

Challenges and Policy Options for Agricultural Development: Overview and Synthesis

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1.1 INTRODUCTION

This book attempts to take stock of the evolution of theoretical and empirical knowledge about economic development, mainly focusing on agricultural and rural development, and drawing mainly (if not exclusively) on experiences in Asia. There have been other such stock-taking exercises in development economics (e.g., Meier and Stiglitz 2001), but this book is somewhat unique in its exclusive focus on agricultural and rural development in Asia.

In the 1970s, agricultural and rural development occupied the center stage of the economic development debate. Amid the increasing sense of food and resource scarcity, as reflected in rising commodity prices, investment in rural development was ranked top priority among development projects (see Chapter 8 by Barker and Rosegrant, section 2.1). The Green Revolution was in its early stages, and major efforts were underway to deliver complementary inputs such as fertilizer and subsidized credit, culminating in the Integrated Rural Development schemes. The impact of the Green Revolution (especially on small farmers) was then being fiercely debated.

After the 1980s, however, the perceived importance of the agricultural sector in the international development circle waned dramatically. Investments in rural development and agricultural research and development (R&D) declined sharply (see Barker and Rosegrant, Chapter 8). Correspondingly, Roumasset (Chapter 2) notes that the economics of agricultural development “has arguably been in decline,” and is “twice marginalized in the academe.” Nevertheless, Asia still accounts for about 60 per cent of the world’s 1.1 billion poor, and the majority of them are found in rural areas (Balisacan and Fuwa, Chapter 5). In addition, we take note of the following worldwide developments that are wielding tremendous effects on agriculture, to wit: the increasing globalization, along with rapid changes in marketing systems, which is offering farmers (especially small farmers) in the region the opportunities and enormous challenges for greater competitiveness (Reardon and Timmer, Chapter 12); the Gene Revolution — characterized by rapid advances in agricultural biotechnology, driven mainly by the private sector — which is taking over the Green Revolution (Pingali and Raney, Chapter 6); and the increasing awareness and concerns for environmental problems, such as deforestation (Otsuka, Chapter 10; Coxhead, Chapter 11) and water scarcity (Barker and Rosegrant, Chapter 8), which present additional challenges for agricultural and rural development policy formulation.

One common intent running through all the chapters of this book is to re-assert the role of agricultural and rural development in the economic development debate. By revisiting the evolution of ideas, paradigms and empirical evidence, and by drawing upon Asian experiences, the book aims to set a reinvigorated agenda on agricultural and rural development both for research and for policy discussions in the development circle.

To provide a fitting backdrop for the discussion and analysis throughout this volume, this introductory chapter starts with a brief overview of agricultural and rural development in Asia in the last thirty years. We then provide a brief synthesis of the evolution of the knowledge on agricultural and rural development by drawing on the chapters of the book.

1.2 AGRICULTURAL AND RURAL DEVELOPMENT IN ASIA: AN OVERVIEW

Asia has done quite well in agricultural growth within the developing world during the past few decades. As shown in Table 3.1 in Chapter 3, the annual growth rate of food production per hectare during 1963–2000 was 2.7 and 2.5 per cent in East Asia (including Southeast Asia) and in South Asia, respectively, while it was 2.1 and 1.8 per cent in Latin America and in Africa, respectively. However, it is evident from Tables 1.1 to 1.3 of this chapter that a great deal of variations characterized the patterns of growth and poverty reduction within Asia. As shown in Table 1.1, per capita gross domestic product (GDP) more than doubled during the period between the mid-1970s and the mid-2000 in most of the Asian countries except in the Philippines (which recorded only a 10 per cent increase), Bangladesh (a 63 per cent increase) and Nepal (a 62 per cent increase). Per capita GDP in China increased eightfold, and that in Malaysia and Thailand by factors of (almost) 3 and 3.5, respectively, during the period. Generally, East Asia (including Southeast Asia) performed better than did South Asia. Per capita GDP grew at annual rate of 4 per cent in East Asia and 3 per cent in South Asia during the period between 1975 and 2004. Within East Asia, the per capita GDP of most of the Southeast Asian countries grew at roughly 4 to 5 per cent per annum with the major exception of the Philippines whose per capita GDP grew only at less than one percent per annum, while Vietnam and China grew at impressive rates of 5.5 per cent and 7.6 per cent, respectively. Among the South Asian countries, the annual growth rate of per capita GDP stood at 3.2 and 2.5 per cent for India and Pakistan, respectively, while it was somewhat lower at about 2 per cent in Bangladesh and Nepal.

[Table 1.1 about here]

Due to the generally higher rates of growth in per capita income in Southeast Asia than in South Asia, the gap in the per capita income level between the two sub-regions tended to widen over the last few decades. The per capita GDP (in PPP dollars) of Indonesia, Vietnam, Bangladesh, India and Pakistan all fell within the US\$1,000–US\$1,200 range in the mid-1970s. Three decades later, the per capita GDP of Indonesia was twice that of Bangladesh and 60 per cent higher than Pakistan's. In sharp contrast is the dismal failure

of the Philippines. While the per capita GDP of the Philippines was the highest among all countries listed and nearly four times the level of South Asian countries in the mid-1970s, its per capita income level by 2004 had been surpassed by most of the Southeast Asian countries (with the exception of Indonesia and Vietnam, whose per capita GDP was less than one third of the Philippines' as of the mid-1970s), as well as by China. As to the question of whether factor accumulation or productivity growth was the main source of growth in Asia, a recent survey by Rosegrant and Hazel (2000) has concluded that the former (the accumulation of labour and capital) was more likely the case.

In 1970, the agricultural sector accounted for a quarter to a third of GDP in Southeast Asia and a third to 60 per cent of that in South Asia and China. Over the period between 1970 and 2003, the share of agriculture in GDP has declined roughly by half in most of the countries in both Southeast Asia and in South Asia (Table 1.2). The structural transformation proceeded relatively faster in China (from 56 per cent in 1970 to 13 per cent in 2003), Malaysia (from 28 to 9 per cent) and Thailand (from 24 to 9 per cent). In Southeast Asia and in China, such transformations occurred despite impressive growth in agricultural production. Based on the food production index, per capita food production more than doubled during the period between 1970 and 2003 in Malaysia, China and Vietnam, and it grew by 85 per cent, 20 per cent and 45 per cent in Indonesia, Philippines and Thailand, respectively. The growth in per capita food production in South Asia was somewhat lower — roughly by 30 per cent over the period between 1970 and 2003 — except for Bangladesh. In Bangladesh, per capita food (as well as agricultural) production slightly declined during the same period. While the Green Revolution was undoubtedly the main driver of the agricultural growth in Asia (see Pingali and Raney, Chapter 6, for details), additional accompanying factors, some of them country-specific, have also been at work. Agricultural growth in transition economies such as China and Vietnam, for example, was accompanied by land and institutional reforms. India focused on developing climate-specific varieties, agricultural extension, and investment in irrigation. The sluggish record of the Philippines can be explained by the decline in investment in rural infrastructure and research and development (R&D), and perverse government policies especially after the 1980s (David 2003; Balisacan, Sebastian and Associates 2006).

[Table 1.2 about here]

Agricultural growth was also accompanied by commercialization and diversification (Rosegrant and Hazell 2000). Technological change, rural infrastructure development, and increasing preference for high-value foods and non-agricultural goods associated with a growing economy led to the gradual shift from subsistence farming to more commercially-oriented production. The dietary shift resulted from the increasing urbanization and the rise in per capita income, causing the decline in the share of food expenditure via the Engel effects. The cost of family labour increased as a result of the increasing availability of more lucrative off-farm employment opportunities (e.g., Pingali and Rosegrant 1995). Fast adoption and adaptation of technology from abroad to substitute for human and animal power was also a common trend in Asian agriculture. The pace of

such agricultural diversification and commercialization was faster in East Asia than Southeast Asia, with South Asia bringing up the rear.

Finally, in terms of poverty reduction, Asia has achieved a similarly satisfactory record in the last few decades, benefiting as well from the rapid growth in agriculture and in overall economy supplemented by public investment (Table 1.3). The proportion of the population living below the one-dollar-a-day poverty line declined by one half or more in most of the Southeast Asian countries during the period between 1990 and 2003, with the exception of Cambodia (which showed a 26 per cent reduction in poverty incidence) and the Philippines (a 28 per cent decline). In Malaysia and Thailand, poverty incidence reached a level below 1 per cent by 1990 and 2003, respectively. Once again, the relatively lackluster performance of the Philippines pales in comparison to other countries in the sub-region. In terms of the absolute number of poor population, the record of China,, representing a 200 million decline from 377 million during 1990-2000, is particularly impressive. The speed of poverty reduction in South Asia has generally been slower than that in Southeast Asia, but Pakistan more than halved its poverty incidence between 1990 and 2003. In contrast, poverty reduction in Bangladesh has been relatively slow compared with the Asian standard, and in fact the absolute number of poor population increased during the period 1990–2003. In terms of absolute numbers, however, India dominates, with a record total of 327 million poor people, even though its poor population declined by 25 million during this period. Because of the sheer size of the population in India and China, there are still a larger number of poor people in Asia than in Africa.

[Table 1.3 about here]

1.3 EVOLUTION OF IDEAS AND PARADIGMS ON AGRICULTURAL AND RURAL DEVELOPMENT

The multiple roles of agriculture in the process of economic development have long been recognized in the economics literature (Mellor 1966; Johnston and Kilby 1975; Hayami and Ruttan 1985; Eicher and Staatz 1990; Roumasset, Chapter 2). These roles have been thought to lie in (i) releasing surplus labour to industry and the rest of the economy; (ii) producing food for the non-agricultural labour force and supplying raw materials to industry; (iii) making savings and capital resources available for the development of industry and other sectors; (iv) earning foreign exchange to finance the capital accumulation needed for industrialization; and (v) supplying the market for the goods and services generated by the non-agricultural sector. A necessary condition for agriculture to fulfill this developmental mission is for agricultural productivity to rise.

The Asian experience shows how rapid agricultural and rural transformation triggered by significant improvements in farm productivity, on account of the Green Revolution, provided the conditions for capital accumulation and technological change that led to economic growth. But the experience equally shows that while Asian economies generally succeeded in raising agricultural productivity, some were more successful than

others in attaining broad-based growth as well as in making the transition to a higher growth path.

Explanations for the differential performance of developing economies have received a good deal of attention in the literature. The notable economic successes of South Korea and Taiwan were heralded, at one point, as the decisive triumph of market liberalization as a development strategy over competing paradigms. Later explanations, however, emphasized the role of government in providing the needed public investments in infrastructure, R&D, and human resource development. Still other accounts point to the importance of initial conditions — favorable agro-climatic environment, less unequal asset distribution, and secure property rights — in eliciting the proper response from economic agents.

‘Fads and Fancies’: Evolution of Development Paradigms

These views on the roots of the differential economic performance, while ostensibly offering competing explanations for the same phenomenon, are best regarded as reflective of the evolution in thinking in development economics in the last thirty years. Chapter 2 by James Roumasset provides an overview of the evolution of thinking on economic and agricultural development. The chapter traces the changes in “fads and fancies” in development thinking in almost every decade. One fad was abandoned and replaced by another, argues Roumasset, without “a thorough diagnosis of the reasons that they failed to deliver according to expectations.” On many policy issues, debate often came full circle. On the role of government, for example, while the “interventionist” 1970s was followed by the era of “privatize and get the price right” in the 1980s, the “post-modern development microeconomics” has revived renewed interventionism since the 1990s, returning to a more sympathetic stance towards the role of the state in development.

The economics of information has been instrumental in enhancing our understanding of the way rural markets (labour, land, credit, etc.) function (or don’t function) and the roles played by agrarian institutions (e.g., see Bardhan and Udry 1999 for a concise theoretical treatment). According to Roumasset (Chapter 2), however, our understanding and appreciation of the choice and evolution of institutions in rural areas are still inadequate, and “the tendency to socially engineer reforms instead of facilitating cooperation persists.” The chapter further examines the evolution of policy discussions on crop insurance, agricultural price stabilization policies, land markets (land reform), labour markets, rural credit, research and extension, and water resource management. (The lessons from the policy experiences in these areas will be discussed in section 1.4 below.)

Evolution of Rural Institutions and Agricultural Performances

By pointing out the problem of ‘social engineering’ and ‘misplaced exogeneity’, Roumasset places a particular emphasis on the evolution of (endogenous) institutional

development. The theme of endogenous institutional development is taken up by Hayami's discussion on the comparative agricultural growth in East Asia and Africa (Chapter 3) as well as by Otsuka's examination of local institutions governing forest resource management (Chapter 10). Hayami puts forward the hypothesis that the differential performances in agricultural growth between the two regions can be attributed to the differences in traditional social structures and norms in rural communities, which, in turn, emerge from differential resource endowment conditions. Under the relatively high-risk production environment and extractive production activities (such as shifting cultivation and nomadic grazing) characteristic of Africa, the linkage between labour effort and production outcomes tends to be weak. Such production systems, in turn, tend to support the "redistributive norms" within local communities. These norms, while efficient under the mobile production systems where they originated, provide relatively weak incentives for innovation and hard work and thus become a major obstacle to production growth after the shift to sedentary agricultural systems. In East and Southeast Asia, on the other hand, irrigated agriculture is common, and the linkage between individual labour effort and production outcomes is relatively easily observable. Such environments, in turn, have supported "patron-client reciprocity norms" where personal accumulation is seen as legitimate (as far as it is based on individual effort and innovation), and where successful accumulators behave as 'patrons' providing public goods (e.g., safety nets in the community). The latter norms, argues Hayami, provide stronger incentives for innovation, entrepreneurship and labour effort, leading to higher agricultural growth.

Hayami further points out that there are differences in state behaviour which are also rooted in the differential natural endowments. Under the land-abundant environment with mobile agricultural systems, as observed in Africa, physical infrastructure was not vitally important. The 'norm' followed by a legitimate patron in African contexts mainly involved selective distribution of private goods to rural elites. In contrast, in the Asian context where land resource tends to be scarce, 'norms' have developed requiring elites (and the state) to provide public goods, such as irrigation, in order to earn legitimacy as a patron. Hayami contends that these differences in the social 'norms' of the elite could explain the relative lack of infrastructure investment in Africa vis-à-vis East Asia. Such differential evolutions in the social 'norms,' both at the local community level and at the state level, provide differential incentive structures and thus lead to contrasting agricultural growth outcomes.

While the hypothesis mostly explains the comparative agricultural development experiences between East (and Southeast) Asia and Africa, a similar logic (as Hayami argues in his discussion of intra-region variations between northeast versus southeast Asia), could potentially be employed to explain varying growth performances at various levels of analysis, including comparisons across countries within a region, regional comparisons within a country, or comparisons among communities within a locality.

1.4 LESSONS FROM THE PAST POLICY EXPERIENCES AND CONTROVERSIES

Despite the shifting ‘fads and fancies’ in development paradigms on the role of the state, and despite the accumulating examples of government failures in the past decades, all would agree that the public sector has crucial roles to play in the process of economic development. Among the traditional roles of the government, that on the provision of public goods has long been recognized by economists. As Roumasset concludes toward the end of Chapter 2, among such public goods, “investments in agricultural infrastructure and research were often successful, albeit their potential was not fully realized due to organizational problems in their implementation”; this area thus deserves renewed efforts and commitment from the public sector. It would therefore be crucial to learn from the policy experiences (including the many failures) in the past three decades, as well as from the advancement in the theoretical developments (especially on information asymmetry) so that the public sector can deliver public goods more efficiently and more effectively than in the past. Chapters 4 to 9 contain such valuable insights on food security, poverty and vulnerability, agricultural technology, water resources, and extension services. When agricultural and rural development was high on the development agenda in the 1970s, a large proportion of the public investment went into the financing of research and development in agricultural technology (e.g., new crop varieties), irrigation, extension services, and the integrated rural development projects, among others. The experiences from these endeavours provide a fertile ground for learning.

Food Security and Vulnerability to Income Shocks of Farm Households

Thanks in part to the Green Revolution (as we will see below), major progress has been made in addressing the food security problems among the rural poor in Asia. As Anderson warns in Chapter 4, however, the issue of food security among the poor still remains the most pressing policy concern; the statistics cited by Anderson show that 100 million (70 in South Asia and 30 in East and Southeast Asia) out of the 150 million malnourished children in the world are found in Asia, and 600 million (400 in South Asia and 200 in East and Southeast Asia) of the 1010 million poor are in Asia. In addition, the fact that the poor are particularly vulnerable to various potential risks and that they have developed various risk-coping strategies have been long recognized in the development debate. In fact, the predecessor of the conference on which this book is based, focused on that theme, i.e., “Risk, Uncertainty and Agricultural Development.” At the center of the debate in the 1970s was the concern that “low-income farmers are risk-averse (RA), modern technology is more risky, and low-income farmers will therefore underinvest (UI) in modernization—RAUI for short,” as summarized by Roumasset (Chapter 2). He observes, however, that empirical evidence for the ‘RAUI’ hypothesis has been mixed. The question of whether, and to what extent, the risk-averse behavior of poor farmers has been a binding constraint on agricultural development is still debated.

Apart from the remaining controversy regarding the ‘RAUI hypothesis,’ the scope of the research on various risks and vulnerability of poor farm households has been broadened since the 1990s to include not only productive activities, other than crop production, that would mitigate potential income fluctuations (income-smoothing strategies), but also behavioural mechanisms that would insulate the consumption variability from income fluctuations (consumption-smoothing strategies). As discussed in Chapter 5 by Balisacan and Fuwa, given the already low margin for survival among the poor households in rural areas, the direct welfare costs of suffering from negative income shocks could be quite severe. With the availability of the annual 10-year panel data on both production and consumption in South India collected by the International Crops Research Institute for the Semi-arid Tropics (ICRISAT), empirical investigations focusing on household coping strategies for smoothing consumption as well as income have made steady progress in the last two decades. The literature has shown that the poor households appear capable of protecting their consumption from income fluctuations to a larger extent than earlier thought. There is a host of observed consumption-smoothing strategies such as the holding and liquidating of assets (e.g., livestock), inter-household transfers, and state-contingent credit. Nevertheless, such ‘informal insurance’ (or risk sharing) is far from perfect, and, furthermore, poorer households tend to be less insured than are relatively better-off households.

In addition, as noted by Balisacan and Fuwa in Chapter 5, the vulnerability of poor households to short-term fluctuations of income and the various income- and consumption-smoothing strategies adopted to cope with such risks (e.g., choosing low-risk but low-return economic activities, sale of productive assets when hit by a negative income shock) may make it even more difficult for them to escape from poverty. As a result, in more recent years, there has been an increasing attention to both theoretical and empirical aspects of longer-term poverty dynamics and economic mobility (see the next section).

One of the immediate policy responses to the ‘RAUI hypothesis’ was to provide subsidized crop insurance schemes; since the risks involved in the use of new and more productive crop varieties were holding back farmers from adopting, it was hoped that insuring them against those risks would facilitate technology adoption and thus facilitate agricultural development. As noted by Roumasset, however, “(b)y the early 1980s ... it became apparent that crop insurance was not a particularly effective instrument for promoting agricultural development” (Chapter 2). The emerging ‘new consensus’ then was that “crop insurance was good in theory but too costly in practice,” recognizing bureaucratic inefficiency and information problems involved in the implementation of such insurance schemes. Roumasset argues, however, that crop insurance was “bad in practice precisely because it is bad in theory” due to its perverse incentive effects. Despite such a skepticism expressed by Roumasset, the merits and drawbacks of the policy option to provide insurance to the poor (and presumably risk-averse) farmers still continue to be debated. As noted in Chapter 5, based on the more recent empirical work on the micro-level behaviour of poor households which typically shows that various informal risk-sharing

institutions do exist but are far from perfect, some have expressed cautious optimism for the potential roles of the public sector in providing insurance programs which attempt to mitigate classic information problems (e.g., micro-insurance, weather-indexed insurance).

The Green Revolution: Investment in Agricultural R&D as an International Public Good

Among the most significant developments in rural Asia in the past three decades is undoubtedly the Green Revolution. Chapter 6 by Pingali and Raney provides a broad assessment of the Green Revolution in Asia, including its impact on productivity growth, on income distribution and poverty, and on the profitability of farmers. It also surveys the literature on estimated returns to investments in agricultural research and development. The Green Revolution can be seen as a classic example of a successful investment in the international public sector research and development. The initial breakthroughs in yield potentials in wheat and rice by the researchers at the International Maize and Wheat Improvement Center (CIMMYT) and the International Rice Research Institute (IRRI), now under the Consultative Group on International Agricultural Research (CGIAR), built on the rich stocks of genetic resources and breeding experiences in developed countries. Even in the 1990s, the CGIAR content of modern varieties represented one quarter to one third of all varietal releases of food crops.

As shown in section 1 above, agricultural production increased dramatically in developing Asia. The estimated returns to the investments in this international public good (i.e., agricultural R&D) were generally high; while such estimates vary widely, studies suggest a benefit-cost ratio of 6.7 and net rates of returns ranging between 30 and 70 per cent. One study estimates that without the CGIAR and national programmes on crop germplasm, the improvements in food production in developing countries could have been lower by almost 20 per cent. Furthermore, it is now widely accepted that the Green Revolution had a major positive impact on poverty reduction by lowering food prices, although there were intense debates in the 1970s on whether it did have an impact on the poor. Despite the falling output prices, agricultural producers continued to benefit from the productivity growth through the fall in the cost of production per unit output. As Pingali and Raney point out, however, this does not mean that the benefits of the Green Revolution have been evenly distributed. The benefits to the smaller farmers were initially delayed, compared to larger farmers, while the impact on the rural landless was debated. Furthermore, despite the more recent breeding efforts targeted at the marginal environments, note Pingali and Raney, “few would argue that rural producers in marginal areas have received benefits comparable to their counterparts in the better endowed areas, where irrigation and associated inputs are more readily available, and modern varieties have been widely adopted.” This theme is picked up in Chapter 7 by Dar et al. as they delve into dryland agriculture in Asia. The chapter tackles the general characterization of the dry land areas in Asia, and identifies priority areas for research and development, as well as complementary public policy issues, specifically focusing on such areas.

One of the indirect consequences of the Green Revolution, which has often been under-appreciated, is its effects on the preservation of forest resources. As Coxhead discusses in Chapter 11, the dramatic increase in the land productivity in the lowlands attracted rural-rural migration from less-favourable areas to the lowlands (e.g., David and Otsuka 1994; Kikuchi and Hayami 2000), thereby reducing the pressures on the natural resource base in marginal/frontier areas (through clearing forests, for example). As we discuss below, the degradation of natural resources, particularly forest resources, has proceeded at an alarming rate in many parts of Asia (as well as in the world), mainly due to the population pressure. Without the Green Revolution, however, the speed of the deforestation would have been even faster. In addition, the increase in land productivity in the lowland is likely to have reduced the rural-urban migration, thereby partially offsetting the urbanization trend and the subsequent urban congestion (Chapter 11).

Despite the success in the past, according to Pingali and Raney (Chapter 6), the public sector research in agriculture faces a major challenge with the emergence of the ‘Gene Revolution,’ where the locus of technological innovation has now shifted from the public to the private sector. While some studies on the existing transgenic crops suggest that the technology may be pro-poor, it is not clear whether the private sector has enough commercial incentive to invest in the development of crops and traits aimed at poor farmers in marginal production environments; this therefore hints at potential roles for the public sector. Effective involvement by the public sector in developing countries, however, requires a relatively high level of national institutional capacity in agricultural research, in environmental and food safety regulations, and in intellectual property rights (IPRs) protection. As the Chinese example discussed in the chapter illustrates, effective competition by the public sector research organizations may potentially lower the prices of new seeds so that farmers gain a larger share of the economic value produced by transgenic crops. According to Pingali and Raney, in Asia, only China and India have so far invested heavily in developing such institutional capacities. As a result, there is a real risk that farmers in the poorest countries are excluded from the Gene Revolution.

In addition, in Chapter 4, Anderson also draws some lessons for public investments based on past experiences, noting that ‘promoting hunger eradication’ is an international public good. Anderson advocates developing ‘new pro-poor’ research priorities including increasing staple food production, crop productivity in marginal and less-favoured areas, helping small-scale farmers diversify into higher value products and develop more nutritious foods, (because those are unlikely to be addressed sufficiently by the private sector research organizations), and making public R&D systems more demand-driven with participatory research and new partnerships with the civil society.

Investment in Irrigation and Water Resource Management

In addition to the investments in agricultural R&D, also instrumental in the success of the Green Revolution was the massive investments during the 1960s and the 1970s in rural infrastructure in general, and in irrigation, in particular. As shown in Chapter 8 by

Barker and Rosegrant, one of the key accompanying ingredients of the Green Revolution technology was the doubling of irrigated land over the past four decades, which, in turn, was driven (initially) by public investment in large storage dams and (later) by private investment in groundwater extraction. The huge public sector investments (by multilateral and bilateral donors as well as by national governments), as they argue, “can easily be regarded as the foundation of food security in Asia today”. After the 1980s, however, the public investment in irrigation declined dramatically due to the combined effects of the sharp decline in cereal grain prices, the rising construction costs of irrigation systems, and the growing opposition to large-scale dams which have been blamed for contributing to environmental degradation and social dislocation. On the other hand, the development of groundwater extraction (through pumps and wells) in various parts of Asia followed disparate patterns, depending on local conditions in natural environments and policies. In many areas, however, the explosion of groundwater irrigation (and use of pumps) after the 1980s was perceived to be “largely a response by farmers to the lack of flexibility and the unreliability of canal systems”.

Among other policy issues, critical lessons have also emerged from past experiences with water pricing policies and the poor performance of irrigation systems. In most of the Asian countries, the large subsidies they have provided for the use of irrigation water, as well as domestic water have resulted in a lack of incentive for the efficient use of water. As noted by Barker and Rosegrant (Chapter 8), these subsidies lead not only to inefficient allocation of water resources but also to inequity since a larger share of the subsidy benefits accrues to better-off users. In addition, more recently emerging policy issues in water resource management include environmental problems and water scarcity, especially in semi-arid areas.

The issue on the poor performance of irrigation systems has been addressed by various institutional reforms, including decentralization. Barker and Rosegrant note, however, that despite the strong drive for decentralization in irrigation management from multilateral donors (World Bank and Asian Development Bank), the experiences with irrigation management turnover, devolution, and water user associations (WUA) in Asia have produced mixed results, and their impact on water use efficiency has often been unclear. Nevertheless, some common characteristics for a successful WUA have been identified in the literature, including the presence of social capital or patterns of cooperation which WUAs may build upon, group homogeneity, and a supportive policy/legal environment marked by secure water rights, regulating externalities, and technical and organizational assistance. The chapter also cites some examples of effective synergies between private investment (tubewell development) and public investment (roads, research and extension systems, access to credit and electricity). Based on those and other policy experiences, Barker and Rosegrant conclude in Chapter 8 that “reforms in the water sector should include changing the institutional and legal environment in which water is supplied and used to one that empowers water users to make their own decisions regarding use of the resource, while providing correct signals regarding the real scarcity value of water, including environmental externalities.”

Agricultural Extension Systems

Another complementary input to the Green Revolution, which has a public good characteristic, is agricultural extension services. Similar to irrigation management systems, national extension systems have been “widely criticized for being inefficient, ineffective, poorly linked to agricultural research systems, lacking clear objectives and motivation, not accountable to clients, and lacking relevant technologies” (Umali-Deininger, Chapter 9). The chapter further observes that those problems have been attributed to various factors, among them: the weak political commitment and support of government agencies as reflected for example in insufficient funding; the allocation of resources not aligned with local needs; the weak linkages between public expenditures and outcomes; the weak linkages between the extension and agricultural research systems; and the frequent diversion of extension staff time to other duties.

On the premise that “no single formula exists for all types of extensions services in all countries,” Umali- Deininger (Chapter 7) considers a menu of options at various levels of public sector provisions and involving private sector actors. Decentralization of extension services provision has been frequently proposed for the purpose of improving accountability and better service delivery. Similar to the case of irrigation management, however, past experiences with various schemes of decentralization have yielded mixed outcomes. The chapter enumerates some critical actions essential to ensuring the successful decentralization programmes, among them: (1) the clear delineation of political, fiscal and administrative authority, as well as coordination mechanisms among different tiers; (2) empowering farmers and other crucial rural clients, possibly aided by an active civil society; (3) adequate capacity building at lower tiers of government to assume the new responsibilities; (4) knowledge and technical skills development of extension staff; (5) adequate funding either through own revenue or from inter-governmental fiscal transfers and user payments; and (6) appropriate mechanisms for maintaining transparency and accountability.

Despite the often disappointing performances in the past, Umali-Deininger argues, extension systems today are being compelled to adopt a broader mandate, due to the changing demand for their services. Some factors that have triggered these changes are: the increasing demand and thus potential opportunities for growing higher-value products; the increasing pressure on local farmers to be competitive in the globalizing markets; and greater concern on, and awareness of food safety issues. Those latter issues are the main focus of the chapter on the supermarket revolution by Reardon and Timmer (Chapter 12), and we will return to this theme later on.

Integrated Rural Development Projects (IRDPs) and Other Policy Failures

Project Design Issues in IRDPs: During the period of massive investments in agricultural and rural development projects in the 1970s, Integrated Rural Development

Projects/schemes emerged as a popular vehicle for such investment efforts. It is shown by Anderson in Chapter 4 that despite the introduction of the modern high-yielding varieties of grain cereals (such as rice and wheat), the “many constraints faced by smallholders were felt to be inadequately addressed in projects with a piecemeal approach to selected weaknesses in local institutions and infrastructure,” and “(s)pecial efforts were judged to be needed to reach the weakest and most remote members of society, who seldom benefit from ‘trickle down’ effects of interventions not directly targeted to them.” As Anderson notes, however, “(d)esigning project interventions to reflect these constraint-removing desiderata proved difficult from the outset.” Drawing lessons from the IRDP experiences (mainly by the World Bank) in the 1970s, Anderson identifies “key design issues” involved in such projects. Perhaps among the most serious limitations of the IRDPs was its ‘top-downism,’ as also pointed out by Roumasset (Chapter 2), who notes that the subsidies provided as IRDP components “were largely delivered through line agencies with little or no accountability ... and discouraged the emergence of spontaneous, unsubsidized institutions.” The involvement of local governments and capacity building efforts were both limited, while there was “excessive reliance on expatriate technical assistance” (Anderson, Chapter 4). A range of input subsidies provided through IRDPs “both blunted incentives and provided opportunities for rent-seeking” (Roumasset, Chapter 2).

Additional shortcomings of IRDPs discussed by Anderson (Chapter 4) include the following: inadequate policy environments; limited partnerships and donor coordination; IRDPs being ‘enclaved from the rest of the sector and economy’; and the substantial but largely inefficient monitoring and evaluation (M&E) components staffed by expatriates. Anderson also notes the many failures in the implementation of project components, including directed credit programs, resettlement programs to frontier areas, and public-sector involvements in production input supply, processing and marketing .

Directed/Subsidized Credit: Among those (failed) policy instruments, directed credit schemes perhaps drew the greatest attention in the literature, as discussed in some detail by Roumasset in Chapter 2. Directed credit programs, according to Roumasset, “typically provided subsidized credit to agricultural and rural banks, instructing the banks to lend to an agricultural and rural clientele without exceeding controlled interest rates”. It turned out, however, that those loans were “disproportionately given to large commercial clients” and that the default rates were quite high. The high default rates meant that those programmes were not sustainable without large infusions of new subsidies and thus eventually waned. While the early critiques of the subsidized credit (“the Ohio school”) focused on the possible inefficiency due to the artificially low interest rates (‘financial repression’), the experiences from the *East Asian Miracle* (World Bank 1993) may support a ‘modest financial restraint’ (Roumasset, Chapter 2). The theoretical developments incorporating asymmetric information have provided explanations for the coexistence of informal and formal lenders as well as for the failures of the directed credit programs.

In contrast with the failures in directed credit programs, one significant innovation

that emerged in the 1970s and 1980s in rural finance is the micro credit institutions. They were able to mitigate the information asymmetry problems (i.e., adverse selection and moral hazard) typically faced by both formal banks and directed credit institutions, by substituting 'peer monitoring' for collateral (Roumasset, Chapter 2). Those micro credit institutions, represented by Grameen Bank in Bangladesh and others, have flourished in developing countries and in developed countries. The policy lessons drawn by Roumasset are: "to eschew subsidies, to improve information networks and to advance complementary markets both to decrease costs and to increase the bargaining power of borrowers" (Chapter 2). As also pointed out by Roumasset, however, while micro credit schemes have no doubt been much more successful than the directed credit programmes, some argue that those schemes are typically not sustainable without administrative subsidies. In addition, there have emerged wide variations in the designs of micro credit programs (e.g., the size of loan, group size, inclusion of savings scheme, etc.) and a lively debate continues on the relative merits of such alternative designs and on the emerging evolution of 'micro credit to microfinance' (e.g., see Armendariz de Aghion and Morduch 2005).

Price Control via Parastatals: There are a few other policy measures that were relatively popular during the 1970s, as discussed by Roumasset (Chapter 2). One is the food price stabilization policy with the use of parastatals. While the conventional view was that governments could stabilize prices, Roumasset argues that "trying to insulate domestic markets from international price fluctuations is counterproductive" and "the best means of stabilizing prices involves using international markets to stabilize domestic prices." Furthermore, even conceding that "increased incentives for agricultural growth may be warranted" given the pro-poor and development linkages of agricultural development, Roumasset notes that this "does not imply that agricultural price protection is warranted". In fact, as Roumasset concludes: "subsidized prices, especially when administered via monopolized import controls, fragment the economy and pull entrepreneurial resources into rent-seeking instead of productive innovation."

Land Reform: Another controversial policy instrument with a long history is land reform. There are two main issues which have served as the rationale for land reform policies and have been intensely debated in both theoretical and empirical literature. One is the relative inefficiency of larger and commercial farms compared to small family farms due to the higher efficiency of family labour relative to hired labour. The empirical counterpart is the "notorious" (according to Roumasset) observed inverse relationship between farm size and productivity. Redistributive land reform has been advocated, most notably by the World Bank since the 1990s, based on the view that "large farms are at a transaction-cost disadvantage with respect to labor" (Roumasset, Chapter 2). While many empirical studies have been conducted (following Berry and Cline 1979), however, evidence appears to be divided as to whether smaller farms are indeed more efficient than large farms. Furthermore, argues Roumasset, the existence of the inverse relationship between farm size and productivity may not necessarily mean inefficiency in labour allocation due to heterogeneity in land quality. Furthermore, there may be counteracting factors that favour larger farms relative to small farms (thus offsetting the possible

transactions cost disadvantage of hired labour used by large farms) such as access to credit and to markets. This point is somewhat related to the potential impact of the emerging supermarket revolution, which is the focus of the discussion of Reardon and Timmer in Chapter 12.

The second issue is the inefficiency of share tenancy. The issue dates back, at least, to the days of Alfred Marshall, but was more recently reformulated by Joseph Stiglitz (1974) in terms of information asymmetry and risk-bearing, characterizing share tenancy as being “in equilibrium but massively inefficient” (Roumasset, Chapter 2). Again, empirical evidence on the issue has been divided; some studies (e.g., Shaban 1987, Banergee et al. 2002-~~year?~~) confirm inefficiency while others (e.g., Hayami and Otsuka 1993) do not. Furthermore, while the banning of share tenancy, such as the one in the Philippines, has been based on the notion of the (Marshallian) inefficiency of share tenancy, many observers have pointed out that such policy is counterproductive. Roumasset argues that those theories behind outlawing share tenancy often “fail to recognize the nature of share tenancy” as a “long-term contractual arrangement for bringing management together with land and that facilitates the tenant’s learning-by-doing about production decisions.”

Both the relative efficiency of smaller farms and the inefficiency of share tenancy have been the subject of debates, and empirical evidence on both issues has been divided. Roumasset argues that a major difficulty in empirical studies tackling these two issues is the presumed exogeneity of the farm size (in the case of the inverse relationship between farm size and productivity) and the choice of tenancy contract (in the case of the relative inefficiency of share tenancy). Furthermore, distinction needs to be made between family and commercial farms.

1.5 EMERGING POLICY ISSUES IN RURAL DEVELOPMENT

This book not only takes stock of past lessons but also highlights the emerging research and policy challenges that have gained prominence in the past few decades.

Environmental Concerns (Natural Resource Degradation)

An issue that has drawn increasing attention among policymakers over the past few decades is the close linkages among poverty, population growth and natural resource degradation. In the 1950s and 1960s, as Coxhead notes in Chapter 11, natural resources such as forests were considered relatively abundant and “most Asian states traded them for poverty reduction through internal migration and land colonization”. With the rapid increase in population, however, the natural resource base in developing countries has been rapidly degraded, and maintaining the goals of both poverty reduction (as well as economic growth) and environmental sustainability has become a major policy issue. Two complementary chapters of this volume, one by Coxhead and the other by Otsuka, focus on

this theme.

As noted by both Coxhead (Chapter 11) and Otsuka (Chapter 10), with the emergence of environmental problems as a major policy issue, the macro-level relationship between income levels and environmental quality, as depicted by the ‘Environmental Kuznetz Curve’ (EKC), has drawn much attention in the literature. According to the EKC hypothesis, in the initial stages of economic development people tend to value material well-being relative to environment and natural resources. As their income levels rise, however, they increasingly value natural capital and environmental services relative to the material well-being derived from purchased goods and services, both as economically productive factors and as sources of aesthetic satisfaction. In addition, fuel woods tend to be replaced by alternative energy sources such as kerosene, electricity and gas. Such reasoning suggests a ‘U-shaped’ relationship between the level of income and environmental quality: As per-capita income rises, environmental quality initially worsens, but, eventually, improves as the per-capita income level increases further. The empirical evidence mostly based on cross-country data is mixed, however. Such difficulties in identifying/obtaining statistically significant relationship between environmental quality and income levels in cross-country contexts are not surprising since the paths of environmental degradation are affected by various other factors (which are difficult to control), such as institutional settings and policy contexts, which are the focus of the discussions by Coxhead and Otsuka.¹

The relative importance of various sources of deforestation in developing countries has been debated. According to one estimate, commercial logging is *directly* responsible for roughly one quarter of forest losses (Braga 1992, as quoted by Coxhead, Chapter 11), and appears to be relatively more important in Southeast Asia (Otsuka, Chapter 10)². However, fuel wood collection by relatively poor peasants in marginal areas appears to be a more important *immediate* cause of deforestation and degradation of forest resources, particularly in South Asia, as noted by both Coxhead and Otsuka. It is thus of prime importance to understand the behavior of small peasants in those marginal areas, which, in turn, directs our attention to the incentive systems where those peasants operate. Otsuka’s chapter focuses on the evolution of the incentive systems provided by institutional arrangements governing the access to land and trees *within* local communities, while Coxhead’s chapter examines the forces *outside* local communities and instead focuses on the incentive systems provided by inter-sectoral linkages and by government policy environments, mainly working through labour migration.

Following the traditions of Boserup (1965) and Hayami and Ruttan (1985), Otsuka sketches the pathways followed by the evolving community institutions governing access to land and forest resources (Chapter 10). As the population pressure increases, extensive

¹ See Coxhead’s and Otsuka’s chapters for the literature on EKC.

² As noted by Coxhead, the indirect effects could be greater since “commercial logging is known to create access to forests by farmers”.

agricultural systems (such as shifting cultivation) become infeasible and unsustainable and evolve into more intensive systems. According to Otsuka, such shifts toward intensive agricultural practices are (or need to be) accompanied by parallel institutional changes “in order to provide appropriate incentives to invest in land and trees.” The underlying hypothesis is that “land tenure institutions evolve towards the more efficient system from the viewpoint of the community”. Communal land tenure institutions, as Otsuka hypothesizes, tend to evolve increasingly toward individualized ownerships. Such evolution has been observed in a case study in Sumatra.

In the case of common property forest lands, open access can prevail in the early stages of development but is eventually likely to lead to excessive extraction due to the ‘tragedy of the commons’ situation. Induced institutional innovations under such circumstances, argues Otsuka, are likely to evolve into collective management of the common resources (Chapter 10). Such examples can be found in the hill regions of Nepal. On the other hand, Otsuka points out that where crop farming or agroforestry has a comparative advantage, land rights institutions are likely to evolve into fully individualized private property rights, as found in case studies in northern Vietnam. As a result of such institutional evolutions responding to different environmental conditions, it is possible, and has often been observed, that the stock of forest resources is restored after initial depletion. One important point emerging from Otsuka’s discussions is that individual/private ownership can be an efficient institution under certain circumstances but it may not be always so; some type of collective management could be the most efficient system under other circumstances. Such may be the case in non-timber forest areas, where a collective system allows substantive cost savings in resource protection (from outsiders), which can offset the potential costs of weaker incentives for work efforts among individual members.

While the foregoing focuses on the important role of institutions within local communities in the access to forest resources, the literature shows as well that the incentive (or disincentive) structures that local peasants in marginal areas face are affected not only by the agricultural systems and institutional arrangements for land rights within communities, but also by various factors outside the community. An increase in agricultural productivity in lowlands, for example, reduces pressures on natural resource exploitation on marginal lands, as we noted in the case of the likely effects of Green Revolution on deforestation. Furthermore, an expansion in employment opportunities outside the agricultural sector is likely to reduce the incentive to clear the forests in marginal areas. Such inter-sectoral linkages affecting the exploitation of forest resources are explored in Chapter 11 by Coxhead. Import substitution industrialization (ISI) policies, which intended to protect inward-looking and capital-intensive sub-sectors, for example, were once a popular development strategy in many developing countries. Such policies, argues Coxhead, tend to expand those protected (i.e., capital-intensive) sub-sectors at the expense of the labour-intensive industrial sub-sectors, thereby reducing the overall labour demand in the industrial sector and raising the incentive for peasants to exploit marginal lands and to degrade natural resources. The Philippines was a prime advocate of such policies for an extensive period of time.

After the 1980s, in contrast, many of the Asian economies “began to turn away from the most highly inward-oriented development policies” and toward more outward-oriented policies, with the main focus on labour-intensive manufacturing production (Coxhead, Chapter 11). One of the consequences of those policies was to encourage internal rural-urban migration, thereby reducing the pressure/incentives to exploit marginal lands and natural resources; the average rural population growth rate in Southeast Asian countries since the 1980s was only 0.6 per cent a year, well below the replacement rates, due to urban migration. Thus, the advance of globalization as experienced by those outward-oriented Asian economies after the 1980s likely had an effect of easing the pressures on deforestation at the frontier. Thailand can be seen as a prime example. There are some exceptions, however, to such a generalization of the effects of globalization on natural resource degradation, according to Coxhead. In those countries with comparative advantage in plantation crops and aquaculture (and with weak property rights at the frontier), such as Vietnam, Malaysia, Indonesia and the Philippines, agricultural land has been expanding. Such a trend can be partly attributed to the more recent trends in some countries of raising domestic protection for cereal crops.

Private Sector Development

After the major swings in the development thinking from the ‘interventionist 1970s’, through the ‘privatize and get the price right’ 1980s, and then to the somewhat renewed interventionism (mainly meant for correcting market failures due to imperfect information as well as those due to more traditional causes) since the 1990s, there has been an emerging recognition that both (for-profit) private sectors and (not-for-profit) civil societies have major roles to play in development processes, although the exact nature of these roles is still being ascertained in the ongoing debate. The public sector is also in a position to improve the conditions for private-sector development in rural areas, and Chapter 4 by Anderson draws lessons from past policy experiences relevant in this area. For example, Anderson notes: “privatization of agricultural industries has proven to be complex and difficult...where market services and provision of credit to farmers collapsed after privatization.” The opening of markets to enhance competition needs to be realized in the early phase of the privatization process and effective safety nets also need to be in place. As Anderson maintains, “(d)eregulation, privatization and liberalization still have far to go in many countries,” including the reforms in “many regulations and interventions that inhibit the development of local markets.” There has also been a renewed recognition, it seems, in the government’s role in investing in rural infrastructure (especially transport infrastructure) to enhance market development (Anderson, Chapter 4).

A major part of the private sector development in rural areas comes from the rural non-farm economy (RNFE), which now constitutes roughly 40 per cent of rural income sources. Anderson argues that past government policies/interventions in manufacturing sectors, however, tended to provide preferential treatments, subsidies and technical assistance to larger-scale and capital-intensive firms, at the expense of small-scale,

labor-intensive firms and informal sectors. Thus Anderson sees the need to remove such “unnecessary subsidies and protective policies that reduce competitiveness of rural firms in the market place” and to level the playing field for rural industrialization. Recent experiences in China could be instructive in light of the recent rapid growth in small private firms specialized in service, trade and construction.

Globalization and Supermarket Revolution

Chapter 12 by Reardon and Timmer focuses on one conspicuous aspect of private sector-led development, the so-called “Supermarket Revolution”, that has been spreading dramatically across Asia. The spread of the ‘revolution’ in Asia, according to Reardon and Timmer, has occurred in three waves. The first wave started with the ‘take-off’ of the supermarket sector in the early 1990s in East Asia outside China, such as China (Taipei) and Korea, where the share of supermarkets in food retail reached 50 per cent by 2004. Some Southeast Asian countries, such as the Philippines and Thailand, are positioned at the ‘tail end of the first wave’ where the ‘take-off’ started in the mid-1990s, and their supermarket shares are approaching close to 50 per cent. The second-wave countries include other Southeast Asian countries, such as Indonesia, where the supermarket share stands at around 30 per cent while in the third-wave countries (including Vietnam, China and India), the ‘take-off’ started in the late 1990s or early 2000s with their share of supermarkets reaching 10 to 20 per cent as of 2004. Such developments in various countries have been driven by the rising incomes of consumers and urbanization on the demand side, and the liberalization of retail foreign direct investment (FDI) and the modernization of procurement systems, on the supply side. Parallel to the diffusion of supermarkets across countries, the movement within countries traces the spread of supermarkets from large cities toward smaller cities and then to poorer and remote areas. While the initial stage of the supermarket revolution mainly caters to the rich and middle-class customers in urban areas, it has increasingly served poorer consumer segments as well, as the geographical coverage expanded. In yet another aspect of the pattern of diffusion of supermarkets, the market penetration starts with processed foods (such as grains, oil and packaged goods) and proceeds to include semi-fresh products such as dairy, and then toward fresh produce (such as fruits and vegetables).

Among the driving forces of the rapid changes in marketing systems has been the technology change in the procurement system. Under competitive pressures, procurement officers sought to reduce purchase and transaction costs, and to raise product quality. This resulted in the tendency to shift from fragmented, per-store procurement systems to distribution centers serving several stores. The centralization of procurement systems further evolved into regionalization (internationally), as observed worldwide. This has meant a growth in intra-firm trade spanning several countries, which, argues Reardon and Timmer, is likely to induce greater intra-regional trade and economic integration in sub-regions and between sub-regions of the Pacific Rim. Also, the traditional wholesale system has been partially replaced by specialized wholesalers who cater to the procurement requirements of supermarkets. Specialized wholesalers, in turn, have increasingly entered

into preferred (contractual) supplier relationships with limited numbers of processing firms and farmers in order to ensure quality and consistency.

One of the crucial questions for policymakers in the region in the face of the ‘supermarket revolution’ is: what do all those changes mean to small farmers and the rural poor? While empirical evidence on the effects of the supermarket revolution on small farmers is still scanty, Reardon and Timmer summarize a few notable tendencies. Small farmers are indeed involved in supermarket supply chains since “supermarkets have no choice but to rely on small farmers” because in most Asian countries, “at least for the medium term ... nearly all farmers are small!” (Reardon and Timmer, Chapter 12). Moreover, the chapter contends that the important factor that determines the participation of small farmers in the ‘supermarket revolution’ is not so much the ‘farm scale/size’ but rather the richness in financial and human capital. To illustrate, it cites that “only 10% of the West Javan produce farmers sell to the supermarket channel.” Reardon and Timmer therefore conclude that while the majority of small farmers continue to rely on outlets in the traditional markets, such traditional outlets are declining, at different rates over different products and in different countries, “seemingly inexorably” and “(t)he farm sector, in the medium term, will need to be ready for that reality.”

Renewed Focus on Poverty Reduction and the Dynamics of Poverty

After a decade-long focus on debt crises, structural adjustments and ‘getting prices right’ during the 1980s, the 1990 *World Development Report* published by the World Bank focused on ‘poverty,’ which marked a (yet another) major shift in the international development agenda. Since then, ‘poverty reduction as an overarching goal’ has been widely espoused in the international development circle. Large-scale household surveys have been routinely collected in many of the developing countries and have become a standard tool for development policymaking. It has now been widely accepted that aggregate income growth is a fundamental determinant of poverty reduction. At the same time, however, as noted by Balisacan and Fuwa (Chapter 5), “the nature of growth, not just its speed, matters” when it comes to assessing its effect on poverty reduction performances. The responsiveness of poverty reduction to economic growth has been found to be affected by the initial distribution of income, initial conditions in investment climate, policy environments, and the quality of local institutions (Balisacan and Fuwa, Chapter 5).

In addition, both the theoretical developments on the dynamics of social stratification, and the increasing availability of micro-level panel data sets have facilitated a closer scrutiny of the dynamic aspects of poverty and economic mobility. More recent literature on poverty dynamics has found that a large proportion of the poor at any point in time tend to be the so-called ‘transient poor’ instead of the ‘chronic poor.’ The transient poor are those who typically fall into poverty due to relatively short-term income fluctuations, while the chronic poor are those whose incomes tend to stay below the poverty line persistently for a long period of time. Paying heed to such distinctions among the poor population would lead to a sharper focus and improved effectiveness of poverty reduction

policies, understandably because the determinants of poverty differ depending on the types of poverty, and thus call for appropriate policy instruments tailor-made for the characteristics of the specific groups being targeted.

1.6 CONCLUDING REMARKS

As will be evident in the chapters that follow, the past few decades have yielded an abundant supply of valuable lessons. Those significant developments in economic theory, empirical evidence, and policy experiences (both successes and failures) have provided a fertile ground for learning. However, we have also briefly noted in this chapter (and these will be discussed in more detail throughout this volume) that there are still significant knowledge gaps and emerging policy challenges that confront researchers and policymakers alike in the coming decades. Among the relatively more familiar issues, for example, our understanding of the (endogenous) evolution of institutions in rural areas remains inadequate, and a clear consensus is yet to emerge regarding the appropriate roles of the government, such as the exercise of appropriate policy options for supplementing informal insurance arrangements among poor rural households. Similarly, the relative efficiency of small family farms vis-à-vis larger (commercial) farms is still a subject of debates; the issue is important not only in the traditional contexts of justifying distributive land reform policies but also in light of the more recent changes in the marketing systems, which have stirred a major concern as to how the emerging ‘supermarket revolution’ could affect small farmers and the rural poor. The (mainly private-sector led) ‘Gene Revolution’ is another example of the recent challenges where the potential implications on the rural poor remain to be seen. Pursuing the twin goals of maintaining the natural resource base (e.g., forest and water resources) and environmental services, on the one hand, and of poverty reduction, on the other, will also be a significant policy challenge for the coming decades. Given the still significant proportion of the population living under poverty in rural Asia, those challenges remain enormous and urgent. It is our hope that many more researchers and practitioners will join the concerted efforts aimed at revitalizing the agricultural and rural development agenda to address those challenges.

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Table 1.1. Income and Growth

Region/County	GDP Per Capita (PPP, constant 2000 International \$)		Average GDP Growth Rate (in percent)
	1975-1977	2002-2004	1975-2004
East Asia (including Southeast Asia)	1,989	6,257	4.2
China	594	4,984	7.6
Southeast Asia	1,404	3,752	3.7
Indonesia	1,138	3,201	3.8
Malaysia	3,205	9,089	4.0
Philippines	3,728	4,113	0.6
Thailand	2,041	7,044	4.7
Vietnam	1,184*	2,381	5.5**
South Asia	1,105	2,527	3.1
Bangladesh	1,015	1,657	1.9
India	1,152	2,723	3.2
Nepal	836	1,351	1.8
Pakistan	989	1,988	2.5

Source: World Bank, *World Development Indicators 2006*.

Note:

Available data start at 1975.

Available data for Vietnam start at 1989.

*1989-1991 average.

**1989-2004 average.

Table 1.2. Agricultural Performance

Region/Country	Share of Agriculture to GDP (percent)		Agricultural Production Per Capita (kg)		Agriculture Production Index (Net per capita) PIN base 1999-2001)		Food Production Index (Net per capita PIN base 1999-2001)	
	1970	2003	1970	2003	1970	2003	1970	2003
East Asia (including Southeast Asia)	8.7	4.4	437	561	67	108	65	107
China	56.1	12.5	413	537	43	99*	40	111
Southeast Asia	23.7	11.2	539	742				
Indonesia	34.7	15.4	424	663	61	112	60	111
Malaysia	27.5	8.5	429	212	62	107	42	106
Philippines	22.6	15.4	576	633	90	107	89	107
Thailand	23.5	8.6	898	984	69	104	71	103
Vietnam	36.6**	22.2	473	946	50	113	53	113
South Asia	41.1	20.6	345	364	77	98	75	98
Bangladesh	37.5	23.4	502	569	109	99	103	99
India	42.5	20.0	337	348	74	98	73	98
Nepal	60.2	39.2	553	532	81	103	79	103
Pakistan	36.0	22.3	217	257	78	98	77	98

Source: Food and Agriculture Organization Stat, *World Development Indicators 2006*

Note:

3-year average centered on the year shown.

Available data for Vietnam start at 1985.

*1998-2000 average for China.

**1985-1987 average for Vietnam.

Table 1.3. Population living below \$1 (PPP) a day

Country	Incidence (%)			Headcount (millions)		
	1975	1990	2003	1975	1990	2003
<i>East Asia and the Pacific</i>	.	33.0	13.4	.	377.6	173.5
China	59.5	33.0	13.4	568.9	377.1	173.1
Indonesia	64.3	20.5	6.5	87.2	36.8	13.9
Malaysia	17.4	0.6	0.2	2.1	0.1	0.0
Philippines	35.7	19.7	14.1	15.4	12.2	11.5
Thailand	.	10.1	0.7	.	5.7	0.4
Cambodia	.	46.0	33.8	.	4.0	4.5
Laos	.	52.7	28.8	.	2.2	1.6
Vietnam	.	50.7	9.7	.	33.4	7.9
<i>South Asia</i>		41.3	29.0	472.2	448.4	403.8
Bangladesh	.	34.0	30.3	-	37.0	41.8
India	.	42.1	30.7	-	351.2	326.7
Nepal	.	44.1	23.8	-	8.0	5.9
Pakistan	.	47.8	19.7	-	51.6	29.3

Sources:

For 1990 and 2003- *ADB Key Indicators*, 2005. www.adb.org/statistics

For 1975 data- Table II.1 of Rosegrant and Hazell (2000).