



## Monitoring the Agri-food System in Myanmar

### Mechanization Service Providers – January 2023 survey round

A phone survey was conducted in January 2023 to understand the effects of COVID-19 and political instability on Myanmar's mechanization service providers (MSPs). MSPs are crucial to enabling smallholder farmers to undertake a range of power-intensive farm and post-harvest operations in a timely manner. This note reports on the results of this survey, the tenth in a series of phone surveys, and trends from earlier surveys.

#### Key Findings

- Combine harvester service providers (CHSPs) provided harvesting services in the 2022 monsoon harvest season in areas comparable to the same time in 2021.
- However, achieving this was likely more costly in 2022. Not only because the costs of equipment increased but also because the costs of fuels and services like repair and machine operations started rising in 2022. The harvesting service fees have increased by more than 50 percent in nominal terms since 2021.
- Farmers are likely paying higher harvesting charges as they have few alternatives. Therefore, the increase in hiring charges is expected to reduce farmers' incomes directly.
- Business prospects among MSPs, which were already poor in 2021, remain dismal in 2022.

#### Recommended Actions

- Access to formal credit, including loans to small enterprises, should be expanded to help MSPs to cope with sharp increases in costs of materials and labor. Broader financial support can also help MSPs to cope with the rising costs of other general services like utility and rent.
- Transportation restrictions and curfews enforced at multiple administrative levels are reducing the availability of machines, spare parts, and attachments and are impacting the supply of mechanized services. Travel restrictions should be removed, or at least made consistent, to allow MSPs to operate freely and to ensure the cost efficiency of the equipment supply-chain.
- Access to formal credit through the MADB or microfinance institutions should be expanded to help ensure farmers' access to affordable mechanization services, as farmers are otherwise likely to continue facing significantly increased costs in the 2023 season.

## Background

Agricultural mechanization service providers (MSPs) are crucial to enabling smallholder farmers to undertake a range of power-intensive farm and post-harvest operations in a timely manner. These operations are important for food production and farm income. MSPs are capital-intensive operations. The economic viability of these businesses is highly sensitive to (1) capacity utilization, which generates the cash flow needed to repay equipment loans; (2) prices of imported capital goods, including machines, equipment, and fuel; and (3) availability of machine operators, among others. Hence, the operations of MSPs are sensitive to restrictions on mobility and trade.

This Research Note focuses on the impacts of the COVID-19 pandemic and the on-going political crisis on MSPs from the latest phone survey conducted in August 2022. This note primarily covers the activities of combine harvester service providers (CHSPs) in the 2022 monsoon harvest season. The results of previous rounds were published in [Myanmar Strategy Support Program Research Notes 07, 12, 17, 39, 43, 59, 62, 76 and 82](#). As MSP operations continue to be affected by market disruptions, an understanding of the situation on the ground is critical to support measures to ensure farmers' access to MSP services.

## Sample Size and Location

In the tenth survey round, a total of 309 mechanized service providers (MSPs) were interviewed—147 combine harvester service providers (CHSPs) and 162 tractor services providers (TSPs). Among these, 111 CHSPs and 91 TSPs were also interviewed in the 2021 monsoon harvest season, and a total of 155 MSPs (consisting of 87 CHSPs and 68 TSPs) were also interviewed in the 2021 monsoon harvest season as well as at least once in 2020 (Table 1). This note focuses on the panel samples of 155 MSPs and 111 CHSPs. While the panel samples are a sub-sample of those surveyed, their information can shed light on changes over time.<sup>1</sup>

**Table 1. Summary of MSPs in survey round10, based on responses in previous rounds**

Type of MSPs	Sample	Panel (in harvest season in 2021 and 2022)	Panel (in 2020, 2021 and 2022)
All MSPs	309	202	155
CHSPs	147	111	87
TSPs	162	91	68

Note: MSP=Mechanization service provider; CHSP=Combine harvester service provider; TSP=Tractor service provider.  
Source: Mechanization Service Provider Phone Survey–Monsoon Planting / Harvesting Season 2020, 2021 and 2021.

Table 2 summarizes the regional distribution of interviewed panel MSPs. Approximately 70 percent of the panel CHSPs and 40 percent of the panel MSPs are from the Ayeyarwady region. About 40 percent of panel MSPs are from the Magway region, although relatively few CHSPs are from the Magway region. The samples are therefore somewhat less representative in areas more intensely affected by conflicts, possibly due to greater challenges in reaching them by phones.

**Table 2. Regional distribution of panel CHSP and MSP interviewed in round 10**

	Ayeyarwady	Bago	Magway	Mandalay	Sagaing	Others	Total
CHSPs	74 (67%)	16 (14%)	6 (5%)	5 (5%)	2 (2%)	3 (3%)	111 (100%)
MSPs	70 (45%)	11 (7%)	60 (39%)	6 (4%)	6 (4%)	2 (1%)	155 (100%)
TSPs	3 (3%)	5 (5%)	74 (81%)	3 (3%)	6 (7%)	0 (0%)	91 (100%)

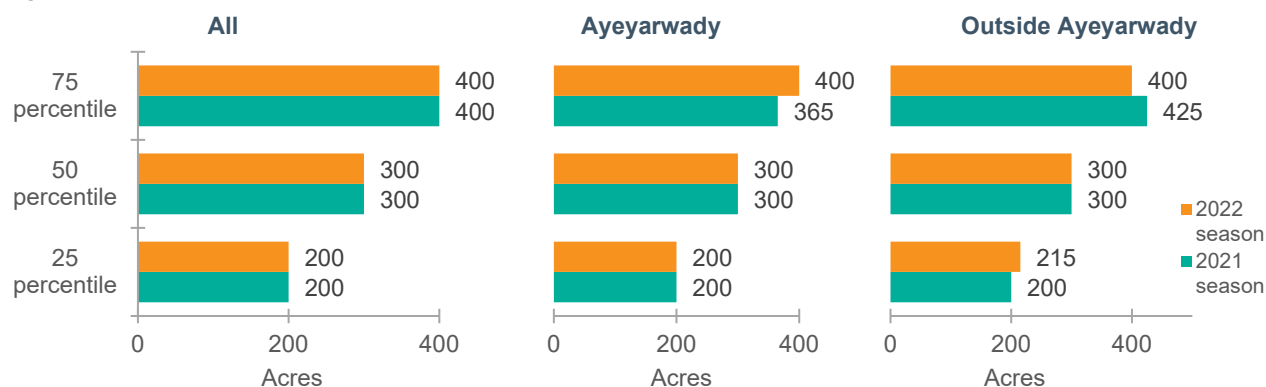
Note: MSP=Mechanization service provider; CHSP=Combine harvester service provider; TSP=Tractor service provider.  
Source: Mechanization Service Provider Phone Survey–Monsoon Planting / Harvesting Season 2020, 2021 and 2021.

<sup>1</sup> The sample of MSPs is not representative at national or at state/region levels. However, we discuss heterogeneity, where appropriate, to highlight the potential importance of machine-specific or region/state-specific support measures. We highlight such heterogeneity where, given the sample sizes, differences across MSPs are statistically significant.

## Acres harvested remain similar to 2021 levels

Figure 1 shows the areas harvested by CHSPs in the current production season by the time they were interviewed in survey round 10, conducted between January 18-30, 2023. At the median, CHSPs provided services to 300 acres. The figure was similar between CHSPs based in Ayeyarwady, and those based elsewhere. Generally, at the median and the 25th and 75th percentiles, the areas harvested by CHSPs in 2022 are similar to the same period in the 2021 season. It is, however, important to note that while the acres harvested are comparable to the 2021 season, they are lower than 2019 (pre-COVID season) when CHSPs harvested approximately 450 acres, including that in Ayeyarwady which experienced a more significant reduction (600 acres in 2019 vs. 300 acres in 2022).<sup>2</sup>

**Figure 1. Area harvested by CHSPs (by their main locations) in the 2022 monsoon seasons, by 25<sup>th</sup>, 50<sup>th</sup> and 75<sup>th</sup> percentile (acres)**



Note: CHSP=Combine harvester service provider.

Source: Mechanization Service Provider Phone Survey– Monsoon Harvest Season 2021 and 2022.

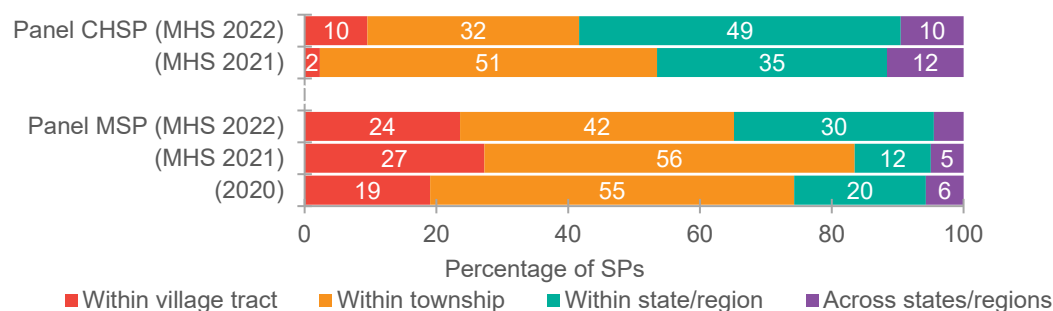
## Reported effects of crises on mechanization service providers

Most MSPs have remained restricted to operating solely within their village tracts or townships during the 2022 monsoon harvest season (Figure 2). While the share of CHSPs operating outside their townships has increased slightly from the same time in 2021 (59 percent vs. 47 percent), the share operating within the village tract also increased from 2 percent to 10 percent. Unofficial restrictions due to the current security situation have variable effects across CHSPs. CHSPs typically travel at night, reserving the daytime for servicing farms, and the security situation may not allow for safe night travel. Security checkpoints throughout the country continue to enforce arbitrary rules such as curfews. The threat of harassment, rent-seeking, and risk to personal safety may continue to deter CHSPs and other MSPs from traveling greater distances.<sup>3</sup> In particular, those based outside Ayeyarwady are more likely to experience greater movement restrictions, compared to those based in Ayeyarwady.

<sup>2</sup> Myanmar Strategy Support Program Research Notes [43](#) and [76](#).

<sup>3</sup> Frontier Myanmar. 2021. Anxiety, bribes, and bullies: A journey through post-coup Myanmar. Frontier Myanmar. May 31, 2021.

**Figure 2. MSPs that experienced restrictions on areas of operation, by season, by share**

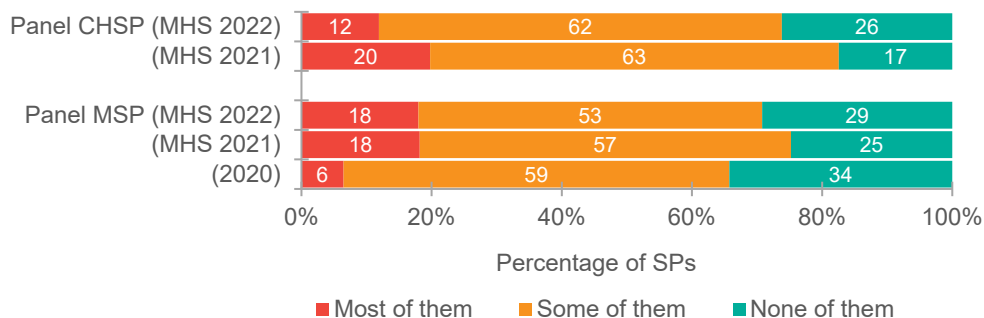


Note: CHSP=Combine-harvester service providers; MSP=Mechanization service provider. MHS = Monsoon harvest season.  
Source: Mechanization Service Provider Phone Survey–Monsoon Planting / Harvest Season 2020, 2021 and 2022.

### Mechanization services provision compared to the same month in 2019

While CHSPs have managed to harvest comparable areas as in 2021 (Figure 1), the timeliness of service provision continues to worsen overall in the 2022 monsoon harvest season compared to earlier seasons (Figure 3). Twelve percent of CHSPs and 18 percent of MSPs report that most of their customers had to wait longer for their service, compared to one year earlier, albeit the share for CHSPs is a slight improvement than in 2021. Overall, nearly 70 percent of CHSPs and MSPs continue to perceive that some of their customers had to wait longer for their services than in the previous year.

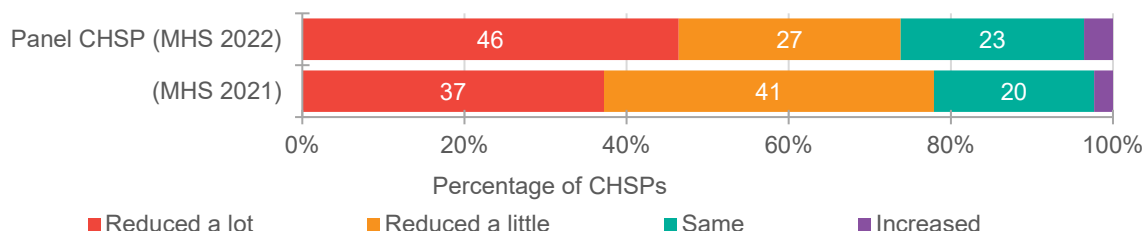
**Figure 3. Percentage of MSPs reporting worsening service provision timeliness compared to the previous year, by machine type and survey round**



Note: CHSP=Combine-harvester service providers; MSP=Mechanization service provider. MHS=Monsoon Harvest Season.  
Source: Mechanization Service Provider Phone Survey–Monsoon Planting/ Harvest Season 2020, 2021 and 2022.

Similarly, although CHSPs managed to harvest comparable areas in 2022 as in 2021, most CHSPs continue to perceive the demand for combine-harvesting services to be weaker than in previous years (Figure 4). In particular, 46 percent of CHSPs perceived that demand reduced significantly compared to 37 percent in the 2021 season. These patterns reflect the evolving nature of demand to which CHSPs continue to adjust. Facing presumably lower demand, CHSPs are likely to be modifying their business strategies and still manage to harvest similar areas as they did in 2021 (Figure 1).

**Figure 4. Percentage of panel CHSPs reporting lower demand for services relative to 2019**

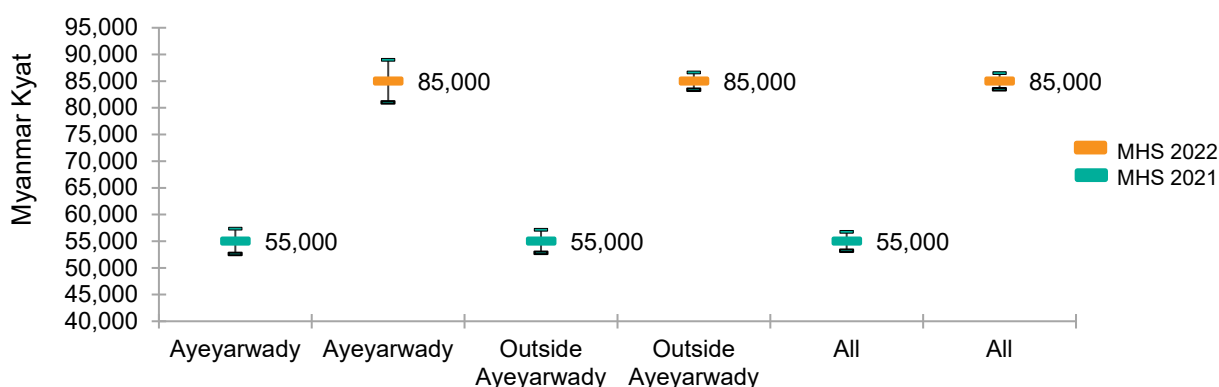


Note: CHSP=Combine harvester service provider; MHS=Monsoon Harvest Season.

Source: Mechanization Service Provider Phone Survey–Monsoon Harvest Season 2021 & 2022

The increase in hiring charges for CHSPs accelerated between 2021 and 2022 in nominal terms. At the median, hiring charges (per acre) for harvesting in 2022 were 85,000 MMK, more than 50 percent higher than the 55,000 MMK charged at the same time in 2021 (Figure 5). This was much sharper than the rate of increase between 2020 and 2021, which was about 20 percent.<sup>4</sup> These patterns are similar in Ayeyarwady and other states. Hiring-charge increases are likely due to supply-side factors, as described below. While this rate of increase in nominal term is in a similar order to the overall food inflation rates between the monsoon harvest season in 2021 and 2022,<sup>5</sup> such change can still affect perceptions of harvesting costs by farmers.

**Figure 5. Average nominal charges per acre for combine harvester service, by region**



Note: MHS = Monsoon harvest season

Source: Mechanization Service Provider Phone Survey–Monsoon Harvest Season 2021 & 2022.

In 2022, farmers hired mechanization services to a similar extent as they did in 2021 and 2020 despite having to pay higher charges. This suggests that farmers may not have an alternative to combine-harvesting services even at higher charges (possibly because manual labor or animals are still more expensive). Thus, factors that raise mechanization costs directly reduce farmers' profits and productivity.<sup>6</sup>

Increased hiring charges continue to be associated with pervasive requests from farmers for late payment (Figure 6). About 80 percent of CHSPs and other MSPs received more late payment requests in 2022. This has been a persistent problem since 2020 without any clear sign of reduction. This is likely because farmers' ability to pay for services may be exacerbated by cash shortages in the country, and most MSPs report only accepting cash payments for their services. Meanwhile,

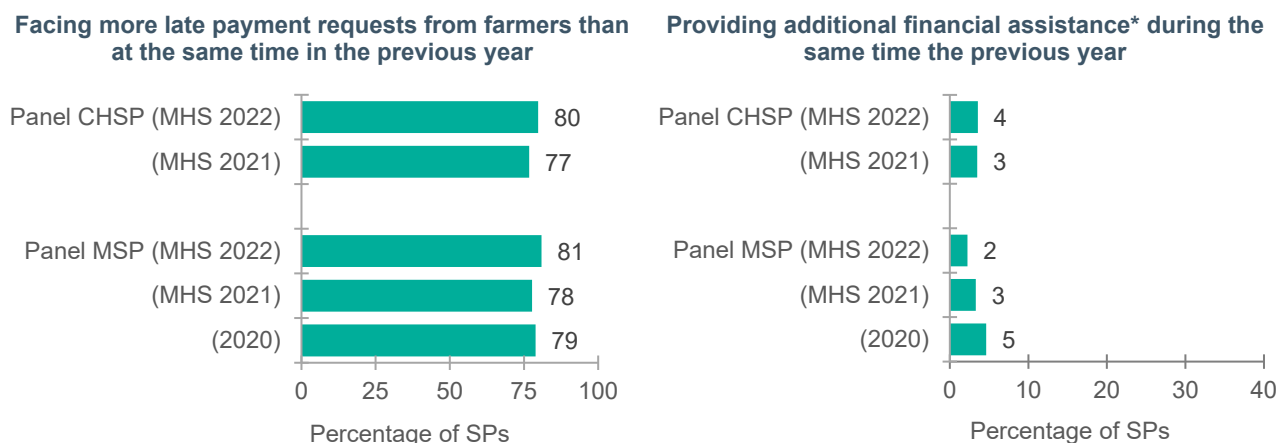
<sup>4</sup> Myanmar Strategy Support Program Research Notes 76.

<sup>5</sup> Andrée, B. P. J. (2023). Monthly food price estimates by product and market (Version 2023-04-01). Washington, DC: World Bank Microdata Library. <https://doi.org/10.48529/2ZH0-JF55>.

<sup>6</sup> Myanmar Agriculture Policy Support Activity (MAPSA). 2023b. Agricultural mechanization services, rice productivity, and farm/plot size: Insights from Myanmar. Myanmar SSP Working Paper 33. Washington, DC: IFPRI.

CHSPs and MSPs were mostly unable to provide additional financial assistance in 2022, as in previous years.

**Figure 6. Percentage of MSPs receiving late payments requests from farmers and providing additional financial assistance**

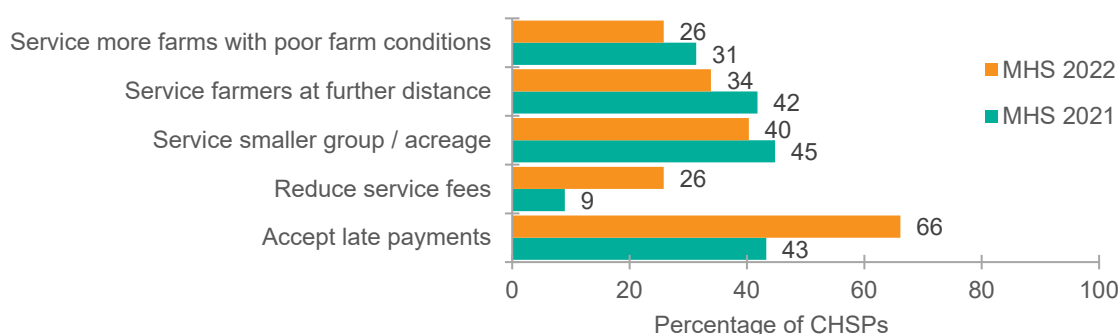


Note: \*Beyond acceptance of late payments. CHSP=Combine harvester service provider; MSP= Mechanization service provider; MHS = Monsoon harvest season.

Source: Mechanization Service Provider Phone Survey–Monsoon Planting / Harvest Season 2020, 2021 and 2022.

To mitigate the perceived lower demand, an increasing share of CHSPs are coping by accepting late payments and partly reducing service fees where possible (Figure 7). Conversely, fewer CHSPs resorted to servicing farms with less suitable conditions for combine harvesters, serving farmers at further distances, and/or serving smaller groups of farmers or plots compared to 2021. These reflect that, as is shown later, the 2022 season saw a significant increase in operating costs associated with rising costs of fuel, operators, and repairs/maintenance of machines.

**Figure 7. Percentage of panel CHSPs using coping methods to mitigate perceived lower demand**



Note: CHSP=Combine-harvester service provider. MHS=Monsoon harvest season.

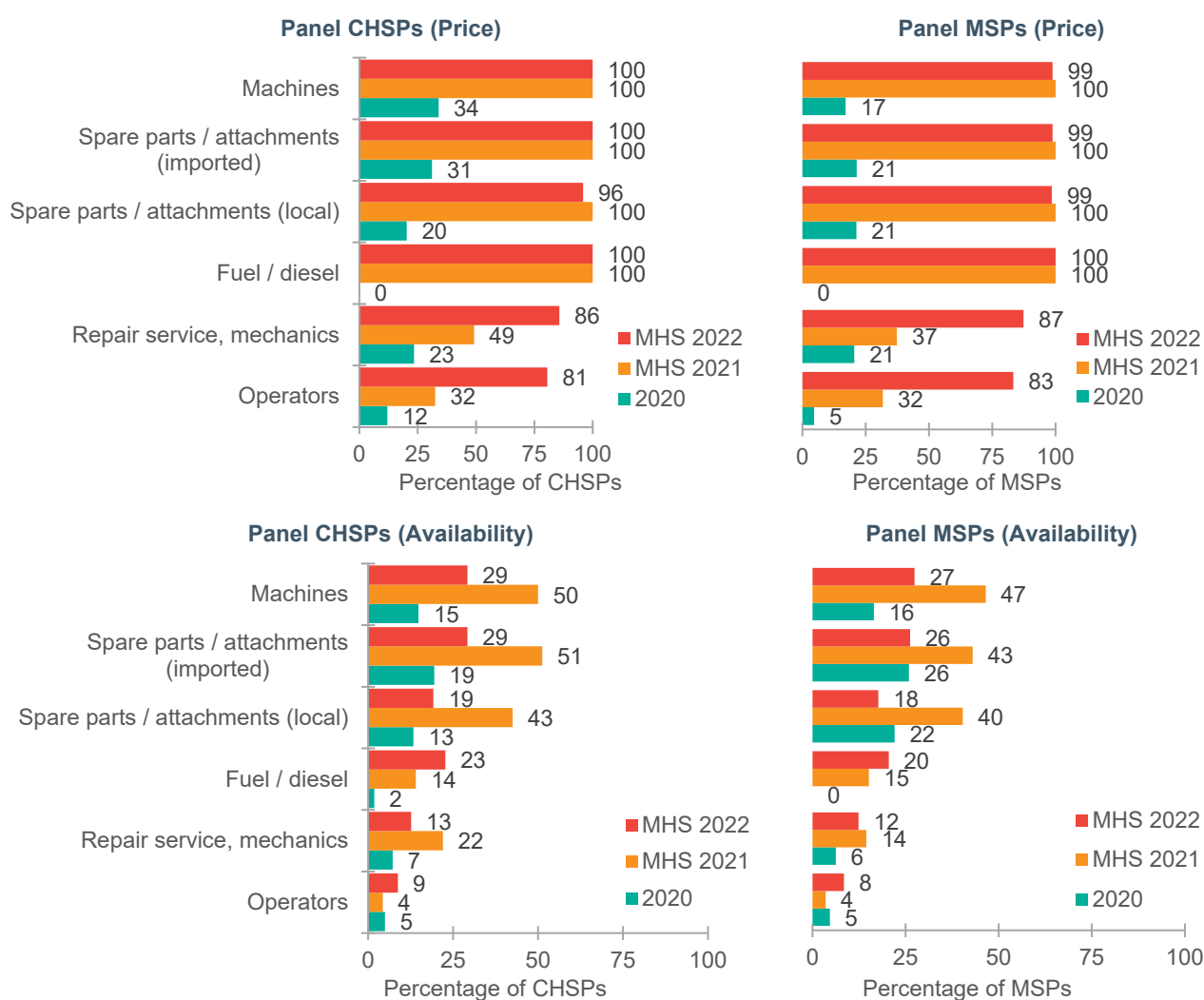
Source: Mechanization Service Provider Phone Survey–Monsoon Harvest Season 2021 and 2022.

## Supply-side factors

In 2022, nearly all CHSPs and MSPs reported higher prices of machines, spare parts, and fuels as they did in 2021, although their availability appears slightly improved, suggesting some recovery of supply-chains (Figure 8). In addition, in 2022, a rapidly growing share of CHSPs and MSPs also experienced increased prices and reduced availability of repair services, mechanics, and operators, for which the pace of changes had been more modest until 2021. These may be driven by cost increases across broader inflation in 2022, which translated into higher labor costs and, thus, more labor-intensive activities like repairing and machine operation. These supply-side challenges

increase the cost of mechanization services and are expected to continue affecting farm production costs in 2023.

**Figure 8. Share of MSPs and CHSPs reporting higher price or reduced availability compared to one year earlier, by survey round**



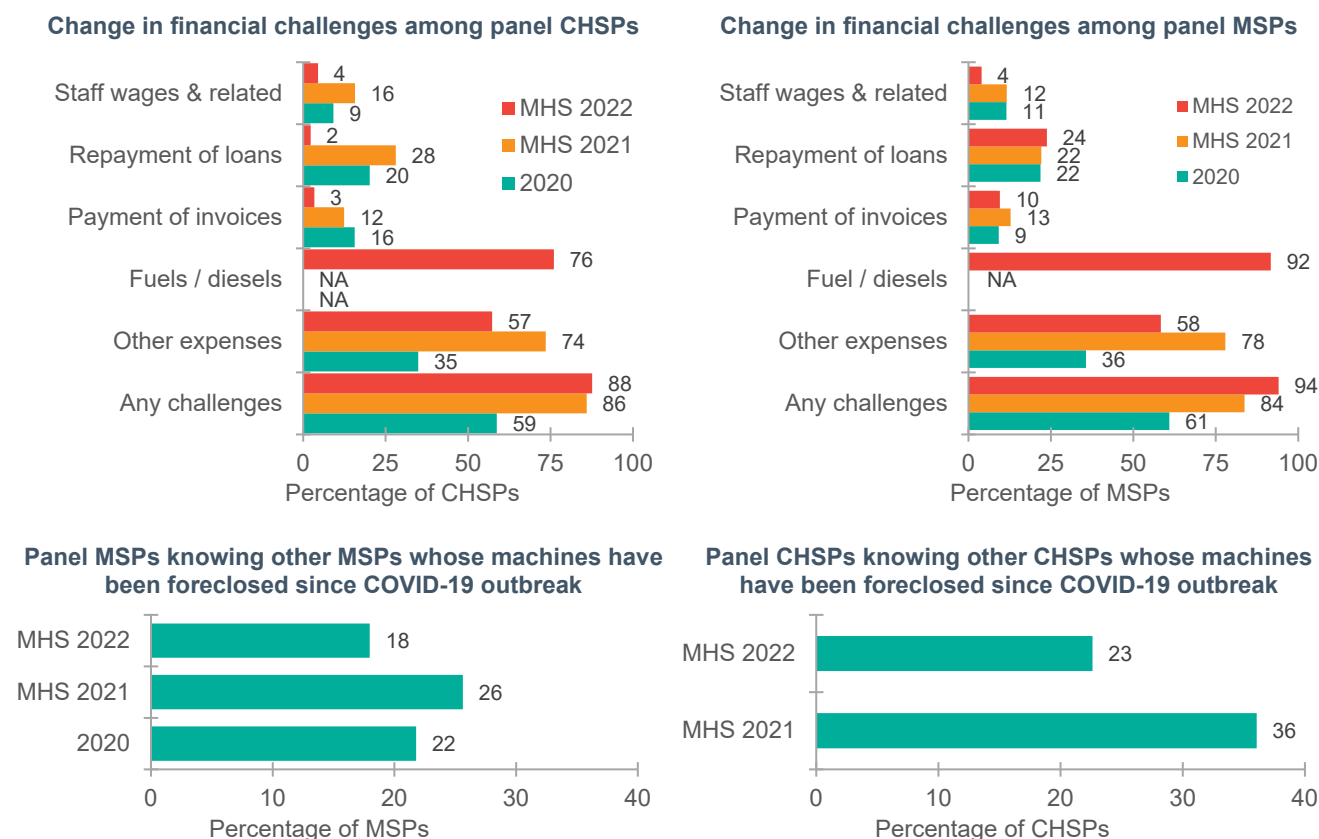
Note: CHSP=Combine harvester service provider; MSP= Mechanization service provider; MHS=Monsoon harvest season.  
Source: Mechanization Service Provider Phone Survey–Monsoon Planting / Harvest Season 2020, 2021 and 2022.

## Financial effects on business

An increasing share of MSPs, including CHSPs, continue to experience financial challenges due to the impacts of supply-side factors (Figure 9, top charts). MSPs, including CHSPs, are concerned about various financial requirements, particularly increasing fuel costs. The shares of CHSPs who report any financial challenges increased to 94 percent in 2022 from 84 percent in 2021. Repossession of equipment remains an issue (Figure 9, bottom charts). While declining shares of MSPs and CHSPs reported knowing any other service providers whose machines had been repossessed in 2022, this may reflect the reduced financial capacity for repossession by the banks or other loan providers and thus needs to be monitored further.



**Figure 9. Percentage share of MSPs reporting financial challenges due to restrictions**

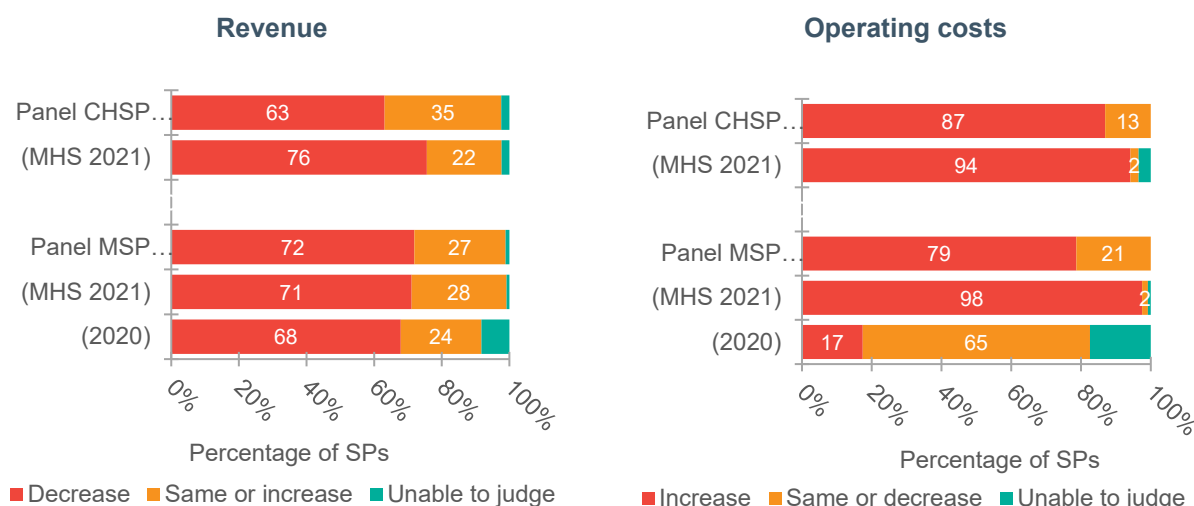


Note: CHSP=Combine harvester service provider; MSP=Mechanization service provider; MHS=Monsoon harvest season. NA = Not Available

Source: Mechanization Service Provider Phone Survey–Monsoon Planting / Harvesting Season 2020, 2021 and 2022.

MSPs' perceptions of financial prospects, which were already pessimistic in 2020 and 2021, continued to be bleak at the end of 2022 (Figure 10). Close to 60~70 percent of CHSPs and MSPs expect their revenues to be lower than a year earlier. About 70 ~ 80 percent of CHSPs and MSPs expect their operating costs to increase by the end of the 2022 monsoon season compared to the previous season. With perception negative overall as the 2023 production season starts, how MSPs can survive financially during the 2023 production season must continue to be monitored closely.

**Figure 10. Service providers expectations of revenues and operating costs relative to the previous year, by percentage share**



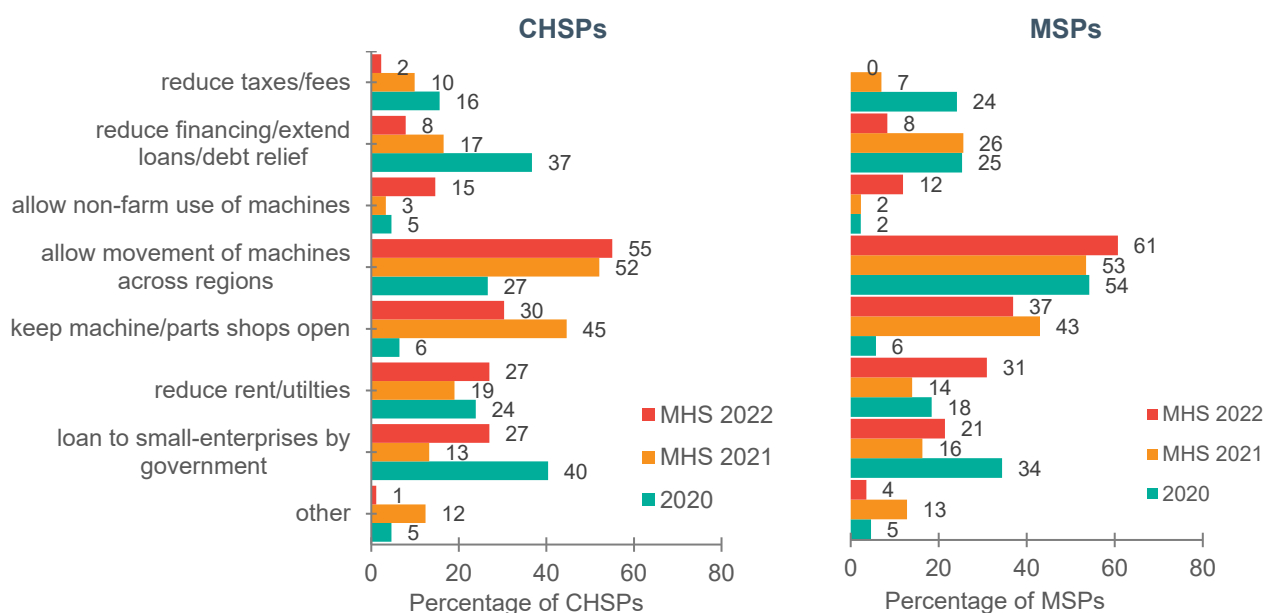


Note: CHSP=Combine harvester service provider; MSP=Mechanization service provider; MHS=Monsoon harvest season.  
Source: Mechanization Service Provider Phone Survey–Monsoon Planting / Harvesting Season 2020, 2021, and 2022.

## Measures to Support MSPs

As in earlier survey rounds, respondents were asked for their opinions on what measures would be most beneficial for their businesses to continue during the COVID-19 and political crises (Figure 11). Respondents were allowed to select multiple options.

**Figure 11. MSP perceptions on effective measures to reduce the adverse impacts of the COVID-19 and political crises on their businesses**



Note: CHSP=Combine harvester service provider; MSP=Mechanization service provider; MHS=Monsoon harvest season.  
Source: Mechanization Service Provider Phone Survey–Monsoon Planting / Harvesting Season 2020, 2021 and 2022.

As was at the same time in 2021, a significantly high share of both MSPs and CHSPs reported that policies allowing the movement of machines across greater geographical regions are critically important. These desires are consistent with the significant perceptions of mobility restrictions indirectly associated with ongoing political instability. Fewer service providers prefer keeping machine/parts shops open, possibly because machine availability has somewhat improved, although they remain high. Access to financial support, such as loans for small enterprises, and reduced rent/utilities, are more preferred in 2022 compared to 2021.

## Discussion

The observed conditions on the ground in December 2022 show the deteriorating situation for MSPs in Myanmar due to the prolonged political and social instability. Increasing costs across all aspects of service delivery, ranging from machines and equipment and fuels to repair services and operators, are being universally felt by MSPs. These additional costs are contributing to increasingly higher prices for mechanized services.

Moreover, it is essential to note that while the acreage harvested in 2022 continues to be the same as in 2021, the increasing cost of mechanized services (11 percent in July 2021 for land preparation and 20 percent in December 2021 for harvesting) adds strain on farmers already facing increasing input prices and marketing challenges and are likely negatively affecting farm profitability. The potential lack of cheaper alternatives (hired labor) demonstrates the need to address the challenges facing MSPs in the next planting season.

The following measures are recommended to ensure the long-term availability of mechanized services to farmers:

- Access to formal credit, including loans to small enterprises, should be expanded to help MSPs to cope with sharp increases in costs of materials and labor. Broader financial support, such as subsidies on utility can also help MSPs to cope with the rising costs of other general services like utility and rent.
- Access to formal credit through the MADB or microfinance institutions should be expanded to help ensure farmers' access to affordable mechanization services, as farmers are likely to continue facing significantly increased costs in the 2023 season.
- Transportation restrictions and curfews enforced at multiple administrative levels are reducing the availability of machines, spare parts, and attachments and are impacting the supply of mechanized services. Travel restrictions should be removed, or at least made consistent based on transparent rules, to allow MSPs to operate freely and to ensure the cost efficiency of the equipment supply chain.

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