

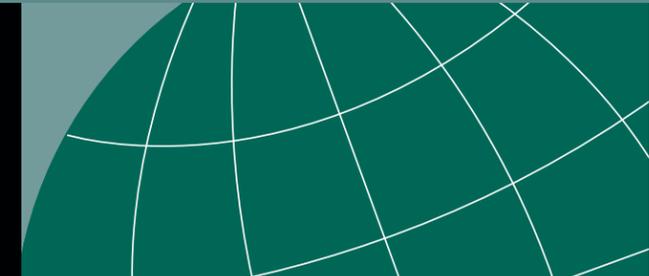
Myanmar Agriculture in 2011: Old Problems and New Challenges

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Proximity Designs | Myanmar



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Background

In May 2010, a team from the Rajawali Foundation Institute for Asia at the Harvard Kennedy School wrote a report on approaches to the revitalization of Myanmar's agricultural sector for Proximity Designs, a Myanmar social entrepreneurship organization. The report argued that the long-term trend in *per capita* rice production was adverse and that the reform and revitalization of agriculture required significant changes in policy. The report concluded that those changes alone would not be sufficient to bring about the rapid reduction of poverty in Myanmar. That latter goal required the stimulation of non-farm sectors, so that they could absorb labor leaving agriculture. Without measures to stimulate those sectors, farm size would fall, landlessness would increase, and pressure on natural resources would intensify. The same Harvard Kennedy School team (with one extra member) visited Myanmar in June 2011 to update and expand upon its 2010 report. Important changes had occurred since May 2010. A new government had assumed control; in an atmosphere of anticipation and some excitement, new and potentially effective policies were being discussed and developed. The drought in the Dry Zone had ended, but unseasonable rains had affected production. Some initiative had been taken to offer more agricultural credit to farmers, an important suggestion of the May 2010 report. The economies of Myanmar's neighbors had recovered strongly from the global recession, providing additional employment for workers from Myanmar. World rice prices (taking 5% broken Vietnamese rice exports as indicative) had fluctuated from \$482 a ton in January 2010 to \$360 in May–June 2010 and back up to \$575 in September 2011. Further increases in world rice prices after the Thai elections of early July 2011 were possible.¹ Rice production estimates for Myanmar from the U.S. Department of Agriculture showed modest increases in production from 10.55 million tons in 2009/10 to 10.75 million tons in 2010/11. This increase is roughly the same as demand growth.

Major Developments and Findings

The team found evidence that many of the new loans made available to farmers were not being repaid. Overdue loans comprised one-third to two-thirds of the loans made. This is partly because the farmers started deeply in debt and were using some or all of the new, cheaper credit to repay past high-interest loans rather than to invest in their production. But beyond this,

the strengthening of the exchange rate from around 1300 to the dollar in 2006–2007 to 1000 in 2010 down to 700–800 in the summer of 2011 was depressing paddy prices and ruining the profitability of production for many farmers and manufacturers. Since inflation has been high—over 50% since 2007—while price increases in most Asian nations have been modest, the combination of higher input costs and lower kyat prices for output are forcing many farms and businesses to curtail output or even to close altogether.

These exchange rate developments have counteracted much of the potential gain from a greater supply of credit, and have worsened the indebtedness burden of farmers. *Deciding what to do about these indebted farmers and how to recapitalize Myanmar's farm sector are major policy issues for the new government. The future of the country's rural population and of its agricultural economy depends on these decisions.*

Our major conclusions are first, that the exchange rate needs to be stabilized at a rate that allows for farms and factories to compete—probably 1000 kyat per dollar or higher. Second, in addition to credit at reasonable rates, other steps—discussed in this report—are needed if a decision is made to reduce the debt burden of many farmers. Third, broader policies to support a competitive and export-oriented agriculture are also needed.

Our findings contrast in some cases with the recent Household Living Conditions Survey, and so the report begins with a reference to that survey and also to production trends in agriculture. It then moves on to a discussion of farmer insolvency, landlessness, and the exchange rate's impact on agricultural prices. Finally, other measures to assist farming are briefly reviewed.

The 2009–2010 Integrated Household Living Conditions Survey in Myanmar

The UNDP, UNICEF, the Swedish International Development Cooperation Agency (SIDA), and the Myanmar Ministry of National Planning and Economic Development released a household survey in 2011 which showed that poverty in Myanmar had dropped sharply between 2005 and 2010. The proportion of the population affected by food poverty (the most severe type) reportedly dropped from 9.6% to 4.8%. The overall poverty rate fell from 32% to 25.6%. Most of the 23 indicators reported in the survey showed broad-based improvement. Myanmar was said to be on target for meeting its

Millennium Development Goals. The technical analysis in the report was of a high level, and the analysts were careful to qualify their conclusions, given certain inconsistent or conflicting data: *“In light of these conflicting results, caution is urged in the interpretation of the data on poverty levels and trends in particular on the magnitude of the decline in poverty.”* [Italics are in the original, p. xi.] For example, it would make no sense for the share of income spent on food to rise, as it did, if poverty were falling. For it is widely held that higher real incomes lead to lower shares of total consumption consisting of food.²

Any economy is complicated. The team believes that *per capita* rice production in Myanmar dropped from 2005/06 to 2009/10 and also that the price of paddy and of many pulses fell by half in real terms, diminishing the incomes of farmers. It is possible that many more workers migrated to neighboring countries in the last five years and that their remittances are a major factor that is hard to measure, since most money is sent back through informal networks. Major construction in the new capital also provided wage-earning opportunities of which the landless or land-poor could take advantage. Even so, the strong impression gained from visits to many areas of Lower and Upper Myanmar extending over three years is that rural poverty has not declined much, if at all. The team has never observed the gains reported in the Household Survey. If the other areas of Myanmar did much better, this might help to explain the difference. But it is unlikely that this has been the case. The team did observe severe problems with food security, problems that were often not getting any better, and the Household Survey reports the opposite. The findings cannot be reconciled.

Evidence derived by the Harvard team indicates that the ability to migrate has put a floor under rural wages. Furthermore, because of the downward pressure on rice prices due to the overvaluation of the kyat-dollar exchange rate, the real wage measured in terms of rice rose slightly from 2009 or 2010 to 2011. This effect surely benefited the landless and others who hired their labor out. On the other hand, with important exceptions in some areas of Upper Burma, the profits of most farmers did not improve in this time period, and they almost certainly fell from 2005, when real crop prices were much higher. Wage-earning opportunities in farming may have declined, as lower crop prices and “expensive” wages caused farmers to cut back on labor-intensive transplanting and weeding, even though this reduces yields. This nuanced picture of some gains for the landless but not for farmers is

hard to square with the substantial income gains for the rural poor that the Household Survey reports.

Production Trends

The Harvard Kennedy School team’s May 2010 paper included a detailed discussion of rice production, comparing official and U.S. Department of Agriculture estimates, and concluded that the latter were more likely to reflect actual production levels. This conclusion has subsequently been endorsed by many parties connected with the rice trade in Myanmar. But data from an external source like the U.S. Department of Agriculture provide only a limited picture of Myanmar’s farm sector. There are many crops for which no alternative data series are available. In the absence of alternative (independent) indicators of production trends, one option is to use quantities of exports as a general measure of production trends. The amount exported (apart from stock changes) is equal to production less domestic consumption. Domestic consumption tends to increase steadily with population and income growth, with some shift if prices change sharply. A falling export level need not mean falling local production; it may mean that domestic demand is rising faster than output. The following table shows changes in rice and pulse export levels over time, using official data.

Export Quantity (Thousand tons)

	2001–02	2007–08	2008–09	2009–10	2010–11
Rice	939	359	666	818	536
Pulses	1035	1141	1451	1141	929

Source: *Selected Monthly Economic Indicators*, March 2011, Central Statistical Organization, Naypyitaw, pp. 11–12 and *2008 Statistical Yearbook*, p. 198. Reporting year is April 1 to March 31.

These export data do not show any dramatic trend. Rather, they seem to reflect annual fluctuations. Myanmar is a net exporter of both rice and pulses. Internal rice consumption is probably growing at 1–2% a year, following population growth. The continuing small but positive export quantities suggest that consumption and output may follow the same trend. For pulses, the official production data show very rapid growth from 2001/02 to 2008/09—from just 2.5 million tons to over 5.0 million tons! If accurate, these figures would represent a great success story for Myanmar over the

last decade. Yet, when we look at exports, the quantity of pulse exports was 1.04 million tons in 2001–2002, and it is roughly the same now. Since it is highly unlikely that domestic consumption of pulses doubled at a time of modest population and income growth, these export data suggest that pulse output did not in fact double during this period.³ It appears that output of these major crops more or less kept up with internal demand, without a trend of increasing exports. Certainly there is no evidence that 2010–2011 was much better than the past few years. Indeed, it may have been worse.

Without changes in policy or in world rice prices, exports of rice in 2011–2012 are unlikely to be as high as in 2010–2011. The rice export ban imposed in February was lifted in April, but rice exports ceased in early June because of a lack of profitability attributable to the high kyat-dollar exchange rate. (The reporting year runs from April 1 to March 31.) Unless the dollar price of rice exports rises further or the exchange rate moves back to a point at which the June 2011 rice export price (about \$400 a ton) allows exporters to recover their costs in kyat and to cover their risks, it will be difficult for rice exports in 2011–2012 to match those of 2010–2011.⁴ As for pulses, there has been a collapse in prices since 2010. While quantities this year and last are broadly similar, quality has fallen because of untimely rains. Pulse prices are moderately to severely lower, by 10% to 50%. Global factors have contributed to this latter outcome, but the overvalued exchange rate has added to the problem.

Farmer Insolvency and the Need to Recapitalize Myanmar Agriculture

A major finding of earlier papers by the Harvard team was that, for most farmers, credit was scarce and expensive. In 2009, the Myanmar Agricultural Development Bank (MADB) provided only 8000 kyat per acre, less than a tenth of the sum needed to cover the average cost of inputs in the cultivation of rice. In that year, there were no other formal-sector lenders for farmers. Informal credit cost 6% to 10% a month, and it was not always available. These circumstances depressed input use, held down production, reduced farmers' incomes, and ultimately increased their indebtedness.

The Myanmar Government's response to this situation has been to offer more credit on better terms in the past year. The MADB has extended loans of up to 20,000 kyat per acre to some farmers. Also, special agricultural

development companies have made loans to farmers at rates of 3% to 5% per month. While not nearly adequate to meet the borrowing needs of Myanmar's farm sector, these measures were clear and promising steps in the right direction. However, the team found during its most recent field visits to rural Myanmar, in June 2011, that farmers were taking up these additional allocations of credit but failing in many cases to repay their loans. Late payments or outright default rates of 30% to 60% were reported by non-bank lenders like the special agricultural development companies. Since crop output does not seem to have varied much on the whole, understanding what is happening is crucial to grasping what ails Myanmar's farm sector and what will be necessary to revitalize it.

Many of Myanmar's farmers are deeply in debt; their current debt burden is sometimes larger than their expected annual incomes. If they have high-cost debt, many farmers use funds borrowed at lower interest rates (from sources like the MADB and the special agricultural development companies) to pay off the high-cost debt. When they do this, the "new" loan is not fully used for inputs. As a result, the cash flow from the next crop may not be enough to repay the new loan as well as the old (expensive) loan. In short, highly indebted farmers are not good credit risks. A normally functioning credit system with adequate information on borrowers would typically not lend to such borrowers. Such lending does not increase the productivity of Myanmar's farm sector. Charging these borrowers extra-high rates of interest, to reflect the risk of lending to them, simply compounds the problem. Circumstances like these may eventually lead farmers to lose their land. They almost certainly contribute to the higher reported rates of landlessness in many of the villages that the team visited.

Myanmar farmers—indeed Myanmar agriculture—faces, in short, a crisis of insolvency and illiquidity. Providing additional credit to the already deeply indebted is no way to address this crisis.

With respect to credit, the Household Living Conditions Survey found that a decreasing fraction of households had access to credit. The percentage able to borrow fell from 38% in 2005 to 33% in 2010. The survey also found that many fewer households were in debt—the percentage fell from 48% in 2005 to 30% in 2010. It reported that the average amount borrowed rose 23% in real terms and that the ratio of debt relative to consumption stayed about level at roughly one-fifth. These observations cover the entire nation and not

simply areas that the team visited. The survey also found that real loan balances to poor households grew much more in relative terms (+55%) than inflation-adjusted loans to non-poor households, whose value grew by only 23%. It is hard to understand how so many fewer poor households could be borrowing, but that those who did borrow would take on so much larger loans and still have stable debt-to-consumption levels.

The team's field visits to various divisions found that well over half of farmers were deeply in debt—an observation consistent with World Food Programme surveys.⁵ While the landless households did not have production loans, they did typically borrow for consumption. (The discussion of landlessness in the box following this section is also relevant to this discussion.)

High levels of indebtedness among many farmers characterize the Myanmar agricultural sector. The problem is getting worse, not better. It may be approached in a number of ways.

One is to ignore it—to decide in effect to allow land concentration to continue. The result would ultimately be a structure of land-holding more like that of Bangladesh with its large land-owners and less like the historic patterns of medium-size holdings characteristic of Myanmar during most of its history.⁶

A second approach would be to make cash grants or extend assistance in other forms (such as providing mechanical rice tillers to be managed by village committees) to help farmers begin the process of reducing their debt and recapitalizing. The desired cumulative effect of such measures would be nothing short of the recapitalization of Myanmar's farm sector, so that it could serve as a platform for further growth. The provision of rice tillers (or of other equipment that farmers could share and manage jointly) would help reduce the costs of cultivation and improve the timeliness of planting. It would thereby have a direct impact on costs and productivity.⁷ Even with such support or with cash grants, however, farmers' finances could remain precarious if crop prices did not increase.

Third, crop prices could be raised in order to make farming more profitable. Improvement in the quality of seed and thus in the quality (and price) of rice sold, reductions in marketing costs, depreciation of exchange rate, or the provision of floor prices for crops are possible means to the end of raising

the crop prices received by Myanmar's farmers. It must be noted, however, rising crop prices would initially put pressure on urban wage earners and on the landless.

A fourth approach would be to initiate paid rural infrastructure projects to provide off-season work (and wage income) to farmers. These projects could include improved roads, more extensive drainage and water control, and the expansion of social infrastructure (health clinics, schools, and storage facilities).

Fifth and last, together with the measures outlined above, loan repayment ought to fall some interval after the harvest date so that farmers are no longer forced to sell their crops at the low prices of harvest time. By allowing farmers to receive higher prices for their crops, this simple measure would help reduce levels of indebtedness.

If the first option is rejected, local conditions would require some combination of the other measures. Experimentation in combination with local consultation would indicate the mix best suited to particular regions of Myanmar. There is, of course, the question of how any intervention would be financed and who would carry it out. Given that the Government of Myanmar has shown itself fully capable of implementing large scale projects (particularly infrastructure, including dams, roads, and the new capital), undertaking such critical tasks as rural electrification, water control schemes (pumping/drainage) in the Delta and the expansion of existing irrigation areas, general improvements in village- and township-level feeder roads and bridges (*not* in the national highway system) and in ports, and the development of a national agricultural research system, ought to be within their capabilities, albeit with some foreign assistance. For example, the Government ought to seek donor support for renewed training and education of civil servants working in agriculture. The greatest challenge will be in organizing and implementing activities at the local level. This work could be undertaken by the farmers and villagers themselves with organizational support from local agencies. For example, Proximity Designs has had experience with setting up power-tiller committees in villages and in disbursing emergency grants to Nargis areas and hard-hit villages in the Dry Zone. Although its personnel base is too limited to take on a national role, the approaches and methods that it has developed highlight the important role of a locally tailored mix of interventions. In the crucial area of credit, there is

no national capability to assess rural credit needs and to make loans based on an ability to repay for any but the very well-off. Local experimentation—perhaps involving lending through existing entities such as input distributors, marketing agents, millers, and exporters—will make it possible to determine the most effective means of improving the supply and reducing the cost of sustainable rural credit.

As the recent experience of Myanmar's very promising and well conceived experiment with specialized agricultural development companies has illustrated, none of this can involve a quick fix. All will involve establishing a methodology in various regions, testing it out, and getting Government buy-in to implement successful pilot programs more broadly. Pilot programs would supply funds, equipment, or facilities directly to village- or township-level groups, and techniques for monitoring outcomes would be part of the program. If these programs included *the provision of credit in ways designed to promote the productivity of Myanmar's medium-sized-farm agriculture sector*, their potential costs could be billions of dollars a year. But their intended outcome is nothing less than the revitalization of agriculture and of rural Myanmar, most of which ranks with the most underdeveloped areas of Asia. The development of Myanmar according to the vision articulated in Government policy statements requires the regeneration of agricultural activity. Linkages in production, income, labor supply, and finance between the rural and urban areas will have to expand and deepen in major ways. These linkages define the pattern of development that all successful Asian economies have followed. Myanmar will not be an exception in this regard. Until the Government decides on the activities that it will support and on the means of funding those activities, donor agencies can assist by funding pilot programs and working with selected Government agencies or local organizations to test approaches to increase rural incomes, food output, and food security in various localities.

For Myanmar in 2011, deciding how to respond to the large number⁸ of deeply indebted farmers represents both an economic and a political issue. It is an economic issue because medium-size farmers can be more productive per unit of land, as their yields benefit directly from the adoption of better cultivation practices. With crops like rice, smaller farms often are more productive than larger ones. However, these farmers also need support in the form of certified seed companies,⁹ improved water control, reliable fertilizer and pesticides, tractor services, modern milling and post-harvest systems,

etc. Such institutions and services make it possible for the most efficient farms to remain under 10 acres in size. Historically, today, and in the future, farms of that scale are ideal for rural Myanmar. Their survival requires the restructuring of farm debt in a sustainable way, combined with investments in rural and agricultural infrastructure and institutions, including such government institutions as the agricultural extension service. These investments will support the reemergence of a competitive and productive agricultural sector, which can become the base for widely shared growth and for the healthy development of agro-processing and other industries.

The decision to help recapitalize farmers also has major social and political implications. The Government of Myanmar must decide if it really wishes to promote larger farms and to push most landless people and small farmers into cities. Does it care if further millions (current estimates are that four to six million citizens of Myanmar work in foreign countries) leave not only the rural areas of Myanmar but also the country? Does it want agriculture to be dominated by the elderly and by absentee owners? Does it care if control of land shifts to foreign owners, even if indirectly through proxy owners that are citizens? These questions are more political and social than economic in nature. They must be answered before any policy response to indebtedness and the other problems confronting Myanmar's farm sector is implemented.¹⁰

Landless Rural Families: How Many?

The Integrated Household Living Conditions Survey in Myanmar, 2009–2010 (hereafter 2010 Survey) reported that landlessness of all agricultural households had declined from 25.7% in 2005 to 23.6% in 2010. There were 41 million rural people in 2009–2010¹ and the 2010 Survey found average rural family size was five, so there were 8.2 million rural households. The 2010 Survey found that 64% of rural households were engaged in agriculture, thus there were 5.25 million rural, agricultural households. We know that 29.6 million acres were sown (net of double cropping) and the 2010 Survey found that average farm size was 6.7 acres. That would imply 4.42 million farms. Relative to the number recorded in the 2003 Agricultural Census of 3.3 million holdings, this was a 33% increase.² Since rural population grew only 11% from 2003 to 2009–2010, the 2010 Survey estimate of 4.42 million farms seems high. If farms grew at the same rate as rural population, there would be 3.7 million farms in 2010.³

The implications for landlessness among rural agricultural households of these two estimates of the number of farm households are marked. If there were 4.42 million farms, the landless ratio would be only 16%. If there were 3.7 million farms, the landless ratio would be 30%. However, the 1993 and 2003 Agricultural Censuses show very rapid growth in holdings under one acre (+152%) and over 20 acres (+78%), with the middling sized farms (1–20 acres) growing only by a sixth. If this pattern had continued, many more rural households would be landless or nearly so. It may well be that holdings of under one acre are considered functionally landless by villagers, since only home gardens or specialty crops can be grown on very small holdings.

In interviews covering dozens of villages in the Ayeyarwady Delta, Yangon, Sagaing, Magway and Mandalay divisions the team never found a case of decreasing landlessness. It usually had risen but sometimes was stable. The team did, however, find that many of the landless regularly left villages, often to work in a foreign country. Perhaps the villagers the team interviewed counted a family with missing parents or children as landless if they were normally or had been engaged in agriculture. Some sources find 4–6 million Myanmar citizens are working abroad, or 10–15% of the labor force. Our interviews revealed few young farmers (i.e., under 35 years). These are the most likely to migrate.

In summary, it is unlikely that the fraction of landless households relative to households traditionally in farming has decreased. It may be that some former farm households have had to abandon working in agriculture (or have chosen to leave) and so moved out of the “farm household” group as measured by the 2010 Survey. These migrating households may keep a house in the village but work outside of the village most of the year. How they are counted is a matter for the next Agricultural Census. The findings of the 2010 Survey may be “correct” because they compare two different populations by excluding those workers who have left the village or by including functionally landless families with very small land holdings as among those holding land.

1. *Myanmar Agriculture at a Glance*, 2010, p. 12 has rural population and p. 18 has net area sown of 29.6 million acres. The 2009–2010 rural population is extrapolated from the 40.5 million listed in 2008–2009, the latest figure.

2. Data from the 1993 and 2003 Agricultural Censuses can be found in *Upland Land Tenure Security in Myanmar: An Overview*, Food Security Working Group, February 2011, p. 8. An earlier 2003 Census source had 3.45 million farm holdings.

3. From 1993 to 2003, the number of farm holdings grew by only 609 thousand. In seven years (2003–2010), a further increase (with slower rural population growth) to 3.7–3.8 million holdings, or by 400–500 thousand, seems more likely than an increase of 1.1 million new farms.

The Inflation-Adjusted Exchange Rate

Most people are familiar with the nominal exchange rate—the number of kyat per dollar paid to or received from a dealer in foreign exchange.¹¹ In mid-2011, the nominal exchange rate was about 700–800 kyat to the dollar. It was around 1300 kyat to the dollar in 2006 and 2007, while inflation averaged 15% a year, much higher than in other nations. This trend is counterintuitive. It is economically and even socially destructive. It endangers Myanmar's entire export economy, threatens to turn Myanmar into a high-cost nation with low productivity, and may well already be distorting the economy and society away from goods production and toward unproductive service activity.¹²

Under normal circumstances, nations like Myanmar that have experienced sustained high inflation rates see their currencies weaken. If inflation causes prices and costs in local currency to double, depreciation in the exchange rate will offset this effect and allow producers to remain competitive in international markets. (This assumes inflation in trading partners is low, as is the case for Myanmar.) In order for producers of goods that are exported or that compete with imports to remain competitive, it is important for the exchange rate to be managed in ways that offset “excess” local inflation relative to the inflation rate in major trading partners. This has not happened at all in Myanmar since 2006. The country's inflation-adjusted or “real” exchange rate has appreciated very sharply (i.e., the kyat-dollar rate has fallen). This appreciation has placed exporters and local producers whose output competes with imports at a serious disadvantage. Because of inflation, their kyat costs have risen by 50% since 2006. But their kyat income (when dollars earned by exporting are converted to kyat) has often declined. This trend depresses investment in the production of traded goods like food or manufactures. As a result, the present overvaluation of the exchange rate is reducing output and employment in Myanmar.

Perhaps the best way to relate this analysis to real data and to the agricultural sector is to examine paddy prices over time. In the table below, local prices for Emata paddy at harvest up to 2009–2010 come from an official publication. The 2011 price is an estimate based on interviews conducted by the team in June 2011:

Nominal and Real Paddy Prices in Thousand Kyats per Ton

	2005–06	2006–07	2007–08	2008–09	2009–10	2011 (Est.)
Paddy Price	203.9	230.5	234.8	242.3	249.9	233.0
Union CPI (%)	103	130	173	209	212	230
Real Paddy Price	198.0	177.3	135.7	116.0	117.9	101.3

Source for 2005/06 to 2009/10: *Myanmar Agriculture at a Glance*, 2010, p. 86; Union CPI is from *Selected Monthly Economic Indicators*.

These data show that the real (inflation-adjusted) price of paddy fell by nearly 50% or 100,000 kyat per ton from 2005–2006 to 2011. Nominal paddy prices were falling from 2010 to 2011. This is an astonishing plunge. Few producers anywhere could remain in business if their real prices dropped nearly in half, but this is precisely the consequence—even for producers whose rice went to the domestic market—of a dollar’s worth of exports being worth fewer kyat. Falling real prices meant that it was no surprise to our team to find that nearly everyone whom we interviewed to be concerned (and often alarmed) by the increasing appreciation of the exchange rate.¹³ A major explanation for the lack of increase in rice output, and the general lack of dynamism of Myanmar’s agricultural sector, has been the steep fall in the real value of paddy and other crops. At the existing kyat-dollar exchange rate, it barely pays to apply inputs. There is little chance that poverty in rural Myanmar can decline significantly, when income earned from cultivating the country’s major crop is so minimal and output growth is so sluggish.¹⁴

In conversations with the team, farmers in the Delta uniformly agreed that if paddy prices fell further there would be a substantial reduction in summer paddy planting and in the use of fertilizer and yield-enhancing techniques such as transplanting. With production costs per acre running as high as 250,000 kyat, the prospect of 90 baskets of paddy fetching less than 3000 kyat per basket gave little incentive to take the risks of production. Monsoon paddy would still be planted, as farmers had no alternatives in that season of the year, but fewer inputs would be applied even to that crop. It is hard to extrapolate the comments of the farmers interviewed to all rice-growing areas of Myanmar. If, however, the real kyat price of paddy continues to decline, few producers or traders would have any incentive to export at current dollar prices for rice.

While rice is the country's most important crop, it is not the only one. Pulses and sesame tell a more complicated but similar story. The following table contains prices for two major non-rice crops, white sesame and black matpe, a pulse.

Nominal Sesame and Matpe Prices, Thousand Kyat per Metric Ton

	2005–06	2006–07	2007–08	2008–09	2009–10	2011 (Est.)
White Sesame	574	630	1037	944	947	843
Black Matpe	395	775	590	492	725	350
Union CPI (%)	103	130	173	209	212	230

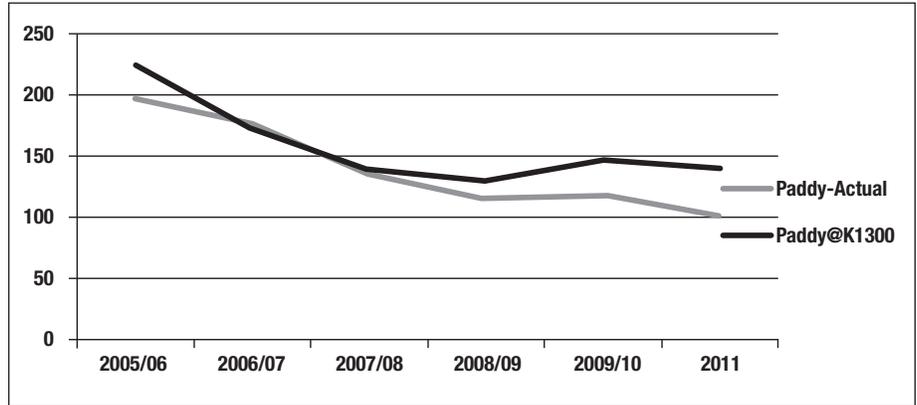
Real (Deflated) Prices (Nominal Price Divided by the Union Consumer Price Index, CPI)

	2005–06	2006–07	2007–08	2008–09	2009–10	2011 (Est.)
White Sesame	557	485	599	452	447	367
Black Matpe	383	596	341	235	342	152

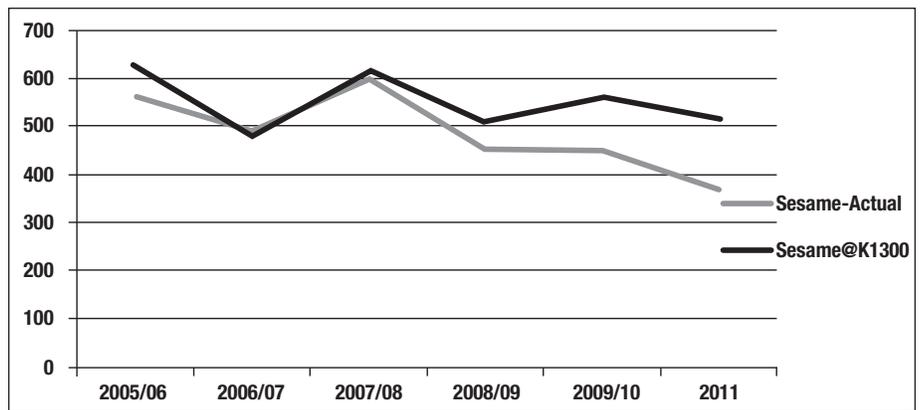
The “real” price of sesame or black matpe is the nominal price divided by the consumer price index. Real prices fluctuate, but they are exceedingly low in 2011. When the price of a crop drops so sharply, there is a tendency either to avoid planting it or to grow it using fewer inputs. If the kyat exchange rate had remained at 1300 per dollar, then the kyat price of exported agricultural products would be about 40% higher in 2011 than the actual price. If exchange rate instability could have been avoided, this would have made a very substantial difference in farmers’ incomes. To make the point, the graphs below show the real price of these three crops over the past years and then as they would have been if the kyat had remained stable at 1300 per dollar *and* if the price index (the rate of inflation) remained as it had been in each year.¹⁵

If the nominal exchange rate had remained at 1300 to the dollar with inflation at its observed level, then the real prices of these three agricultural products would have been higher and more stable, as the graphs below illustrate:

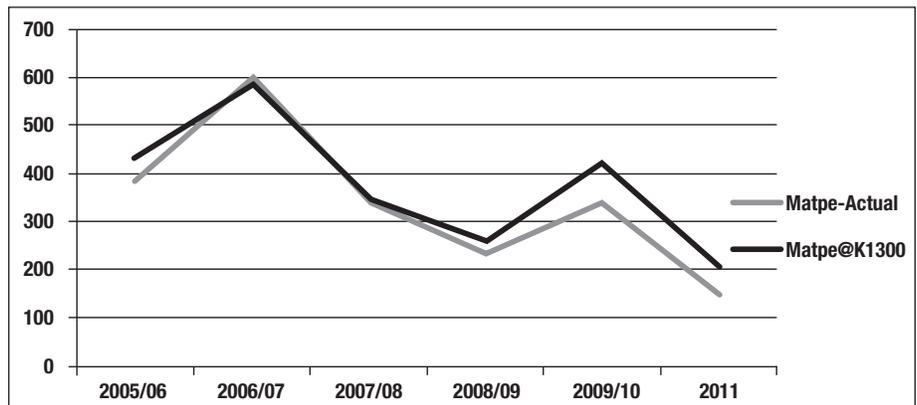
Real Actual Paddy Price and Paddy if K1300 = \$1 in All Years



Real Actual Sesame Price and Sesame if K1300 = \$1 in All Years



Real Actual Black Matpe Price and Black Matpe if K1300 = \$1 in All Years



Notice that, while the real prices of all three products still trend down with a stable exchange rate, their decline is much smaller. Even in the context of the chronic inflation that Myanmar has experienced, a stable exchange rate reduces wild swings in prices and gives farmers more certainty about returns on investments in water control, fertilizer, good seeds, and so on. It also provides more stable income levels and consumption.

For policymakers seeking a quick and easy means of helping agricultural producers in Myanmar, an appropriately valued and stable exchange rate—*combined with falling inflation*—would be extremely effective.¹⁶ The movement of the kyat so far below 1000 to the dollar has already done considerable harm to both farmers and manufacturers. It has put into danger the economy that Myanmar has begun to build since the end of the Socialist Period two decades ago; it threatens the livelihoods of many people, both rural and urban. If the exchange rate continues to strengthen, it is likely to depress investment and cause many firms to cut back on both output and employment or to go out of business. It will depress Myanmar's exports and boost imports. This development will favor natural resource production and the export of commodities such as natural gas and monsoon paddy. It will discourage manufacturing and the cultivation of summer paddy.¹⁷

A *major* likely confounding factor is the dollar price of rice in the next year. Severe weather has reduced rice output in some regions of the world, though total world rice output is projected to be at or near record high levels.¹⁸ In addition, Thailand's July elections have brought to power a government in Bangkok committed to raising the paddy support price. This policy would result in much higher prices of Thai rice exports—probably \$700–\$800 per ton compared to \$500 recently, if the promised support price \$500 per ton for paddy is implemented. Even though Myanmar rice is of lower quality than Thai rice, Myanmar will benefit from the spillover effects if it can raise its rice output. Some caution is required. In the past, jumps in the world rice price have elicited bans or reductions in licensed exports from Myanmar, in an effort to control domestic rice prices. To take advantage of a sharp rise in the world price of rice would require steps to allow higher production, reduce infrastructure bottlenecks and support (through employment creation) the income of landless people and of others who are net buyers of rice. If the world rice price in dollars jumped, *depreciation of the real exchange rate from its current overvalued level would accentuate that increase in the price of rice; it would, that is, be even more beneficial to*

farmers and more detrimental to consumers. However, the exchange rate influences *all* farm and factory output, not only rice. It would be ill-advised and shortsighted to keep the exchange rate at an unrealistically high level just to offset a temporary rise in the world price of rice. Sustainable poverty reduction requires encouraging output and employment in both the agricultural and manufacturing sectors. Both sectors are threatened by the current exchange rate. Supporting the creation of jobs and incomes through stable and appropriate macroeconomic management should be the focus of Myanmar's exchange-rate policy.

It is beyond the purview of this paper to dwell at length on *how* the Government could stabilize the kyat-dollar exchange rate. It is worth noting, however, that the Myanmar Government currently has more dollars than previously, thanks to gas and other (e.g. jade) exports and to capital inflows for investment and the purchase of land. The market for foreign exchange is not deep; relatively small amounts can move kyat-to-dollar rates. If the Government wants to keep the nominal rate at some level (say 1000 kyats to the dollar), it would have to buy enough dollars with kyat (which the Central Bank can create) to achieve and maintain that rate. If the rate starts to weaken too much, or goes too far over 1000, the Government could reverse the process and use its dollar reserves to buy up kyat. Officials of the Central Bank of Myanmar certainly have the technical expertise to begin intervening on their own. Over the longer term, experts with past experience would certainly be useful to the strategic refinement of this policy. The International Monetary Fund or a retired central bank official from an ASEAN economy could provide technical advice on the permanent implementation of the policy.

Other Inputs

The emphasis of this report thus far has been on policies relating to exchange rate and to farm credit and debt. These policies can be implemented fairly quickly, and they would have a broad impact on most of Myanmar's farmers. However, longer-term investments in agriculture and rural areas generally would be extremely productive and still have an impact relatively quickly. Suggestions for the formulation and implementation of an integrated agricultural policy are beyond the scope of this paper. Nonetheless, the team's field observations prompt the following suggestions.

1. **Good seed:** Most farmers now use seed saved from previous harvests or perhaps bought from other farmers. This seed is often of mixed varieties. When milled, paddy grown from such seed produces a high proportion of low-value broken. This seed may not respond as well as certified seed to high levels of inputs or to improved water control. Disease resistance may also be less. If high-quality seed were available and known to be advantageous, it is likely that there would be a ready market for it. Provision of better seed could be done privately, by the Ministry of Agriculture, or in private-public partnerships. However it is achieved, there is little doubt that making good seed available for purchase is needed or that farmers' access to good seed would result in major gains in production.¹⁹
2. **Certified fertilizer:** Most farmers admitted that they could not know whether the fertilizer that they bought (except for some brands selling at a 50–100% premium) was what they thought they were buying or it was adulterated. Much of the fertilizer purchased comes from China, and quality control is all but nonexistent. Provision of a paid service to check fertilizer quality would be a huge help to farmers who now waste money on fertilizer that often has much less nutrient than claimed. Such a test should not cost much relative to the price of the fertilizer, and it should be made widely available.
3. **Water control:** There is a great difference in yields between areas in which farmers are able to channel water to or drain it from fields and areas in which farmers rely on rain and gravity for water control. Farmers in the Irrawaddy Delta estimated that they could achieve yields of 20–30 more baskets of paddy per acre with better water control. The cost of using diesel pumps is too high for many farmers. Rural electrification to lower the cost of pumping water or water control projects would both allow much more production and reduce uncertainty. In the Dry Zone, using infrastructure grants to deepen and expand local reservoirs is another measure that has been tried and that is likely to be effective.
4. **Tractors and tillers:** In some areas there is a shortage of draft animal traction, and planting is delayed until the soil can be plowed. An obvious alternative, often cheaper, is tractors or cultivators. Proximity Designs has experience giving tractors to village committees, which in turn manage the machines, maintain them, and allocate them to farmers. The

committees are responsible for all fuel, repairs and replacement parts. Access to capacity of this kind allows farmers to plant on time, and it reduces production costs.

5. **Better roads:** There is a distinct advantage to a village and its farmers if they have access to a good road. Inputs and information reach its people more easily, trips to the market are faster, and better prices are earned for output, as the cost of transport is less. Children can more easily go to higher-level schools, and everyone can get to a clinic or doctor more easily. Improving rural roads—*not building new highways*—with infrastructure grants would help with better transportation and also provide badly needed off-season work and thus help reduce the burden of excessive debt.
6. **Reliable information:** A number of pilot projects have provided extension services to farmers. These projects indicate that such services are needed, used, and useful. Problems with pests, seed selection, soil conditions and fertilizer, and cropping combinations can sometimes be solved more quickly and cheaply with expert advice. Advice from sellers of inputs or shops sometimes includes promotion of a particular product, even if it is not really appropriate. Sometimes the seller simply does not know what a correct response to the problem is. Government extension services are currently underfunded. Extension officers often have too little knowledge to provide to farmers.

These investments and policies would help, over time, to improve rural incomes, food output, and the economic competitiveness of the Myanmar farm sector. In many cases they would also support the recapitalization of highly indebted farmers and of the agricultural sector more broadly, discussed earlier in the report. Credit is not included in this list because it is part of the earlier discussion. But building a modern and market-based credit system for the rural areas is a priority. Implementing many of these suggested steps would help ensure that farmers could repay their loans and that a revitalized system of farm credit would be sustainable.

Summary and Conclusions

1. The kyat-dollar exchange rate trend since 2006–2007 has depressed paddy prices. Further “strengthening” of the kyat could eliminate

Myanmar's already diminishing ability to export rice. The current exchange rate also has negative implications for pulses and manufacturing. A move away from the current exchange rate to one closer to 1000 kyat to the dollar would help reverse the negative impact of the current exchange rate. This is urgent.

2. Deeply indebted farmers may not benefit much from new loans alone, since their burden of debt is so heavy. Schemes to reduce their debt and recapitalize them would allow them to continue farming. It would also be a major step in the revitalization of Myanmar agriculture. Deciding whether to proceed with these schemes and how to implement them is a major policy decision for the new government. If nothing is done, farm size will increase, and many rural households will become landless. The members of many of these households may migrate to cities or, if alternative employment sources including manufacturing continue to languish, leave Myanmar altogether.
3. Many other policies and investments could support agriculture and help to make medium-size farms productive and viable. Some of these are modest in cost and could benefit farmers quickly. Others would take more time and money. An integrated approach, sensitive to regional differences, should be developed to improve agricultural output and farm and rural household incomes.
4. A combination of bad weather and higher paddy support prices in Thailand *may* result in much higher world rice prices. This possibility needs to be monitored—above all for its effect on urban consumers and the rural landless and land-poor—while other policy changes are being made.

Appendix A: Prior Ash Center Reports on Myanmar

An Assessment of the Myanmar Agricultural Economy (2009)

In January 2009, a team from the Ash Center for Democratic Governance and Innovation at the Harvard Kennedy School, International Development Enterprises (IDE), and the Ministry of Agriculture and Irrigation of the Union of Myanmar conducted a humanitarian assessment of food production and the agricultural economy in Myanmar. Since rice is the country's staple crop, the team focused on paddy production and conducted fieldwork in cyclone-affected areas of the Ayeyarwady River Delta and in Upper Myanmar. The authors concluded that paddy output was likely to drop in 2009, potentially creating a food shortage by the third quarter. Myanmar's rural sector was stretched to the breaking point and the natural resilience that had sustained it was leaching away. The paper recommends a set of interventions to avert this looming crisis: 1) an increase in credit for farmers and other participants in the rice economy including traders and millers, 2) steps to increase the farm gate price of paddy in order to create an incentive for farmers to produce more paddy, and 3) a program to finance small-scale village infrastructure projects to increase demand for wage labor for the rural poor who are most at risk.

Revitalizing Agriculture in Myanmar: Breaking Down Barriers, Building a Framework for Growth (2010)

In this report, the team from the Ash Center for Democratic Governance and Innovation at the Harvard Kennedy School examines approaches to the revitalization of Myanmar's agricultural sector. The report argues that the long-term trend in *per capita* rice production is adverse and that the reform and revitalization of agriculture requires significant changes in policies, including better seeds, certified fertilizer, lower port cost, and more irrigation and rural road investment. The report notes that those changes alone would not be sufficient to bring about the rapid reduction of poverty in Myanmar. That latter goal would require the stimulation of non-farm sectors, so that they could absorb labor leaving agriculture. Without measures to stimulate those sectors, farm size would fall, landlessness would increase, and pressure on natural resources would intensify. This research effort was conducted in partnership

with, and with funding from, Proximity Designs (formerly IDE Myanmar)—a Myanmar social entrepreneurship organization.

The Myanmar Exchange Rate: A Barrier to National Strength (2011)

Research carried out during a June 2011 trip to Myanmar brought to light the increasingly crippling effects of the national currency's overvaluation combined with 15 to 20 percent annual rates of inflation over the past five years. This report describes the adverse consequences of the overvalued exchange rate on Myanmar's export competitiveness, employment, economic growth, and efforts to reduce poverty. Not only do enterprises have little incentive to expand their capacity, but many enterprises face the prospect of closure. Left unattended, the situation increases the likelihood of greater foreign control of Myanmar's productive assets, including land and firms, and of the increasing concentration of wealth. The authors identify the major causes for the overvaluation of the kyat, including the failure to unify the exchange rate, auctions of state land and firms, informal speculative capital inflows attracted by the high interest rates offered by Myanmar's banks, sales of high volumes of jade and other precious stones, and Myanmar's growing exports of natural gas. The report suggests a number of measures that would address the problem and benefit the national economy, with an emphasis on unifying the exchange rate and aiming for a stable and realistic rate, and on central bank intervention to achieve this goal.

Endnotes

1. The new government in Thailand intends to support the paddy price at a level which makes the projected Thai rice export price \$700–\$800 a ton. Rice from Myanmar normally sells at a 20–30% discount to Thai rice.
2. If real GDP grew nearly as fast as 10% a year as official data report, and if income equality improved as the Household Survey found, then the share of food in consumption should have fallen sharply. Instead, it rose. A rise is consistent with lower, not higher real incomes.
3. Official GDP growth data of 10% per year are almost certainly overstated. Energy use suggests real GDP growth of roughly 2.5%–3.5% a year since 2000. This would be perhaps 0.5% to 1.5% per year in terms of real per capita average growth. Shifts in income distribution would make the gains (or losses) for particular groups different from the average. A study of Indian pulses (http://agecon-search.umn.edu/bitstream/57823/2/2003_agboladamoense.pdf) found a low and insignificant price elasticity of demand for total pulses, but rice price elasticities are in the 0.2 to 0.6 range, depending on the country, income group and time period studied.
4. The other possibility is that domestic paddy prices fall even further to allow exports at the current exchange rate and world rice price. This would depress planting of summer paddy and reduce the 2011–2012 rice crop. It should be noted that the July 2011 issue of Rice Outlook (U.S. Department of Agriculture) projects 700,000 tons of rice exports in 2011, up from 445,000 tons in 2010. It is not clear if they fully incorporated recent exchange rate developments into that projection.
5. A separate short paper evaluating the Integrated Household Living Survey was provided by the team to Proximity. It found a high technical level of analysis but doubtful findings.
6. The concentration of land in Myanmar resulting above all from foreclosures during the Great Depression of the 1930s was largely reversed by policies introduced early in the post-1962 Socialist Period.
7. This alternative might be attractive to donors who could work through groups such as Proximity, which has had successful experience in setting up self-sustaining village rice tiller committees. It is direct to the farmers and self-limiting in cost and administrative burden.
8. The 2010 Survey found 30% of farm households owed money. Team visits suggested a higher fraction, certainly well over one-half, owed substantial amounts. The earlier survey (2004–05) found 48% were in debt.
9. There is currently a substantial effort to promote Chinese hybrid rice seeds. These seeds, which have to be purchased anew each planting season, are more expensive for the farmer (unless subsidized) but promise to yield more if inputs are well controlled. In Myanmar they would mostly be well used in the Dry Season in some areas.

10. Most successful Asian nations opted for land reform and medium-sized, owner-operator farms rather than the absentee or large landowner model (often with crop sharing) that marks much of the Indian sub-continent.
11. This refers to the market exchange rate. The official exchange rate has remained around 5–6 kyat per dollar but is not used for most private export or import trade or capital flows.
12. An in-depth discussion of exchange rate issues can be found in a companion paper, “The Myanmar Exchange Rate: A Barrier to National Strength” (Draft, June 22, 2011) by the same authors.
13. Notice that the exchange is reflected here in the price of paddy rather than as an explicit calculation. This analysis also allows for the dollar export price of rice to reflect actual values, multiplied by the actual exchange rate.
14. Of course, such a price decline should reduce rice prices and help those who buy rice. These prices may not apply in remote areas or during the period just before harvest when hunger is most acute. There is also a habit of trading up or down in rice quality as prices drop or rise, rather than greatly changing quantities. This is one reason why the estimates of rice supply are relatively flat in recent years and may still match rice demand.
15. This is a significant assumption—imports should be cheaper and inflation lower with a stronger kyat, but various policies, inefficiencies, and monopolies in the Myanmar economy may serve to limit the downward flexibility of prices when the kyat strengthens. One further puzzle is that many imports have risen in price even as the kyat has strengthened. More research is needed, but much higher world prices for these goods in dollars may be one reason for this puzzling trend.
16. Inflation in Myanmar has been high because there has been a large fiscal deficit financed primarily through money creation. Controlling inflation would require reducing this deficit or using bonds sold to the non-bank public with interest rates above the inflation rate to fund any deficit. Ensuring bank deposit rates are higher than inflation rates would also be helpful.
17. In a classical economic model, wages and prices are fully flexible and the exchange rate can be set at any level. However, estimates of Myanmar workers abroad at 4 to 6 million imply an effective floor beneath nominal wages and prevent the classical model from working in this case. Lower wages create migration. The low number of young farmers implies this. This is one reason why an exchange rate around 1000 (not 700) kyats to the dollar is suggested.
18. The July 2011 Rice Outlook from the U.S. Department of Agriculture sees record high production and trade levels for world rice in 2011–2012. Reduced U.S. output is offset by gains elsewhere. However, they do note rising rice prices from January to July 2011.
19. Proximity re-taught an old trick, well known to old Ministry of Agriculture agents, of soaking rice (paddy) seeds in saltwater and using only seeds that did not float. This alone increased yields by 10–15%!