



# MYANMAR

STRATEGY SUPPORT PROGRAM | WORKING PAPER 42

AUGUST 2023

## Livelihood Resilience and The Agrifood System in Myanmar:

### Implications for Agriculture and a Rural Development Strategy in a Time of Crisis



**USAID**  
FROM THE AMERICAN PEOPLE



**FEED THE FUTURE**  
The U.S. Government's Global Hunger & Food Security Initiative

---

## CONTENTS

Abstract .....	3
1. Introduction .....	4
2. From Transient Shocks To Humanitarian Crisis .....	4
2.1 Poverty and Food and Nutrition Insecurity .....	5
2.1.1 Poverty, Employment, Household Assets, and Resilience Indicators.....	5
2.1.2 Spatial, Income, And Demographic Dimensions of Food and Nutrition Insecurity .....	7
2.1.3 Conflict, Displacement, and Migration .....	8
2.1.4 Food Vendors and Food Price Inflation .....	8
2.2 Farm Production .....	9
2.2.1 Crop Production .....	9
2.2.2 Livestock and Fisheries .....	10
2.3 Post-Farm Processing and Distribution.....	10
3. Short-Term Interventions To Mitigate Increasing Food And Nutrition Insecurity.....	11
3.1 Support to Mechanization Access.....	12
3.2 Support to Quality Seed Availability .....	12
3.3 Support to Community Extension Services .....	12
3.4 Promotion of Small-Scale Livestock Production and Homestead Gardens .....	13
4. Longer-Term Investments And Policies To Drive Long-Term Recovery And Economic Growth	13
4.1 Agricultural Value Chain Competitiveness .....	13
4.1.1 Priority Value Chains for Future Investment .....	13
4.2 Agricultural Productivity .....	14
4.2.1 Transport Infrastructure .....	15
4.2.2 Bilateral and Regional Trade Policies .....	15
4.2.3 Land Tenure and Land Use Sustainability .....	15
4.3 Climate Change Adaptation .....	16
References .....	17

## FIGURES

Figure 1. Changes in urban and rural nominal income distributions and poverty lines .....	6
Figure 2. Food consumption and adult dietary diversity scores, Q4 of 2022.....	7
Figure 3. Percent change in cost of healthy and common diets, between March 2022 and February 2023 .....	8

## ABSTRACT

Myanmar's agrifood system has proven surprisingly resilient in the face of multiple crises—COVID-19, the military coup, economic mismanagement, global price instability, and widespread conflict—with respect to production and exports. Household welfare has not been resilient, however. High rates of inflation, especially food price inflation, have resulted in dietary degradation across all household groups, especially those dependent on casual wage labor. Among household members, young children experience the highest rates of inadequate dietary quality. Expanded social protection to improve access to better-quality diets for vulnerable households and individuals is therefore needed. Beyond the current political crisis, increased public and private investment in a more efficient and dynamic agrifood system should be a high priority. This will help drive down poverty rates and ensure access to healthy diets in the near term, while laying the foundation for sustained growth and structural transformation of the economy.

# 1. INTRODUCTION

Myanmar's agrifood system is of critical importance for the near-term survival and longer-term flourishing of its diverse population. Prior to recent crises, the food system accounted for almost half (47 percent) of Myanmar's GDP and almost two-thirds (64 percent) of employment, while primary agriculture accounted for 22 percent of GDP and 49 percent of employment (Diao et al. 2023). Given its central role in the economy, development partner support for the agrifood system is an important way to reduce the widening gap between humanitarian assistance needs and available resources, and to strengthen food and nutrition security in areas where such assistance cannot be delivered.

This paper provides a synthesis of findings from a conference held in Bangkok at the end of May 2023 entitled "Myanmar's Agrifood System: Assuring Resilience to Adversity".<sup>1</sup> The purpose of this synthesis is to provide 1) an in-depth analysis of the agrifood system and the growing food and nutrition insecurity situation driven by conflict and policy failures, and 2) implications for an agricultural and rural development strategy to mitigate the crisis.

We first review the trajectory of the agrifood system through multiple economic shocks, from the onset of COVID-19 in early 2020 through to the end of 2022, prior to identifying the types of assistance needed to mitigate widespread food and nutrition insecurity. We also identify longer-term investments and policies required to enable the agrifood system to drive long-term recovery and sustainable economic growth once a resolution to the current conflict is achieved.

## 2. FROM TRANSIENT SHOCKS TO HUMANITARIAN CRISIS

This section reviews the trajectory and outcomes of successive economic shocks for three overlapping groups of agrifood system stakeholders: consumers, farmers, and intermediary value chain actors.<sup>2</sup>

Beginning in March 2020, transportation restrictions to curb the spread of COVID-19 caused significant disruptions throughout Myanmar's food supply chain. During the first wave of the pandemic, these restrictions were often uncoordinated at the local level, hindering deliveries of agricultural inputs ahead of the monsoon planting period. Input retailers reported longer lags on the delivery of fertilizer orders and mechanization service providers reduced the areas they serviced. Importantly, both sectors recovered quickly through a combination of business adaptations and less stringent travel restrictions. Monsoon crop production declined in some areas, partly because of irregular rainfall and pests, but, in aggregate, there were no clear signs of severe production declines for important crops. National production estimates for rice and pulses had declined by less than 4 percent in 2020 compared with 2019 and maize had increased by 2 percent (USDA 2021).

Although COVID-19 policy responses had minimal impact on production, there were widespread disruptions in crop trading (Boughton et al. 2021). Farmers faced challenges in marketing their harvests as crop traders had to contend with closed commodity exchange centers and border crossings. Supply chains adjusted, however, and bottlenecks diminished over time as domestic and international trade resumed. While commodity exchange centers were closed, crop traders relied on mobile phones to coordinate transactions and avoid violating curfews. Additionally, border gates temporarily reopened to exports, particularly for rice and maize. Ultimately, the prices for most commodities remained largely stable during the 2020 monsoon harvest period relative to previous years. Rice prices increased by 2 percent on average relative to 2019, while farmers benefited from a 5 percent average increase in prices for their monsoon paddy (Goeb et al. 2022). Lockdowns in

---

<sup>1</sup> The conference was organized by the International Food Policy Research Institute (IFPRI) in collaboration with the Asian Disaster Preparedness Center and funded by the United States Agency for International Development (USAID).

<sup>2</sup> Examples of overlap include farmers who are also consumers and undertake off-farm value chain activities such as trading.

urban areas were accompanied by only a modest increase of 3 percent in food prices for traditional food retailers in the major cities (Goeb et al. 2021). Rural food vendors also reported relatively small changes in food prices over that period (Boughton et al. 2021).

Shocks to the agrifood system since the February 2021 coup have been larger and longer-lasting than those posed by the first two waves of COVID-19. Initially, disruptions to the banking system related to an internet shutdown and widespread strikes to protest the military coup hindered transactions for all stakeholders, but especially for agribusinesses. Regular agrifood system monitoring surveys set up during COVID-19 and continued following the military coup found that 86 percent of rice millers, 57 percent of crop traders, and 41 percent of input retailers cited the banking sector as their largest disruption in the months following the military coup (MAPSA 2021a, MAPSA 2021b, MAPSA 2021c). Even more persistent and damaging, for all agrifood system actors, were high rates of inflation driven by depreciation of the Myanmar kyat compounded by increases in international prices for fuel and fertilizer.

Meanwhile, more than 60 percent of crop traders, agricultural input retailers, and rice millers reported increased transportation costs in March and April 2021. For crop traders, transportation costs increased by an average of 22 percent within their state or region and by 39 percent outside of their state or region. International commodity price increases, especially for fuel and fertilizer, following the Russian invasion of Ukraine drove inflation even higher (Diao et al. 2022). Ultimately, as we show below, inflation hit consumers the hardest.

## **2.1 Poverty and Food and Nutrition Insecurity**

This section examines in more depth the status and drivers of food and nutrition insecurity through the lenses of geography, incomes, and demographic factors, and finally examines the role of food price inflation as a key driver of recent increases in poverty.

### ***2.1.1 Poverty, Employment, Household Assets, and Resilience Indicators***

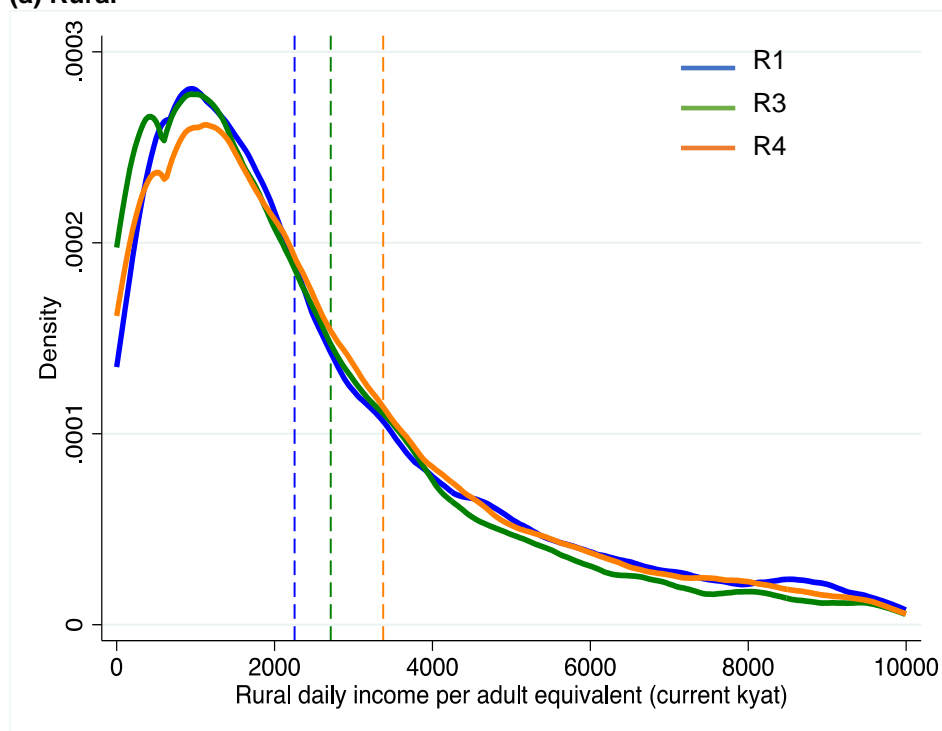
By December 2022, two out of every three people in Myanmar were estimated to be poor based on income poverty estimates, up from one out of every two households at the beginning of the year (MAPSA<sup>3</sup> 2023a). High rates of inflation—19.5 percent year-on-year in July 2022, according to the Central Statistical Organization (CSO MOPF 2022); the food price index increased by 49.7 percent between R1 and R4 of the Myanmar Household Welfare Survey (MHWS) rounds (52.4 and 43.8 percent in rural and urban areas, respectively) (MAPSA 2023a)—have a powerful impact on poverty rates in the presence of stagnant nominal incomes. Panel A of Figure 1 shows the income distribution and poverty lines for rural households over four MHWS rounds between December 2021 and December 2022; panel B shows the same information for urban households. Poverty lines are adjusted for cost of living using quarterly food vendor survey data for periods when CSO data are not available. The area under the income distribution to the left of the poverty lines represents the share of population that is poor in each survey round. Panel A shows that, in rural areas, the distribution of nominal income changes very little over time; the change in the share of the population that is poor is linked almost entirely to inflation (the poverty line shifting to the right). In contrast, in urban areas (panel B), both the income distribution and the poverty line shift to the right in each round. Rising income initially tempered rising costs (between Rounds 1 and 3) resulting in only small changes in urban poverty (about 3 percent). However, between Rounds 3 and 4, the rightward shift in the urban income distribution does not keep pace with the 24.7 percent increase in the poverty line. Consequently, we see the largest increase in urban poverty (12.5 percent) between Round 3 and Round 4.

---

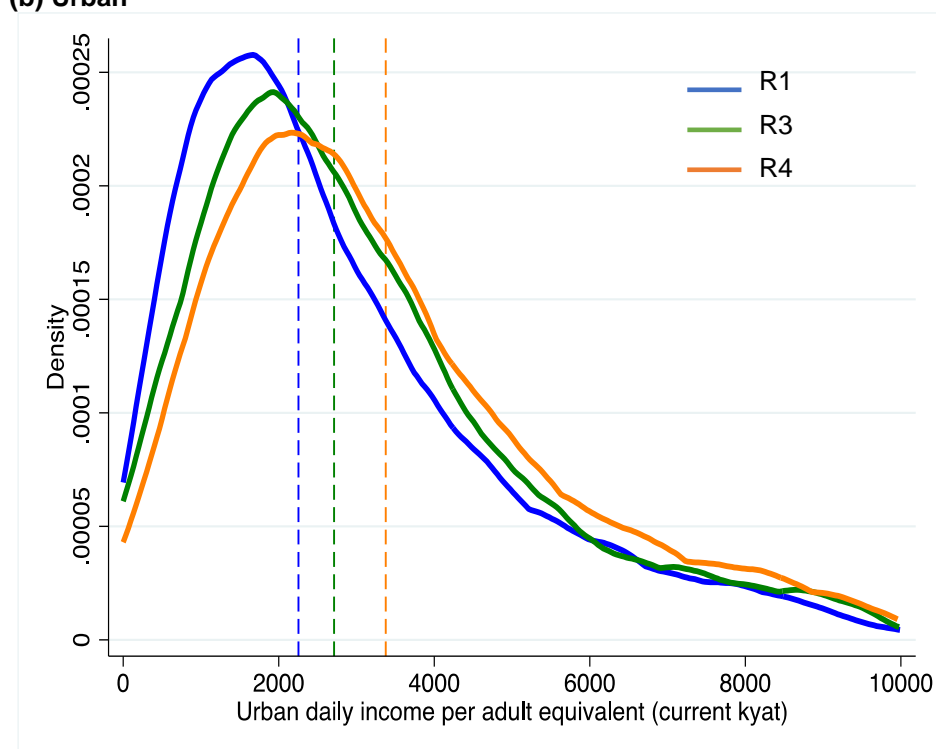
<sup>3</sup> Myanmar Agriculture Policy Support Activity (MAPSA)

**Figure 1. Changes in urban and rural nominal income distributions and poverty lines**

**(a) Rural**



**(b) Urban**



Source: MAPSA (2023a).

Notes: MHWS Round 1 = December 2021 to February 2022; Round 3 = July to August 2022; Round 4 = October to December 2022.

Round 2 not included to simplify the Figure as income distribution is similar for all four rounds in rural areas and poverty increased little between R1 and R3 in urban areas.

In terms of socioeconomic characteristics, households dependent on casual wages and asset-poor households were the most vulnerable. More than four out of five households used at least one coping strategy to meet daily needs during the month prior to interview (MAPSA 2023a). The most common coping strategies were spending savings and reducing food and nonfood expenditures.

Households in Kayah, Chin, and Sagaing—the states and regions most severely affected by recent conflicts with the military regime—were most vulnerable. Perhaps unsurprisingly in view of the prolonged conflicts, nearly 80 percent of households in Rakhine were income-poor and mortgaged or sold assets as a coping strategy.

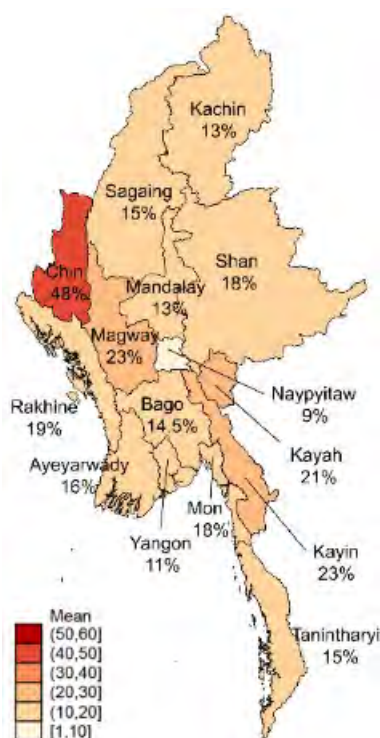
### 2.1.2 Spatial, Income, And Demographic Dimensions of Food and Nutrition Insecurity

Food and nutrition security deteriorated markedly in 2022 (MAPSA 2023b). The share of households with a low food consumption score increased from 9.4 percent to 15.7 percent during the year. Rural households were much more likely to have a low food consumption score compared with urban households (18 percent versus 10 percent). Low income and few assets are positively correlated with food insecurity and poor diet quality, with daily wage workers particularly vulnerable (MAPSA 2023c), while receiving remittances is inversely correlated with dietary inadequacy (MAPSA 2023a). As the left panel of Figure 2 shows, low food consumption was most prevalent in Chin (48 percent), Kayin (23 percent), and Magway (23 percent), all highly conflict-affected areas.

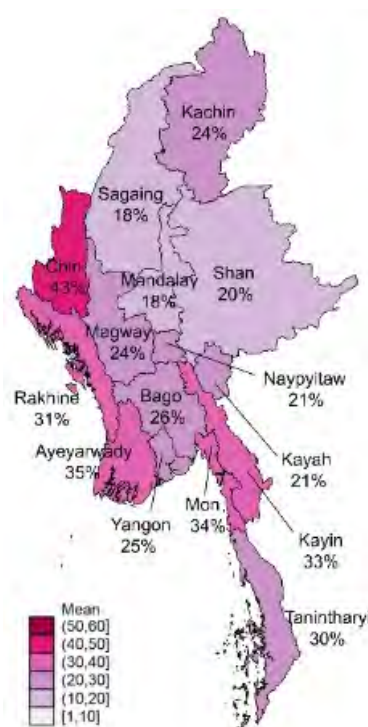
Inadequate diet diversity among adults increased from 21 percent to 25 percent during 2022. Rates were higher for women than men, and in rural compared with urban areas. As the right panel of Figure 2 shows, the highest rates of inadequate diversity were reported in Chin (43 percent), Ayeyarwady (35 percent), Mon (34 percent), and Kayin (33 percent). Decreases in diet quality among adults owed to lower consumption of milk and dairy products, vitamin A-rich fruits and vegetables, meat, fish, and eggs. More than a third of children ages 6–23 months and 15.9 percent of children ages 24–59 months have inadequate diet quality.

**Figure 2. Food consumption and adult dietary diversity scores, Q4 of 2022**

#### Food Consumption Score



#### Adult Dietary Diversity



Source: MAPSA (2023b).

Note: high values represent high prevalence of dietary inadequacy.



The prevalence of hunger remained relatively constant during 2022, at 4 percent of households, with higher levels in Chin (10 percent), Mon (7 percent), and Rakhine (6 percent). Asset- and income-poor households were more likely to experience moderate to severe hunger.

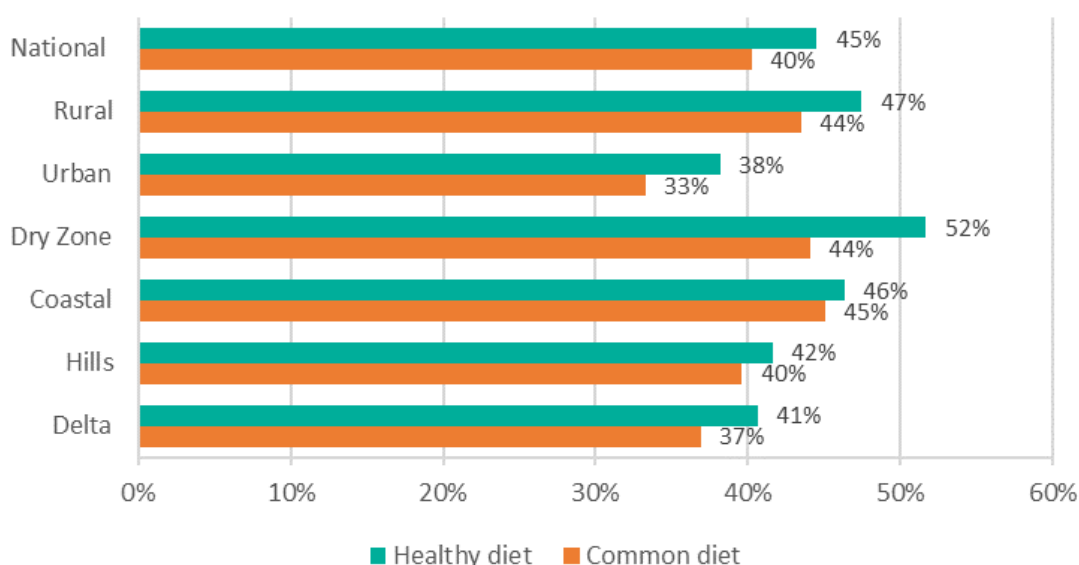
### 2.1.3 Conflict, Displacement, and Migration

The number of internally displaced persons (IDPs) increased by 1.6 million in the two years following the coup of February 2021 (UNHCR 2023). More than half this number came from Sagaing Region. While migration was already high before the coup, the number of migrants during the 18-month period between December 2021 and June 2022 was estimated to be almost 3.6 million in the MHWS (MAPSA 2022a). Approximately one in six Myanmar households saw a member leave over this period, and 7.3 percent of households migrated as an entire unit (accounting for approximately half of all migrants). Two-thirds of those who migrated sought better employment opportunities but only about half were able to improve their income, implying that their vulnerability may have increased (at least temporarily) as a result. While conflict is also an important driver of migration (along with poverty), it is difficult to estimate the overlap between the number of IDPs and the number of migrants, owing to missing panel data observations in the MHWS. As reported below, widening conflict also affected productivity and retail distribution margins in the rice sector (MAPSA 2023c; Minten et al. 2023).

### 2.1.4 Food Vendors and Food Price Inflation

While the incidence of hunger and degradation of diet quality is an area of concern, especially for women and young children, it is surprising that the situation at the end of 2022 was not worse given the level of food price inflation. The cost of both common and healthy diets (the latter comprising higher calorie shares of protein-rich foods, fruits, and vegetables relative to rice and vegetable oils) rose 45 and 40 percent, respectively, over the 12-month period ending February 2023, while the price of rice increased by 62 percent (MAPSA 2023d). Protein-rich dietary components also increased in price over this period: eggs by 67 percent, chicken by 50 percent, and pork by 20 percent. Figure 3 shows the spatial pattern of dietary cost changes. Increases were higher in rural areas compared with urban areas, and higher in conflict areas, consistent with spatial patterns of dietary degradation.

**Figure 3. Percent Change in cost of healthy and common diets, between March 2022 and February 2023**



Source: MAPSA (2023d).



Increases in food costs outpaced changes in wages. The food purchasing power of daily wages received by construction and agricultural wage laborers declined by 25 percent and 28 percent, respectively, over 2022 (MAPSA 2023d). As food grew increasingly unaffordable for wage earners, especially in rural areas, where dietary cost inflation was higher, households dependent on daily wages as their main income source became one of the most vulnerable household groups. While the relative decline in purchasing power is the same for male and female workers, the significantly lower wages paid to women further compromise food purchasing power for their families.

In the near term there is no reason to expect food prices to become more affordable. In July 2023, rice prices reached their highest level in 15 years following India's rice export ban and the potential impacts of El Nino. Prices for rice in Myanmar are rising even faster than international prices due to continued depreciation of the Myanmar kyat, reaching 3,400 MMK per US dollar on parallel markets following recent additional sanctions on Myanmar government banks.

## **2.2 Farm Production**

This section examines the trajectory of the supply side of the agrifood system. We first look at farm-level production and follow this with off-farm components. The depreciation of the Myanmar kyat and increases in international prices for fertilizer and other chemical inputs have had a major impact on farm input costs. For export-oriented crops such as rice and pulses, higher costs have been offset by higher farm output prices, albeit with a time lag. Transmission of price increases to the farm level has nevertheless been dampened by widening marketing margins and distorted by unpredictable exchange rate regulations facing Myanmar traders. The situation for farmers producing for the domestic market has been less favorable because of the reduction in consumer purchasing power. The rapid expansion of conflict and insecurity in rural areas, especially in the Dry zone, has further undermined the ability of farmers and traders to adapt to a complex market environment.

### **2.2.1 Crop Production**

Rice is a key crop, given its high share of agrifood system GDP (25.8 percent), its role in domestic consumption (half of all urban and 62 percent of rural calories consumed), its importance for employment generation on-farm and downstream in rice milling, and export earnings (Minten et al. 2023). For rice, we consider the response of farmer decisions to changes in input and output prices separately for the monsoon and post-monsoon seasons: improved water control and higher sunshine hours during the post-monsoon allow for the cultivation of higher-yielding varieties, with greater control in crop management operations compared with in the monsoon season.

Input and output prices changed dramatically between the 2021 and 2022 post-monsoon rice production seasons (MAPSA 2022a). Urea fertilizer prices increased by 50 percent and tractor plowing services by 29 percent. Farmers adapted to these higher costs by increasing average total farm expenditure on inputs, which rose by 15 percent, and reducing urea application by 10 percent. Despite the reduction in fertilizer use, yields were very similar in both years. In contrast with 2021, when monsoon paddy prices were almost unchanged on the previous year, farmgate paddy prices increased by 42 percent in 2022. Overall, the profitability of post-monsoon rice production had improved in 2022 compared with the previous year.

A similar pattern is observed for pulse crops, which are also grown primarily in the post-monsoon season and for which there is strong export demand. Compared with 2021, farmers had increased input expenditures by 11.5 percent averaged across all types of pulse crop, yields were similar, and output prices had increased by 34 percent and gross margins by 44 percent.

Rice productivity at the national level decreased on average by 7.5 percent during the monsoon of 2022 compared to the monsoon of 2021. The lower productivity is mostly explained by adverse weather conditions, with negative impacts of droughts during the monsoon of 2022. Lower input use

and other factors - such as increased insecurity - played an important role as well. Rice yields were lowest in Kayah and Chin, two conflict-affected states. Combined with cultivated area reductions, it is estimated by ADPC (2023) that total paddy production during the monsoon of 2022 was 13 percent lower than in 2021. Prices for most inputs used in rice cultivation increased significantly between these two seasons but paddy prices increased by 81 percent, reflecting changes in international rice prices as well as the depreciation of the MMK. While nominal profits for rice farmers increased by 95 percent over the last two seasons, price inflation has been high in the country and real profit increased much less. Real – in terms of the cost of an average food basket – profits from rice farming during the monsoon of 2022 increased by 26 percent and 10 percent compared to the monsoon of 2021 and 2020 respectively.

The impact of the widening conflict on rice production is difficult to observe directly. Farmers in communities experiencing conflict are often unable to respond to phone surveys. Nevertheless, even the spillover effects on nearby communities appear significant. Increases in fatal violent events between 2020 and 2021 reduced Total Factor Productivity—a measure of the overall efficiency of all inputs used to produce rice—by about 4 percent on average in the short run (MAPSA 2023c).

### **2.2.2 Livestock and Fisheries**

Prior to the COVID-19 pandemic and the coup, Myanmar's poultry, pig, and aquaculture sectors were growing rapidly and transforming, particularly in the peri-urban zones around major cities. The dynamism evident in these sectors corresponded with a period of rapid economic development that spurred rising real incomes and domestic urban demand for animal-source foods. Production growth was also supported by large foreign and domestic investments in sectors like feed milling, as well as by the investments of small and medium enterprises (SMEs) such as traders, which also grew rapidly during this period (Fang et al. 2018).

Movement restrictions during the earliest stages of the COVID-19 pandemic disrupted supplies of production inputs and the distribution of livestock and fish products to market but, similar to crop farming, these logistical issues were overcome relatively quickly. Longer-lasting impacts were felt in the form of depressed consumer demand caused by the economic downturn associated with the pandemic. This trend was intensified by the coup and inflationary pressures, which contributed to substantial reductions in demand for and consumption of nutrient-rich foods, including fish and livestock products. Reduced demand was transmitted upstream along livestock and fish supply chains, resulting in high levels of temporary or permanent closure among operations such as peri-urban broiler farms (Fang et al. 2021). However, the income elasticity of animal-source foods means that demand could rebound quite quickly if economic conditions improve in future, prompting remaining producers to scale up production or stimulating investment by new entrants.

Capture fishing activities are very important for livelihoods in coastal areas of Myanmar and the Ayeyarwady Delta. However, they face serious governance challenges and unsustainable levels of resource exploitation that require a shift from strategies that favor resource extraction in the short term to those promoting long-term stewardship.

## **2.3 Post-Farm Processing and Distribution**

Rice milling is the largest agrifood processing sector in Myanmar, with an essential role in enabling consumers to access the major source of their calories. The widespread disruption of the banking system following the coup, for online and in-person transactions, was the most important source of business difficulties for 90 percent of millers (Minten et al. 2023). Although milling margins (the “wedge” between the paddy purchase price and ex-mill rice sales price after accounting for byproduct value) remained stable, the rising costs of transportation due to increasing international prices for fuel and depreciation of the Myanmar kyat resulted in a widening gap between mill and retail vendor

prices over time. Incidence of violent events increased the gap still further. The economic welfare cost of market disruptions to farmers and consumers was approximately \$500 million over a year (Minten et al. 2023). Introduced in 2022, the mandatory conversion of a (varying) share of foreign currency earnings from rice exports at the overvalued official exchange rate has had the same effect as a tax on paddy prices, imposing additional welfare costs on farmers.

The disruptions in the banking sector, rising transportation costs (up 63 percent in August 2022 compared with a year earlier), and exchange rate regulations inevitably affected crop traders broadly (MAPSA 2022e).<sup>4</sup> Trader margins increased because of higher transport costs but fell as a percentage of (higher) crop buying prices, indicative of competitive market conditions. Rice millers faced additional challenges from frequent and prolonged energy shortages, resulting in higher milling costs for mills using diesel generators and contributing to a 20 percent reduction in throughput in August 2022 compared with a year earlier; milling margins increased 40 percent over the year (MAPSA 2022f).

For lower-middle-income countries like Myanmar, expenditures on convenience foods and food consumed away from home typically have high price and income elasticities relative to unprocessed or minimally processed staple foods. Such expenditures rise quickly with urbanization and income growth but can also contract sharply if real incomes fall, as was the case in 2022.

To conclude this section, we note that, for consumers, rapid inflation has been the most important factor driving recent increases in poverty and food insecurity. For farmers, soaring increases in the cost of fertilizer and other chemical inputs have made it difficult to maintain yields, while conflict and rising mechanization costs may have resulted in a decrease in cropped area. Recent increases in farm output prices have offset increases in input costs to an extent. Unfortunately, high levels of inequality in land access dampen the impact of output price increases on poverty among the farming population.

The combination of rising transport costs, widening conflict and insecurity, and electricity shortages has increased the marketing margins between farmers and consumers or buyers. Exporters have had to contend with frequently changing central bank regulations concerning which currencies can be used for trading and what share of earnings must be converted at the overvalued official rate. In terms of ability to adapt, traders and processors in export-oriented sectors appear most resilient to these shocks, at least in the short run, while consumers are the most seriously affected. Farmers have also borne significant welfare losses due to higher marketing costs and additional price uncertainty due to export regulations.

We now turn to the implications of agrifood system challenges for agricultural and rural development strategy in the short and longer term.

### **3. SHORT-TERM INTERVENTIONS TO MITIGATE INCREASING FOOD AND NUTRITION INSECURITY**

Food and nutrition insecurity is a growing threat due to high food inflation and limited consumer purchasing power. As international rice prices continue to climb, reaching their highest level in 15 years in early August 2023, and the Myanmar kyat continues to depreciate, domestic rice prices will increase further. Given that markets for food in Myanmar are accessible and functioning for most consumers, increasing the purchasing power of poor households through cash transfers is likely to be the most effective way to mitigate food and nutrition insecurity in the near term. Given very limited food assistance resources, it will be important to carefully target the most vulnerable groups, such as

---

<sup>4</sup> The requirement to convert a share of export proceeds applies to official exports of all crops (for example, pulses and beans, maize, sesame). In addition to being an indirect tax on farmers, the requirement creates additional incentives for informal border trade.

households with pregnant or nursing women, multiple young children, or adolescent girls, and/or households dependent on daily labor (MAPSA 2023d).

Nutrition education can improve the effectiveness of food assistance and help households use their limited purchasing power more effectively. Nutrition education for pregnant and nursing mothers and mothers with young children should be provided either in combination with cash transfers as well as a separate intervention for non-targeted poor households. Expanded consumption of pulses could help maintain dietary diversity in the face of decreases in consumption in animal sourced foods. Rice fortification in collaboration with the private sector, whether using commercial channels or food assistance, could help address micronutrient deficiencies in the diets of poor people broadly.

Given the important role of remittances in household resilience, support to legal migration and “wrap-around” services in receiving countries could also help mobilize resource flows. These services could include ensuring correct documentation; access to microfinance for small businesses; and provision of tools or equipment, vocational skills upgrading, and health and childcare facilities.

Support to primary agriculture will also help mitigate food and nutrition insecurity, especially for smaller farmers who depend on their farming activities for a significant share of household food consumption (whether through direct consumption or market exchange). Although farmgate prices for tradeable commodities like rice, pulses and oilseeds have improved, farmers still face very significant constraints to input access and affordability. This is especially true for inputs with a high import content, such as mechanization services and chemical inputs, due to foreign exchange shortages and rationing through import permits. Specific intervention opportunities include the following.

### **3.1 Support to Mechanization Access**

Access to mechanized land preparation and harvesting services is important for farm productivity in the face of growing labor constraints. Timely planting reduces flooding risk in the monsoon season and increases the effective growing season for crops grown on residual moisture in the post-monsoon, especially pulses. Combine harvesting reduces the risk of crop loss through late rains and/or shattering (when grain is knocked out of over-ripe ears during harvesting). Access to these services is threatened by lack of working capital and availability of spare parts for SME service providers. Assistance in the form of capital loan restructuring and/or working capital loans could help struggling SMEs to maintain service provision to farmers. Development partners should also work closely with machinery suppliers to ensure availability of critical spare parts and training for repair shops.

### **3.2 Support to Quality Seed Availability**

Access to quality seed is an increasing problem, especially in areas affected by Cyclone Mocha and in conflict areas where seed stocks have been destroyed. NGOs can contract with community seed producers (farmers who are entrusted by their local communities to produce good quality seed) to access and/or select seed of varieties with appropriate growing characteristics and of high quality and multiply it for use locally or for distribution in disaster-affected areas.

### **3.3 Support to Community Extension Services**

Strengthening access to extension information through community extension workers (linked to subject matter specialists and/or service providers using mobile phone services) can help farmers use chemical inputs more efficiently and expand use of biological inputs. This is especially important as, faced with higher costs and limited budgets, farmers may be tricked into using chemical fake products or products of low efficacy. Again, NGOs can contract with community extension workers

trusted by the community as government extension workers are often unable to travel to villages and/or may not be trusted.

### **3.4 Promotion of Small-Scale Livestock Production and Homestead Gardens**

Small-scale livestock such as poultry, ducks, dual-purpose goats, pigs as cattle, as well as small fishponds, can greatly improve dietary diversity. Small scale vegetable gardens are complementary to small-scale livestock products for human nutrition, and compost from manure can be used on vegetable gardens. Backyard production systems are suitable interventions for landless or peri urban households as well as smallholder farmers and near landless households. Grown animals can be a “bank account” and sold as a coping strategy in time of stress.

Yet many households face barriers to access to vegetable seed and / or young animals for rearing. NGOs and community extension workers can play an important role in ensuring access to healthy young stock (chicks, piglets, calves, fingerlings) by working with farmers owning breeding stock and training in housing and rearing practices.

## **4. LONGER-TERM INVESTMENTS AND POLICIES TO DRIVE LONG-TERM RECOVERY AND ECONOMIC GROWTH**

Prior to the military coup, the process of structural transformation of the agrifood system was constrained by lack of investment in drivers of productivity growth such as infrastructure and agricultural research. The surge in poverty and food insecurity since the coup has highlighted additional vulnerabilities to economic shocks that may have been masked by the rapid decline in poverty headcounts during the two decades preceding 2020. For example, close to 40 percent of households in the main farming areas are landless, while the distribution of land among farm households is highly skewed (the smallest 70 percent of farm holdings average just 2 acres). A high proportion of rural households are therefore dependent on daily wages to meet their needs and, like urban casual laborers, are among the most severely affected by the economic turbulence that has followed the coup. It is therefore important to identify ways in which livelihoods can be made more resilient if a resolution of the current political crisis is to allow economic recovery to begin. This section highlights key investments and policies to ensure that the potential contribution of Myanmar’s agrifood system to economic recovery and broad-based, sustainable growth over the longer term is realized.

### **4.1 Agricultural Value Chain Competitiveness**

Competitiveness, a key driver of growth, refers to the ability of actors in a specific value chain to deliver products in the desired form with required quality attributes to domestic and international consumers at lower cost than from alternative sources. Investments in productivity, quality, and logistics (wholesale markets, cold chains, transport infrastructure) can all improve competitiveness. Given limited investment resources, however, it is important to identify those value chains with the most potential for future growth and improved poverty, food security, and nutrition outcomes. This section first identifies priority value chains for dietary quality and poverty reduction and then proceeds to identify necessary investments and policies to resolve constraints to competitiveness.

#### **4.1.1 Priority Value Chains for Future Investment**

Diao et al. (2023) ranked value chains according to their potential contribution to poverty reduction, hunger reduction, diet quality, employment creation, and GDP. The top five are:

1. Horticulture (scores highly on all criteria)



2. Livestock (dietary quality, growth, and poverty reduction)
3. Oilseeds (diet quality and poverty reduction)
4. Rice (growth)
5. Fish (dietary quality, growth, and poverty reduction)

These five value chains accounted for 84 percent of agricultural GDP in 2019, indicative of their potential for broad-based impacts on the agrifood system. Improvement in these value chains, especially higher productivity on farm and through value-added processing, can spur agrifood system growth and poverty reduction in all major agroecological zones of Myanmar. This is an important consideration given the large numbers of IDPs to be resettled in addition to returning migrants once the current crisis is resolved. It would also enable the agrifood system to respond to consumer preferences for a diversified diet at lower cost. The ranking confirms that the shift in emphasis from a rice-centric to a diversified agricultural strategy (Myanmar, MOALI 2018) prior to the coup was correct.

## 4.2 Agricultural Productivity

Slow growth in primary agriculture productivity has been a drag on agrifood system growth overall and farm incomes. Crop yields in Myanmar are among the lowest in the region and showed no improvement in the decade prior to the coup. Investment in agricultural research was minimal compared with that of regional peers, and adoption of improved varieties and access to quality seed are low. Poor genetic material in turn limits the returns to improved crop management and chemical input use. Investment in an upgraded and decentralized agricultural research and extension system, and increased access to quality seed through local SMEs, is essential to provide a foundation for farm productivity growth in crop subsectors. To measure progress in adoption and productivity growth, new systems for generating agricultural statistics will also be necessary.

Upgrading of irrigation infrastructure is essential for productivity gains and diversification into higher-value crops. Existing public irrigation services focused on rice were designed to flood large plots, giving individual farmers very little control over water management and no incentive to conserve it. Private irrigation systems designed to exploit groundwater reserves have been promoted without regard for recharge capacity, resulting in overexploitation in some areas while others are underutilized. A comprehensive irrigation water management policy and investment strategy will be necessary to facilitate diversification into higher-value and more productive cropping systems, enabling farmers more autonomy in water management and incentives for its conservation.

Expanded access to mechanization services over the decade prior to the coup was a game changer for farmers. Access to mechanical land preparation and combine harvesting dramatically reduced labor requirements and allowed greater timeliness in planting and harvesting, thereby increasing yields and avoiding harvest losses. The mechanization revolution was also largely scale-neutral, as smallholder farmers could access services from private service providers. Recent evidence indicates that the farm equipment stock of these providers is eroding because of lack of investment, making it harder for smallholders to obtain timely service (MAPSA 2023c). Early re-capitalization of the machinery SME sector through finance guarantees will be necessary to facilitate rapid recovery.

In addition to investment in irrigation and mechanization services, expanded and modernized private financial services will be needed to facilitate diversification into high-value enterprises such as horticulture. This includes investment in grading, packaging, and cold chain facilities, as well as processing facilities for production beyond the absorption capacity of the fresh market.

### ***4.2.1 Transport Infrastructure***

Lack of road infrastructure is a major constraint to the competitiveness of Myanmar products and reduces the share of terminal market value earned by farmers. Approximately 40 percent of the rural population lacks access to all-season roads (World Bank 2020), and more than 9 million people live in villages with only tracks to connect them to a road of any quality (ADB 2017). Transport costs for farm inputs and products soar under these conditions, farm commercialization is limited, and diversification into higher-value perishable products is often infeasible. Myanmar ranks 137 out of 160 countries in terms of logistics performance, while peer countries in the region rank between 26 and 44 (Arvis et al. 2018). Reducing the high costs of market access will benefit farmers and consumers by encouraging diversification and reducing the “wedge” between farmgate and retail prices.

### ***4.2.2 Bilateral and Regional Trade Policies***

Export markets are important for agricultural value chains that can drive growth and poverty reduction. In the past, unpredictable trade policies implemented by Myanmar’s large neighbors have resulted in uncertain market access, large swings in prices, and limited opportunities to add value. Pulse exports to India are a “poster child” example, with India imposing a variable quota regime according to its domestic supply situation and capturing all added value beyond basic sorting and grading. Consequently, pulses are a gamble for Myanmar farmers, and one worth taking only because of low costs of production and lack of alternatives. Exports of rice, maize, and melons to China have also faced frequent disruptions because of unpredictable border delays or closures and exporter registration requirements. Export market diversification could reduce risks for exporters, especially for perishable crops, with investment in product traceability and sanitary and phytosanitary systems.

### ***4.2.3 Land Tenure and Land Use Sustainability***

Inequality of access means that many rural households are highly dependent on casual labor and self-employment in small nonfarm businesses. Furthermore, the current system of laws concerning land remains multilayered, ambiguous, and unevenly enforced. This results in weak tenure security for farmers, particularly those working land without land use certificates, including land held under customary tenure. In addition, restrictions on the conversion of land designated for paddy cultivation to alternative uses such as aquaculture or permanent horticulture hinder diversification. The process for obtaining permission to change land use is complex, time consuming, and fraught with rent-seeking by local officials.

Improved land tenure security should ensure that women and youth are appropriately included in those changes. Land titling efforts should allow for and encourage the recording to both spouses’ names. This will also ensure that, when land titles are used as collateral for loans, both spouses give their consent to this. A revision of land policies should also facilitate young landless aspirant farmers becoming landowners.

The national land use policy framework developed with extensive participation by civil society under the Thein Sein administration (2011–2016) provides useful principles for correcting many of the flaws in the current system. Implementation of the framework stalled under the National League for Democracy-led government, and an amendment to the law concerning access to vacant land effectively disenfranchised users who did not register their rights within a short window of time. The translation of equitable and sustainable land use policy principles into federal legal frameworks backed by decentralized and predictable land administration services will require deep consultation with communities and de facto authorities in different regions of the country. These consultations should also cover the identification of land where formerly or newly landless IDPs and returning migrants can resettle. Provision should also be made for communities to benefit from carbon markets



in return for natural resource preservation or management improvements on land over which they have use rights.

### 4.3 Climate Change Adaptation

Myanmar's agrifood system is under threat from the effects of climate change and ranks among the three most vulnerable countries globally to extreme weather events (UNDRR 2015). Climate change is expected to bring increased difficulty and unpredictability to agricultural production in Myanmar. Its increasing effects will be reflected in higher temperatures, changing precipitation patterns, sea level rise, soil and water salinity, and increased risks of pests and diseases. In the absence of a strong national agricultural research system, climate change will result in even higher risks and losses for Myanmar's farmers. Beyond the farm, storage and logistics will be affected and price volatility is expected to increase.

Climate change adaptation will require ramped up application of GIS tools for spatial monitoring of land use, water tables, land suitability, and precision response systems. Moreover, in the face of more frequent shocks, flexibility in land use decisions will be essential to ensure sustainability of agricultural production in Myanmar. Priority areas for investment in climate adaptation and mitigation include research and development of climate-resilient, resource-efficient, and sustainable innovations in food systems, such as new crop varieties that better withstand droughts and floods, solar energy solutions for product storage, and improved digital technologies; holistic, inclusive governance and management of water, land, forests, and energy resources, including no-till farming, agroforestry, and landscape management; the promotion of healthy diets and increased sustainability of food production; and improved value chain efficiency and reduced food losses to help the agriculture sector adapt to some of the worst effects of climate change (IFPRI 2022).

## 5. CONCLUSION

Myanmar's agrifood system has proven surprisingly resilient in the face of multiple crises—COVID-19, the military coup, economic mismanagement, global price instability, and widespread conflict—with respect to production and exports. Household welfare has not been resilient, however. 1.6 million people have been internally displaced since the start of the coup. High rates of inflation, especially food price inflation, have resulted in dietary degradation across all household groups, especially those dependent on casual wage labor. Among household members, young children experience the highest rates of inadequate dietary quality. Expanded social protection to improve access to better-quality diets for vulnerable households and individuals is therefore needed.

Beyond the current political crisis, increased public and private investment in a more efficient and dynamic agrifood system should be a high priority. This will help drive down poverty rates and ensure access to healthy diets in the near term, while laying the foundation for sustained growth and structural transformation of the economy. Any new political administration wishing to govern Myanmar's agrifood system effectively will need to adopt decentralized approaches according to regional comparative advantages. This will require focusing on regional development strategies alongside supportive federal policies that address infrastructure, trade, and standards.

## REFERENCES

- ADB (Asian Development Bank). 2017. The status of infrastructure services in East Asia and the Pacific. Mandaluyong City, Philippines: Asian Development Bank.
- Asian Disaster Preparedness Center (ADPC). 2023. Rice Area and Production Estimates for the 2022 Monsoon Season. Mimeo.
- Arvis, J.F.; Wiederer, C.K.; Ojala, L.M.; Shepherd, B.A.; Raj, A.U.L.; Dairabayeva, K.S.; Kiiski, T.M.M. 2018. Connecting to Compete 2018: Trade Logistics in the Global Economy - The Logistics Performance Index and its Indicators. Washington, D.C.: World Bank. <http://documents.worldbank.org/curated/en/576061531492034646/Connecting-to-compete-2018-trade-logistics-in-the-global-economy-the-logistics-performance-index-and-its-indicators>
- Boughton, D.; Goeb, J.; Lambrecht, I.; Headey, D.; Takeshima, H.; Mahrt, K.; Masias, I.; Goudet, S.; Ragasa, C.; Maredia, M.K.; Minten, B.; Diao, X. 2021. Impacts of COVID-19 on Agricultural Production and Food Systems in Late Transforming Southeast Asia: The Case of Myanmar. *Agricultural Systems* 188 (March 2021). <https://doi.org/10.1016/j.agsy.2020.103026>.
- Diao, X.; Dorosh, P.A.; Mahrt, K.; Minten, B.; Pauw, K.; Randriamamonjy, J.; Smart, J.; and Thurlow, J. 2022. Myanmar: Impacts of the Ukraine and global crises on poverty and food security. *Global Crisis Country Brief 14*. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/p15738coll2.135957>
- Diao, X.; Ellis, M.; Masias, I.; Pauw, K.; Thurlow, J.; and Boughton, D. 2023. Myanmar's Agrifood System: Structure and Drivers of Transformation. *Agrifood System Diagnostics Country Brief 11*. Washington, DC: International Food Policy Research Institute (IFPRI).
- Fang, P.; Belton, B.; Zhang, X.; and Win, H.E. 2021. Impacts of COVID-19 on Myanmar's chicken and egg sector, with implications for the sustainable development goals. *Agricultural Systems* 190 (May 2021), 103094.
- Goeb, J.; Zone, P.P.; Kham Synt, N.L.; Zu, A.M.; Tang, Y.; and Minten, B. 2022. Food prices, processing, and shocks: Evidence from rice and COVID-19. *Journal of Agricultural Economics*, 73, 338– 355. <https://doi.org/10.1111/1477-9552.12461>
- Goeb, J.; Maredia, M.K.; Win, K.Z.; Masias, I.; Lambrecht, I.; Boughton, D.; and Minten, B. 2021. Urban food prices under lockdown: Evidence from Myanmar's traditional food retail sector during COVID-19. *Myanmar Strategy Support Program Working Paper 11*. Washington, DC: International Food Policy Research Institute.
- IFPRI (International Food Policy Research Institute). 2022. 2022 Global food policy report: Climate change and food systems: Synopsis. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/9780896294271>
- MAPSA (Myanmar Agriculture Policy Support Activity). 2022a. Monitoring the agrifood system in Myanmar: Agricultural commodity traders – March 2021 survey round. *Myanmar SSP Research Note 48*. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/p15738coll2.134332>
- MAPSA (Myanmar Agriculture Policy Support Activity). 2022b. Monitoring the agrifood system in Myanmar: Agricultural input retailers – March 2021 survey round. *Myanmar SSP Research Note 49*. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/p15738coll2.134379>
- MAPSA (Myanmar Agriculture Policy Support Activity). 2022c. Monitoring the agrifood system in Myanmar: Rice millers – April 2021 survey round. *Myanmar SSP Research Note 53*. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/p15738coll2.134420>
- MAPSA (Myanmar Agriculture Policy Support Activity). 2022d. Rice productivity in Myanmar: Assessment of the 2022 dry season and farmers' expectations for the monsoon of 2022. *Myanmar SSP Research Note 89*. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/p15738coll2.136477>
- MAPSA (Myanmar Agriculture Policy Support Activity). 2022e. Monitoring the agrifood system in Myanmar: Agricultural crop traders – August 2022 survey. *Myanmar SSP Research Note 86*. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/p15738coll2.136430>
- MAPSA (Myanmar Agriculture Policy Support Activity). 2022f. Monitoring the agrifood system in Myanmar: Rice millers – August 2022 survey round. *Myanmar SSP Research Note 87*. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/p15738coll2.136435>
- MAPSA (Myanmar Agriculture Policy Support Activity). 2023a. Vulnerability and welfare: Findings from the fourth round of the Myanmar Household Welfare Survey (October to December 2022). *Myanmar SSP Working Paper 33*. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/p15738coll2.136688>
- MAPSA (Myanmar Agriculture Policy Support Activity). 2023b. The state of food security and nutrition in Myanmar 2022: Findings from four rounds of the Myanmar Household Welfare Survey. *Myanmar SSP Research Note 93*. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/p15738coll2.136673>
- MAPSA (Myanmar Agriculture Policy Support Activity). 2023c. Conflict and agricultural productivity: Evidence from Myanmar. *Myanmar SSP Working Paper 30*. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/p15738coll2.136600>
- MAPSA (Myanmar Agriculture Policy Support Activity). 2023d. Promising indicators for effectively targeting the poor in Myanmar. *Myanmar SSP Research Note 91*. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/p15738coll2.136558>

MAPSA (Myanmar Agriculture Policy Support Activity). 2023d. Monitoring the agrifood system in Myanmar: Mechanization service providers – January 2023 survey round. Myanmar SSP Research Note 94. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/p15738coll2.136684>

Myanmar, MOALI (Ministry of Agriculture Livestock and Irrigation). 2018. Myanmar Agriculture Development Strategy and Investment Plan 2018-19 ~ 2020-23. Nay Pyi Taw: MOALI.

Myanmar, CSO MOPF (Central Statistical Organization, Ministry of Planning and Finance). 2022. Selected Monthly Economic Indicators August 2022. Nay Pyi Taw: Central Statistical Organization.

Minten, Bart; Goeb, Joseph; Win, Khin Zin; and Zone, Phoo Pye. 2023. Agricultural value chains in a fragile state: The case of rice in Myanmar. World Development Volume 167. <https://doi.org/10.1016/j.worlddev.2023.106244>

UNDRR (United Nations Office for Disaster Risk Reduction). 2015. Global Assessment Report on Disaster Risk Reduction 2015. New York: UNISDR.

UNHCR (United Nations High Commissioner for Refugees). 2023. Myanmar Emergency Overview Map and Statistics. <https://data.unhcr.org/en/documents/details/102822>.

USDA (United States Department of Agriculture). 2021. Burma: Beans and Pulses Update. Foreign Agricultural Service BM2021-0016. 23 April 2021. Washington, D.C.: USDA.

World Bank. 2020. World Development Indicators. World Bank, Washington, DC. <https://databank.worldbank.org/source/world-development-indicators>

---

## ACKNOWLEDGEMENTS

This work was undertaken as part of the Myanmar Agricultural Policy Support Activity (MAPSA) led by the International Food Policy Research Institute (IFPRI) in partnership with Michigan State University (MSU). Funding support for this study was provided by the United States Agency of International Development (USAID). This working paper has not gone through IFPRI's standard peer-review procedure. The opinions expressed here belong to the authors, and do not necessarily reflect those of IFPRI, MSU, USAID, or CGIAR.

### INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

1201 Eye St, NW | Washington, DC 20005 USA  
T. +1-202-862-5600 | F. +1-202-862-5606  
[ifpri@cgiar.org](mailto:ifpri@cgiar.org)  
[www.ifpri.org](http://www.ifpri.org) | [www.ifpri.info](http://www.ifpri.info)

### IFPRI-MYANMAR

[IFPRI-Myanmar@cgiar.org](mailto:IFPRI-Myanmar@cgiar.org)  
[www.myanmar.ifpri.info](http://www.myanmar.ifpri.info)



**USAID**  
FROM THE AMERICAN PEOPLE



The Myanmar Strategy Support Program (Myanmar SSP) is led by the International Food Policy Research Institute (IFPRI) in partnership with Michigan State University (MSU). Funding support for Myanmar SSP is provided by the CGIAR Research Program on Policies, Institutions, and Markets; the Livelihoods and Food Security Fund (LIFT); and the United States Agency for International Development (USAID). This publication has been prepared as an output of Myanmar SSP. It has not been independently peer reviewed. Any opinions expressed here belong to the author(s) and do not necessarily reflect those of IFPRI, MSU, LIFT, USAID, or CGIAR.

© 2023, Copyright remains with the author(s). This publication is licensed for use under a Creative Commons Attribution 4.0 International License (CC BY 4.0). To view this license, visit <https://creativecommons.org/licenses/by/4.0>.

IFPRI is a CGIAR Research Center | A world free of hunger and malnutrition