A Rapid Assessment of the Implementation of the 2020/21 Affordable Inputs Program in Malawi

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Executive Summary

Although the agriculture sector is dominant in the Malawian economy, it is bedeviled by low agricultural productivity. The inability of smallholder farmers to access productivity-enhancing farm inputs has been cited as a major factor contributing to low agricultural productivity. To address this challenge, the Government of Malawi administered the Farm Inputs Subsidy Program (FISP) from 2004/05 to 2019/20, giving smallholder farmers access to subsidized inputs, including fertilizer (NPK and urea) and improved maize and legume seeds. While the FISP was regarded as a success in some respects, it was characterized by delays in input distribution and poor targeting of beneficiaries, and it therefore had a limited impact on food security and poverty reduction.

In the 2020/21 agricultural season, the Government of Malawi introduced the Affordable Inputs Program (AIP) to replace the FISP. The main goals of the AIP are to achieve food security, improve nutrition, and reduce poverty through farmers' increased access to improved inputs. The AIP offers each beneficiary household two bags of fertilizer (one 50-kg bag of urea and one 50-kg bag of NPK) at a flat price of MK 4,495 each. Farmers can also redeem either a 5-kg hybrid maize seed pack or a 7-kg seed pack of open pollinated variety (OPV) maize, sorghum, or rice at a price of MK 2,000. In 2020/21, the program is expected to cost around MK133 billion, with fertilizer comprising 84% of the total cost. Unlike the FISP which had used a voucher system, the AIP has employed an electronic system for inputs redemption.

This rapid assessment, conducted in December 2020, was carried out to gauge the extent to which the AIP has been able to achieve its goals at the implementation phase of the program. The specific objectives were to (a) assess the implementation of the AIP from

program design to beneficiaries' redemption of inputs; (b) characterize key stakeholders' experiences with the program; (c) document the early successes and challenges in the implementation of the AIP; and (d) identify areas for improvement in the implementation of the AIP. The assessment is based on key informant interviews with Ministry of Agriculture officials at various levels, as well as interviews conducted with agro-dealers and focus group discussions with farmers across the country.

This assessment finds that the AIP registered both successes and challenges. Among its successes, the AIP increased the number of beneficiaries from 900,000 in 2019/2020 under the FISP to 3.8 million in 2020/21 under the AIP. This was a welcome development to many farmers. In addition, the use of an electronic system of input redemption improved the process and eliminated the fraudulent duplication of vouchers that had plagued the FISP. The electronic system also significantly reduced the administrative costs associated with the FISP.

Nevertheless, the program faced several challenges. First, a delay in starting the program triggered a series of other challenges. The program was launched on 17 October 2020, with rains starting just a few weeks later in some parts of the country. As such, it seems that preparations for the AIP (including beneficiary sensitization and a pilot of the mobile application for AIP inputs redemption) were hurried. There was not enough time to conduct a new beneficiary registration or to adequately review and update the 2018/19 farm household register.

Second, almost all AIP input selling points in the country initially faced an internet network problem. This meant that most farmers could not redeem their inputs before the onset of the rains. Third, and relatedly, some farmers were unable to access their inputs due to a problem of "false redemptions". This occurred when a farmer's national ID was scanned but the transaction did not go through due to network problems. When the card was rescanned, the system would sometimes incorrectly indicate that the farmer have already redeemed their inputs. Consequently, armers who did not seek assistance from the Ministry of Agriculture would have to go without their AIP inputs. Fifth, most farmers spent considerable time (sometimes multiple nights) at the selling points as they waited for the network to improve so they could redeem their inputs.

Sixth, the AIP agro-dealers were assigned specific Extension Planning Areas (EPAs) to cover, and farmers were to redeem inputs from dealers within their EPAs. Dealers were further instructed to establish satellite selling points to ensure that farmers did not have to travel long distances to redeem their inputs. Nevertheless, this assessment found that dealers were often concentrated in the district headquarters or main trading centers. As a result, farmers often had to travel long distances.

Finally, this assessment documented a limited availability of inputs in some selling points. In some cases, there was a mismatch between fertilizer demand and supply whereby dealers would be selling top dressing fertilizers at planting time and basal fertilizers when farmers expected to be able to find top dressing fertilizers.

This report concludes with policy proposals to address the challenges faced by the AIP during the implemenation stage. These include:

1. Updating farm household registers.
2. Early planning and preparation for more effective program delivery.
3. Decentralizing AIP servers to the district level, with AIP officers in each district assigned the responsibility to resolve issues as they arise.
4. Introducing legumes into the AIP inputs package to enhance soil fertility and improve household nutrition.
5. Enforcing contracts and/or providing incentives to encourage agro-dealers to open statellite selling points within their assigned EPAs.
6. Awarding input supply contracts to reputable firms that have adequate capacity to deliver inputs.
7. Finding ways to curb “false redemptions” to ensure that farmers can access their inputs and agro-dealers are only paid for inputs that are actually redeemed.

1. Introduction

Agriculture is dominant in the Malawian economy, accounting for 27% of its gross domestic product (GDP) and 80% of export earnings and employing 60% of the workforce (MoFEPD, 2019). However, the sector is characterized by low agricultural productivity, and its underperformance has resulted in high rates of food insecurity and poverty in the country. The inability of smallholder farmers to access adequate quantities of productivity-enhancing farm inputs (e.g., inorganic fertilizers and improved seeds) has been cited as a major factor contributing to low agricultural productivity (Chirwa & Dorward, 2013). To address this challenge, the Government of Malawi initiated the Farm Inputs Subsidy Program (FISP) beginning in the 2004/05 growing season. The FISP, which operated from 2004/05 to 2019/20, gave smallholder farmers access to subsidized inputs, including fertilizer (NPK and urea) and improved maize and legume seeds. While the FISP was regarded as a success, especially in increasing maize yields (Ricker-Gilbert & Jayne, 2017), it was characterized by delays in input distribution and poor targeting of beneficiaries, and it therefore had a limited impact on food security and poverty reduction (Lunduka et al., 2013).

In the 2020/21 agricultural season, the Government of Malawi introduced the Affordable Inputs Program (AIP). The main goals of the AIP were improved food security at household and national levels, improved nutrition, and reduced household poverty. This was to be achieved by increasing farmers' access to improved inputs. The AIP offered each beneficiary household two bags of fertilizer (one 50-kg bag of urea and one 50-kg bag of NPK) at a flat price of MK 4,495 each (Table 1). Farmers could also obtain either a 5-kg hybrid maize seed pack or a 7-kg seed pack of open pollinated variety (OPV) maize, sorghum, or rice at a price of MK 2,000 (GoM, 2020). In 2020/21, the program cost around MK133 billion, with fertilizer comprising 84% of the total cost (Figure 1). The Government of Malawi was entirely responsible for the financing of the AIP.

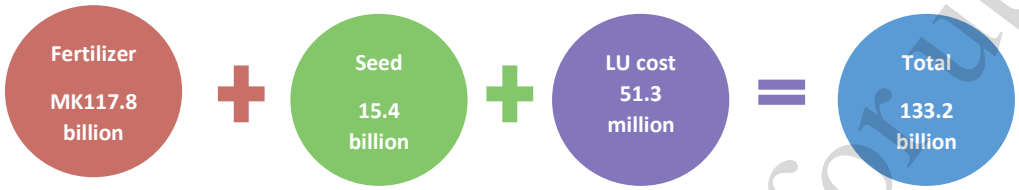
The AIP differs from the FISP in several ways. First, the AIP aimed to reach a much larger number of beneficiaries, embracing the concept of 'universality' in targeting. Specifically, while the FISP had reached between 900,000 and 1.5 million farm households each year, the AIP is intended to reach a much higher number of farm households. Initially, the program was projected to cover 4.2 million households, though this number has been revised downward

Table 1. Amount paid for AIP inputs

Item	Commercial price (MK)	Amount paid by beneficiaries	
		MK	% of commercial price
Urea (50 kg)	20,510	4,495	22%
NPK (50 kg)	21,000	4,495	21%
Seed (maize, rice, sorghum) (5-7 kg)	8,000	2,000	25%
Total	49,510	10,990	22%

Source: GoM 2020 and Authors Note: The unsubsidized retail prices vary over space.

Figure 1. Estimated government expenditure on the AIP



Source: Logistics Unit, (2021)

to 3.8 million households (GoM, 2020). Second, unlike FISP, the AIP had a stated aim to improve nutrition among beneficiary households. Third, the inputs offered to farmers in the AIP differ somewhat from the FISP, as farmers no longer have the option to purchase legume seeds. Fourth, while the FISP had been implemented using paper vouchers, the AIP was run through an electronic system developed by the Ministry of Agriculture (MoA) in collaboration with the Department of E-Government in the Ministry of Information. This web-based automated system made it convenient for program beneficiaries to redeem inputs using their national identity cards and also provided real-time data on voucher redemption.

The goal of this exercise was to assess the extent to which the AIP has been able to achieve its goals as at the implementation phase of the program. The specific objectives were to:

- Assess the implementation of the AIP from program design to beneficiaries' redemption of inputs.
- Characterize key stakeholders' experiences with the program.
- Document the early successes and challenges in the implementation of the AIP.
- Identify areas for improvement in the implementation of the AIP.

2. Data and Methods

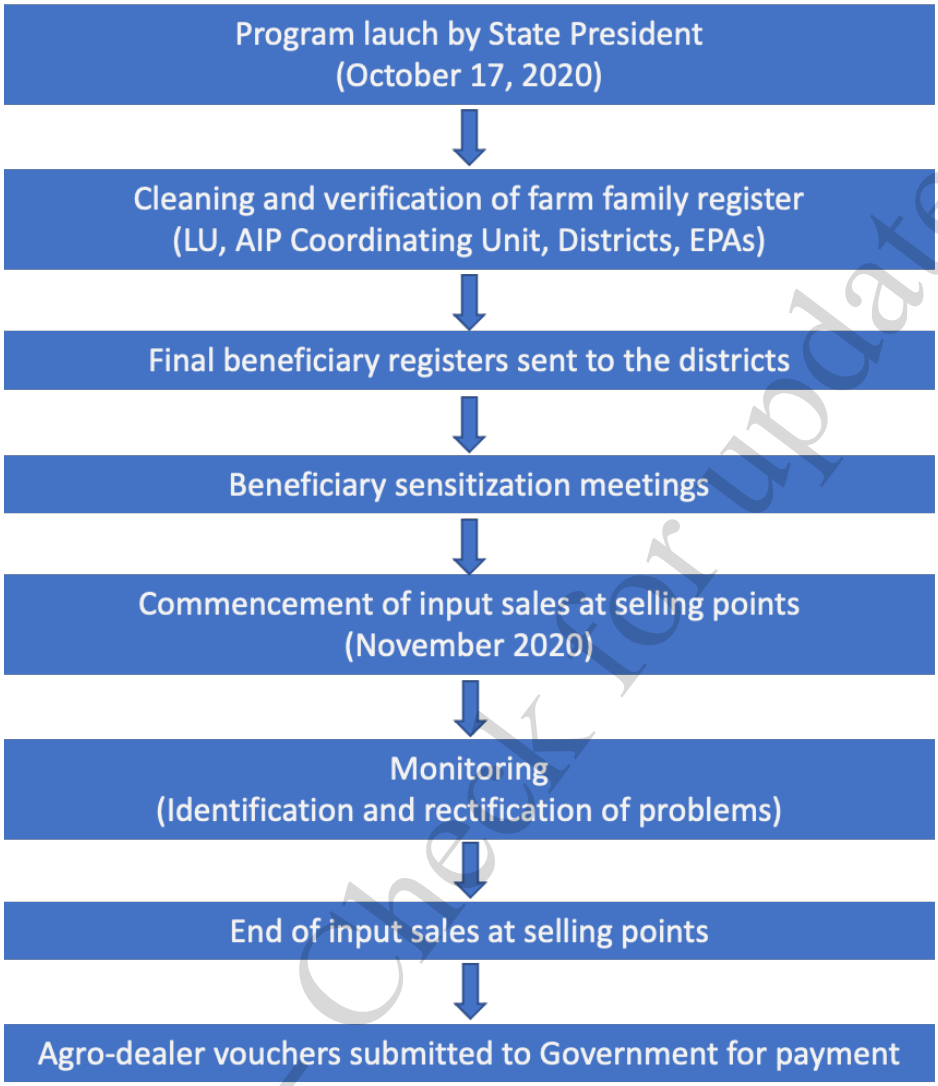
This assessment is based on key informant interviews. The key informants included MoA officials such as District Agriculture Development Officers (DADOs); Directors of Agriculture, Environment, and Natural Resources (DAENRs); Agriculture Extension Development Coordinators (AEDCs); and Agriculture Extension Development Officers (AEDOs). In addition, interviews were conducted with agro-dealers, and focus group discussions (FGDs) were held with farmers (Figure 4a). This assessment was conducted in December 2020. Due to limited time and resources, eight districts (Chitipa, Mzimba, Mchinji, Lilongwe, Ntcheu, Nkhotakota, Machinga and Chikwawa) were purposively sampled for this exercise. These districts span diverse agro-ecologies and levels of access to infrastructure, markets, and agricultural services, as well as diverse levels of food security and poverty. With guidance from district agriculture officials, two Extension Planning Areas (EPAs) were selected in each district, one with relatively good road infrastructure (i.e., relatively easy distribution of AIP inputs) and the other with relatively poor road infrastructure (making input distribution more problematic). Within each EPA, two Sections were selected following the same criteria used for selecting EPAs. In the end, the study included a total of 134 interviews: 7 DADOs and DAENRs; 13 AEDCs; 18 AEDOs; 58 agro-dealers; and 38 FGDs with farmers.

3. Implementation of the AIP

The AIP implementation process is illustrated in **Error! Reference source not found.**. At the onset, the MoA invited DAENRs and District AIP Coordinators for a briefing in Lilongwe on the implementation modalities of the AIP. Thereafter, the district agriculture officials briefed Agriculture Services Committees at the Council level (District Executive Committees), and the briefings were then extended to Area Development Committees (ADCs) and Village Development Committees (VDCs).

The MoA did not conduct AIP beneficiary registration in the 2020/21 season. Instead, the AIP beneficiaries were drawn from the 2018/19 farm household register. This started with the Logistics Unit (LU) cleaning the 2018/19 farm households' database, which was then shared with the District Agriculture Offices and subsequently the local communities through

Figure 2. Implementation of the AIP in 2020/21 season



Source: Authors

their respective EPAs for verification. The list of beneficiaries was then returned to the district and the LU for further processing before being finalized.

In July–August 2020, the MoA issued a tender calling for agro-dealers interested in participating in the 2020/21 AIP program to put in bids; the selected agro-dealers were awarded contracts and registered as input suppliers in the AIP electronic system. Each agro-dealer was assigned a specific EPA in which to operate, and AEDCs identified selling points across the EPA where agro-dealers were expected to set up their operations. This was done to ensure that farmers could access the AIP inputs without having to travel long distances.

Note that, per program guidelines, farmers were only allowed to redeem inputs in the EPA in which they were registered. It was the responsibility of the agro-dealer to set up satellite selling points as designated by the AEDCs.

The next step in AIP implementation was beneficiary sensitization. This was conducted by the AEDOs and AEDCs in the company of ADC and VDC members. These sensitization sessions covered topics such as the process of inputs redemption using a mobile application specifically developed for the AIP. Beneficiaries were to have their national identity cards scanned at the agro-dealer using a smartphone. Then, the system would cross-check the identity of the farmer against a database of selected AIP beneficiaries and return the validation results to the agro-dealer. Thereafter, the AIP mobile application would list the inputs available for redemption by the farmer. The transaction would then be transmitted to the AIP central server after the inputs are redeemed. The Government used this information to reconcile invoices received from the agro-dealers (input suppliers) and to issue payments.

Initially, the AIP system had only one server to cover 2,200 mobile devices nationwide. This resulted in excessive traffic and significant delays in processing input redemptions at agro-dealer outlets. The Government partially resolved this problem by introducing two additional processors to increase the processing speed of the AIP server.

4. Key Findings

4.1 Successes of AIP implementation

Number of AIP beneficiaries: Relative to the FISP, the respondents were pleased with the expanded coverage of the new program. In some districts, the beneficiary coverage increased from around 20% of farm households under the FISP to around 80% under the AIP. One extension officer commented that the increased coverage meant that the impact of extension workers will be more obvious when many households realize bumper harvests due to the AIP. Increased coverage of the program also meant that the incidence of input sharing among community members (which had been prevalent in the FISP and had resulted in reduced input use intensities) would be considerably reduced, if not eliminated (CDM & FUM, 2018).

Improved security of beneficiary inputs: According to some participants, the use of the electronic system and national IDs to process beneficiaries' redemption of subsidized inputs

improved the process and eliminated the fraudulent duplication of vouchers that had plagued the FISP (Figure 4f). These advances have therefore enhanced the program's security. Compared to the FISP, farmers in the AIP were also more confident that their inputs could not be so easily stolen by agents. In addition, the new electronic system has generally made data management and record keeping easier for agro-dealers.

Ease of transactions: The electronic system was quite fast and efficient in serving farmers whenever the network was working well. Under these ideal conditions, transactions took no more than one minute. Improving the network infrastructure of the AIP would significantly ease the process of input redemption by farmers.

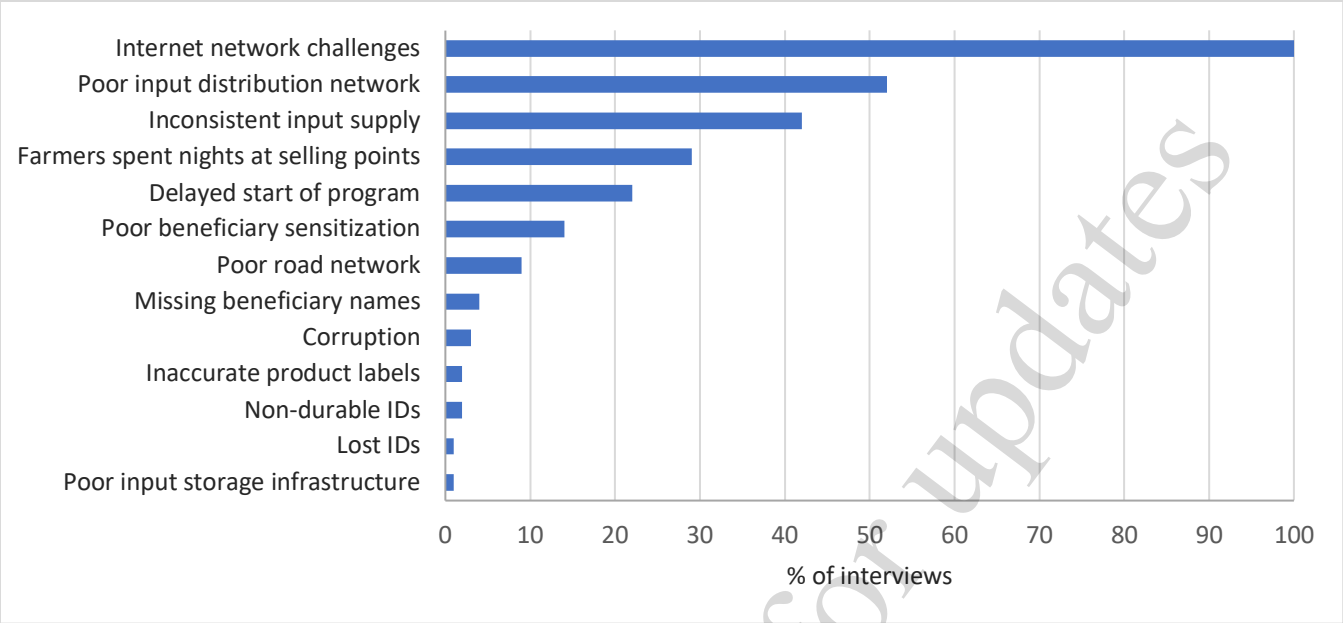
> *"Now it only takes less than one minute (1 – 10 seconds) because the AIP app has been significantly improved. Besides, we have boosted our internet network by introducing a Mobile Wi-Fi (MiFi) onsite."*
>
> *—Agro-dealer, Kazomba EPA, Mzimba District*

Reduced logistical and operational burden: Under the FISP, MoA core activities had often been suspended or postponed during FISP implementation as staff would need to attend to FISP activities from the headquarters to the EPA level. In contrast, under the AIP, the burden on MoA officials is significantly reduced. The electronic system for input redemption presents an opportunity to MoA officials because the redemption transaction becomes an interface between the farmer and the agro-dealer. Instead of physically monitoring AIP implementation (which had been necessary with the FISP), MoA officials now simply receive redemption reports from agro-dealers in real time. In addition, the costs and burdens of sourcing voucher printing services and distributing the vouchers has been completely eliminated with the introduction of the AIP electronic system.

4.2 AIP implementation challenges

The 2020/21 AIP faced several challenges, as presented in Figure 3. The most commonly cited challenges included difficulties with internet connection; a poor distribution network for inputs; inconsistencies in input supply; farmers spending nights at the selling points as they waited to redeem their inputs; delayed commencement of the program; and poor beneficiary sensitization. Next, we discuss these challenges in detail.

Figure 3. Challenges encountered in the 2020/21 AIP



Source: Authors. Note: The x-axis indicates the percent of interviews in which an issue was mentioned during this rapid assessment.

Internet network challenges during input redemption: Network challenges were cited by almost all respondents as the greatest problem with the new electronic system of input redemption (Figure 3). For the first month of the 2020/21 AIP inputs redemption period, the AIP system had just one processor. In November 2020, the Government introduced two additional processors which led to some improvement in the network's performance and increased the system's speed. However, this adjustment did not entirely address the network challenges. Poor internet coverage in some parts of the country meant that network issues remained problematic throughout the season. In addition, the system's low capacity meant that it continued to be overwhelmed during normal working hours when traffic was high and multiple transactions would occur simultaneously. In contrast, the network would generally

> *"The network is a very serious problem. Agro-dealers had to locate the phone network about 2 km away from their stores to scan national IDs. The problem is so bad that SFFRFM had to buy a SIM card and operate using a Hallotel telephone line from Tanzania, which improved the network issue. However, the Hallotel network only worked better early in the morning and late in the afternoon."*
>
> *—AEDC, Mwamkumbwa EPA, Chitipa District*

improve during off-peak hours. For this reason, some agro-dealers chose to work very early in the morning (from 4 am) or very late in the evening (after 5 pm) to circumvent the network challenges.

"False redemptions" due to network problems: This occurred when a farmer's attempt to redeem inputs was obstructed by a network failure. They would wait for the network to recover and then try again. At the second attempt, some beneficiaries would discover that the system had already validated their ID during the first attempt. Thus, the system would not allow the farmers to submit their ID again. In this case, the agro-dealer was responsible for reporting the situation to the MoA to have the false redemption removed from the system to allow for a second scan.

Theft of inputs by agro-dealers: It was reported in the farmer FGDs that some agro-dealers took advantage of the network challenges to steal from beneficiaries. For example, if a farmer failed to redeem inputs because of a "false redemption" and never returned to the agro-dealer to get the issue sorted out, the agro-dealers would sell the unclaimed inputs to other buyers. In this case, the agro-dealers would claim all AIP transactions that went through their online system, yet they sold unclaimed inputs to other buyers. In Mchinji, one agro-dealer had reportedly completed his consignment and balanced his records for the EPA, yet he still

Box 1. A case of a "false redemption" in Mchinji District

A farmer in Mchinji District, "Joseph", went to an agro-dealer shop to redeem his inputs on 12 December 2020. When his ID was scanned, he was told that the network was problematic. The salesperson held onto Joseph's ID to redeem later when the network had improved, and Joseph went home. However, when he returned the next day, he was told that there were no remaining inputs in the system associated with his ID—In other words, the system indicated that the framer had already redeemed his input pack on the first attempt. Joseph was told that he needed to visit the AEDC's office for assistance, though when he arrived at the AEDC's office, the AEDC did not know how to best assist him because there is little the EPA office can do at the redemption stage.

Luckily, our study team had contacts with someone on the AIP information technology team in Lilongwe. When we shared with him Joseph's story, he was able to retrieve the redemption information and convey this information to us via WhatsApp. We accompanied the farmer to the agro-dealer shop and presented his redemption details, and finally the farmer was able to redeem his inputs in our presence.

had 14 bags of unclaimed AIP hybrid maize seed. It could be conjectured that either the agro-dealers did not receive instructions regarding how to help beneficiaries get some of these issues resolved, or they intentionally failed to assist them.

Long waiting times: The slow or non-functioning network caused congestion at agro-dealer shops and resulted in long wait times (Figure 4b). Some farmers spent nights at the agro-dealer shops in order to redeem their inputs the next day. Some farmers even spent multiple nights at trading centers, where there were no sanitary, water, or shelter facilities to accommodate them, waiting for the network problems to be resolved. The opportunity cost of farmers' waiting time and the risks to which they were exposed were considerable.

> *"Some are spending nights at the selling point, where they are vulnerable to theft of ID cards and money. They remain in the line overnight without food or water. Their households back in the villages are also left without food."*
>
> *—Agro-dealer, Nkanda EPA, Mchinji District*

Concentration of agro-dealers at EPA headquarters or in main trading centers: As noted earlier, the AIP assigned agro-dealers to service specific EPAs to protect them from competition and thereby encourage the participation of small agro-dealers.[1] In the course of designing the AIP, AEDCs and AEDOs were asked to ensure that the locations of main selling points and satellite selling points in the EPAs would be sufficient and easily accessible by the targeted beneficiaries. However, several challenges were identified in this study. First, it was found that very few agro-dealers had opened satellite selling points. Second, most agro-dealers were concentrated in trading centers with good roads and other infrastructure, particularly a strong mobile phone network. Third, small-scale agro-dealers quickly ran out of stocks, and some only had one type of fertilizer in their shops. The implication was that many farmers were forced to travel long distances from their homes (sometimes up to 70 km) to trading centers where other agro-dealers were located. For example, farmers from as far as Tsangano, Kandeu, and Njolomole had to travel to Ntcheu Boma to redeem their inputs because all agro-dealers in Ntcheu District had decided to operate from the district center.

[1] Partway through the season, larger fertilizer companies were also engaged to serve as AIP suppliers in response to the underperformance of small agro-dealers. Along these lines, some agro-dealers were later given permission to operate anywhere without restriction.

Compounding these challenges was the fact that farmers could only redeem their inputs in the EPA in which they were registered, as per program guidelines. This meant that farmers who resided near selling points that were not within their EPA had to travel long distances to reach selling points within their EPAs.

Limited or uneven availability of inputs: Ease of access to the subsidized inputs varied over time and space, both within and between districts. Fertilizers were cited as being particularly scarce. We found that most agro-dealers had only one or two types of inputs in stock, meaning that farmers had to wait to purchase the other inputs. For example, some agro-dealers did not stock maize seed or initially stocked top dressing fertilizer (urea) instead of the NPK fertilizer that is needed early in the season. As a result, some farmers planted recycled or local maize or were unable to apply the NPK fertilizer at planting time. We also found that many farmers had not yet redeemed their inputs by mid-December—more than four weeks after the onset of rains. Studies have shown that delayed application of fertilizer significantly reduces its effectiveness (Jones & Jacobsen, 2009).

In some districts, community level committees were initially formed to facilitate farmer redemption of inputs. The original intention was to assign each village a specific date on which they would redeem their inputs, with assistance from these committees. Unfortunately, in many cases, the limited or uneven availability of inputs meant that, if the distribution of inputs were to be conducted village-by-village, only a few villages would benefit before the entire local input supply for a given date was exhausted. For this reason, the plan to distribute inputs according to village was abandoned.

> *"Sometimes, I have taken a personal initiative to help people access inputs. I use my personal vehicle to go around Chitipa to collect excess stock from ADMARC satellite depots and sell them to beneficiaries around Mwamkumba. I can carry up to 750 kg per trip, and so far, I have managed to ferry around eight tons from other ADMARC depots through this approach. I sometimes travel as far as Wenya, Kameme, Chitipa Boma, and Lufita to collect excess seed stocks to sell at Mwamkumbwa. I have to leave my assistant at the depot to scan the IDs while I hunt for stock from other selling points."*
>
> *—ADMARC salesperson, Mwamkumbwa EPA, Chitipa District*

Beneficiary verification: As noted earlier, the MoA did not conduct beneficiary registration in the 2020/21 season. Instead, it utilized the 2018/19 farm family register. However, the 2018/19 farm family register was not comprehensive. There were several reasons that a farmer may not have been included in the list of AIP beneficiaries. First, the criteria for selecting beneficiaries included landholding size and social status. As a result, those without land, along with relatively wealthy farmers, were intentionally not included in the beneficiary list. Second, there were names in the farm family registers that could not be reconciled with names in the National Registration Bureau database during the verification exercise. As this verification process took longer than expected, some names that could not be confirmed were maintained in the beneficiary list when input redemption commenced. It follows that some farmers that *should* have qualified for the program did not have their correct names on the beneficiary list. Third, household that were listed in the 2018/19 farm family register may have migrated elsewhere since 2018/19, or the household head may have died. In the latter case, the remaining family members could not access the AIP inputs because only the person whose name appeared on the list of beneficiaries could participate in the program.

> *"Time for sensitization was delayed because of Covid-19 restrictions, and we were doing things in a hurry…"*
>
> *—AEDO, Mchinji District*

Inadequate time allocated for beneficiary sensitization: There were some setbacks in the sensitization process of the 2020/21 AIP. In particular, the time between the government notice to implement the AIP and the onset of the rainy season was brief and, hence, beneficiary sensitization activities were necessarily rushed. This was noted by the AEDO of Mchinji District.

Exclusion of some agro-dealers from the AIP: Agro-dealers that did not participate in the AIP had complaints. They attributed their non-participation to information asymmetry during the bidding process. Specifically, they alleged that smaller agro-dealers were not provided with adequate information regarding the process and timing of the tenders. The high number of beneficiaries in the AIP meant reduced commercial fertilizer sales. Consequently, non-participating agro-dealers have seen reduced revenues.

Figure 4. Images from the Field

(a) FGD with farmers in Chikwawa district, Livunzu EPA

(b) Congestion at an agro-dealer shop following a network outage

(c) Damaged identification card

(d) Poor road infrastructure

(e) A dilapidated storage room for AIP inputs

(f) Input redemption using the AIP application

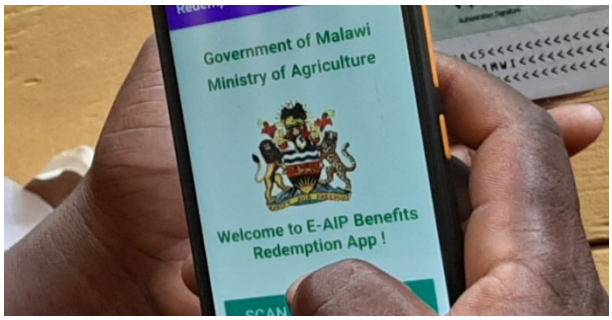


Photo credit: Authors

Damaged identity cards: The new input redemption system relies on national ID cards to identify the beneficiaries. Unfortunately, the ID cards currently being used in Malawi are made of low-quality material and, hence, are highly susceptible to damage (Figure 4c). Beneficiaries with damaged ID cards (cracked, worn-off serial code, etc.) were not allowed to redeem the AIP inputs. Instead, they were referred to the National Registration Bureau

office at the district council. Unfortunately, they generally did not receive assistance before the close of the input redemption period.

Poor state of road infrastructure: Poor road infrastructure, particularly in rural areas, discouraged agro-dealers from operating in the remote areas in Malawi (Figure 4d). In such cases, beneficiaries were required to travel longer distances to access AIP inputs.

Poor state of storage infrastructure: Poor storage infrastructure was mentioned as yet another challenge in the AIP implementation. Agro-dealers often do not have adequate storage capacity, a problem that was compounded by the increased coverage of the AIP (Figure 4e). Also, Nitrogen-based fertilizers are sensitive to moisture and need to be handled with care. Low quality storage facilities increase the risk of input loss due to pests and moisture, as well as theft.

Lack of small currency denominations to use as change: A lack of small currency denominations to use as change imposed some hidden costs on farm households. The AIP had revised the prices of a 50-kg bag of urea or NPK to a flat MK 4,495. However, due to the scarcity of smaller denominations of Malawi kwacha, farmers were forced to pay MK 5,000 for each 50-kg bag of fertilizer. Assuming that this affected all the roughly 3.8 million AIP beneficiaries, in aggregate, this represents a considerable transfer from farmers to agro-dealers.

Lack of awareness of the toll-free phone line: The MoA set up a toll-free phone line over which farmers could report any problems they faced in the process of redeeming inputs. However, most farmers did not use the toll-free phone number citing a lack of awareness of the service. In addition, most of those who tried calling this number reported that their calls went unanswered. Consequently, there was a general perception that the service was not available and, thus, many farmers preferred submitting their grievances to the agricultural offices rather than using the toll-free line.

Removal of the legume component: Recall that the FISP had included legume seed within the inputs package. Respondents considered the removal of the legume component from the AIP inputs package to be imprudent because legume production normally serves to cushion the income flow of farm households. Legumes and oilseeds comprise almost 60% of the total marketed surplus of crops in Malawi (Muyanga et al., 2020). Some respondents were also

not satisfied with the maize varieties included in the AIP package, noting that certain preferred varieties, such as DK-777, were not available in their areas.

> *"I would be satisfied if, by today, the distribution had reached over 90% of the beneficiaries. But it is already late, and we have not even reached 50% of the target. Some potential beneficiaries have gone ahead and planted local maize seed."*
>
> *—Agriculture Officer, Ntcheu District*

5. Conclusion and Policy Considerations

This report presents the findings of a rapid assessment of the implementation of the Affordable Inputs Program (AIP) conducted by MwAPATA Institute. While the overall objectives of the AIP are to increase farmers' access to improved inputs for increased cereal productivity to improve the country's food security and nutrition and to reduce poverty, this assessment was limited to highlighting early succcesses and challenges in the rollout of the AIP in the 2020/21 season. The assessment is based on key informant interviews and focus group discussions with MoA officials at different levels, agro-dealers, and farmers.

The assessment shows that the most cited success of the AIP, relative to the FISP, is the expansion in beneficiary coverage. In some instances, the FISP had only reached about 20% of the district population, resulting in widespread sharing of inputs among community members. In contrast, the AIP was intended to reache around 80% of the farm households in the districts that were surveyed. According to extension workers, the high coverage rate of the AIP is expected to make the impact of their extension work more noticeable. It is also expected to reduce the sharing of inputs among community members that had previously resulted in low application rates.

Another success of the AIP is the adoption of an electronic beneficiary identification and input redemption system. This is expected to limit fraud and reduce the proliferation of secondary markets for subsidized inputs. Additionally, the electronic input redemption system has made input redemption more efficient. This system has also reduced the logistical and operational burden on the MoA, as well as the corresponding administrative costs (for voucher printing and distribution) and the costs associated with monitoring and evaluating voucher distribution.

In terms of challenges, the AIP faced a number of challenges, some of which can be attributed to the fact that the 2020/21 program was new. Challenges include poor internet connection in the vast majority of the areas that were visited; poor distribution networks for inputs, due among other things to the poor quality of physical infrastructure, such as roads and warehouses; inconsistencies in input supply; farmers spending nights at selling points as they waited to redeem their inputs; delayed commencement of the program; and poor beneficiary sensitization.

That said, the 2020/21 AIP registered both successes and challenges from which key lessons for improving the design of the program can be drawn. The program should endeavor to leverage on the current successes while also resolving the teething problems that the AIP experienced in the 2020/21. In conclusion, we present short-, medium-, and long- term policy proposals that can be hepful in addressing challenges that were faced by the AIP during the implemenation stage.

Short-term proposals:

- There is a need for early and timely planning and preparation of the program. Even though only about 22% of the interviewees cited this as a challenge, we noticed that delays in starting the program produced a ripple effect throughout the implementation process that may affect the intended outcome of the program. For example, it is unlikely that the AIP mobile application was piloted to ensure that it was running smoothly before the national rollout.
- The need for proper sensitization of beneficiaries and AIP input suppliers cannot be overlooked, particularly with a new program like the AIP. In 2020/21, beneficiary sensitization was rushed, and there was not enough time to thoroughly train the agro-dealers. Better sensitization of farmers and training of agro-dealers would have minimized the need to involve EPA staff in the input redemption process, leaving the transaction as an activity between farmers and agro-dealers.
- Update the farm family registers from which beneficiaries are selected. Yearly updates of these registers will be important to ensure that every farm household in the community that meets the criteria for inclusion in the AIP is listed among the beneficiaries. Such maintenance of the registers will also help to remove the names of people who have died or have moved to other areas.

- In some cases, farmers failed to redeem their inputs due to non-durability of the national ID cards. It would be prudent to redesign the mobile application to allow input redemption through the use of a unique reference number on the national ID card, and to enable this to be entered into the system manually.
- The Government needs to ensure that AIP inputs are appropriate for various agro-ecological zones, and in demand by farmers, particulary in the case of seed. We noted that some farmers complained of not being able to purchase the seed they desired (such as "Mkango" and DKC-777) because it was unvailable. There were also instances in which farmers accessed late maturing seed varieties when their agroecological zones demand early maturing seed or vice versa.
- The MoA could decentralize the AIP servers to the district level, with AIP officers in each district responsible for resolving issues as they arise. This would help ease the network traffic that slowed down the system in 2020/21. Moreover, the current mobile application could potentially be upgraded to allow farmers to redeem inputs offline.
- Many farmers did not redeem their inputs because of network challenges. It is advisable for the Government to verify all receipts issued to farmers by agro-dealers against what went through the system before paying the agro-dealers. Otherwise, a substantial amount of money could be funnelled to agro-dealers for inputs that were never delivered.
- The MoA may consider opening fertilizer markets closer to the crop harvest period, as that is when farmers have liquidity to purchase inputs for the following growing season. This will also give farmers ample time to procure inputs and would reduce congestion at the selling points. The current input redemption period, which falls mostly in November and December, occurs at a time when farmers often have other pressing needs for cash.
- The Government may also allocate more resources for administration of the AIP at the district and EPA levels. We noted that district and EPA staff were heavily involved in resolving issues that farmers faced in the process of redeeming their inputs. However, there was little financial support from the headquarters to facilitate their active engagement in the program's implementation.
- It is advisable to widen the input redemption area for farmers so that beneficiaries can redeem their inputs anywhere within their districts, giving them more flexibility to purchase from whichever selling point is closest to them.

Medium-term proposals:

- It is advisable to include legume seeds in the AIP inputs package. Farmers are often encouraged to intercrop cereals and legumes in order to improve soil fertility, as studies

have shown that crop response to inorganic fertilizer is enhanced in fertile soils (Girma et al., 2017; Kanyamuka et al., 2020). The absence of legumes in the AIP inputs package may therefore diminish the effects of the program on agricultural productivity, in addition to reducing the program's impact on nutrition and income.

Long-term proposals:

- There is a need for improved contract enforcement for AIP input suppliers and/or the provision of incentives to encourage agro-dealers to supply inputs throughout their entire assigned areas. This assessment revealed that agro-dealers were mainly concentrated in townships and large trading centers, which limited farmers' access to inputs in more remote areas. Input suppliers that are typically stationary (operating out of one particular selling point) may consider adopting mobile vending practices to improve access to subsidized inputs in remote Sections or EPAs.
- Alternatively, to expand the reach of selling points, the Government could establish a different system of agro-dealer coverage, such as by having larger agro-dealers subcontract with smaller agro-dealers operating at the Section or EPA levels.
- The Government should award input supply contracts to reputable fertilizer firms that have the capacity to deliver inputs as per the contract requirement, rather than prioritizing broad inclusivity in the agro-dealer selection process. This assessment has noted that many smaller agro-dealers consistently ran out of stock. This becomes costly to farmers as they may need to wait for several days before the inputs are restocked, or they may need to travel to alternative selling points that have the inputs in stock.
- Finally, there is need to improve internet network in the country to facilitate network-related transactions.

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