

**Model of Sustainable Poverty Reduction for Ethnic Minority
in Ba Be District, Bac Kan Province through the
Implementation of Potato Production in Partnership
Between Companies and Farmers**

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1 – Rationale

Ba Be is located in the northwest district of Bac Kan province, northern and northeastern borders of Pac Nam district, west Na Hang (Tuyen Quang), SW Cho Don district, south of the Bach Thong district and Ngan Son in the east. Districts of Cho Ra town are located in the Highway 279, from Bac Kan town about 50 km north west. With 15 communes and 1 town, the total natural land area is 684.12 km² with agricultural land of 6766.24 hectares (accounted for 9.9% of the total natural land area of the district). The main activity of the people is agriculture and forestry production. The district has the percentage of households: No Poverty: 61.53%; Poor: 16.34%; Poverty: 22.09%.

➤ Ethnic groups:

Tày: 57,75 %;

Dao: 24,45%;

Mông: 6,51 %;

Nùng: 5,15 %;

Kinh: 5,59%;

Hoa: 1%,

The rests are Sán chay, Sán dùi.

➤ Population: 49.761 people

1 – Rationale

- Ba Be is one of the poorest districts of Bac Kan province. The conditions of agricultural production is characterized as poor. It is cultivated on terraces, on slopes, heterogeneous, fragmented, unfocused, difficult transportation, low literacy levels, conditions are exposed to many technical scientific term processing ...
- ▶ In the production structure of the annual crop planting in Ba Be (4917.59 ha), paddy crop is still the largest area (1632.63 ha) followed by maize (1428.50 ha), cassava (891 , 49 ha), canna (786.47 ha), and the rest are from other crops: soybeans, vegetables, sweet potatoes in a very small area..
- A few years back, potato plantation started to come into production structure. However, the old ways (small-scale producers, traditional practice and the use of the same dubious origin) have yield low, not high quality. Moreover, the product does not produce huge harvest and are sold only in retail site
- ▶₄ with low prices that do not mean much in the poverty

1 – Rationale

- From 2012, the Center for Soil and Fertilizer Research Midlands was associated with ARD room Ba Be district that help build models that were linked to potato production and consumption of goods considering the output between enterprises and farmers. Hence, farmers are provided appropriate fertilizer, plant protection pesticides, technical training, technical guidance on detailed planting, tending, and harvesting potatoes. In this regard, the people are now producing products that can be bought at 100% minimum prices (contract signed before production). The results become remarkable: Productivity has increased 30-40%; Economic efficiency increased 20-30%; In particular, people can expand the production scale and the products produced are being sold out and help people increase their income significantly and the plant can help reduce poverty in a sustainable way.
- Therefore, the model of sustainable poverty reduction for ethnic minority Ba Be district, Bac Kan province through the implementation of potato production, consumption of goods in partnership between enterprises and farmers need to be replicated in many areas, farmers contribute to poverty reduction and sustainable effectiveness.

2 – Locations and contents

2.1. *Locations*

Cao Trĩ commune, Ba BỂ district, Bắc Kạn province.

2.2. *Contents:*

- Organizations contracting product consumption between local farmers and businesses

- Technical training in production, harvesting and preserving of potatoes

- Building a model of potato production

3 – Results

3.1. Organizations in contracting product consumption between local farmers and company

- The output of the product is a decisive factor in building production scale of farmers. So, with the support of the People's Committee of Ba Be district (supports 100% money just for farmers), the Research Centre for Soil and Fertilizer Midland in partnership with the Department of Agriculture and Rural Development Ba Be district has signed a contract in the implementation of social organization model agreements output. Accordingly, the Enterprise (Enterprise Ton Quang - Km01 - By An - Que Vo - Bac Ninh) has the following input: quality potato varieties, better fertilizers, pesticides and good Land and Research Center Fertilizers Midlands in conjunction with Department of Agriculture and Rural districts is 2 Ba unit responsible for the technical production, harvesting, training for farmers; Commune leaders, rural organizations responsible for implementation. When harvested, 100% of products are now purchased on the spot.

3 – Results

3.2.

Technical training

- Results
- Before and during the implementation and construction model in the field, training classes for local officials, staff of steering committee, technical level staff, and farmers participating in the model, such as organizations: of women's Union, farmers' Union, Youth Union and a number of farmers participating in model training. The training revolved around the problem of agricultural production as well as to answer questions from farmers, participants ... as follows:
 - Technical production, storage and use of disease-free seed potatoes;
 - Tillage techniques; Fertilization (mineral fertilizers combined organic fertilizers, micro ...);
 - Planting techniques and care; Technical pests, plant diseases, especially east of potato wilt;
 - Harvesting techniques and storage of frozen potato
 - Total training sessions held : 10 at the Commune:
..... 785 views with participants.

3 – Results

3.2. *Technical training*

- **Results:**
- In addition to the scheduled training sessions, in each case, all models are done regularly in organizing meetings with farmers to exchange information, discuss technical measures potato cultivation during the growth stage development of the plant. At the end of each harvest, meetings are held to review and draw together the lessons of intensive crop production.
- Through the technical training, results show that : the model performance showed that nearly 800 farmers were able to raise awareness about the production of potato plants that bring high economic efficiency, and develop the ability in advanced farming techniques in intensive crops locally. In general, people who participate in the training were very eager to receive new technical advances.

3 – Results

* Results:

- Model 2 has organized field day conference in Ha Cao Tri and performance to discuss and evaluate the initial results of the study with 138 participants: the executive officials, agricultural representatives rooms Ba Be District business, representing the commune people's Committees of the model, the steering committee of the society represented by farmers who are directly involved in the implementation of the project.
- Through field day conference showed that most farmers who are involved are very excited, enthusiastic, and highly recognized in putting into practice the technical solutions of the model. It has really helped the farmers know how to perform model potato production efficiency, scientific and sustainable income per unit area, contributing to enhance economic efficiency and change the poor farming practices of the locality.

3 – Results

* Results:

- To evaluate the effectiveness of technical training, the field days conference involved in the implementation process, the model exercise has developed statistical performance of three groups of potato farmers in the real show.
- Group I: Some farmers did not participate in the model, and in technical training as well as field day conference.
- Group II: Only some households did not participate in the model but can participate in all training sessions held.
- Group III: A number of households participated in the model simultaneously in all training sessions.

3 – Results

Table 01: The effect of participation in training and building models for winter potato yield

	2012		2013		Average	
	quintal/ha	Increase DC (%)	quintal/ha	Increase DC (%)	quintal/ha	Increase DC (%)
Group I (DC)	82,6	-	87,3	-	85,0	-
Group II	95,5	15,6	96,2	10,2	95,9	12,8
Group III	115,7	40,1	120,5	38,0	118,1	38,9

Thus, to attend the training, the farmers had obtained certain results. The content knowledge in the training helped them improve the proper potato production and productivity (up 12.8% compared with households who did not attend any of the training topics) and if they have attended training courses has been directly involved in building the model can increase the yield to 38.9%

3.3. Building a model of potato production

- 3.3.1. Scale model performance:

Table 02: Scale model implemented at the point of

	Area (ha)			Participating households		
	2012	2013	Total	2012	2013	Total
Hà Hiệu commune	4,2	9,0	13,2	63	82	145
Địa Linh commune	13,8	24,0	37,8	85	149	234
Yến Dương commune	6,0	9,0	15,0	37	80	117
Chu Hương commune	7,0	8,0	15,0	42	75	117
▶ 13 Cao Trĩ commune	-	7,5	7,5	-	68	68

3 – Results

3.2. Potato yield in the model of execution:

Table 03: Potato yields in the model of execution

Year	Old farming practices (quintals/ha)	Farming model	
		(quintals/ha)	Compared to external model(%)
2012	82,6	115,7	40,1
2013	87,3	120,5	38,0
Average over 2 years	85,0	118,1	38,9

Data in Table 03 show s that: If the old farming practices like China with unclear origin (local grocery store), the potato yielded an average to only 85.0 quintals / ha. However, if cultivated varieties Solara (German potato) clearly derived (enterprise is provided) and apply the appropriate farming practices that will help increase the potato yield up to 118.1 quintals/ ha (up 38.9%). This really helped people see clearly

▶ the role of science and technology the effectiveness of potato cultivation

4 . Socio- economic efficiency

4.1. Economic efficiency:

- Economic efficiency of the plant production will determine the life of the farmers directly, it is also effective to most interested farmers. High crop yields but low efficiency, the production is also very difficult to accept. Therefore, we have carried out calculations of economic efficiency comparison between the application model and biological products to peasant farming, the results are as follows:

Table 04: Economic efficiency potato east

Unit: Millions/ha

	Total revenue(A) (Millions)	Total expenditure(B) (Millions)	Interest(Millions) (A – B)	Earnings up
2012	69,420			
2013				

4 . Socio- economic efficiency

4.1. Economic Efficiency

- Thus, the economic effect of the application of biological products into production showed an average of 92.245 million VND / ha in farmers when farming was only 72.875 million VND / ha (an increase of 19.37 million VND / ha equivalent to 26.6%).
- It should be noted that 1 ha of potatoes in 2010 would help people profit 141.632 million VND / ha (in the model) and 115.991 million VND / ha (external model) while, though productivity does not decrease, but in 2011, the economic effect was only 42.857 million VND / ha (in the model) and 29.758 million VND / ha (external model). This is because fertilizer prices in 2011 increased while the price is only half the price of potatoes sold in 2010.

4 – Social economic effectiveness

4.2. Efficiency in production, replication and consumption of the model product:

Table 05: The effect of model building in potato production

	Year	Used breeds	Breeds origin	Area (ha)	Output
Before making model	2010	China	Bought at market	2,8	Consumption in areas
	2011	China	Bought at market	3,2	Consumption in areas
After making model	2012	Solara :30 ha TQ: 5 ha	Supplied by company (Solara), Bought at market (China)	35,0	Corporate buyers: 30 ha
	2013	Solara	Supplied by company	62,5	Corporate buyers: 100%
	2014 (tentative)	Solara	Supplied by company	100 - 110	Corporate buyers: 100%

4 – Social economic effectiveness

4.2. Efficiency in production, replication and consumption of the model product:

- Before performing the models (2010, 2011), potato plantation area of the district was not significant (2.8 to 3.2 ha), with similar small production completely passive (like China, local grocery store) and primarily grown for food or consumed on the spot. However, since the implementation of the model (from 2012), area have increased significantly (up to 62.5 ha in 2013) and the expected harvest in 2014 will be 100-110 ha. More importantly, the product is 100% produced by farmers are now in place to purchase 100% of the standard product. Thus, after more than 2 years of implementation of the model, it has very sharp change in potato production area in terms of the scale, purpose and forms of production and consumption.

4. Socio-economic efficiency

4.3. Social Performance:

- Two years of implementation of the model has helped farmers to have better perspective on general production of potatoes in particular, through which people have been exposed to TBKH in commodity crop production.
- The success of the model has contributed to increase the income of producers from local potatoes that contribute to poverty alleviation, gradually stabilizing the lives of the people .
- The construction of the model as well as technical training has really raised awareness of the local population when receiving the advancement of science and technology into production., thus. creating the trust of the people for the advancement of science and technology, and policies of the Party and State.

5 – Recommendations

- ▶ The model for sustainable poverty reduction for ethnic minority Ba Be district, Bac Kan province through the implementation of associated production of potato consumption goods output between enterprises and farmers should be expanded to other locations because it has brought tangible benefits to farmers and thereby contributing to poverty alleviation, improving living standards for ethnic minorities in general and the highland potato producers in districts Ba particular.



Thank you!

