

Socialist Republic of Viet Nam

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Preparatory Survey for
Constructing Value Chains for Lotus Roots
products through the use of Information and
Communication Technology (ICT)

Executive Summary
of the Final Report

August 2018

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OS
JR
18-043

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Preparatory Survey for Constructing Value Chains for Lotus Roots products through the use of Information and Communication Technology (ICT)

Executive Summary

■ Background, purpose of the Survey and consistency with the development agenda

Due to Vietnam's remarkable economic development, its poverty ratio decreased from 60% in 1990 to 20% in 2010.^{1 2} However, in 2015 the poverty ratio in urban areas was 6.0%, compared to 27.0% rural areas³, and the income gap between urban and rural areas has become a social problem. Crop production appears to suffer from low productivity and profitability, leading to a limited increase of the farmers' income. Related causes include: Poor diversification of crops; low quality⁴; underdeveloped food value chain from production, processing to distribution⁵. Farmers only receive a relatively small profit whereas middlemen and exporters are earning most of the profit, thus contributing to the income gap. The Vietnam Government aims to increase the income in rural areas through the development of the agricultural sector as one of the main industries in Vietnam. It intends to increase the value of agricultural and fishery industries and enhance international competitiveness. In the Prime Minister's New Year Policy Speech in 2014, the importance of agricultural sector development was confirmed through stating that 'The Government will restructure toward sustainable development aiming at increasing additional value of agricultural and fishery industries and to build new farming community'.

Although the Survey area, the Mekong delta area, is the granary of Vietnam which produces most of rice for inside Vietnam as well as for export, the population density is high, including 4 million people living in poverty. The target area of the Survey, Ben Tre Province, is a coastal area and 10,500 out of 14,000 ha rice field is damaged by salt water. Its famed coconuts and citrus fruits are vulnerable to salt water and the productivity has been decreasing recently because of climate change. The rainfall in March to April 2016 was low, which led to further damage caused by salt water. The salinity of soil increased to 0.4%⁶, while it is impossible to cultivate rice if the salinity is over 0.2%. In summary, Ben Tre Province is particularly vulnerable to the effects of climate change⁷ and production and profit have been decreasing.

¹ Well Begun, Not Yet Done: Vietnam's Remarkable Progress on Poverty Reduction and the Emerging Challenges, the World Bank, 2013.

² Based on the new poverty line announced by General statistics office of Vietnam and World Bank in 2010.

³ The poverty line set as monthly income is VND 500,000 (VND 1 = JPY 0.005157, April 2016) per person in urban areas and VND 400,000 in rural areas (2013, World Bank)

⁴ Asia Development Bank, 2012

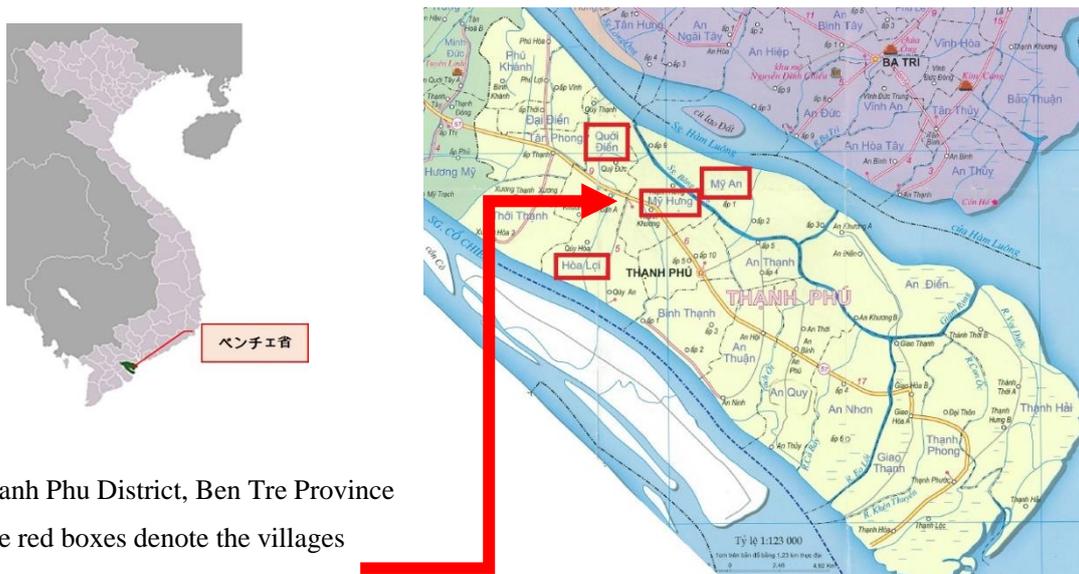
⁵ JICA, 2015

⁶ Hi-Tech Application Agricultural Center of Ben Tre province

⁷ JICA "Poverty profile in Vietnam" (2012)

Agrisales Co. Ltd and Nanairo Batake Farm Co. Ltd suggested to conduct a survey to check the feasibility of building a value chain to supply safe lotus roots with a stable price to Vietnam, Japan and other countries by introducing lotus roots as a new crop⁸ and enhancing additional value of lotus roots as an export product. This Survey also aimed to create a win-win business relationship between Japanese companies and BOP people if the introduction of lotus roots succeeded.

■ **Survey area**



Thanh Phu District, Ben Tre Province
(the red boxes denote the villages where the BOP survey was conducted)

■ **Structure, method, target and term of the Survey**

At the recommendation of the People’s Committee of Ben Tre Province, the Survey was implemented in Thanh Phu District, Ben Tre Province from January 2017 to June 2018. Thanh Phu District has a long coastal area which is vulnerable to salt damage. The survey team considered the possibility of disseminating lotus roots to farmers in Ben Tre Province, with a view to exporting the products to surrounding countries in future. The Survey Team entered into collaborative arrangement with Hi-Tech Application Agricultural Center of Ben Tre Province in conducting the Survey and also sought technical advice of a lotus root expert of the Chan Tho University.

Into the mid-way the Survey, however, it was found that there were few areas suitable for lotus roots cultivation, because the land areas of individual farmers in Ben Tre Province are narrow and the salt damage was worse than the Survey Team had expected. Therefore, in November 2017, JICA

⁸ At the beginning of the Survey, the Survey team considered using Japanese species, but, the team decided to procure the lotus roots seed in Vietnam due to the price and procurement logistics. Through of the Survey, it was revealed that the species in Vietnam is more vulnerable than those in Japan.

approved to research the possibility of new sites to cultivate lotus roots in other five provinces in the Mekong Delta Region (Dong Thap Province, Long An Province, Dong Nai Province, Ba Ria-Vung Tau Province and Tinh Tien Giang Province).⁹

The Survey Team conducted a rapid research comparing the conditions of each province, taking into account various aspects such as: (1) Cultivation, (2) Distribution, (3) Sales, and (4) Support system. As a result, the companies decided to choose a field located in Long An Province.

The Survey topics and implementation of each component of survey undertaken is listed below.

Table 1: Survey Topics and Implementation

Item / Topic		Implementation
(1) Macroenvironment and market survey in Vietnam	Economic and social situation	Implemented by subcontracting company
	Legal system, Licenses	Implemented by subcontracting company
	Market overview (needs, competitors, collaboration)	Implemented in the second, third, and eighth survey in Vietnam
(2) BOP survey	Baseline survey	Implemented in fourth and sixth survey in Vietnam and some parts were Implemented by subcontracting company
	Development agenda	Implemented in fourth and sixth survey in Vietnam and some parts were Implemented by subcontracting company
(3) Value chain development survey	Existing value chain system, problems and points to be improved	Implemented in second, third and eighth survey in Vietnam and some parts were Implemented by subcontracting company
	Possible Quality Certification such as Viet GAP and global GAP in producing lotus roots	Implemented in second, third and eighth survey in Vietnam and some parts were Implemented by subcontracting company
	Test marketing	Implemented. In the fourteenth survey in Vietnam, a food tasting event was held.
	Transportation of lotus roots goods to the distributors	Implemented in March and June in 2018
(4) Preparation and implementation of pilot	Planning of pilot project	Implemented in first survey in Vietnam

⁹ Interim report (November 2017)

project (test cultivation in test field and fields in farmers)	Preparation of pilot project	Implemented in second survey in Vietnam
	Technical training for farmers	Implemented in sixth, seventh, eighth, and ninth survey in Vietnam
	Testing of management of production information	Implemented in third, fourth, fifth, and sixth survey in Vietnam
(5) Planning of draft business plan ¹⁰	Procurement plan of equipment	Implemented
	Sales projections	Implemented
	Human resource planning	Implemented
	Financing plan	Implemented
	Survey for business risk	Implemented
	Financial analysis	Implemented
	Planning of business schedule	Implemented
(6) Development effectiveness, created by business opportunities if lotus roots become a local specialty in Ben Tre Province	Consultations with the related organizations	Not implemented, because no business opportunities were identified in Ben Tre Province.
	Setting of Indicators for development effectiveness and monitoring system	Indicators and monitoring system could not be set, because no business opportunities were identified in Ben Tre Province.
(7) Possibility of collaboration with other JICA projects	Collaboration with other JICA projects	N/A

Table 2: Survey team and each role (the number is same as the above table)

Survey Topics	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Survey team							
Agrisales Co. Ltd (1 person)	○	—	○	○	○	○	—
Nanairo Batake Farm Co. Ltd (1 person)	○	—	○	○	○	—	—
Kaihatsu Management Consulting, Inc. (3 persons)	○	○	○	—	○	○	○
Subcontracting company in Vietnam	—	○	○	○	—	—	—

■ Business opportunities

The Team concluded that business in Ben Tre Province is difficult because of the production cost and the production/quality control. In December 2017, other Provinces, including Long An Province which is located adjacent to Ho Chi Minh City appeared to have suitable fields and enough water for lotus root production. Long An Province can be expected to expand lotus roots production sustainably and cost-effectively. The merits of Long An Province can be summarized as follows:

- ① Transportation cost is low because Ho Chi Minh City is near Long An Province;
- ② It is possible to double cropping in one year because the water resource is rich, therefore the

¹⁰ Implemented in Japan

- productivity per unit area is high; twice as high compared to Ben Tre Province; and
- ③ Production is not done by farmers but by the business partners themselves. It is easy for business partners to manage the field because it is near Ho Chi Minh City.

Through the survey, Agrisales Co. Ltd identified a business partner who is eager to do business in the field of production and commercialization of lotus roots. Agrisales Co. Ltd will provide technical advice to the business partner and the business partner will lease land from farmers and plant the lotus roots. In this manner it is possible to reduce the production cost. In the table below production cost per 1000 m² between Ben Tre Province and Long An Province are compared.

Table 3: Comparison of annual production costs (in VND)

Production cost	Long An Province (two harvests per year)	Ben Tre Province (one harvest per year)
Purchase of lotus roots seed	1,200,000	1,200,000
Transportation of lotus roots seed from Soc Chang Province	500,000	250,000
Fertilizers cost for the soil improvement and spraying cost	1,500,000	1,000,000
Planting	600,000	600,000
Tilling fields	1,000,000	1,000,000
Irrigation	1,500,000	1,000,000
Additional fertilizers	1,500,000	500,000
Cultivation	6,000,000	3,000,000
Lease	3,000,000	2,000,000
Transportation to Ho Chi Minh City	2,000,000	2,000,000
Total production cost	18,800,000	15,550,000
Production amount	800 kg	400 kg
Annual production cost per kg	VND 23,500	VND 31,375

(*) Comparison is made based on 1000 m² field (estimated amount of cultivation of lotus roots: 400kg/cultivation/1000 m²)

The 500 kg of lotus roots harvested in the test field in Ben Tre Province were peeled, sliced, boiled once, packed and frozen in the food processing factory (COFIDEC) in the Ho Chi Minh City, resulting in 30 kgs of sliced roots. This low yield rate of 6% was caused by the low quality of lotus roots (small size, thin, and/or cracked). It appears that the species in Vietnam is not suitable for making sliced lotus roots because it is smaller than those from Japan and China.

The lotus roots local farmers in Ben Tre Province produced in the Survey, farmers themselves sold 'A standard' goods which can be sold at VND 25,000 per kg as the lotus roots in the market. The 'B standard' products were processed into dried lotus roots or lotus roots powder by cutting and drying in the sun.

The business partner is planning to expand the production of lotus roots in Long An Province. The

‘A standard’ will be sold in the market and the remainder will be processed as dried lotus roots or lotus roots powder for traditional Chinese medicine shops, yoga classes, temples, tea shops, or (vegetarian) restaurants.

Some Japanese restaurants cooked the sliced lotus roots and the restaurant staff tasted them. Sliced lotus roots were popular because they are delicious and easy to cook, and it can be prepared in different manners (such as fried, chips, boiled, stirred with other vegetables). However, because of the low yield ratio and the costs related to exporting, production and processing (six times those of China), it is very difficult to become profitable. Therefore, the business partner is trying to find a new domestic market for raw lotus roots, dried louts roots, and lotus roots powder.

■ Business Plan

1. Production and harvest

The business partner leased a 1000 m² area in Long An Province, cultivated and sprayed fertilizers to the field in May 2018. He procured lotus roots seed from Soc Chang Province and planted them in June. At this moment, none of the work is planned to be outsourced. Harvesting is expected in October 2018 and in March 2019. The annual estimated production amount is 800 kg and the annual production cost will be VND 18,800,000. He plans to expand to 3 ha within five years with an estimated annual production amount of 24 tons.

2. Transportation

A company in Soc Chang Province will transfer the lotus roots seeds to the business partner’s office (Nhat Tam Consultants Trading Co., Ltd.)¹¹. The business partner will transport them from Ho Chi Minh City to Long An Province.

3. Processing

The business partner intends to retain full control over the processing phase. The company selects high quality lotus roots and sells the remainder. The lotus roots which cannot be sold as is will be washed, sliced without peeling, and dried by the sun and dryers. When there is demand, the dried lotus roots will be powdered by a mill.

4. Distribution and sales

The business partner plans to sell the raw lotus roots at a price of more than VND 20,000 per kg. The main customers of dried lotus roots and lotus roots powder are traditional Chinese medicine shops,

¹¹ Local company is in Seven District Ho Chi Minh City and was established in 2011. Its main job is to import Japanese products, export of Vietnamese products and agricultural products, and support Japanese companies to start business in Vietnam.

yoga classes, temples, tea shops, and (vegetarian) restaurants. In future, souvenirs for tourists might be developed. Dried lotus roots and lotus roots powder can be transported at room temperature and they will not deteriorate for about six months in a refrigerator at home.

In order to stabilize supply, expansion of the field area and promotion of the use of lotus roots are required. Lotus roots powder can be promoted as a natural, easy to digest, nutrition supplement for both infants and aged persons. The business partner is planning to make recipes for lotus roots powder with assistance from cooking experts or nutritionists for supervision and promotion. He intends to use Social Networking Services (SNS) to introduce the cooking of powder.

5. Feasibility of business

For business use, the sales price ('B to B') of raw lotus roots is VND 20,000 per kg, sliced dried lotus roots is VND 125,000 per kg, and lotus roots powder costs VND 140,000 per kg. Retail, raw lotus roots cost VND 30,000 per kg, sliced, packaged, dried lotus roots cost VND 300,000 per kg, and packaged lotus roots powder costs VND 400,000 per kg.

As stated earlier, the business partner started to lease a 1000 m² field and planted lotus roots from May 2018. In the fifth year (2022), he aims to expand the field to 3 ha, and increase sales to VND 1.39 billion (about JPY 7 million), thus increasing profit to about VND 140 million (about JPY 690,000), with an operating profit ratio of 10% (See Figure 1 below).

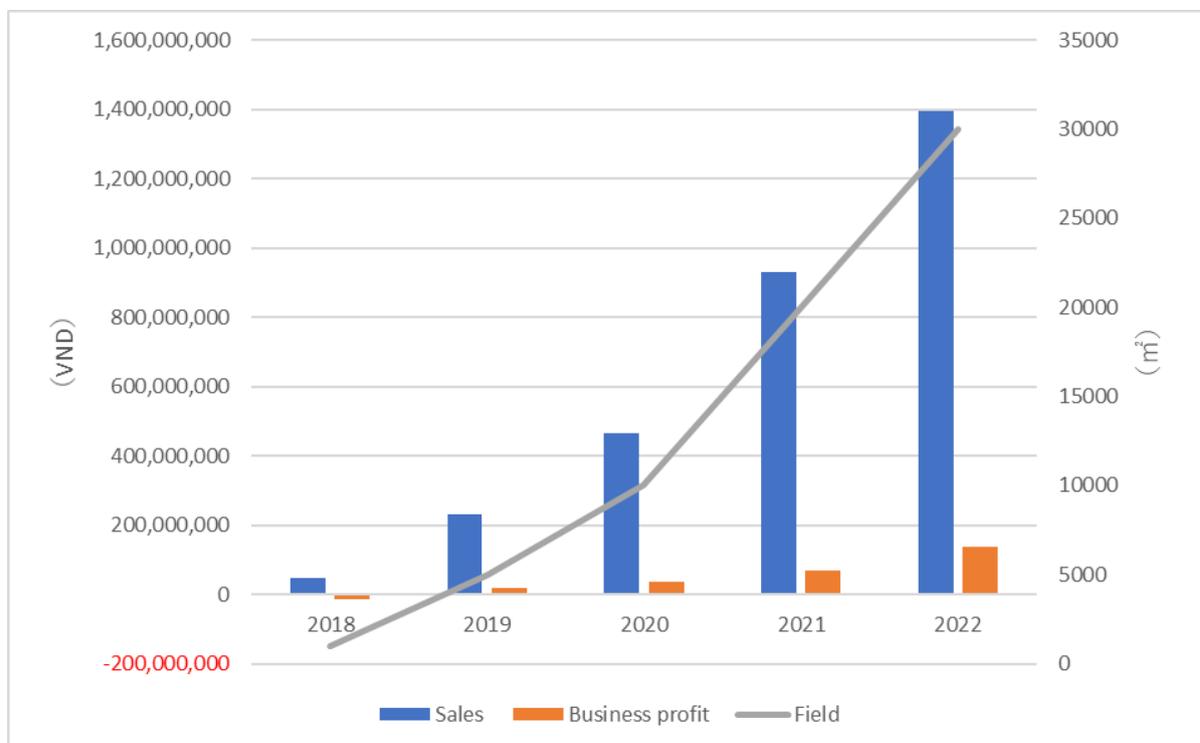


Figure 1: Sales and profit plan

■ **Other matters, including developmental impact of the Survey**

As stated above, the feasibility for establishment of business by Agrisales Ltd. in Ben Tre Province appeared negative. However, the Survey conducted test production of lotus roots, which has proven feasibility of producing lotus roots in place of rice in Thamphu District, Ben Tre Province, where the salinity level of water is quite high. This important piece of information has been delivered to the agriculture-related agencies in Ben Tre Province, including the Hi-Tech Application Agricultural Center of Ben Tre Province. This is particularly timely since the Government of Vietnam has recently announced a new policy for tackling the impact of climate change in the Mekong Delta region (120/NG-CP, November 2017). In that policy document, the Government of Vietnam announced that the total area of rice field will be reduced in future and that the Government shall encourage introduction of and investment in a variety of crops. In more concrete terms, the Survey Team has confirmed in its visit in April 2018 that the Hi-Tech Application Agricultural Center of Ben Tre Province intends to continue and expand its support in lotus roots production in My An village, where a ‘prawn-rice’ rotation production is currently practiced. Such plan of the Center is based on the results of the test production of lotus roots conducted under the present Survey. As such, it is hoped that this Survey shall contribute, though in an indirect manner, towards diversification of crops in tackling salt damage in Ben Tre Province.

With regard to the existing idea of establishing business in Long An Province, the company is considering self-production of lotus roots, rather than contracted-production by the farmers. Thus, types of involvement of the farmers in that business model is different from the idea at the outset of the Survey and its possible developmental contribution would be indirect, including in terms of farmers’ income generation, etc. However, the above-mentioned new policy of the Government of Vietnam would be applicable in Long An, as a part of Mekong Delta Region. In this respect, if the company’s business in Long An proves to be successful, its ‘demonstration effect’ would be expected, encouraging the farmers in the neighborhood and agriculture-related agencies in Long An Province to consider diversify production by introducing lotus roots and possibly invest in developing various products using lotus roots. In addition, the partner company has gained experience in lotus roots production through the test production conducted in Ben Tre. Such experience, knowledge and information may be shared with the farmers in the neighborhood as well as with agriculture-related agencies in Long An Province.