

**Breakthrough  
outcomes****PRISMA's stories of  
systemic change**

# The seeds of change:

## How to avoid empty rice bowls

### A story of progress towards systemic change in rice sector

Rice is critical to Indonesia's agricultural landscape as the country fulfills the majority share of its demand domestically. The government highly regulates the rice market because of the pivotal role rice plays in the economy. The government's active role in the rice sector makes it politically sensitive for a bilateral donor program. As a result, PRISMA focussed on rice in the early years through interconnected markets such as irrigation and, more recently, soil treatment, crop protection, and mechanisation.

One of the main issues facing the Indonesian rice sector is that rice demand is increasing, but rice production has been falling. To give some historical context, during Indonesia's green revolution from the 1970s to the 1990s, the government introduced HYV seeds,

increasing productivity by more than 100 percent. The success of the self-sufficiency movement led to brand loyalty and moulded the Indonesian taste to a few selected brands of rice seed.

Since the 90s, the quality of rice seed has decreased, and many farmers are using retained seed. Up to 30 percent of farmers use seed from the government free-seed program, where the quality of rice stocks held by the state-owned warehouses is poor.<sup>1</sup> Despite government research institutes developing improved rice seed varieties in 2012 (and marketed in 2013), farmers are cautious about changing seed brands. The reliance on pre-2013 branding is unwittingly being supported by the government, with 71 percent of the free-seed program still using the old seed varieties.<sup>2</sup>

## The road to hybrid is a long haul

In 2018, PRISMA got a mandate to undertake a preparatory study into rice seed and got the green light to work in the rice seed market system. Initially, PRISMA explored hybrid seeds because the seed productivity was around 7 tonnes per hectare compared to 4.1 tonnes for the pre-2013 varieties. PRISMA partnered with seed producer Agrosid in 2019 and supported it in

production trials and marketing its hybrid seed product, Mapan 05.

Agrosid expanded its seed production area from 10 hectares in 2020 to 30 hectares in early 2022. The company significantly improved its production trials from the first to the second cycle with an increase of

<sup>1</sup> Octania, G. "The Government's Role in the Indonesian Rice Supply Chain." Centre for Indonesian Policy Studies, 2021, doi:10.35497/338075.  
<sup>2</sup> PRISMA 2019 Rice Baseline Assessment

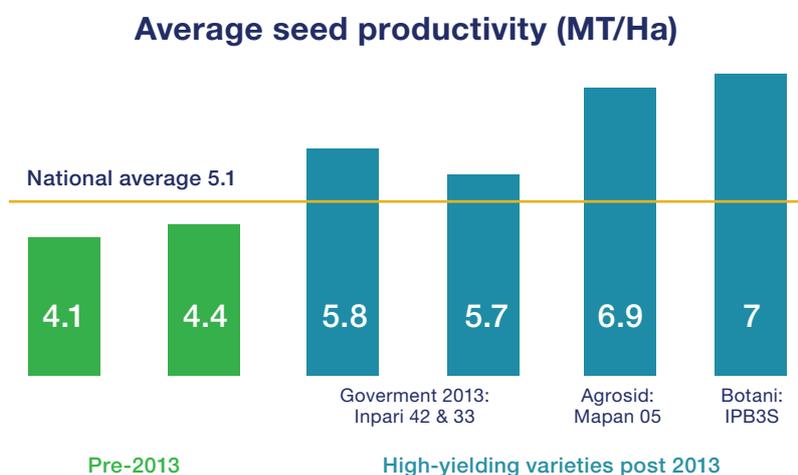
0.3 tonnes per hectare. However, Agrosid is still the only company producing hybrid seeds in Indonesia, and limitations to reaching economic scale have discouraged other players from entering the market.<sup>3</sup> For example,

the hybrid penetration rate in Indonesia after two years is 0.67 percent compared to a penetration rate in Vietnam of around 10 percent and India of approximately five percent.

## Production success opens a new market

Based on the higher-than-expected horizon for hybrid seed adoption, in 2020, PRISMA expanded its approach to include high-yielding inbred rice seeds. While hybrid seeds should have a higher production capability on paper, some high-yielding inbred varieties have similar production success and with added environmental bonuses. In 2020, PRISMA partnered with PT Botani, a private sector company owned by the Bogor Agricultural Institute. PT Botani managed to produce a HYV seed that conservatively requires around 20 percent less water during the growing period. The rice only needs

intermittent irrigation and must be completely dry in the weeks before harvest. Less water means the seed would benefit poor farmers in more arid areas. Having dry land during harvesting also allows for the easy adoption of combined harvesting, leading to land conservation and reduced production costs (see section 1.5.2). Of more significance is the production trials for PT. Botani seed that resulted in 8.4 tonnes per hectare<sup>4</sup> with 100 percent productivity per sheaf - this is double the current production rate of 4.3 tonnes/hectare of pre-2013 inbred rice seeds.



**Figure 1.** Average seed productivity

Prior to partnering with PRISMA, PT Botani was supplying its seed to the government program, but the company felt this was not profitable. PRISMA supported PT Botani in moving from a research mindset to a business mindset with capacity development and marketing support. In 2021, PT Botani increased its staff from two to nine and hired a corporate adviser.

With support from PRISMA to develop and implement a promotion strategy, PT Botani increased its production from 2 tonnes in 2020 to 80 tonnes in 2021. PT Botani is receiving more orders than it can fill and has expanded its nursery partners to meet demand. Its production goal for the next two years is to get to 500 tonnes of seed.

“I believe that the seed subsidy program does not support the development of good quality seed. The price per kilo to supply the government is a standard cost. For seed producers to make a profit, the suppliers will play with the quality of the seed to get a greater profit margin. President Jokowi saw our demonstration plot and said PT Botani must supply to the government program. But I think it is more sustainable if our product can be sold on the open market,” Ir Dadang Syamsul Munir, Director of PT Botani.

<sup>3</sup> For example, hybrid seeds need the importation of specific planters and transplanters. In addition, the seeds have a lower shelf-life, and it takes time in research and development (R&D) to develop a parent seed.

<sup>4</sup> Trial productivity is usually higher than in the field. So, PT Botani uses 7 tonnes/Ha as the advertised productivity

# Influence holds the key

The market for HYV rice seeds in Indonesia is still very limited. PRISMA is conscious that increasing domestic rice productivity requires the penetration of HYV seeds at scale. One way to achieve this would be to influence the government to prioritise high-yielding seed varieties as part of the MoA's free seed program.

If the MOA included the names of any HYV seed post 2012 in the free seed procurement catalogue, it would ensure higher rice production through the free-seed program. If PRISMA can influence the government to offer a reasonable price for HYV under the government program, this would encourage companies and nurseries to produce higher-yield varieties.

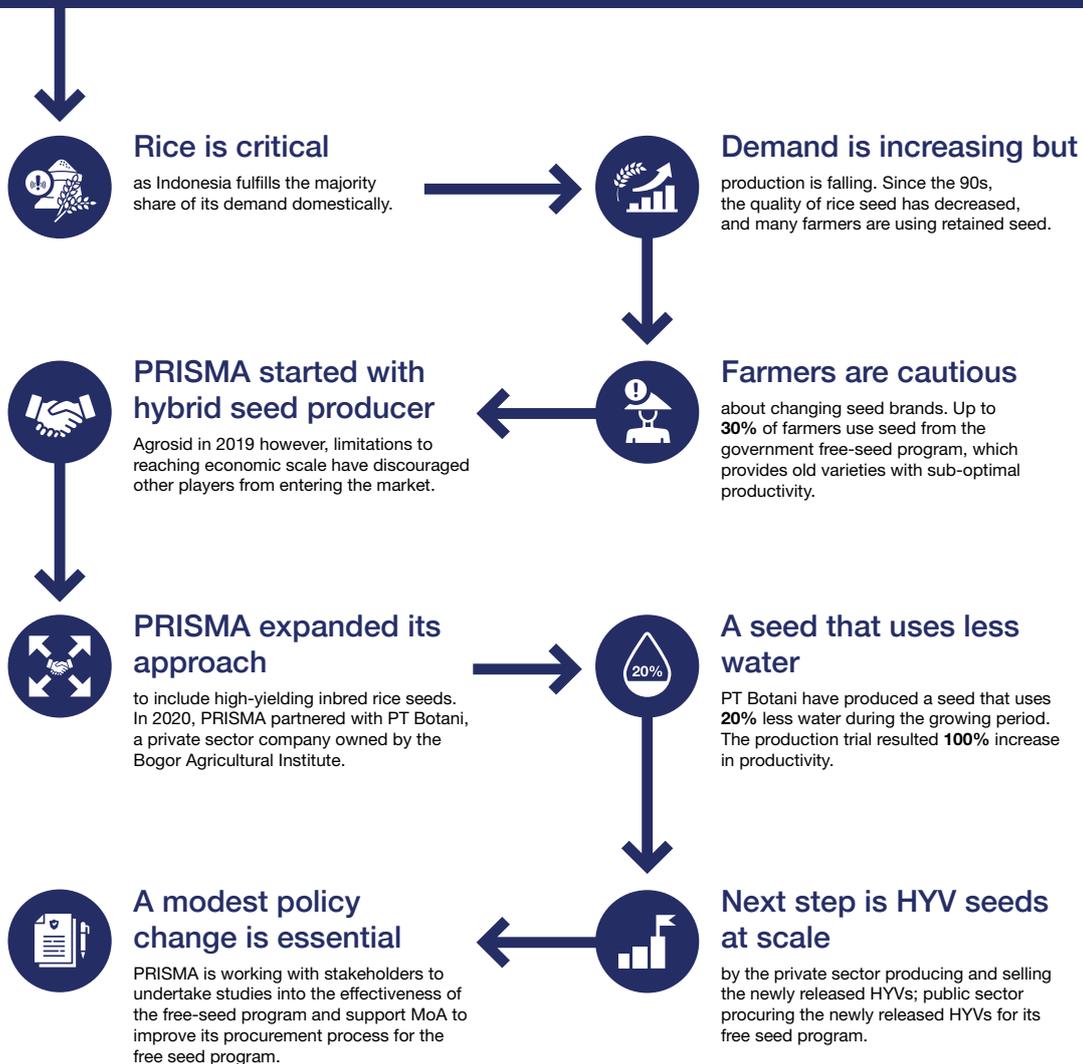
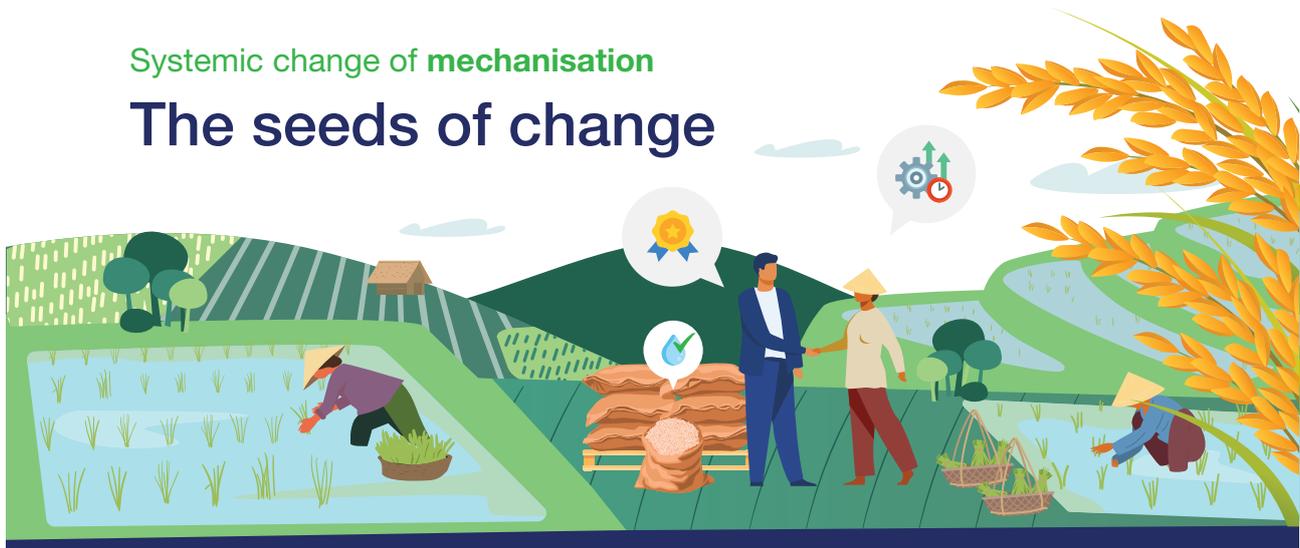
To achieve the modest policy change goal, PRISMA is working with rice experts, policy think tanks, and the relevant ministries to undertake studies into the effectiveness of the free-seed program and collect baseline data on adoption rates of rice varieties. Next semester, PRISMA will be holding direct hearings and a symposium with the government to try and move the dial on high seed variety adoption.

The progress in the rice seed sector has been very encouraging. However, systemic change will only come with scale. PRISMA hopes that the modest policy change will happen, which will open the door to achieving scale within the remaining program time.



## Systemic change of **mechanisation**

# The seeds of change



## About PRISMA

PRISMA is an innovative partnership between the Government of Indonesia and the Government of Australia to grow agricultural markets in rural Indonesia. Our strategic aim is to address food security and poverty by making rural markets more inclusive. We do this by partnering with businesses, government and investors to remove market barriers and introduce product and production innovations.

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

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