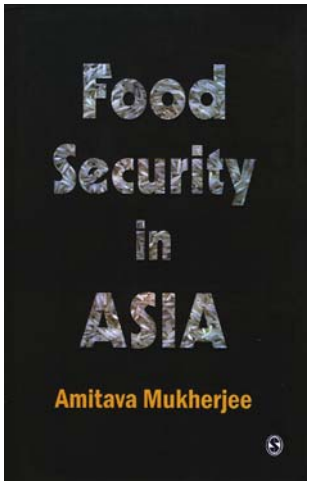

Food Security in Asia. Amitava Mukherjee. Sage Publications India Pvt Ltd, B1/I-1 Mohan Cooperative Industrial Area, Mathura Road, New Delhi 110 044. 2012. 393 pp. Price: Rs 895.

This is an extremely well-written comprehensive treatise on food security at the individual household level; in fact, at the level of every child, woman and man within a household. Thus, it fulfils the most acceptable definition of food security (UNFAO, 1996) which states, 'Food security exists when all people, at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life'. The point is that buffer stocks of several million tonnes of cereal grains do not eliminate hunger of the people who do not have access (i.e. purchasing power) to food.

Besides the abject poverty, there are also social and gender inequities which hamper access to food. Therefore, building food buffer stocks without due attention to physical and economic access to food will lead to a paradox of 'mountains of grains on one hand, and millions of hungry people on the other'. Hence, a comprehensive approach to food security focusing on *availability* (which is a function of production in perpetuity without accompanying ecological degradation and social inequalities) and *access* (which is a function of income-generating livelihoods through on-farm and non-farm enterprises based on locally available resources and market demands) is the need of the hour.

With regard to enhancing the food production (i.e. availability), the question is whether it should be an exploitative or a sustainable agriculture. M. S. Swaminathan, the prime architect of India's green revolution, referred to it as exploitative and unsustainable agriculture in his Presidential Address to the Agricultural Section of the 55th Session of the Indian Science Congress held in Varanasi in January 1968. What this means is that intensive cultivation with indiscriminate application of inorganic chemical fertilizers, chemical pesticides, flooding the field in the name of irrigation with the precious groundwater, cultivating just a few high-yield varieties and not the landraces and indigenous varieties, would lead to degradation of the very ecological foundation necessary for sustained crop productivity. Hence, a pathway for sustainable agriculture with goals of productivity in perpetuity, maintenance of the integrity of the natural resources, social and gender equities and empowering the resource-poor small and marginal farming, fishing and landless rural families to convert the challenges (e.g. climate change, environmental degradation, globalization) into opportunities needs to be developed. That, in fact, is the ecofriendly agriculture necessary to produce food and also livelihoods in a sustainable manner. India and several developing countries in South Asia (having the highest number of malnourished people, low ranking in the Global Hunger Index and the United Nations Human Development Index) must have to fight both famines of food and rural livelihoods. It is in this context that the seven chapters of the book become highly relevant and extremely valuable. The nations of South Asia will need to tackle a number of issues such uneven food distribution, changes in the consumption behaviour of people towards higher-value meat and diary products, freshwater shortages for irrigation, biodiversity loss, complexities of intensive as well as ecofriendly farming systems, challenges of global change encompassing environmental degradation, biodiversity loss, climate change and social and gender inequalities.

The book provides several powerful messages both to the government and corporate sector with regard to food production methods and goals. For example, the statement (p. 307), 'First in the current age when agriculture has acquired the characteristics of business, maximizing profits through agricultural production seems to have caught on as the main goal of agriculture… . Meeting human needs has to be restored to the centre stage as the goal of agriculture, with livelihood priority being accorded a very high priority', brings out what is wrong presently, and how to correct it. Unlike the USA and developed countries, agriculture in the South Asian countries will have to continue to be the backbone to produce adequate food in perpetuity and also to generate livelihoods. In a business model of agriculture, the goals are to achieve immediate profit and jobless economic growth. In the business model, far lesser number of farmers using modern technologies which are not necessarily ecofriendly, apply huge amounts of inorganic chemical fertilizers and pesticides and cultivate a few hybrid and high-yielding varieties. The possible harm to environment, loss of agrobiodiversity and also livelihoods to a large section of resource-poor small farmers and landless labourers is ignored.

The reference in the book to the value of indigenous knowledge systems (p. 324) for sustainable productivity is important. That it is often divorced from the method of agricultural extension service is a matter of concern. The author has rightly observed that the method of agricultural extension service should change from 'command and control' system towards more decentralized approaches, which implies that agricultural extension has to migrate from 'lecturing' mode to one of 'listening and learning'. In this context, a reference could have been made to the most successful movement of Village Knowledge Centres (VKCs) pioneered by the M.S. Swaminathan Research Foundation (MSSRF), Chennai. With the help of modern information and communication technology (ICT), the VKCs link the farmers and fishermen directly with institutions and experts who provide time- and locale-specific information on several different aspects such as crop and animal husbandry, soil health, weather condition, especially monsoon, rural livelihood opportunities, ecotechnologies for on-farm and non-farm livelihoods, health care, education, tele-medicine, market prices for the produce in small farms, post-harvest processing and almost everything that resource-poor small and marginal farmers need for their health, livelihood and food security. With the mobile phone application, each individual farmer and

fisherman is brought into communication link. Today, knowledge is power. And as newer problems whether due to climate change, environmental degradation or a free but not fair market keep on emerging, the solutions to tackle these necessarily need to be dynamic. The old-fashioned agricultural extension system operates based on knowledge, data and do-how, no longer relevant to sustainable and climate-resilient agriculture.

The book also deals in a balanced manner about the GM technologies in agriculture. The risks now well-established with GM crops in general, and the *Bt* and *Ht* transgenics in particular (for 'biotic' stresses), are pointed out (p. 313). However, only time will tell whether the 'Brazilian Adventure' (Box 7.6, p. 328) involving GM crops would eventually turn out to be successful or a mid-adventure, as happened recently in Argentina. With growing scientific evidence on the adverse health and environmental impact of the *Bt* and especially the *Ht* transgenic crops, a rethinking has become necessary. A recent paper (http://www.sciencedirect.com/science/article/pii/s0016718513000730) reveals that the GM soy-based agro-export model in Argentina has been a 'success' in terms of economic growth, but also has a conflict between 'success' and socio-ecological sustainability. Immediate short-term prosperity followed by economic doom and food insecurity in the long-term should be carefully avoided especially in the highly populous, resource-poor South Asian countries. It is likely that the present Brazilian boom attributed to the GM crops could be illusory.

The several aspects, issues and approaches related to social protection, small farmers and food production are extremely well-written providing valuable analyses and suggestions. Explanation of idiosyncratic and covariate shocks and suggestions to deal with them are quite enlightening. The coinage of the term 'gendered' green revolution (p. 131) in the context of feminization of subsistence farming and thereby 'feminization of poverty' as well as the policies and actions required to ensure the livelihood and food security of farm-women (or women farmers) is absolutely masterly. Figure 7.2 (p. 340) presents an 'intervention framework for social protection' that comprehensively addresses agricultural livelihoods development, the social protection safety net and emergency assistance.

To a remarkable extent, several analyses and approaches in this book echo the views on food security and sustainable rural development, community-led approaches to ending food insecurity and poverty, managing monsoons and water resources, etc. presented in the book *From Rio de Janeiro to Johannesburg* by Swaminathan (East-West Books (Madras) Pvt Ltd, Chennai, 2002). In fact, the author refers to Swaminathan while describing the 'drought code', 'flood code' and a 'good weather code' to minimize the adverse impact of drought and flood and to maximize benefits from good weather.

In conclusion, this book elegantly brings out (i) the merits of ecofriendly technologies to achieve productivity in perpetuity over those which lead to dramatic increases in the short-term, but a sharp decline in the long-term due to degradation of soil, freshwater, biodiversity, etc.; (ii) the need to fight the famine of rural livelihoods to achieve access to food; (iii) the large benefits of community-centric approaches to natural resources management and enhancing resilience of the rural communities in the event of extreme natural or man-made disasters and food security; (iv) the need for knowledge and skill empowerment of rural women and men through decentralized extension system, and (v) that agriculture is the real backbone for human survival in South Asia, unlike developed countries such as USA. What has not been explicitly stated is that the US-based agricultural technologies, especially the GM technologies are not suitable for hundreds of millions of resource-poor farms in India and other nations in South Asia largely due to their adverse effects on health, environment, including biodiversity and socio-economic welfare.

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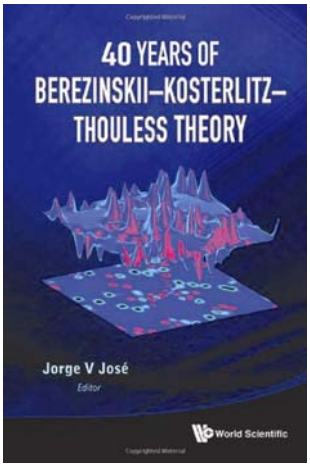

40 Years of Berezinskii–Kosterlitz–Thouless Theory. Jorge V. José (ed.). World Scientific Publishing Co. Pte Ltd, 5 Toh Tuck Link, Singapore 596224. 2013. xii + 351 pp. Price not mentioned.

The question of whether a two-dimensional system with continuous symmetry can support a long-range order has engaged condensed matter physicists for decades. Back in the 1930s, Rudolf Pearls had given general arguments on why such a system would not support a true long-range order. This result was derived more carefully 30 years later by N. D. Mermin and H. Wagner, which is now known as the Mermin–Wagner theorem. In the early 1970s, independent investigations of Vladimir Berezinskii and the team of Michael Kosterlitz and David Thouless on the same topic came to a startling conclusion: Even in the absence of true long-range order, a phase transition can happen in the system from a quasi long-range order, where spatial correlations decay as a power law, to a true disordered state where they decay exponentially with distance. Over the next few decades, this work had profound impact on the understanding of phase transition in two-dimensional systems such as thin superconducting or superfluid films.

The present volume is a collection of 10 review articles to mark the 40 years of Berezinskii–Kosterlitz–Thouless (BKT) transition, by people who have made significant contribution in this field. The opening chapter is a personalized account by Kosterlitz and Thouless, on their discovery and the early developments on defect-driven phase transitions. This chapter makes delightful reading both from a historical and scientific standpoint.