



Employment in the rice sector is one of the major income sources in rural areas in Indonesia. Rice is the most important crop in the country and it is estimated that demand will increase by 38% in the next 25 years. This gap has to be filled by increasing yields, assuming that the planting area, which often amounts to only 0.3 to 0.5 ha per farming household, remains the same.

Talking to Mr. Mahyugi (33), a young rice farmer in Pematang Pelintahan Village, Serdang Bedagai District, we feel that he is very pleased with this year's rice harvest. For the first time, he achieved 7,500 kg rice per ha yield, which is a significant gain compared to his average yield of 6,575 kg per ha. This was made possible through assistance provided by the Better Rice Initiative Asia (BRIA).

BRIA is a Public Private Partnership project, supported by BASF and the Directorate General of Food Crops under the Ministry of Agriculture of Indonesia and implemented together with GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit). In 2015, BRIA Indonesia started Field School activities in the North Sumatera Province, specifically in the districts of Langkat and Serdang Bedagai. The Farmer Field School (FFS) is a training system approach that aims to transfer technical and practical know-how and skills to rice farmers through technical training, physical demonstration in the field and learning by doing exercises. FFS is conducted continuously from the pre-cropping stage

until post-harvest. One curriculum is run for one crop cycle and consists of 16 meetings, each offering a different topic. Apart from sustainable rice cultivation knowledge, the project strengthens the skills of farmer groups, introduces market linkage opportunities and improves nutrition awareness in farmers' households. These are the focus interventions of BRIA Indonesia. Mr. Mahyugi states: *"BRIA Field School has been fostering my confidence to continue working in my own rice field instead of working in the city."*

BRIA follows a holistic approach to improve the Indonesian rice sector through Capacity Development (CD) of multi-stakeholders along the rice value-chain (Figure 2).

The integrated CD approach covers several activities such as:

- Improve the knowledge and skills of farmers in best farming practices
- Improve the capacity of extension services to strengthen technology transfer to farmers
- Strengthen rice farmers' organisations and business-oriented farmer group development by improving the interest of young adult farmers in rice farming
- Improve the awareness of nutrition in farmers' households
- Better market access through collective marketing and contract farming



**Figure 1.** BRIA Field School Activity – Small group presentation after observing the demonstration plot



**Figure 2.** BRIA Indonesia's Capacity Development approach to improve the rice value chain



**Figure 3.** BRIA Field School Activity – Introduction of Jajar Legowo transplanting method

To complement the FFS, BRIA promotes demonstration plots to test and implement the best farming practices and technologies that are taught in the FFS. All technology interventions are recommended by the Indonesian Rice Research Center (BB Padi), Sukamandi and the Indonesian Agency for Agricultural Research and Development of North Sumatera. The project identified four main technologies to improve farmers' incomes and agricultural productivity:

1. Seedling technology: to utilise superior varieties and quality seeds, seed treatment, etc.
2. Planting technology: use of young seedlings <21 days after sowing, planting 1-3 seedlings per hill and setting an optimum plant population by implementing Jajar Legowo (inter-row) transplanting method 4:1 and 2:1
3. Fertilisation technology: to apply the right fertiliser composition and amount based on crop needs and

soil nutrient status by conducting soil testing with the soil analysis kit Perangkat Uji Tanah Sawah (PUTS)

#### 4. Integrated Pest Management (IPM)

Based on the results from the demonstration plots, it was proven that the technology interventions introduced by BRIA Indonesia can improve rice production by 15 % and improve farmers' incomes by up to 40%. Mr. Supri (35), farmer from Sukamakmur Village, Langkat District, stated that after the FFS and plot demonstrations, he didn't need to spend as much as usual on the purchase of fertilisers and seeds. By conducting soil testing with PUTS, he was able to calculate the optimum fertiliser composition and reduce fertiliser costs. He also implemented the Jajar Legowo technique and was able to use less seeds than usual. However, his yield is improving. The calculation in Table 1 refers to his experience as BRIA demonstration plot owner.

**Table 1: Farm Benefit Analysis of BRIA ID Demonstration Plot (Area: 1ha / crop cycle), Langkat District**

No.	Component	Pre-training Behaviour		Demonstration Plot - BRIA Farmer School	
A	Variable Costs (Rp./ha/season)	Calculation	Value	Calculation	Value
1	Labour / Operational Cost				
	-Land Preparation (wholesale)	25 chain* @Rp. 42,200	Rp 1,055,000.00	25 chain* @Rp. 42,200	Rp 1,055,000.00
	-Planting (wholesale)	25 chain @Rp. 35,000	Rp 875,000.00	25 chain @Rp. 40,000	Rp 1,000,000.00
	-Weeding (wholesale)	25 chain @Rp. 50,000	Rp 1,250,000.00	25 chain @Rp. 30,000	Rp 750,000.00
	-Fertilisation	4 persons @Rp. 40,000	Rp 160,000.00	4 persons @Rp. 40,000	Rp 160,000.00
	-Spraying	12 persons@Rp. 40,000	Rp 480,000.00	12 persons@Rp. 40,000	Rp 480,000.00
	-Harvesting (wholesale)	16.6% or 1/6 of production	Rp 4,747,600.00	16.6% or 1/6 of production	Rp 5,478,000.00
	<b>Total Labour Cost</b>		<b>Rp 8,567,600.00</b>		<b>Rp 8,923,000.00</b>
2	Input Cost				
	-Seeds	75 kg @Rp. 10,000	Rp 750,000.00	25 kg @Rp. 13,000	Rp 325,000.00
	-Nitrogen Fertiliser	300 kg (6 sacks @Rp. 110,000)	Rp 660,000.00	250 kg (5 sacks @Rp. 110,000)	Rp 550,000.00
	-SP36 Fertiliser	150 kg (3 sacks @Rp. 120,000)	Rp 360,000.00	50 kg (1 sack @Rp. 120,000)	Rp 120,000.00
	-ZA Fertiliser	200 kg (4 sacks @Rp. 90,000)	Rp 360,000.00	0	Rp -
	-Phonska Fertiliser (N, P, K)	400 kg (8 sacks @Rp. 130,000)	Rp 1,040,000.00	0	Rp -
	-KCl Fertiliser	0	Rp -	50 kg (1 sack @Rp. 375,000)	Rp 375,000.00
	-Pesticide		Rp 1,030,000.00		Rp 938,000.00
	<b>Total Input Cost</b>		<b>Rp 4,200,000.00</b>		<b>Rp 2,308,000.00</b>
3	<b>Total Variable Costs</b>		<b>Rp 12,767,600.00</b>		<b>Rp 11,231,000.00</b>
B	<b>Gross Farm Benefit (Rp./ha/season)</b>	Yield = 6.5 Ton (Price = Rp. 4,400/kg)	Rp 28,600,000.00	Yield = 7.5 Ton (Price = Rp. 4,400/kg)	Rp 33,000,000.00
C	<b>Net Farm Benefit</b>		<b>Rp 15,832,400.00</b>		<b>Rp 21,769,000.00</b>

\* 1 ha = 25 chains \*\* est. 1 USD = Rp 14,068.00

#### Summary

A	Total Variable Costs	Rp 12,767,600	Total Variable Costs	Rp 11,231,000
B	Gross Farm Benefit		Gross Farm Benefit	
	-Yield = 6.5 Ton/Ha	6,500	-Yield = 7.5 Ton/Ha	7,500
	-Price = Rp 4,400/Kg	4,400	-Price = Rp 4,400/Kg	4,400
		Rp 28,600,000		Rp 33,000,000
C	Net Farm Benefit	Rp 15,832,400	Net Farm Benefit	Rp 21,769,000

#### BRIA Regional Secretariat Office

39/1 Soi Sukhumvit 13, Sukhumvit Road, Klongtoey Nua, Wattana, Bangkok 10110 Thailand  
[bria@giz.de](mailto:bria@giz.de), [www.better-rice-initiative-asia.org](http://www.better-rice-initiative-asia.org)

In Collaboration with



Ministry of Agriculture