

# STRATEGIC CHOICES SHAPING AGRICULTURAL PERFORMANCE AND FOOD SECURITY IN MYANMAR

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*Despite the many transformations taking place in Myanmar, its agricultural sector is lagging. A high proportion of rural households remain poor and food insecure as a result. This article examines the underlying causes of poor agricultural performance through a combination of literature and secondary data review combined with extensive field interviews with a broad range of key informants in the main agricultural zones of the country. We identify key structural changes that are needed to unleash smallholder-led agricultural transformation and broad-based rural economic growth.<sup>1</sup>*

Despite enormous potential, Myanmar's agriculture has underperformed over the past fifty years. Today, per capita earnings in agriculture average roughly USD \$200 a year, one-half to one-third the levels achieved by its regional peers. Given that two-thirds of the population work primarily in agriculture, low farm productivity translates into high rates of poverty and food insecurity. Currently, about one-quarter of the population falls below the national poverty line. As a result, in spite of national rice self-sufficiency, food security for many households and individuals remains elusive. Poor households spend over 70 percent of their income on food. In addition, fully one-third of rural households borrow at some

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point during the year in order to purchase food. Up to one-half of rural households report having to navigate two months each year without adequate food supplies, leaving one-third of the country's children stunted.

Why has Myanmar's agricultural sector performed so poorly? What actions will be most effective in stimulating rapid, broad-based increases in agricultural

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productivity and profitability? In order to address these two core questions, this paper summarizes the results of a detailed diagnostic assessment study prepared by a team of six Myanmar Development Resources Institute (MDRI) staff, and seven international agricultural specialists.<sup>3</sup>

The discussion below begins with a brief overview of the data and methods employed, followed by a synopsis of the current structure and performance of the agricultural sector. The remaining sections of the paper address the paper's two core questions concerning reasons for Myanmar's poor performance and potential remedies.

#### DATA AND METHODS

This assessment builds on a wealth of existing background studies and survey work, including a recent agricultural sector review commissioned by the United Nations Development Programme (UNDP) and conducted by the Food and Agriculture Organization (FAO); an Integrated Household and Living Conditions Survey; a country economic assessment conducted by the Asian Development Bank (ADB); an important baseline study and early evaluation reports by the Livelihoods and Food Security Trust Fund (LIFT); a collection of highly informative subject-matter reports and studies by the Land Core Group of the Food Security Working Group, FAO, Okamoto, and the Australian Center for International Agricultural Research (ACIAR); and a series of four reports prepared by the Ash Center at Harvard University and commissioned by Proximity Design.<sup>4</sup> Private-sector trade associations representing the rice industry, and poultry, livestock, horticulture, and pulse traders supplied the team with similarly useful market data and, in some cases, survey results commissioned by their associations.<sup>5</sup>

In order to see farm production, marketing, food security conditions, and livelihood options firsthand, the team conducted three weeks of field interviews in the Delta, Dry Zone, and in Shan State during two waves of visits running from early October through the end of November 2012. The team also attempted to visit Chin, Mon, and Kachin States, but was unable to arrange the necessary travel

logistics and permissions. Team members recognize the limitations this places on the geographic scope of their understanding, particularly given that conditions vary widely over time and across geographic space in the ethnic and border areas they were unable to visit. In all, the team visited roughly three dozen villages and two dozen markets in towns across these three zones, enough to provide context but clearly insufficient to produce statistically reliable data.

During the field visits, team members consulted broadly with government officials, farmers, traders, agribusiness operators, and non-government stakeholders in the NGO community and in civil society using rapid rural appraisal techniques, and both key informant and group interviews. In each location, we specifically sought out women participants in order to ensure gender balance in the input we received. Following the field visits, the team conducted debriefing meetings with the private-sector Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI) and agricultural-sector donors (LIFT consortium), which proved helpful as a sounding board for initial findings and for clarifying inconsistencies and issues requiring further investigation. In a second round of consultations in 2013, the team benefited from detailed comments on the draft report during two day-long workshops: the first, held in Yangon on June 21 with representatives from the private sector, NGOs, donors, researchers, various political parties, and the media, and the second held in Nay Pyi Taw on June 24 with the Ministry of Agriculture and Irrigation.

Data inconsistencies posed consistent challenges throughout the team's investigations. Our efforts to reconcile basic empirical inconsistencies brought back memories of Wolfgang Stolper's famous book, *Planning Without Facts*, which describes his efforts in helping to prepare Nigeria's first national development plan at a time and in an environment where reliable data were in chronically short supply. His labors resemble those of current policymakers and potential investors in Myanmar, where reliable data remain similarly elusive even today. Virtually all of the stakeholders with whom we spoke, in both the public and private sector, emphasized the frailties of existing agricultural and socio-economic databases in Myanmar. Even production estimates for paddy—the single most important agricultural commodity produced in Myanmar—differ by 50 to 100 percent across sources (Table 1). These uncertainties over basic facts pose vexing problems, not only for assessment teams such as ours, but also for government policymakers and private-sector investors.<sup>6</sup>

**Table 1***Variability in estimates of key socio-economic data in Myanmar*

Parameter	Estimates		Difference (of-alt)/alt	Alternate source
	official	alternate		
Population, 2008 (millions)	59	49	20%	World Bank
GDP growth rate, 2000-2010 (% per year)	12.2	4.7	160%	IMF
Rice production, 2011 (million tons)	32.6	16.9	93%	USDA

Sources: Ware, “MDGs in Myanmar,” table 1; Central Statistical Organization “Statistical Yearbook”; World Bank, “World Development Indicators 2009”; ADB, “Myanmar in Transition,” table 2; Ministry of Agriculture and Irrigation, “Myanmar Agriculture in Brief, 2012,” 16; US Department of Agriculture (USDA) Foreign Agricultural Service, “Production, Supply and Distribution,” <http://www.fas.usda.gov/psdonline/psdDownload.aspx>.

## CURRENT STRUCTURE AND PERFORMANCE OF MYANMAR’S AGRICULTURAL SECTOR

### Structure

As in neighboring countries, smallholder paddy production dominates Myanmar’s agricultural economy.<sup>7</sup> Paddy production accounts for roughly half of all cropped area, while pulses and oilseeds account for a further 20 percent each, with horticulture crops, roots, and other cereals accounting for the remainder.<sup>8</sup> Farmers generally grow lower-value crops such as paddy, pulses, and oilseeds on relatively large surfaces, while high-value horticulture and fruit crops are grown on much smaller plots. Paddy, pulse, and oilseed farmers cultivate an average of four to five acres per holding. In contrast, onions, garlic, and potato fields average about 1.5 acres each, while vegetables and cut flowers are grown on plots ranging between 0.6 and 0.7 acres in size.<sup>9</sup> High-value crops enable even small landholders to earn high returns from small holdings.

Horticulture products—including fresh fruits, vegetables, and flowers—provide earnings for about 15 percent of rural households in Myanmar.<sup>10</sup> Grown widely throughout the country, horticultural products assume particular prominence in the hilly zones of Shan State and other border regions. Livestock and fisheries account for about 20 percent of total agricultural incomes in Myanmar, though these estimates may understate the economic and nutritional importance of these non-crop sectors.<sup>11</sup> As with high-value horticulture products, small stock and poultry attract considerable interest among landless and near-landless households because of their high value and low-land requirements.<sup>12</sup>

Over the past decade, the Government of Myanmar has allocated nearly two

million acres of land in large concessions to local agribusiness companies and, since 2010, to foreign investors.<sup>13</sup> While some of the large concessions have proven commercially successful as farming businesses, other concessionaires appear to have limited interest in farming and instead gain land rights in order to enable mineral extraction, lumbering, or land rental to smallholder sharecroppers. For some categories of commercial agriculture and agribusiness, large concessions offer a viable model for meeting the stringent quantity, timing, and quality demands of high-value products and niche-export markets. These large holdings, however, do not offer a feasible exit for the vast majority of Myanmar's landless poor, given common tendencies to mechanize large-scale operations.<sup>14</sup> In practice, overly rapid mechanization on large farms risks displacing labor and thereby depressing rural wage rates, thus further constraining the short-term survival strategies of the rural landless. Under most crops and agro-ecological conditions in Myanmar, smallholder farmers offer significant potential for productivity growth, increased competitiveness, and expanded employment for landless households.<sup>15</sup>

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## **Performance**

Looking back over the past twenty years, paddy output appears to have grown more slowly than most other crops in spite of the Government of Myanmar's heavy priority for rice. Even optimistic official production figures suggest that rice output has grown at about 3 percent annually over the past two and a half decades, with the bulk of these gains coming from area expansion. More conservative estimates from the USDA suggest paddy output has grown at closer to 1 percent per year (Table 2).

Maize production has grown far more rapidly than rice, on the heels of surging demand for poultry feed and emerging regional export markets. Pulse production has overtaken other agricultural commodity group since liberalization in 1988, at a compound annual rate of 9 percent per year. Horticulture and poultry output have grown at 6 to 7 percent annually over the past two and a half decades, driven by increasing urban demand and rising incomes (Table 2).

Despite major investments in rice production by the government, it is one of the less profitable crops for smallholder farmers. Prices are often low immedi-

**Table 2**

*Annual rates of agricultural growth in Myanmar, 1985 and 1986 to 2009 and 2010*

	Area	Production
Cereals		
paddy, GOM	2%	3%
paddy, USDA	n.a.	1%
maize	3%	6%
Oilseeds	3%	6%
Pulses	7%	9%
Horticulture	5%	7%
Poultry	n.a.	6%

Source: Compound annual growth rates computed from data in Myanmar Statistical Yearbook 2011, Table 5.05, and USDA Foreign Agriculture Service, <http://www.fas.usda.gov/psdonline/psdDownload.aspx>.

ately after harvest, while labor and fertilizer costs are high. The interest rates for informal-sector credit, at 10 to 15 percent a month, erode the farmers’ potential profit margin.<sup>16</sup> Private-sector pesticide companies have been aggressively promoting pesticide use on rice, but farmers have little information about how to use them correctly. Increasingly irregular rainfall, coupled with poor water control, leads to greater frequency of both flooding and drought.

The production of beans and pulses is generally seen as more profitable than rice in the winter season, in part because of much lower labor requirements and input costs. Prices, however, are especially volatile because 70 percent or more of pulses, such as black gram, green gram, pigeonpea, and chickpea, are exported to countries, especially India, whose demand from one year to the next is very unpredictable. Horticulture, poultry, small livestock, and fishing offer rapidly growing, high-value markets. For very small landholders, these high-value commodities offer the attraction of growing markets and limited land requirements.

In the aggregate, agricultural productivity in Myanmar remains low in comparison with its international competitors and neighbors. With per capita farm earnings that average roughly USD \$200 per year, Myanmar’s farming households earn one-half to one-third of the levels attained by most of their regional peers (Table 3). National rice self-sufficiency has not translated into food security for the poor. Roughly one-fourth of the national population and 29 percent of rural households fall below the national poverty line.<sup>17</sup> Poor households spend over 70 percent of their income on food, and one-third of rural households borrow at some point during the year to purchase food. In spite of these considerable efforts, up to 65 percent of rural households report inadequate food intake for over two months each year.<sup>18</sup> Consequently, moderate stunting affects about 22 percent of children

under five, while another 13 percent suffer from severe stunting.<sup>19</sup>

### HAS MYANMAR’S AGRICULTURAL SECTOR UNDER-PERFORMED?

A series of institutional, policy, and structural constraints has hampered agri-

**Table 3**

*Indicators of agricultural productivity and food security*

Country	Agricultural GDP per Ag. Population (\$ per year)	Poverty (% under \$1.25 per day)	Underweight Children (% under 5)
Malaysia	\$8,324	<1	13
Thailand	\$1,698	<1	7
Indonesia	\$1,431	18	20
Philippines	\$951	18	21
Vietnam	\$728	17	20
Cambodia	\$659	19	29
Bangladesh	\$276	43	41
<b>Myanmar</b>	<b>\$207</b>	<b>26</b>	<b>32</b>

Sources: IHLCA, “Integrated Household Living Conditions Survey”; World Bank Development Indicators (2012), MDG Indicators (2012).

cultural growth, contributing to Myanmar’s current high rates of hunger and malnutrition. The most critical problems include: a highly skewed land distribution, which leaves between one-quarter and one-half of rural households landless; low public investments in agricultural research; weak links between extension services and farmers; poor water control systems in the presence of global climate change and increasingly unpredictable rainfall; weak rural financial institutions; a high-cost transportation system; and unpredictable and uneven implementation of new government policies. This section examines each of these constraints and their impacts on the development of Myanmar’s agricultural sector.

*Highly skewed land distribution:* A signature feature of rural Myanmar is its highly skewed distribution of cultivable farmland. Data on land distribution remain difficult to assemble given acute political sensitivities, locational differences in traditional tenure systems, and large numbers of unrecorded, informal transactions. Even so, available evidence unambiguously suggests that the highest rates of landlessness occur in the Delta region, where field estimates of rural landlessness range from 50 to 90 percent of rural households.<sup>20</sup> In the Dry Zone and hilly regions, where land pressure is visibly less, the share of landlessness in total rural households ranges between 26 and 43 percent (Table 4). Although estimates of landlessness differ widely, the preponderance of available

evidence—from various household surveys and from the last three agricultural censuses—suggests that between one-quarter and one-half of all rural households are landless in the sense that they have no land use rights to cultivable land.<sup>21</sup>

**Table 4**

*Land size distribution in rural Myanmar, 2011*

Landholding size (acres)	Percent of Households		
	Delta/coastal	Dry Zone	Hilly
0	72	43	26
< 5	7	37	63
5 - 10	9	12	9
> 10	12	8	2
total	100	100	100

Source: LIFT, “Baseline Survey Results,” table 54.

Without land of their own to cultivate, most rural landless households depend on intermittent wage labor, frequently on neighboring farms. Given low prevailing daily wage rates in rural areas, poverty and landlessness are strongly correlated. Poor households hold significantly smaller landholdings than non-poor.<sup>22</sup> Likewise, rates of landlessness are highest among the poor. Among the poorest decile of households, 38 percent are landless. This contrasts with landless rates of only 7 percent among the richest decile.<sup>23</sup> As a result of lower incomes and higher poverty rates, landless households are more likely than large landholders to go hungry and to borrow for food purchases.<sup>24</sup> Given a highly skewed distribution of productive assets and income, rates of poverty and hunger remain stubbornly high.

*Underinvestment in agricultural research:* Improved varieties, crop management, and post-harvest practices have driven agricultural productivity growth across most of Asia. Yet over the past five decades, underinvestment in public research has limited these gains in Myanmar, where agricultural research expenditures have lagged far behind those of its regional and international peers. On average, Myanmar spends only USD \$0.06 of every \$100 in agricultural income on agricultural research, compared to USD \$0.41 by its Asian neighbors (Table 5). With agricultural research expenditures averaging only 20 percent of its peers and competitors, Myanmar’s farm productivity and incomes have lagged. If this situation persists, it is difficult to see how Myanmar’s farmers will be able to compete in international and domestic markets given this level of underinvestment in core public research functions.



*Weak links between extension staff, researchers, and farmers:* A farmer-centered, service-oriented extension system provides the conduit through which agricultural specialists identify key farmer problems and flag them for the attention

**Table 5**

*Agricultural research intensity (public research spending per USD \$100 in agricultural GDP)*

Location	Agricultural research spending intensity	
	2000	2008
Developed world	2.40	3.07
Developing world	0.53	0.54
Asia	0.41	0.42
Myanmar, 2003	0.06	n.a.

Source: Gert-Jan Stads and Pau Sian Kam, “Myanmar: Agricultural Science and Technology Indicators” (ASTI Country Brief no. 38, International Food Policy Research Institute [IFPRI]: Washington, DC: 2007), [http://www.asti.cgiar.org/pdf/Myanmar\\_CB38.pdf](http://www.asti.cgiar.org/pdf/Myanmar_CB38.pdf); Beintema et al., “ASTI Global Assessment of Agricultural R&D Spending: Developing Countries Accelerate Investment” (IFPRI, Washington, DC: 2012), <http://www.ifpri.org/sites/default/files/publications/astiglobalassessment.pdf>

of scientists who, in turn, conduct research to help farmers solve practical problems that limit farm productivity. Nonetheless, links between extension and research remain generally weak in Myanmar: “Of particular concern is the absence of operational interaction between staff of [the Central Agricultural Research Institute’s] outlying research farms and staff of the extension services. Extension agents rarely come to the research stations and researchers do not routinely visit extension offices or demonstration sites.”<sup>25</sup> Our interviews with stakeholders suggest that these links between extension and research still remain weak in 2012.

Links between extension agents and farmers are similarly limited. In part, extension staff find themselves constrained by an acute shortage of transport and field allowances. In addition, institutional tendencies to instruct farmers—instead of listening to them—have become embedded over two generations of command and control management of Myanmar’s agricultural sector. Consequently, “the strong extension force of [the Myanmar Agricultural Service] is mostly occupied with achievement of central production targets for pillar crops and especially for rice. To have a more significant impact on improving farm incomes, crop production and the alleviation of rural poverty[,] the service requires re-orientation within a new enabling environment for farm production.”<sup>26</sup> A more recent investigation in 2012 similarly finds that “extension of agricultural advice is virtually non-existent

with farmers depending heavily on each other, private suppliers of inputs and wholesale purchasers.”<sup>27</sup> As a result of acutely limited travel budgets and cutbacks in extension staff imposed on MOAI in 2006, many of the farmers we met during our field visits had never encountered an extension agent.

*Poor water control in the presence of global climate change:* Farmers we spoke with observed that weather patterns are becoming increasingly difficult to predict, with drought one year and flooding the next. Most formal assessments suggest that climate change will affect Myanmar significantly. Major expected changes include rising temperatures, higher rainfall, and possibly a shorter rainy season, which, taken together, will contribute to considerable increases in flooding. Rising sea levels along the coast are likely to compound these problems by aggravating saltwater intrusion and soil salinity in the coastal areas and river deltas. Risk reduction will require household- as well as system-level investments in water control to manage increasingly unpredictable swings in seasonal rains and drought.

*Weak-agricultural finance institutions and rural-household indebtedness:* Myanmar’s financial sector and banking system are both small and underdeveloped. Access to finance for agricultural-sector participants is minimal. While the agricultural sector in Myanmar generates 36 percent of GDP and employs two-thirds of the population, it accounts for only about 2.5 percent of all formal sector loans.<sup>28</sup> This situation affects both rural households and agribusinesses in ways that reduce productivity and profitability at the farm level, increase indebtedness for rural households (especially the poor), and constrain growth in agricultural GDP.

At the farm level, the Myanmar Agricultural Development Bank (MADB) is undercapitalized and, even after recent increases in the amount of credit allocated per acre of paddy, is only able to lend an amount that equals to a quarter of typical farm input and hired labor costs. As a result, farmers source additional credit from traders or other informal lenders at rates of 10 to 15 percent per month, amounting to approximately 50 percent over the monsoon season.<sup>29</sup> These high rates of interest result in low fertilizer use, as well as suboptimal crop management and post-harvest practices, and hence, low yields and poor paddy quality. Low yields, poor paddy quality, and depressed prices result often translate into financial losses that contribute to chronic indebtedness. Among landless households, 58 percent report food purchases as their most important reason for borrowing.<sup>30</sup> For both small farmers and landless households, the high cost of informal credit can lead to an insidious “poverty trap” in which poverty fuels indebtedness, which in turn stymies farm productivity, thereby further depressing incomes of vulnerable

groups.<sup>31</sup>

*High transport and communication costs:* Transportation and logistics costs are high in Myanmar as a result of many decades of underinvestment, heavy regulation, and limited structures linking the water, road, and rail transportation.<sup>32</sup> Currently, Myanmar ranks lowest in the ASEAN region in quality of logistics and transport-related infrastructure.<sup>33</sup> The country's main rivers offer potentially cheap internal transport. Yet the management of intermodal connections linking water, rail, road, and air transport are not well developed. As a result, road and sea container freight rates rise quickly during the peak marketing season in response to cargo congestion.

*Unpredictable policies:* Many of the stakeholders we interviewed offered examples of how the arbitrary and unpredictable implementation of evolving government policies had adversely affected agricultural trade, production, and investment. Despite the recent relaxation of production and land allocation controls at the farm level, many farmers spoke of continued government “encouragement” to plant certain crops, while a few complained explicitly about non-paddy crops being ripped out and plowed under by disapproving local authorities. Clarity about land-use choices is particularly critical for farmers wishing to diversify into high-value horticulture, fruit, poultry, and fish farming. Many of the agribusiness people we interviewed likewise complained about unpredictable export restrictions, and in some cases, continued land controls that prevented them from exporting specific crops over the past decade, even when business conditions looked attractive. In order to match the impressive agricultural performance of its regional peers, Myanmar will need to undertake a series of key institutional and policy reforms.

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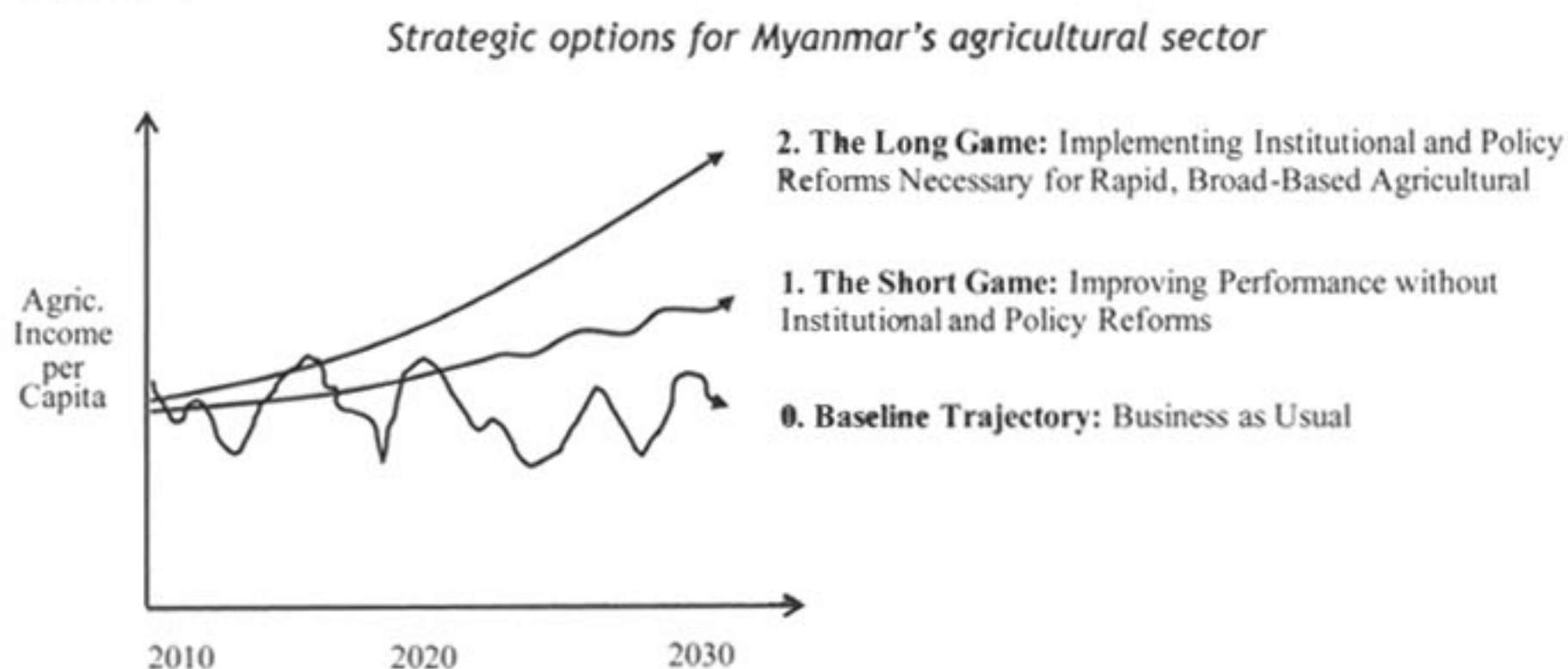
### THREE ALTERNATIVE PATHWAYS FOR MYANMAR'S AGRICULTURE

#### **Business as Usual**

Looking forward, we see three alternative pathways for Myanmar's agricultural sector (Figure 1). Under a “business as usual” scenario, Myanmar's agriculture will

continue along its current low-productivity, high volatility trajectory. Persistently low agricultural productivity stems from five decades of underinvestment in the agricultural support institutions that drive farm productivity growth. Heavy volatility in agricultural production and prices emerge as a result of poor water control in the presence of increasingly irregular rainfall patterns, unpredictable policies, high transport costs, poor rural communications, and a lack of diversification

Figure 1



among export markets.

But Myanmar can do better—even within the country's considerable policy, institutional, and structural constraints. Under a vigorous program of policy and institutional reform, coupled with increases in technical efficiency, Myanmar's agricultural sector can accelerate rapidly. Key decisions by the Government of Myanmar, its supporters, and stakeholders will determine which of these three pathways the country will travel.

### The Long Game

In order to match the impressive agricultural performance of its regional peers, Myanmar will need to undertake a series of key institutional and policy reforms. Currently, Myanmar invests only 20 percent as much in agricultural research (per USD \$100 in agricultural income) as its regional counterparts (Table 5). Not only will Myanmar need to substantially boost the resources it allocates to agriculture, it will also need to restructure its line ministries and departments to better support the core public goods and services that drive productivity growth in agriculture. Many decades of socialist command and control systems have left a legacy of overstuffed departments designed to supervise and control farmer decisions. Yet service-oriented systems for listening to farmers, diagnosing problems, and finding practical, scientific solutions have atrophied. Propulsion towards a highly productive, competitive, broad-based agricultural growth trajectory will require a restruc-

turing of agricultural support institutions in three key areas.

The first area concerns public goods that drive broad-based agricultural productivity growth. These include agricultural research via the creation of a market-oriented, farmer-centered research system and extension-system modernization and reform; agricultural education; a transparent, predictable policy environment; irrigation and improved water management systems; land administration and access; deepening of rural financial systems; improved rural communications and transport; and support for farmer-based organizations. Second is an accurate, objective statistical data collection and dissemination system. Currently, few stakeholders believe Myanmar's official production statistics—even for rice, where alternate estimates differ by as much as 50 percent. Yet transparent, effective policies require a firm empirical grounding, as do private sector investment decisions. Third is a long-range reengineering of the education, health, and nutrition institutions that promote long-term human capital formation among rural children, particularly the children of landless households and other disadvantaged groups.

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### **The Short Game**

Options for improving agricultural performance without further institutional or policy reforms center around four strategic axes: improving the productivity of monsoon rice through improved seed quality, better agronomic practices, improved water control, optimized fertilizer and input use, integrated pest management, and improved post-harvest management; promoting diversification into high-value horticulture, poultry, fisheries, and small livestock by both small farmers and the landless; preparing the children of landless and near-landless households for productive careers in high-productivity agriculture, agribusiness, and non-farm professions by building up their human capital through nutrition programs and enhanced access to improved rural education; and improving safety nets. As a rough order of magnitude, our discussions with local stakeholders suggest that improved practices among rice farmers could increase productivity and earnings from paddy farming on the order of 20 to 30 percent over the next five to seven years, even under the current policy and institutional environment.<sup>34</sup>

### **Key Decisions Going Forward**

Myanmar's neighbors and competitors in Thailand, Vietnam, Bangladesh,

Malaysia, India, and China have all committed to a “Long Game” involving strong public investments in agricultural research, extension, and in the public goods required to support agricultural productivity growth, especially among small farmers. Without strong public investments in agricultural research, extension,

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and in other public goods required to support agricultural productivity growth, we find it difficult to see how the country’s farmers will be able to compete in increasingly competitive regional and global markets—including those at home. By piloting models for effective bottom-up research and extension, actions in the short term can help to set up long-term success. A balanced attack, centered on “Long Game” institutional reforms results but complemented by “Short Game” efforts to boost productivity and opportunities within existing institutional structures, will likewise help to demonstrate to rural communities that the Government of Myanmar and its development partners are seriously committed to improving the agriculture sector. This two-pronged approach addresses the needs of rural communities for early visible change, while at the same time remaining committed to necessary structural reengineering of institutions and policies.

Policy reforms begun in Myanmar at the end of the 1980s have moved in this direction, though slowly and at sometimes variable speeds. Continued reforms, coupled with increased resource alloca-

tions for agriculture and improved policy implementation capacity, will be required to translate these still-unfolding policy changes into sustained, improved conditions on the farm. Promulgating new laws, as difficult as that appears, is often the easiest part of a reform process. Mobilizing the political will to increase budget resources in the presence of many competing constituencies frequently proves more difficult, as does institutional restructuring, which by definition alters the power base of many vested interests. Myanmar has reached the stage in its agricultural reform process where substantial resource increases and significant institutional restructuring are required to advance an effective reform agenda.

Because two-thirds of Myanmar’s population and three-fourths of its poor live and work in rural areas, broad-based agricultural growth offers a uniquely pow-

erful instrument for accelerating economic growth and improving the welfare and food security of vulnerable households. Myanmar's current highly skewed distribution of land, its growing levels of landlessness, and increasingly contentious disputes over land access not only pose dangers to vulnerable household welfare, but also risk inflaming social tensions and conflict. As a result, we consider the "Long Game" reforms outlined here imperative for agricultural productivity growth and poverty reduction, as well as for long-term political stability. 

## NOTES

<sup>1</sup> An earlier unpublished draft of this paper was posted online for public comments at [http://fsg.afre.msu.edu/Myanmar/myanmar\\_agricultural\\_sector\\_diagnostic\\_july\\_2013.pdf](http://fsg.afre.msu.edu/Myanmar/myanmar_agricultural_sector_diagnostic_july_2013.pdf). The authors have incorporated many helpful comments and suggestions received in response to this early request for feedback. The authors are grateful to the many farm households, traders, government officials, and donor-supported groups who provided us the benefit of experience and insight during our field visits. We are likewise grateful for helpful comments received from private sector, civil society, and public officials during a series of preliminary briefing sessions and workshops in Yangon and Nay Pyi Taw in November 2012, February 2013, and June 2013. Financial support from USAID made this study possible. Even so, the views expressed in this report do not necessarily reflect the position of USAID or the United States Government. The authors retain sole responsibility for the contents of this paper.

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<sup>3</sup> Steven Haggblade et al., "A Strategic Agricultural Sector and Food Security Diagnostic for Myanmar" (Michigan State University and Myanmar Development Resource Institute's Center for Economic and Social Development, July 2013), [http://fsg.afre.msu.edu/Myanmar/myanmar\\_agricultural\\_sector\\_diagnostic\\_july\\_2013.pdf](http://fsg.afre.msu.edu/Myanmar/myanmar_agricultural_sector_diagnostic_july_2013.pdf).

<sup>4</sup> Food and Agriculture Organization (FAO), "Myanmar Agricultural Sector Review and Investment Strategy" (final version of report no. 03/059, New York: FAO and UNDP, 18 March 2004); Integrated Household Living Conditions Assessment (IHLCA) Project Technical Unit, "Integrated Household Living Conditions Survey in Myanmar (2009-2010): Poverty Profile" (Yangon: June 2011), [http://www.mm.undp.org/content/dam/myanmar/docs/FA1MMRPovertyProfile\\_Eng.pdf](http://www.mm.undp.org/content/dam/myanmar/docs/FA1MMRPovertyProfile_Eng.pdf); Asian Development Bank (ADB), "Myanmar in Transition: Opportunities and Challenges" (Manila: ADB, August 2012), <http://www.adb.org/sites/default/files/pub/2012/myanmar-in-transition.pdf>; Valentina Barca and Nils Riemenschneider, "Livelihoods and Food Security Trust Fund – Delta 1 Evaluation" (final report, 2012), [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/204665/Livelihoods-food-security-trust-fund.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/204665/Livelihoods-food-security-trust-fund.pdf); Land Core Group, "13 Case Studies of Land Confiscations in Three Townships of Central Myanmar" (Land Core Group of the Food Security Working Group, September 2012), [http://www.myanmarfswg.org/source/download/land\\_update\\_15\\_10\\_2013/13%20Case%20Studies/FSWG\\_LCG\\_13%20Land%20Grabbing%20Case%20Studies%20%28Oct%202012%29%20%28ENG%29.pdf](http://www.myanmarfswg.org/source/download/land_update_15_10_2013/13%20Case%20Studies/FSWG_LCG_13%20Land%20Grabbing%20Case%20Studies%20%28Oct%202012%29%20%28ENG%29.pdf); Robert B. Oberndorf, "Legal Review of Recently Enacted Farmland Law and Vacant, Fallow and Virgin Lands Management Law: Improving the Legal and Policy Frameworks Relating to Land Management in Myanmar" (Land Core Group of the Food Security Working Group, November 2012), [http://www.forest-trends.org/documents/files/doc\\_3274.pdf](http://www.forest-trends.org/documents/files/doc_3274.pdf); Kevin Woods, *Emerging Agribusiness Trends in Myanmar: An Overview* (Kunming: Yunnan University Press, forthcoming); FAO, "An Overview of Horticulture Marketing in Myanmar" (Rome: FAO, 2000); Ikuko

Okamoto, *Economic Disparity in Rural Myanmar: Transformation Under Market Liberalization* (Singapore: NUS Press, 2008); J. Henning et al., "Village Chicken Production in Myanmar—purpose, magnitude and major constraints," *World's Poultry Science Journal* 63, no. 2 (2007), 308–322; G.V. Ranga Rao et al., "Increasing food security and farmer livelihoods through enhanced legume cultivation in the central dry zone of Burma (Myanmar)" (Canberra: Australian Center for International Agricultural Research [ACIAR], 2011), [http://aciar.gov.au/files/node/14127/fr2011\\_29\\_pdf\\_16769.pdf](http://aciar.gov.au/files/node/14127/fr2011_29_pdf_16769.pdf); David Dapice, Tom Vallely, and Ben Wilkinson, "Assessment of the Myanmar Agricultural Economy" (International Development Enterprises, January 2009), <http://www.ash.harvard.edu/extension/ash/docs/myanmar.pdf>; David Dapice, Thomas J. Vallely, and Ben Wilkinson, "Revitalizing Agriculture in Myanmar: Breaking Down Barriers, Building a Framework for Growth" (International Development Enterprises, 21 July 2010), <http://www.ash.harvard.edu/extension/ash/docs/burma.pdf>; David O. Dapice et al., "Myanmar Agriculture in 2011: Old Problems and New Challenges" (Cambridge: Harvard Kennedy School Ash Center for Democratic Governance and Innovation, 2011), <http://www.ash.harvard.edu/extension/ash/docs/myanmar1111.pdf>; David Dapice et al., "Appraising the Post-Sanctions Prospects for Myanmar's Economy: Choosing the Right Path" (20 January 2012), <http://www.ash.harvard.edu/extension/ash/docs/appraising.pdf>.

<sup>5</sup> Among others, our team visited with the following trade associations: Union of Myanmar Federation of Chambers of Commerce and Industry; Myanmar Rice Industry Association; Myanmar Farm Crop Producers Association; Myanmar Rice and Paddy Traders Association; Myanmar Paddy Producers Association; Myanmar Fruit, Flower and Vegetable Producers and Exporter Association; Myanmar Livestock Federation; Myanmar Pulse Traders Association; and the Myanmar Fisheries Federation.

<sup>6</sup> Problems of data quality are not unique to agriculture. More broadly, users of macro- and socio-economic data in Myanmar raise regular questions about their reliability and accuracy. See, e.g., Anthony Ware, "The MDGs in Myanmar: relevant or redundant?" *Journal of the Asia Pacific Economy* 16, no. 4, (November 2011), 579–596; U Myint, "Myanmar Economy: A Comparative View" (Asia Paper, Institute for Security and Development Policy, Stockholm: 2010), [http://www.isdp.eu/images/stories/isdp-main-pdf/2009\\_myint\\_myanmar-economy.pdf](http://www.isdp.eu/images/stories/isdp-main-pdf/2009_myint_myanmar-economy.pdf); David Dapice et al., "Myanmar Agriculture in 2011"; David Dapice et al., "Appraising the Post-Sanctions Prospects."

<sup>7</sup> Indeed, the literal translation of the Burmese language name for the ministry charged with overseeing crop production is the "Ministry of Paddy and Irrigation," which Westerners routinely render instead as "Ministry of Agriculture and Irrigation (MOAI)."

<sup>8</sup> Myanmar Agricultural Census of 2003, table 10.

<sup>9</sup> These averages come from the Myanmar Agricultural Census of 2003. Steven Haggblade et al., (2013) provides a detailed crop-level summary in Annex Table C7.

<sup>10</sup> Steven Haggblade et al., annex table C8, 89, data cited from LIFT "Baseline Survey Results," tables 14 and 15, 13–14.

<sup>11</sup> Central Statistical Organization, "Statistical Yearbook" (Rangoon: Central Statistical Organization, Union of Myanmar, 2010).

<sup>12</sup> Rural households without tillage rights are, by definition, landless. Some are landless by choice. Nonfarm business owners and salaried workers—accounting for about 20 percent of rural landless households—fall into this category. The majority, however, are involuntarily landless. Some work as tenant farmers, though most earn their living as wage laborers, primarily by working in the fields of neighboring farmers who hold tillage rights. Although estimates vary regionally and across sources, the weight of available evidence suggests that, overall, between one-quarter and one-half of all rural households in Myanmar are currently landless. See Steven Haggblade et al., "A Strategic Agricultural Sector," tables C4 and C5, 85.

<sup>13</sup> Woods, table 5.

<sup>14</sup> Derek Byerlee et al., "Agribusiness Models for Inclusive Growth in Myanmar" (Michigan State University and Myanmar Development Resource Institute-Centre for Economic and Social Development [MDRI-CESD], Myanmar: 2014).

<sup>15</sup> Michael Lipton, *The Family Farm in a Globalizing World: The Role of Crop Science in Alleviating Poverty* 40 (Washington, DC: International Food Policy Research Institute, 2005); World Bank, "Agriculture for Development: World Development Report 2008" (report, Washington, DC: World Bank).

<sup>16</sup> LIFT, "Baseline Survey Results," 67.

<sup>17</sup> IHLCA Project Technical Unit, "Integrated Household Living Conditions Survey," xi.



- <sup>18</sup> LIFT, “Baseline Survey Results,” table 42.
- <sup>19</sup> “Myanmar Multiple Indicator Cluster Survey 2009-2010,” table NU.1, 66.
- <sup>20</sup> During our fieldwork, the share of landless households living in the villages we visited ranged between 50 and 90 percent in the Delta area, between 25 and 58 percent in the Dry Zone, and between 0 and 40 percent in the Hilly areas. Field visits by Dapice et al., (2009) produced very similar estimates of 50 to 70 percent landless in the Delta and 25 to 40 percent in the Dry zone. The LIFT baseline survey results, reported in Table 4, evaluate landless rates in the Delta at 72 percent.
- <sup>21</sup> Okamoto reports landlessness rates between 30 and 50 percent during the 1990s. The Integrated Household Livelihoods and Consumption Survey of 2009/10 estimates rates of rural landlessness at 24 percent, while the FAO team conducting the UNDP agricultural sector review of 2004 estimated landlessness at 30 percent of rural households. Myanmar’s last three agricultural censuses imply rates of rural landlessness (zero landholdings) of 52 percent in 1993, 47 percent in 2003 and 22 percent in 2010 with rates of functional landlessness (holdings under 1 acre) amounting to an additional 3 percent in 1993, 8 percent in 2003 and 4 percent in 2010. See Okamoto, 2; IHLCA Project Technical Unit, xiii; FAO, (2004), 29; Haggblade et al., 25 and annex table C4.
- <sup>22</sup> IHLCA Project Technical Unit, table 18, 41.
- <sup>23</sup> Ibid., table 21, 44.
- <sup>24</sup> LIFT, tables 43 and 107.
- <sup>25</sup> FAO (2004), 112.
- <sup>26</sup> Ibid., 55.
- <sup>27</sup> Anderson Irrigation and Engineering Services Limited, “Increasing the Efficiency and Effectiveness of Pumped Irrigation Schemes in the Central Dry Zone of Myanmar” (working paper for Livelihoods and Food Security Trust Fund/UNOPS, Water Resources Utilization Department, Kent: 2012), 14.
- <sup>28</sup> Central Statistical Organization, “Myanmar Statistical Yearbook 2012”; Renate Kloeppinger-Todd and Tun Min Sandar, “Rural Finance in Myanmar” (background paper no. 3, Strategic Agricultural Sector and Food Security Diagnostic for Myanmar, Michigan State University and Myanmar Development Resource Institute/Center for Economic and Social Development: 22 January 2013), 14, [http://fsg.afre.msu.edu/Myanmar/myanmar\\_background\\_paper\\_3\\_rural\\_finance.pdf](http://fsg.afre.msu.edu/Myanmar/myanmar_background_paper_3_rural_finance.pdf).
- <sup>29</sup> LIFT, 67.
- <sup>30</sup> LIFT, table 107.
- <sup>31</sup> IHLCA Project Technical Unit; Dapice et al.; LIFT; Kloeppinger-Todd and Sandar.
- <sup>32</sup> Larry C. Y. Wong and Eh Mywe Aye Wai, “Rapid Value Chain Assessment: Structure and Dynamics of the Rice Value Chain in Myanmar” (background paper no. 6 prepared for Strategic Agricultural Sector and Food Security Diagnostic for Myanmar, MSU and MDRI/CESD: March 2013), [http://fsg.afre.msu.edu/Myanmar/myanmar\\_background\\_paper\\_6\\_rice\\_value\\_chain.pdf](http://fsg.afre.msu.edu/Myanmar/myanmar_background_paper_6_rice_value_chain.pdf).
- <sup>33</sup> Among 155 countries worldwide, Myanmar ranks 129th in the World Bank’s logistics performance index and 133rd in terms of quality of infrastructure. “Myanmar in Transition: Opportunities and Challenges” (Manila, ADB: 2012), fig. 14, 22.
- <sup>34</sup> Glenn Denning et al., “Rice Productivity Improvement in Myanmar” (background paper no. 2, March 2013), 21, [http://fsg.afre.msu.edu/Myanmar/myanmar\\_background\\_paper\\_2\\_rice\\_productivity.pdf](http://fsg.afre.msu.edu/Myanmar/myanmar_background_paper_2_rice_productivity.pdf).