

PRISMA Learning Series

August 2023

What we learned from working in Mungbeans



	Timeframe	: 2014 to Present		% NAIC	: 46%
	Locations	: EJ, CJ, NTB, NTT		Co-investment	: IDR 8,682,193,183
	Total outreach	: 44,052		Farmer investment	: IDR 14,591,524,350
	Total NAIC	: IDR 82,576,205,569		Number of partners	: 7

This lessons learned paper is about mungbeans, a sector in which PRISMA has successfully convinced major seed producers to introduce high-quality certified seeds.

Why Mungbeans?

PRISMA chose to work in mungbeans since the crop plays a vital role for smallholder farmers despite being perceived as a secondary crop compared to rice and maize. Mungbeans generate a triple benefit for poor households— additional income, affordable nutrient-rich food, and increased soil fertility. Due to its low maintenance, minimal production costs, and short growing time, mungbean is widely used in crop rotation and is often cultivated as an attainable interval cash crop during the dry season. Around 764,000 farmers plant mungbean yearly, and most farming households that

grow mungbean are poor, with roughly 39 percent falling under the \$2.5 a day poverty line (PPP) and 58 percent under \$5.5 PPP.

There is potential to increase mungbean productivity without significantly raising production costs. At the same time, domestic consumption of mungbeans is increasing by 3.5 percent annually. However, national production has yet to fulfil the demand for mungbean consumption, and the gap between supply and demand is estimated at 22 percent.

Constraints in market functions

Over 102,000 metric tonnes (MT) of mungbeans are imported to Indonesia because of low domestic productivity. The reason for this supply-demand gap is the lack of high-yielding seed and poor application of good agricultural practices (GAP). Farmers rely on retained seeds which have an average yield of 1.078 MT/ha compared to the optimum productivity of 2 MT/ha with high-yielding certified seeds. However, there is a low rate of commercialisation by foundation seed producers, leading to insufficient availability of certified seed in the market. Concurrently, while there is an opportunity for local farmers to fulfil demand from the food processing industry, farmers have limited information about the variety and specifications demanded by off-takers. Off-takers lack experience sourcing mungbean locally since they mainly procure imported mungbeans.

These constraints create opportunities for PRISMA to engage in the following underperforming market functions:



QUALITY SEED

Improving access to high-quality certified seeds and proper GAP application



OFFTAKING

Improving access to information on offtaker requirements and improving local sourcing strategies



History of PRISMA's engagement in Mungbeans

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Phase 1 interventions

In phase 1, PRISMA focussed on persuading early movers that there was a viable market for high-yielding certified mungbean seeds and provided support to partners to enter the market.

When PRISMA commenced its work in the mungbean sector in 2014, it was initially through a local co-facilitator. A co-facilitator is an organisation contracted by PRISMA to undertake the management of interventions on behalf of the program. As part of the PRISMA design, several international and national NGOs were trained to provide an extension to PRISMA's in-house capacity. The co-facilitator partnered with a fertiliser company and a small seed nursery in the mungbean sector. The co-facilitator also proposed working in 3 additional functional areas besides seed and off-taking: other inputs (fertilisers and pesticides), mechanisation and sowing tools and public extension work. These were other inputs/fertiliser and pesticides, mechanisation/sowing tools and public extension workers with the Government of Indonesia.

When the sector was transferred to PRISMA in 2016, the co-facilitator interventions were closed due to a lack of partner buy-in. PRISMA conducted a field investigation, focusing on Madura and several districts on the East Java mainland to assess the feasibility of continuing in mungbean. Based on this assessment, PRISMA concluded that there was still potential to work on promoting certified mungbean seeds, but there was insufficient evidence to support all the key functional areas identified by the co-facilitator. As a result, PRISMA narrowed its focus and prioritised increasing the availability of certified seed and embedded information.

At that time, Balitkabi, the government-owned legume research institute, had already started releasing a new series of high-yielding, improved mungbean varieties (VIMA series). However, seed producers were not made aware of its availability or potential. Seeing an opportunity to promote and commercialise these new varieties, PRISMA supported Balitkabi with a market study to identify the supply and demand gap for foundation seeds and convinced Balitkabi to make several parent seed varieties available to seed companies.

In tandem, PRISMA convinced a multi-national vegetable seed company and two local nurseries of the market potential for high-yielding certified mungbean seed and connected these companies with Balitkabi. PRISMA also persuaded these companies to market seeds to mungbean farmers with embedded services on GAP. During the initial market entry, PRISMA supported partners with market assessments, the licensing process for certifying seeds, conducting GAP training for contract farmers, designing marketing activities, and identifying potential distributors and retailers.

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Phase 2 interventions

In phase 2, PRISMA mainly supported partners with marketing and promotion, including digital marketing during the COVID-19 outbreak, and in managing endemic rat plagues (for example through trials of a trap barrier system), which wiped out 98 percent of nursery production in 2021.

During Phase 2, PRISMA also explored several other market functions (mechanisation, policy advocacy, and off-taking), and in 2021, it decided to expand the strategy to include improving the downstream mungbean market. Also, in Phase 2, PRISMA supported partners to work in Central Java. As the centre of Indonesia's mungbean production, Central Java accounts for around 63.15 percent of national production.

As of June 2022, PRISMA had one active partnership with the nursery. In the meantime, PRISMA partnered with another second seed nursery to expand into certified mungbean seeds and pilot a women's sales agent model in Madura. PRISMA is encouraging more medium-sized nurseries to crowd into the market by sharing information about the market opportunity and potential of the high-yielding mungbean varieties. This included a webinar conducted with both public and private partners in early 2021. In the case of PRISMA's multi-national seed company partner, the program supported trials for a new mungbean variety.

Table 1: History of mungbean interventions in PRISMA

Type of partner	Province	Years	Functions
Fertiliser company (medium-sized)	Phase 1: • East Java	Phase 1: May 2015 - Jul 2015	<ul style="list-style-type: none"> Inputs (fertilizer) GAP
Seed company (small-sized)	Phase 1: • East Java	Phase 1: Aug 2015 - Jul 2017	<ul style="list-style-type: none"> Inputs (certified seed) GAP
Public Sector	Phase 1: • NTT	Phase 1: Apr 2017 - Dec 2018	<ul style="list-style-type: none"> Inputs (certified seed and parent seed) GAP
Seed company (medium-sized)	Phase 1: • East Java	Phase 1: Feb 2018 - Nov 2018	<ul style="list-style-type: none"> Inputs (certified seed) GAP
Seed company (medium-sized)	Phase 1: • East Java Phase 2: • Central Java	Phase 1: May 2017 - Nov 2018 Phase 2: May 2019 - Dec 2022	<ul style="list-style-type: none"> Inputs (certified seed) GAP Offtaking
Seed company (large-sized)	Phase 1: • NTT • NTB • East Java Phase 2: • East Java • Central Java	Phase 1: Jul 2018 - Nov 2018 Phase 2: May 2019 - Dec 2021	<ul style="list-style-type: none"> Inputs (certified seed) GAP
Seed company (medium-sized)	Phase 2: • East Java • NTT	Phase 2: Oct 2021 - Dec 2022	<ul style="list-style-type: none"> Inputs (certified seed) GAP



What worked and what didn't?



Co-facilitators need to have a strong market systems background

Initially, when a local co-facilitator was managing the mungbean sector, there were challenges in understanding the market systems development (MSD) approach. Instead of facilitating private partners to change the way they did business, the co-facilitator fell back into direct delivery to farmers. This approach meant there was minimal participation or buy-in from the private sector partners. These factors led to PRISMA closing these partnerships and ending its engagement with the co-facilitator.

When the PRISMA team took over the sector from the co-facilitator, this was really when the mungbean sector took off. Certified high-yielding mungbean seeds made fundamental sense given the size of the mungbean market, limited market distortion, and potential profit margins for seed producers and mungbean farmers. Starting from a baseline of zero in 2018, thirteen percent of the mungbean market is now using certified high-yielding seeds instead of retained seeds. The sector is well on its way to capturing the 'early majority' of farmers with this innovation of certified high-yielding mungbean seeds.



Good analysis of business opportunities is key

With the right people in its mungbean team and rigorous analysis around the business opportunity, PRISMA succeeded in convincing large and medium-sized seed producers to introduce a new product and establish a commercial market for certified seeds. PRISMA's multi-national partner, for example, sold 3.5MT in 2018 as part of its initial marketing trial. Its commercial sales have since increased by over ten-fold. Recognising the benefits of certified mungbean seeds, the government also began approaching PRISMA's partners to supply certified seed to a new government subsidy program. Although subsidy programs can distort the market in the long run, the government's interest in supplying certified seeds to farmers is a positive sign that a previously non-existent product is gaining traction and more poor farmers will be exposed to the benefits of good quality seeds. The majority of interviewed farmers (approximately 64 to 100 percent depending on the province) indicated a willingness to purchase certified seeds in the next season, regardless of whether they were introduced to certified seeds through the commercial market or government program.



Having a good business plan can move even the big players

PRISMA's engagement with the multi-national partner was particularly noteworthy. Prior to PRISMA, this company had been operating in Indonesia for nearly 3 decades without expanding its portfolio beyond horticulture seeds. Not only had PRISMA successfully convinced this company to enter a new market, but it had done so in a food crop, which would require a separate license for seed production and distribution. It also involved targeting maize and rice farmers, a different demographic than the company's main horticultural customer base. Internally, this new business also required approval from the management level of the parent company. All of this was achieved.

Through a well-researched pitch and business plan, which rivalled the quality of work from leading strategy consulting firms, PRISMA convinced both the Indonesian and parent company of the mungbean market potential in Indonesia. Impressed by the rigour of the business plan, the management of the Indonesian office shared the mungbean business opportunity and plan with a number of other country offices in the region. This was the first time PRISMA had prepared such a comprehensive business plan for a potential partner, and this also brought about a transformational change within PRISMA. Rigorous, professional business plans are now included as part of PRISMA's capacity development plan for partners.

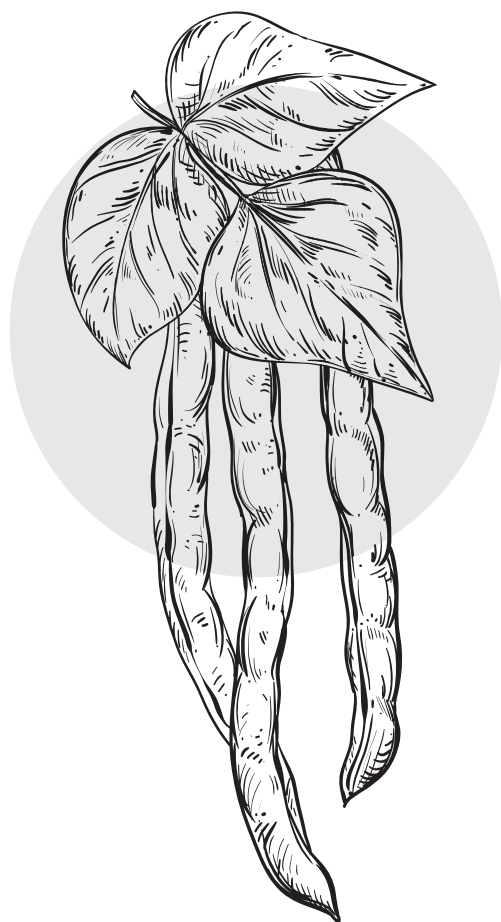


A big player can pave the way for smaller businesses

The partnership with the multi-national seed producer played an important role in improving PRISMA's understanding of the mungbean sector and building the confidence for smaller companies to expand into certified mungbean seeds. According to PRISMA's smaller seed producer partners, it was reassuring that a large multi-national company was entering the business. Local partners also credited the multi-national's field staff for its widespread dissemination of information about the VIMA varieties.

Nevertheless, there have also been some challenges with the multi-national partnership. In particular, the partner has yet to reach the annual sales targets outlined in the business plan. Since the company only achieved half of its sales target in 2019, the 2020 target was revised downwards by 80 percent. Even then, the company could not meet the new target, and most of the sales went to the government subsidy program. The slow pace of progress can be attributed to the company's limited resource allocation and unclear incentives for staff to achieve mungbean sales targets. This slow pace is also partly because VIMA is a public seed variety. The partner subsequently shifted its focus to introducing a new variety of their own mungbean seed. As a result, the company scaled back the VIMA marketing and promotional activities planned under Phase 2. Although the activities under the most recent partnership agreement were not completed, the company's decision to invest in trialling a new seed variety demonstrates it is still committed to growing a commercial mungbean market.

As a result of PRISMA's efforts in the sector, a number of other seed companies are expressing interest in certified mungbean seeds. At least ten other seed companies have contacted Balitkabi independently of PRISMA and are now licensed and producing certified mungbean seeds, albeit primarily for the government subsidy program. Due to the improved quality of local mungbean from certified seeds, major food producers are also responding positively. For example, Nestle Indonesia is collaborating with a PRISMA partner to source mungbean locally for its baby food products. There is also early interest from exporters for mungbean grown from certified seeds.



Good feasibility analysis is required

Overall, while there has made notable progress towards developing an emerging market around certified seeds, not all of PRISMA's efforts in the sector have worked. In 2020, PRISMA tried to address the bottleneck arising from Balitkabi's limited production of foundation seeds through a policy advocacy paper. This did not receive any traction, and the team has since stopped its policy efforts. PRISMA found that mungbean is not a government priority as government institutions are more focused on commodities such as rice, maize and soybean.

The team also explored mechanisation, especially since labour constitutes the largest component of farmers' costs and was particularly scarce during COVID-19. However, this was ultimately dropped since it was not possible to mechanise harvesting without compromising the quality of mungbeans. However, the PRISMA mechanisation have had some success with one VIMA variety. Finally, PRISMA also experimented with nutritional messaging in partnership with its multi-national partner, but this was discontinued since the partner did not see a clear link to seed sales. The reason for this was that mungbean producing households rarely kept any of the production for their own consumption.

Key lessons

These are the key lessons that PRISMA learned from working in mungbeans:



A well-articulated, business-oriented elevator pitch can open the doors to engaging even the most prominent companies in a new market opportunity.

The business pitch should use the language of the private sector, rather than the development sector, and be well-researched. Using staff with prior private sector experience is also beneficial. In the case of mungbeans, PRISMA was already partnering with the multi-national partner in several other sectors, and the mungbean team had the opportunity to come along to one of the partnership meetings. One of the staff from the mungbean team was given a window of five minutes to make a business pitch to the managing director and marketing director. Prepared with figures and data about the market size and overall sector, PRISMA presented the business opportunity in the five minutes allocated and confidently fielded any questions from the partner's management. When asked about high-quality seed varieties, PRISMA was not only able to confirm the existence of such varieties but was also able to demonstrate the ability to help the company acquire the parent seed from the relevant government institution.



The value addition of an MSD program to a large company is often less about the funds the program brings to the table and more about the market insights and technical support it can provide.

Larger companies often have the money to invest but need additional insights and expertise. This is particularly true when developing unexploited market spaces, as was the case with certified mungbean seeds. Since the mungbean market potential was something that the multi-national partner was unaware of, this presented an opportunity for PRISMA to add significant value by providing market insights. PRISMA commissioned an ethnographic study to understand mungbean farmers' behaviours, including farming practices, factors influencing seed purchase decisions, and farmers' awareness of the partner's brand. This was the first time PRISMA had invested in a study of this scale and cost, and it did so because of the scale opportunity working with a leading multi-national seed company. The mungbean team also worked closely with the partner to develop a comprehensive business plan.



Although the quickest route to scale is often through a large market actor, it is important not to rule out medium-sized players.

For MSD programs, a key strategy for achieving scale is to partner with one or two large companies that have the networks, influence, and incentives to diffuse innovation. PRISMA envisioned that the multi-national partner could be that scale agent for the mungbean sector. But the partner struggled to increase its production capacity. Meanwhile, the medium seed partner expanded its capacity from only 10 MT in 2018 to over 300 MT in 2021, which is higher than the multi-national partner. However, most of this was sold for consumption rather than as seed, partly due to challenges with the government's seed certification capacity during COVID-19 and the medium seed partner's limited capacity in marketing.

This suggests there is potential for programs to reach scale by diversifying and working with more medium-sized companies as long as programs provide the right type of support. In the case of one of PRISMA's partners, this meant additional support around marketing and distribution. One of the advantages of working with medium-sized companies is their level of commitment. For the mungbean companies this was especially so given mungbean seeds constitute a larger portion of their overall portfolio. Medium-sized companies also require much shorter lead times for entering a new business and tend to be less concerned about having exclusive rights (more on this point in the following section).



Even after entering a partnership, it is important to continuously and proactively identify the risks and constraints that may arise for partners, particularly when developing a market for a new product.

Otherwise, this could lead to significant delays in progress or prevent partners from proceeding with the partnership. For example, one of the issues that came up during the partnership with the multi-national company was the lack of differentiation of publicly owned VIMA varieties. This meant that smaller nurseries were riding on the back of the company's success and promotional activities. This piggybacking meant less incentive for the multi-national company to proceed with the VIMA variety. If the team had proactively identified this risk, PRISMA may have been able to begin working with the company early on to identify and trial new varieties over which they would have exclusive rights. This has happened, but the program will not be able to claim the outreach during the program's lifetime.



It is also important to continuously review the constraints in the sector as there may be potential to work on new market functions as the market evolves and the team's understanding of the sector improves.

As a result of changing market conditions and imperfect information, it is a highly iterative process to understand market systems, and flexibility is essential for a successful MSD program. In the case of mungbeans, the team gained new insights which made it apparent that it would not be possible to work on certain market functions like mechanisation.

At the same time, new bottlenecks and opportunities materialised as seed companies increased their production of certified mungbean seeds. For example, to improve the sector's resilience and allow seed companies to fulfil higher production targets, a much greater number of parent seed would be needed. Also, as quality and yields improve from using certified mungbean seeds, downstream actors are beginning to source mungbeans locally. This now presents an opportunity for PRISMA to work on off-taking, a new market function. Finally, the emergence of external factors such as persistent rat attacks due to climate change has also led to new areas of support.



Policy advocacy is not the only way to solve government-related bottlenecks. In some instances, there may be private solutions that would be equally or more effective in alleviating the bottleneck.

One of the initial challenges in the mungbean sector was around the certification of mungbean extension seeds. The process of sending samples to the government seed certification bodies was highly inefficient and often led to delays. As a result, larger partners wanted to certify their own mungbean seeds. This was something the PSP (in the horticulture sector) was already doing for other seed lines because it followed strict standard procedures and had rigorous internal checkpoints. Rather than reforming the government seed certification process, PRISMA focussed instead on supporting these large companies get the authority from government to certify their own mungbean seeds.

The availability of parent seed is another government-related bottleneck in the sector. Since Balitkabi is a research institute, the commercialisation of parent seeds is not part of its mandate, and hence, it does not have the incentives to increase the production of parent seeds. Despite progress in getting Balitkabi to make its VIMA variety available to seed companies, PRISMA's policy advocacy efforts calling for expanding Balitkabi's production have not been successful. PRISMA has now shifted gears and is exploring the potential to increase the supply of parent seed through private seed companies. PRISMA medium-sized partners are potential candidates given their strong technical capabilities around mungbean seed production.



Although scale is necessary, it is insufficient for robust systemic change. Systemic change needs to encompass dimensions of scale, sustainability, and market resilience.

With 13 percent of the mungbean market now using certified high-yielding seeds, these figures are encouraging from a perspective of scale. There are also strong commercial incentives for seed companies to continue producing and selling certified seeds and for farmers to switch from retained to certified seeds. The price of certified seeds in the commercial market is around IDR 30,000, which is higher than the IDR 23,000 to 24,000 the government pays in its subsidy program. Despite the attractive price differential, many of the emerging mungbean seed producers are only selling to the new government subsidy program. As a result of COVID-19, even the multi-national company began selling to the government program in 2020, with 40 to 57 percent of its annual sales going to government channels. This is an issue for market resilience, especially given the uncertainty of government subsidies. Since the certified mungbean market isn't an established commercial market, seed companies need more resources and effort to promote the product. However, many of the medium and smaller companies do not have any expertise or experience with marketing and promotion.

With its existing and former partners, PRISMA has encouraged them to use the government program as a stimulus to introduce farmers to their certified seeds. PRISMA does so by supporting partners to increase their branding and visibility within the government program (e.g. through branded packaging with GAP information) so that farmers would know which seed company to contact if they wanted to make purchases in the next season. However, more is needed to build resilience in the sector, particularly with the new batch of seed producers that are crowding into the market. This may require more proactive support to build the marketing and distribution capacity of these new entrants. It also requires that the program has a clear understanding of the volumes being sold through both free market and government channels.



About PRISMA

PRISMA is a **partnership between the Government of Indonesia and the Government of Australia** to increase the productivity and income of smallholder farmers. Increased productivity contributes to food security and builds farmer resilience to market and agricultural shocks, including climate change.

PRISMA supports its partners to adopt **inclusive business practices** through co-investment, market research, and tailored business advisory support. Better business practices increase the availability of products and services that improve farmer productivity and incomes.

PRISMA also works with the Government of Indonesia to create a better business-enabling environment. PRISMA supports policy change that makes it easier to do business and promotes collaboration with the private sector to respond to market shocks and smallholder farmers competitiveness.

PRISMA is supported by the Governments of Australia and Indonesia and implemented by Palladium, with Technical Assistance from Swisscontact, Zurich.


Find out more:

www.aip-prisma.or.id // info@aip-prisma.or.id //  PRISMA



 Jl. Margorejo Indah I blok A-535,
Surabaya 60238, Indonesia

 info@aip-prisma.or.id

 +62 31 8420473

 [www.linkedin.com/company/
prisma-indonesia/](https://www.linkedin.com/company/prisma-indonesia/)

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