters and published four research papers in reputed national and international journals. In addition, she has authored two popular articles to disseminate scientific knowledge and practical agricultural information among students, researchers, and the farming community.

She has presented her research papers at four international conferences, one national conferences, and two national workshop, and also in one national seminar demonstrating her active engagement with the scientific community. She has also participated in numerous national and international conferences, seminars, symposiums, workshops, and training programmes, enriching her academic and professional expertise.

In recognition of her outstanding research communication skills, she received the Best Presentation Award at the National Workshop organized by National Rice Research Institute (NRRI), Cuttack in 2023. She was also honored with the Best Presentation Award at a National Seminar organized by the Odisha Society of Extension Education (OSEE) at Odisha University of Agriculture and Technology (OUAT), Bhubaneswar, in 2025. Furthermore, she received the Best Presentation Award at the Institute of Business and Computer studies (IBCS), SOA Deemed to be University, during a National Conference held in 2025.

Among researchers from across India, two research papers were selected for presentation at a National Workshop organised by MANAGE, Hyderabad and her research paper was one of the selected entries, highlighting the quality and significance of her research contributions.

Through her research, publications, presentations, and academic engagements, she remains committed to advancing agricultural extension, promoting innovation in agriculture, fostering inclusive livelihood opportunities, and strengthening stakeholder participation for sustainable agricultural and rural development.



Mr. Dibyajyoti Behera is a Ph.D. Research Scholar in the Department of Agricultural Extension and Communication, Faculty of Agricultural Sciences, Siksha 'O' Anusandhan Deemed to be University (SOA), Bhubaneswar, Odisha. His academic pursuits focus on agricultural extension, rural development, climate resilience, Tribal youth, sustainable agriculture, and technology dissemination.

He has contributed four book chapters and published 12 research papers in reputed national and international journals. In addition, he has authored 11 popular articles aimed at disseminating scientific knowledge and practical agricultural information to students, researchers, and the farming community.

He possesses 1020 hours of field training experience, having conducted training programmes for diverse farming communities across different districts of Odisha on various aspects of agriculture, including improved farming practices, climate-smart agriculture, sustainable crop management, and agricultural innovations. His extensive field engagement has strengthened farmer capacity and facilitated the adoption of scientific agricultural technologies.

He has actively participated in numerous national and international seminars, conclaves, conferences, workshops, and training programmes, where he has presented research findings and contributed to discussions on contemporary issues in agricultural extension, rural development, and sustainable agriculture.

He is a Life Member of a reputed professional society, reflecting his commitment to academic excellence, professional development, and lifelong learning.

Through his research, publications, training programmes, and extension activities, he remains committed to strengthening agricultural extension systems, empowering farming communities, promoting innovation, and contributing to the sustainable development of the agricultural sector.



Pritisudha Baral is a Ph.D. Research Scholar in the Department of Agricultural Extension and Communication, Faculty of Agricultural Sciences, Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar, Odisha. She is actively engaged in research focusing on agricultural extension, digital extension services, women empowerment, rural development, and sustainable agricultural transformation through innovative communication approaches.

Ms. Baral has an accepted book chapter titled "Gender and Youth Inclusion in Digital Extension" in the forthcoming book *Extension in Agri-technology*. She has also presented research papers at national conferences and seminars, contributing to scholarly discussions on digital inclusion, agricultural extension, and sustainable rural development.

She has actively participated in numerous national and international conferences, seminars, symposiums, workshops, and capacity-building programmes, including the International Symposium on Paraphrasing and Plagiarism Removal in Academic Writing, the National Seminar on Extension Education Strategies for Digital Agriculture: Experiences and Sustainable Pathways, the Odisha AI Symposium, the L.E.A.D. ThinkCamp, and the International Fascination of Plants Day (FoPD-2026). These academic engagements have strengthened her interdisciplinary knowledge and research capabilities.

In recognition of her academic excellence, Ms. Baral received the Best Paper Award at the National Conference on Digital Transformation and Sustainable Innovation: An Interdisciplinary Approach to Business, Health, Law, Agriculture and Society (2025) for her research paper titled "Role of Government Schemes and Policies in Promoting Digital Inclusion among Farm Women." She also secured First Position in Oral Presentation at the National Seminar on Extension Education Strategies for Digital Agriculture: Experiences and Sustainable Pathways (2025) organized at the Odisha University of Agriculture and Technology (OUAT), Bhubaneswar, for presenting her research on "Impact of Digital Extension Services on Empowerment of Farm Women."

Her academic interests include agricultural extension and communication, digital extension services, digital inclusion, women empowerment, climate-smart agriculture, rural livelihoods, ICTs in agriculture, and sustainable rural development. Through her research and academic activities, she remains committed to promoting technology-driven agricultural development, empowering women farmers through digital extension services, and strengthening resilient and inclusive rural communities.



Bikram Kumar is a Ph.D. Research Scholar in the Department of Agricultural Extension and Communication, Faculty of Agricultural Sciences, Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar, Odisha. He is actively engaged in research focusing on agricultural extension, climate-smart agriculture, digital agriculture, sustainable agricultural development, rural livelihoods, and technology dissemination for improving farmers' livelihoods.

Mr. Bikram has published one research paper in the International Journal of Agriculture Extension and Social Development titled "Different Constraints Faced by the Potato Farmers during the Adoption of Recommended Practices in Cuttack District of Odisha." He has also presented several research papers at national and international conferences, contributing to scientific discussions on climate-smart agriculture, agricultural extension, sustainable development, and digital agriculture. He has actively participated in numerous national and international conferences, seminars, symposiums, workshops, and training programmes, including the International Symposium on Artificial Intelligence in Shaping Agriculture and Allied Sectors for Sustainable Food Security (AIAAS-2026), the International Conference on Sustainable Agricultural Development with Climate Smart Systems, the National Workshop on Advances and Applications of Crop Models for Climate Smart Agriculture, the International Conclave on Climate Change and Global Warming: Issues and Prospects, and the National Seminar on Extension Education Strategies for Digital Agriculture: Experiences and Sustainable Pathways. These academic engagements have strengthened his research expertise and interdisciplinary knowledge in agricultural sciences.

In recognition of his academic excellence, Mr. Bikram secured First Position in Oral Presentation at the National Seminar on Extension Education Strategies for Digital Agriculture: Experiences and Sustainable Pathways (2025) organized at the Odisha University of Agriculture and Technology (OUAT), Bhubaneswar, for presenting his research on "Climate Smart Agricultural Practices in Odisha: An Overview." He has also actively presented research papers at various national workshops and conferences on climate change, sustainable agriculture, and agricultural development. His academic interests include agricultural extension and communication, climate-smart agriculture, digital agriculture, sustainable agricultural development, climate change adaptation, rural livelihoods, agricultural innovation, and ICTs in agriculture. Through his research and academic activities, he remains committed to promoting climate-resilient and technology-driven agricultural development, strengthening farmers' adaptive capacity, and supporting sustainable rural livelihoods through effective agricultural extension and communication.

Preface

Rural development is undergoing a profound transition. Agriculture remains central to the economic and social life of rural communities, yet contemporary rural livelihoods can no longer be understood solely in terms of crop production or farm income. Rural households increasingly depend upon combinations of farming, livestock, allied enterprises, wage employment, migration, entrepreneurship, collective institutions, value addition and emerging digital services. At the same time, climate variability, market uncertainty, resource degradation, changing demographic patterns and unequal access to institutions continue to influence livelihood security. These realities demand a broader understanding of rural transformation—one that places people, capabilities, resilience, inclusion and sustainable livelihood opportunities at its centre.

Livelihood Development and Rural Transformation: Perspectives from Agricultural Extension has been conceived in response to this changing development landscape. The book views livelihood development as a multidimensional process involving economic, human, natural, physical, social and institutional resources rather than income generation alone. It recognizes rural households as managers of diverse livelihood portfolios and emphasizes that meaningful transformation occurs when people acquire greater capabilities, choices, resilience, institutional access and dignity.

A central argument of the book is that agricultural extension must evolve beyond its traditional role of transferring production technologies. Contemporary extension systems are increasingly required to function as facilitators of innovation, knowledge brokers, enterprise mentors, institutional connectors and catalysts of collective action. They must support livelihood diversification, entrepreneurship, market integration, climate resilience, digital inclusion and the participation of women, youth and marginalized communities. This expanded perspective provides the conceptual foundation around which the chapters of the volume have been developed.

The book progressively examines the foundations of livelihood development and rural livelihood systems before addressing practical and emerging dimensions of rural transformation. Considerable attention is given to farm livelihood diversification, innovation and technology adoption, skill development, entrepreneurship, gender and youth inclusion, institutional arrangements, policies and the changing role of extension. The discussion also recognizes that technically successful interventions may fail to produce livelihood transformation when they are unaffordable, socially inappropriate,

disconnected from markets or inaccessible to disadvantaged groups. Particular emphasis is therefore placed on participatory planning, contextual diagnosis, convergence, collective institutions and outcome-oriented extension.

The volume also responds to emerging challenges confronting rural communities. Climate change, digitalization, changing food systems, migration, feminization of agriculture and evolving aspirations among rural youth are reshaping livelihood opportunities and vulnerabilities. Future extension systems must consequently move from message delivery towards problem-solving, from individual technologies towards livelihood portfolios, and from activity-based programme implementation towards measurable livelihood outcomes.

This book is intended for undergraduate and postgraduate students, teachers, researchers, extension professionals, development practitioners, policymakers and others engaged in agriculture and rural development. It is hoped that the conceptual discussions, analytical frameworks and practical perspectives presented here will encourage readers to examine rural transformation not merely through improvements in agricultural production, but through the broader objectives of livelihood security, resilience, social inclusion, empowerment and sustainable development.

We acknowledge the contributions of scholars, practitioners, institutions and rural communities whose experiences and scholarship continue to enrich the field of agricultural extension and livelihood development. We hope this volume contributes meaningfully to teaching, research, policy dialogue and field practice, and inspires more integrated, inclusive and people-centred approaches to the transformation of rural societies.

Authors

Contents

<i>About the Editors</i>	iii
<i>Preface</i>	vii
Chapter 1 Foundations of Livelihood Development	1
Chapter 2 Rural Livelihood Systems	19
Chapter 3 Extension for Livelihood Promotion	33
Chapter 4 Sustainable Livelihood Approaches	49
Chapter 5 Farm Livelihood Diversification	63
Chapter 6 Non-Farm Rural Livelihoods	77
Chapter 7 Innovation and Technology Adoption	91
Chapter 8 Digital Extension Services	105
Chapter 9 Skill Development and Entrepreneurship	121
Chapter 10 Gender, Youth and Inclusion	133
Chapter 11 Community Institutions and FPOs	145
Chapter 12 Climate-Resilient Livelihoods	157
Chapter 13 Markets and Value Chains	171
Chapter 14 Policy and Institutional Support	187
Chapter 15 Future of Rural Transformation	201
Chapter 16 Concluding Perspectives	215
Bibliography	223

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Livelihood Development and Rural Transformation: Perspectives from Agricultural Extension explores the changing nature of rural livelihoods and the expanding role of agricultural extension in building resilient, inclusive and sustainable rural communities. Moving beyond conventional technology transfer, the book examines livelihood diversification, entrepreneurship, digital extension, gender and youth inclusion, community institutions, FPOs, climate resilience, markets, value chains and policy support.

With a strong focus on capabilities, resilience, institutional access and sustainable livelihood opportunities, the book provides practical and conceptual insights for students, researchers, extension professionals, development practitioners and policymakers working toward meaningful rural transformation.

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