

Preface

Sustainable development has been a focal issue in development discourse, more so after the Rio Declaration with, 1992 Earth Summit and Rio Declaration to harmonize economic and environment issues, especially in the context of developing countries. Most of these countries are resource constrained and are facing the dilemma of fairly allocating their scarce resources such that the needs of the majority of their population living under poverty and hunger are met. It is not therefore uncommon to observe in these countries that a sizeable proportion of their population lives on an earning of less than US\$1.25 a day (regarded as the poverty line), an amount so small to motivate individuals to engage in meaningful economic activity for a living. Economic opportunities fly in their faces and they cannot take advantage of them. They become the marginalized and the vulnerable in society and susceptible to all manner of shocks, be they global (climate change, economic crises and international contestations) or local (heavy rains, floods, droughts, volcanic eruptions, earthquakes, crop failures, pest attacks, diseases, political conflicts and other governance challenges). These shocks alter governance, production, and livelihood systems around the world. Agriculture, including crop, livestock, forestry, and fishery sub-sectors, in rural communities of developing countries is more vulnerable because of those communities' higher exposure and dependence on climate sensitive options of production and livelihood systems, and limited adaptive capacities. This, in turn, adversely affects their production and livelihood strategies, thereby making it harder to attain the millennium development goals.

Governments of developing countries do support farmers' use of modern farm inputs, "high-input high-yield agriculture", in order to improve crop yield and combat malnutrition and hunger around the world. The increased use of modern inputs imposes danger by emitting high volumes of greenhouse gases (GHGs) into the atmosphere, resulting in high temperature and uncertain rainfall patterns thereby impacting negatively on crop yields. That is, the agriculture sector seems to be heading towards a vicious cycle of becoming more vulnerable to climate variability by its current production systems. It is therefore essential to improve upon current production systems through methods that make them reduce emissions of GHGs but at the same time enhance food production to fight malnutrition and hunger around

the world more effectively. It is not out of order to adopt farming methods that enhance sustainable management of the natural resources and improve the adaptive capacity of rural communities, thereby making them more resilient to various forms of vulnerability. Well-planned and coordinated participatory local governance and development programs could make a big difference in this regard.

With these issues in mind, this book discusses composite issues of development including climate change, agricultural productivity, innovative livelihood sources, and local governance capacity and participation within the context of rural communities of lower-middle income and developing economies. These issues have become topical in international conferences of the United Nations and other development partners. The above issues are usually treated by many researchers as separate themes with weak linkages with one another. Policy proposals emanating from such academic outputs are usually disjointed and incomprehensible to policy makers, and thereby are not likely to be implemented. This book intends to account these challenges of rural development, together with some proposed actions and policy solutions, into a coherent work that is accessible to development practitioners, policymakers, researchers, students, and the public alike.

Thus, this book comprises ten chapters hinging on issues of agricultural development challenges, governance, and capacity-building issues in rural areas, innovative livelihood, and agricultural innovation adoptions by farmers spanning five countries (Bangladesh, Ghana, Indonesia, Kyrgyzstan, and Nepal). Chapter 1, as the introductory chapter of the book, briefly discusses the sustainable livelihood strategies in the context of rural communities in the developing countries to confront environmental challenges, natural disasters, political/governance changes, often treated as shocks that befall them which may or do disrupt their livelihoods. Chapter 2 explains how changing climate affects revenues of farmers both in the short- and long-run periods, with adequate incorporation of adaptive responses by farmers. This allows for clear separation between the impact of climate with and without farm-level adaptation. Chapter 3 analyzes trends of climate variables and their effects on yields of major food crops in hilly districts of Makwanpur and Ilam in Nepal based on time series data spanning 30 years. Further, this chapter also tries to recognize the local adaptation practices that could be important in promoting adaptation to climate change in the region.

It is also imperative to note that farmers respond to adverse on-farm conditions through various practices including changing the crops or varieties of those crops cultivated. By so doing, they can adopt new improved varieties of important crops grown in their communities. Replacing existing varieties is likely to reduce disease and pest attacks, as old varieties often becomes less resistant with time. In Chap. 4, the issue of adoption of improved rice seeds is discussed, with the intention of identifying the factors that strongly prompt farmers to accept improved rice varieties in the Tarai Region, the granary of Nepal.

In Chap. 5, the processes of milk production among smallholder herders in Baltagulov Village Government, Ala-Buka, Kyrgyzstan, is assessed. It is noted that managing lactation and calving seasons of livestock to match periods of forage availability is important to ensure persistent peak production of milk.

The practice of organic farming is gaining momentum in many countries. Apart from its health benefits, rational or non-use of chemical fertilizers and/or pesticides associated with organic agriculture is believed to generate higher economic benefits through premium payments. Going organic has proven to be beneficial to rural communities. Organic agriculture, involving minimal use of chemical inputs, promotes soil fertility and conservation of biodiversity, thereby ensuring stable ecosystems in the tropics. Organic production reduces the risk of yield failure, stabilizes returns, and therefore enhances food security for small farmers' families. As a livelihood strategy, it can be the main source of income for some households, while for others it can be adopted not for pecuniary reasons but just to promote the cause of organic farming in one's community through networking. With viable market access and appropriate training of farmers, it can be an important livelihood strategy for farmers. In Chap. 6, the efforts to propagate organic vegetable farming in the Kathmandu and Chitwan districts of Nepal is analyzed with the object of identifying the factors, including community trust and product certification, that determine the payment of a market premium on organic vegetables in these geographical areas. Based on this, proposals are made to ensure that the public accepts paying premium prices for organic vegetables.

Sustainable livelihoods can also be promoted through smallholder gardening, which entail growing of a variety of vegetables, food crops, and fruit trees on a small plot of land. Smallholder gardening not only contributes to household food security and incomes, but it also provides "green spaces" and biodiversity in local communities. The participation of the highly marginalized Bagdi community of Bangladesh in an action research project on kitchen gardening funded by Research Initiatives Bangladesh (RIB) is described in Chap. 7. This practice can relieve poor families of the so-called supermarket bills while, at the same time, providing nutrient supplements to households and even generating supplemental cash income that can enhance their livelihoods. Riverbed vegetable farming, under the auspices of the Forum for Rural Welfare and Agricultural Reform for Development (FORWARD) in partnership with Plan Nepal, is being piloted in the Tarai areas of Nepal as a pro-poor measure for rural communities. Farmers in the Morang and Banke districts have embraced this technology. In Chap. 8, a cost-benefit analysis of this program is carried out to ascertain the profitability of this venture vis-à-vis conventional farming and how a niche market can be created for their produce to maximize revenue from riverbed farming especially for the underprivileged, landless people utilizing these wastelands.

Disasters are part and parcel of human activity. In Chap. 9, the recovery of smallholder farmers from the ashes of the Mount Merapi volcanic eruption in 2010 is described. Dairy farmers living in this area suffered loss of their livestock to the volcanic eruption. Because the farms were organized in groups, the government found it easier to provide financial and logistic support to them. Such dairy farmers not only were able to restore their livestock numbers, but they were also able to improve the livestock value chain and establish linkages among various farmers' groups in Sleman Regency, Daerah Istimewa Yogyakarta Province, Indonesia.

The role of decentralized processes in promoting rural development cannot be overemphasized. A successful decentralized system requires sufficient local government capacity to implement newly transferred tasks. In Chap. 10, the capacity of four rural institutions, namely, village officers, neighborhood groups, village parliament, and village development committees in three villages (Serang, Kedarpan, and Sumilir) in Purbalingga District, central Java, Indonesia, is assessed. The intention of this chapter is to identify the village institutions that have human resource capacity challenges to be addressed to promote village development in the decentralized governance system.

It is hoped that this book will fulfill the needs of the people seeking to understand the issues of shocks and their relations to agriculture and rural livelihoods in general and those of communities and livelihood strategies in developing countries in particular. The empirical discussions in the local context, an addition to the dearth of such works, will be useful to those concerned about enhancing the understanding of an issue and its location-specific nature in developing countries. Readers are highly valued and will be appreciated for any comments and advice they provide to improve the contents of the book. Such comments will also furnish hints for research work in the future, which when completed will be processed for publication sooner, also by Springer.

I would like to acknowledge Zakaria Amidu Issahaku (Ph.D.) for his contributions in the editorial process, checking the manuscripts and organizing the chapters. I also would like to thank Narayan Prasad Khanal (Ph.D.) for his contributions in checking the manuscripts in the latter part of the editorial process.

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Communities and Livelihood Strategies in Developing
Countries

Maharjan, K.L. (Ed.)

2014, XXV, 178 p. 54 illus., 50 illus. in color.,

ISBN: 978-4-431-54774-7