



BBP-VC-Gap Analysis Ba Be AHP (Viet Nam)

Prepared for

Biodiversity-based Products (BBP)
as an economic source for the improvement of livelihoods and
biodiversity protection

This report was commissioned by GFA written and prepared by Mr. Trang Hieu Tuong (Value Chain Consultant). The views expressed in this report are those of the author and do not represent the views of the GFA Group.

September 2015

ACKNOWLEDGEMENTS

I would like to express my gratitude to all persons met. Especially, I wish to sincerely thank Mr. Pham Quoc Tuan - National Coordinator of BBP project in Viet Nam, Mr. Trieu Van - Director of Ba Be AHP, Mr. Pham Van Nam - Head of Research Division of Ba Be AHP for their contribution to field survey as well as technical supports. My special thanks are for Dr. Martin Falke - BBP Project Director, Ms. Tu Anh - GFA representative office in Ha Noi who contributed valuable ideas on methodological orientation and organization of the survey.

I do hope that the findings and proposed recommendations will contribute to the development of BBP project which will benefit the selected value chains in Ba Be AHP and the numerous poor farmers involved.

ACRONYMS AND ABBREVIATIONS

ACB	ASEAN Conservation of Biodiversity
AHP	ASEAN Heritage Park
AMS	ASEAN Member State
BBP	Biodiversity Based Products
CPC	Commune People's Committee
DARD	Division of Agricultural and Rural Development
DPC	District People's Committee
GFA	Consulting Company/ Hamburg, Germany
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
NTFPs	Non-Timber Forest Products
S.W.O.T	Strengths, Weaknesses, Opportunities and Threats
VC	Value Chain
VCA	Value Chain Analysis
VND	Vietnamese Dong

TABLE OF CONTENTS

I. Introduction	1
1.1 Background	1
1.2 Methodology	1
1.2.1 Stakeholder’s workshop on VC selection and analysis	2
1.2.2 Field survey	2
1.2.3 Market research	3
1.2.4 Secondary data collection	3
II. Overview of BBP Project area – The Ba Be AHP	3
III. Selection of potential sub-sectors	5
IV. Relevant policies, mесо support institutions and other projects	6
4.1 Relevant policies	6
4.2 Support projects	8
4.2.1 Beekeeping pilot model	8
4.2.2 Giao co lam demonstration plots	8
4.2.3 Bo khai demonstration plots	8
V. Analysis of selected value chains with upgrading strategies	8
5.1 Honey beekeeping	8
5.1.1 World production and international trade of honey	9
5.1.2 Overview of honey beekeeping in Viet Nam	9
5.1.3 Description and quantification of the value chain in BBP Project area	12
5.1.4 S.W.O.T analysis of the value chain	15
5.1.5 Environment and biodiversity conservation concerns	16
5.1.6 Upgrading strategies	16
5.1.7 Suggested facilitation action plan	17
5.2 Giao Co Lam medicinal tea (<i>Gynostemma pentaphyllum Cucurbitaceae</i>)	20
5.2.1 Giao Co Lam in the world wide and international trade of Giao Co Lam	20
5.2.2 Overview of production and trade of Giao Co Lam in Viet Nam	21
5.2.3 Description and quantification of the value chain in BBP Project area	22
5.2.5 Environment and biodiversity conservation concerns	27
5.2.6 Upgrading strategies	27
5.2.7 Suggested facilitation action plan	27
5.3 Bo Khai medicinal vegetable (<i>Erythrolalum scandens</i>)	31
5.3.1 Overview of production and trade of Bo Khai in Viet Nam	31
5.3.2 Description and quantification of the value chain in BBP Project area	32
5.3.3 SWOT analysis of the value chain	35
5.3.4 Environment and biodiversity conservation concerns	35
5.3.5 Upgrading strategies	36
5.3.6 Suggested facilitation action plan	36
VI. Annexes	42
Annex 1: The ToR	42
Annex 2: Set of criteria for selecting the most potential products	45
Annex 3: List of participants of VC workshops	46
Annex 4: Questionnaires used for the field survey	50
Annex 5: Top 10 exporters of honey world wide	58
Annex 6: Websites of Giao Co Lam trading companies	59

LIST OF TABLES

Table 1: Area of communes in the Ba Be AHP.....	4
Table 2: Demographic data, income and poverty rate in Ba Be AHP.....	4
Table 3: Top 10 Importers of Honey Worldwide.....	9
Table 4: Output of honey produced and exported by Vietnam	10
Table 5: Calculation of revenue and value added of beekeeping households.....	15
Table 6: Total investment costs and value added of Giao co lam proccesser	25
Table 7: Total investment and value added of Bo Khai plantation household	34

I. Introduction

1.1 Background

ASEAN's rich natural resources and biodiversity offer significant potential for the region's socio-economic development. Now more than ever, it is vital to understand and acknowledge the value of biodiversity. **The ASEAN Member States (AMS) want to use this economic potential by further developing trade relations for bio-products (organic trade) nationally, regionally and possibly globally.** However, the potential of Biodiversity-based Products (BBP), especially for the local indigenous population in buffer zones of protected areas in the region, is not yet sufficiently analysed, their market potential often unknown. In the promotion of BBP for the improvement of livelihoods and the conservation of biodiversity, the AMS do not get sufficient support.

The BBP project, implemented in Cambodia, Lao PDR and Vietnam with a 4 year-duration from March 2015 to February 2019, is one of three modules of the German - ACB Cooperation Program "Protection of Biological Diversity in the ASEAN Member States". The project contributes to the overall *Program Objective*, but also has its specific Project Objective and respective impact indicators. The specific *Project Objective* of the BBP is: The AMS are supported by the ASEAN Centre for Biodiversity (ACB) in the promotion of biodiversity-based products (BBP) for the improvement of livelihoods and biodiversity protection, according to their needs.

On behalf of the German Government via the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, the BBP Project is implemented in cooperation with the ACB in Los Banos, Philippines by GFA Consulting Group GmbH.

As part of the BBP project, the GIZ ValueLinks methodology on promoting pro-poor green value chains, will be utilized in cooperation with other biodiversity-related projects around the world, to develop a specific module on Biodiversity-based Products. The present Value chain study should be seen within this context.

The overall objective of the study is to undertake prioritization of the BBP sectors & sub-sectors and pre-analyse the three most promising value chains (VC) of BBP products in the buffer zones of Ba Be ASEAN Heritage Park in (AHP) in Viet Nam. The expected outputs, among other concerns include as following:

- **Identify the key opportunities and constraints** that limit market growth and/or production expansion;
- Suggest improvements in the value chain system to **ensure direct linkages & infrastructural access of the producers with/ to the major markets to create increased incomes from their products;**
- Give recommendations on **how the proposed BBP value chains should be upgraded and could be supported**

Specific objectives and tasks of the assignment is presented in the ToR (**See Annex 1: The ToR**).

1.2 Methodology

Based on the GIZ ValueLinks methodology with consideration of project context, the BBP Project has elaborated suitable approaches for the study.

1.2.1 Stakeholder workshop on VC selection and analysis

We began the assignment with the stockholder's workshop on selection of potential sub-sectors in Ba Be AHP with participation of Ba Be AHP management board; representatives of commune people's committees and mass organizations; farmers involved in collecting, processing and selling NTFPs in Ba Be AHP.



After having a brainstorming exercise, several rounds of discussions and group works, the participants selected the most viable sub-sectors for the next steps. We provided the participants with a set of criteria for evaluating, scoring the potential products (**See Annex 2: Set of criteria for selecting the most potential products**).

After completing field surveys of households and local market research, we organized three workshops on VC analysis of 03 selected sub-sectors. Outputs of those workshops are chain mappings, SWOT analysis and recommendations on upgrading 03 selected VCs. (**See Annex 3: List of participants of VC workshops**)

1.2.2 Field survey

Several interviews took place during the field survey with active contributions from collectors, producers, processors and traders of 03 selected sub-sectors. We used questionnaires to get relevant data on the collection, production, processing and sales of 03 selected sub-sectors. The questionnaires also addressed constraints facing to primary collectors/ producers at different aspects, such as accessibility to natural resources, to the market access, technological and financial capacity ... (**See Annex 4: Questionnaires used for the field survey**).

1.2.3 Market research

We took many visits to local shops, local market places to see and interview traders of the products. We visited some shops, market places in Bac Can and Ha Noi Cities to understand distribution channels, consumption trend, business linkages and other relevant information.

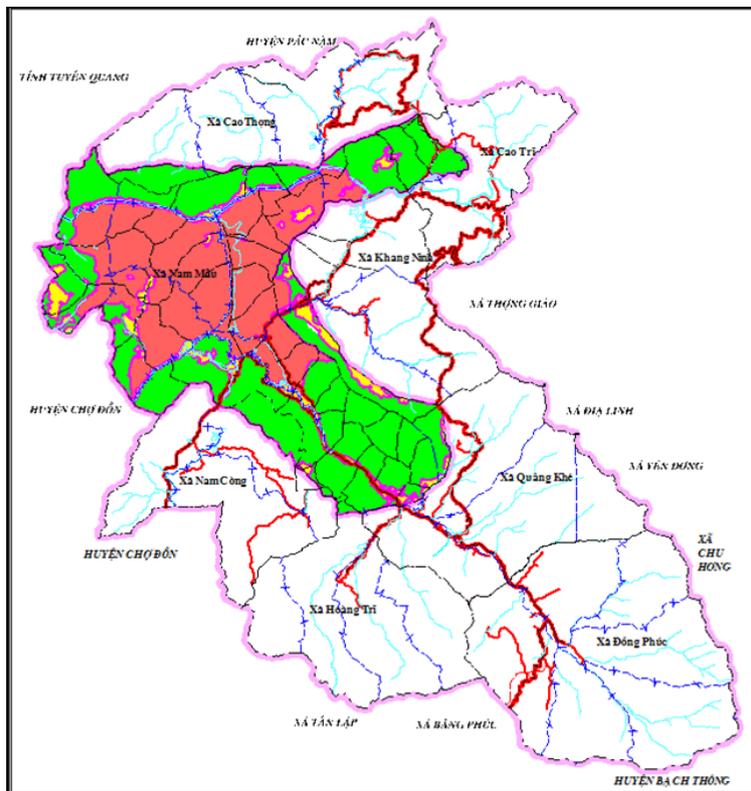
A lot of information is available on internet through online market research; we have studied many relevant websites to get understanding of international transaction of targeted products, opportunities for integrating into regional and global value chains as well as competition forces from other players.

1.2.4 Secondary data collection

A large amount of information was collected from relevant organizations and agencies at provincial, district and commune level. We prepared a checklist of information needed and arranged exchange meetings with related parties, who provided us with a number of studies and reports. Besides, we could get information on the past and on-going projects, programs supported by the Governments and donors.

II. Overview of BBP Project area – The Ba Be AHP

Ba Be National Park was established on 10/11/1992 by the Prime Minister's Decision No.83/QĐ-TTg and and recognized as the AHP on 12/2003.



The Park contains an abundant bio-reserve area with the only fresh water lake on karst in the world, 1,268 species of fauna and flora and a series of caves. Total area of the park is 10,048 ha, zoned into three functional areas:

- Administrative and service area: 46.8 ha.
- Ecological restoration area: 5,374.8 ha
- Strict protection area: 3,967.4 ha
- Inside buffer zone: 659 ha

The total buffer zone area is 25,309.1 ha, containing 08 communes of 02 districts, named Ba Be and Cho Don.

The table 1 bellow presents the area of the communes in the core zone and buffer zone of Ba Be AHP.

Table 1: Area of communes in the Ba Be AHP.

District	Commune	Total area (ha)	
		Buffer zone	Core zone
Ba Bể	Nam Mẫu	0	6,478.9
	Quảng Khê	4,137.5	1,313.7
	Khang Ninh	3,308.4	1,126.0
	Hoàng Trĩ	3,480.5	46.4
	Đồng Phúc	5,899.0	0
	Cao Trĩ	2,030.2	394.8
	Cao Thượng	3,490.0	416.7
Chợ Đồn	Nam Cường	2,963.5	271.5
Total		25,309.1	10,048

Source: Data of CPC, 2014

Total population in 8 communes in Ba Be AHP is about 23,535 people in 5,163 households, belonging to 5 ethnic groups. Tay ethnic group accounts for 90% of the total population in Ba Be AHP.

Table 2 below presents demographic data, income and household poverty rate in the communes in Ba Be AHP. Accordingly, there is quite difference in terms of the income per capita and the poverty rates across the communes¹. Especially, the income per capita and the household poverty rate of Nam Mau commune (situated in the core zone) is relatively high followed by other low income communes such as Hoang Tri, Dong Phuc and Quang Khe. It is noted that the household poverty rate in the communes in Ba Be AHP is very high compared to the average household poverty rate in the Bac Can province, at 14.24% by 2014.

Table 2: Demographic data, income and poverty rate in Ba Be AHP

District	Commune	No of village	Population	No of Households	Household poverty rate	Income per capita (1,000 VND)
Ba Bể	Nam Mẫu	9	2,271	456	36,34	5.800
	Quảng Khê	11	3,546	796	24,29	7.000
	Khang Ninh	15	4,225	948	18,55	13.000
	Hoàng Trĩ	6	1,375	304	26,7	4.700
	Đồng Phúc	14	2,847	666	26,9	4.800
	Cao Trĩ	8	2,098	459	19,6	9.624
	Cao Thượng	15	3,844	765	31,4	6.480
Chợ Đồn	Nam Cường	11	3,329	769	6,37	16.000
Total			23,535	5163		

Source: Data of CPC, 2014

The local inhabitants have very limited livelihood assets. Especially, agriculture land area is very small, about 500m² per person with one crop a year. In many remote villages, average food production per capita only reaches 150 – 180 kg/ year.

¹ Poverty lines are defined in Decision No. 09/2011/QĐ-TTg on 30/01/2011 by the Prime Minister. Accordingly, for rural areas, households earn income, on average, from 400,000 VND/ person/month (4,800,000 VND/ person / year) and below are poor households.

Local people also pursue livestock raising but at household level for subsistence. In many cases, people still follow the traditional method of grazing which then affect plantation.

Other income sources come from forestry activities, including collection of NTFPs (wide fruits, medicinal plants, vegetables ...). However, local people often sell collected species in the raw forms with low value and those are seasonal activities with small gains. Most of households take part in the forest protection under the agreement with Ba Be AHP from which they receive the forest protection fees, 200,000 VND per household/ year. Notably, about 90% of households collect firewood from forests, 41% of them collect timber and construction materials².

For those, who are near by the Ba Be Lake also taking part in fishing activity and tourism service. However, there have been some tens of households in the whole community.

In conclusion, poverty situation is still the vicious circle in some communities in Ba Be AHP. Therefore, it is very significant to seek market opportunities and to support for value added options, livelihood opportunities for the local inhabitants in Ba Be AHP.

III. Selection of potential sub-sectors

As previously mentioned, 07 potential sub-sectors were evaluated and scored via criteria by those who participated in the workshop “Selection of potential value chains in Ba Be National Park”.

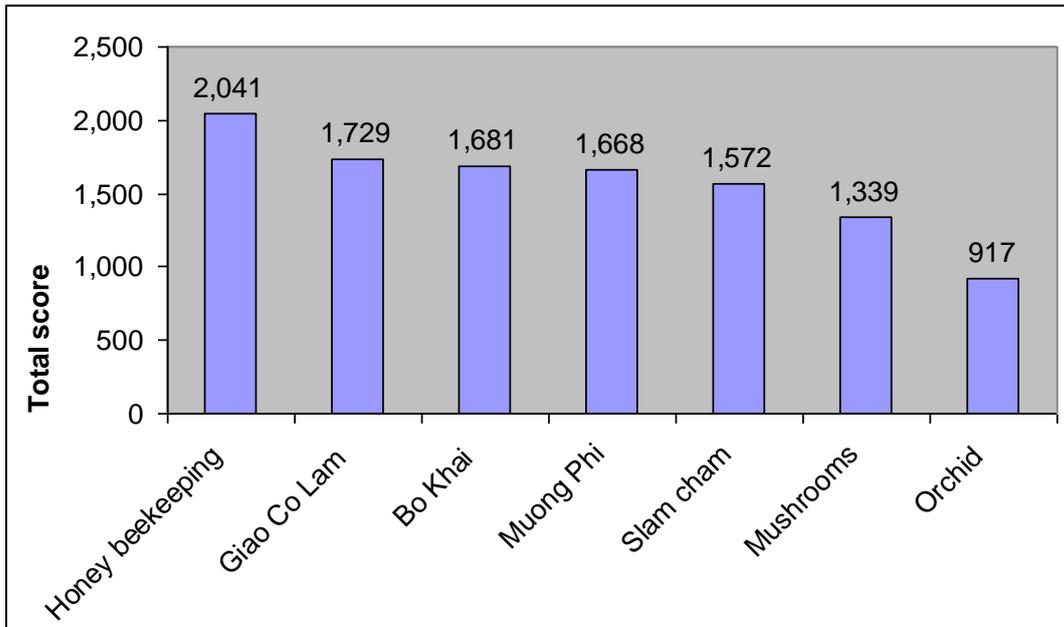
The assessment is based on 07 criteria as follows:

- Stable markets and selling prices
- Many people can involve in the sub-sector (production, processing and selling)
- There will be opportunities for increasing income and value added for participated households in the sub-sector.
- The poor can easily participate in the sub-sector.
- Opportunities for participation and increase of income for Women.
- Sub-sector development in connection with biodiversity conservation through sustainable harvest and use of natural resources.
- Supports from the government and local authorities

Scoring and ranking of 7 products of 21 participants is presented in Graph 1 as follows:

² Dr. Dave Huitema & Dr. Jetske Bouma, “Discourse versus reality: conservation and livelihoods in biodiversity hotspots around the world”, July 2011

Graph 1: Scoring result for 7 potential products in Ba Be National Park



Source: Aggregated by the consultant

Accordingly, 3 sub-sectors gaining the highest score are: honey beekeeping, Giao Co Lam and Bo Khai. Therefore, these sub-sectors are selected for further analysis and strategy development of value chain promotion.

IV. Relevant policies, meso support institutions and other projects

4.1 Relevant policies

Ba Be district is listed as one of the 61 poorest districts that are beneficiaries of policies supported by Vietnam government under Resolution 30a, No.30a/2008/NQ-CP dated 27 December, 2008 on ***“The support program for fast and sustainable poverty reduction in 61 poor districts”***. According to Resolution 30a, the poor districts are supported with quite comprehensive groups of policies as follows:

- A. Production support, job creation and income raising
- B. Policies on education, training, vocational training and raising of people’s intellectual level
- C. Policies on cadres for poor districts
- D. Policies and mechanisms on infrastructure investment in hamlets, communes and districts

In particularly, there are many support policies through People’s Committee of district and communes and a number of policies on direct support for the people, remarkably policies of the above mentioned group A on production support, job creation and income raising:

1. Policies on support through contracting forests for tending and protection and assigning forests and land for production forest plantation
2. Production support policies, including an amount of relevant content such as:

c) To provide a lump-sum support for the purchase of seedling and fertilizer for restructuring crops and livestock of high economic values; to prioritize plantation of cross-bred rice and corn;

d) To provide the 50% state budget support for interests on loans borrowed from state commercial banks for agricultural production development, processing facility investment and farm produce preservation and sale;

e) Poor households may, apart from the supports specified in Clause 1 and Points a, b, c and d of Clause 2, receive support for animal raising, aquaculture and craft development:

- to borrow maximum VND 5 million/household with a 0% interest rate (once), for households that do not have conditions to raise animals and wish to generate incomes through development of handicrafts or cottage industries.

3. Policies to encourage and support enterprises, cooperatives and farms to invest in production, processing and business in poor districts:

a. To provide favorable conditions and highest incentives under the State's current regulations;

b. To provide the 50%-state budget support for interests on loans from state commercial banks for agricultural, forestry and aquatic product processors in poor districts.

4. The formation of clubs, interest groups and cooperatives to produce potential products is specified by the Government in Decree No.152/2007/ND-CP dated 10 October, 2007 on "The organization and operation of cooperative groups".

In terms of medicinal plants, the Government issued Decision No.1976/QD-TTg dated 30 October, 2013 on "**Approving the master plan on medicinal plant development through 2020, with orientations toward 2030**". A number of related issues for the BBP Project in Ba Be National Park and the selected medicinal plants are:

Specific objectives in the Decision:

a) To preserve and exploit natural medicinal plants

b) To develop the cultivation of medicinal plants

c) To develop sources of medicinal plant varieties

d) To gradually increase the ratio of standardized raw materials (medicinal plant extract, essential oil and powder) in medicine factories under the good manufacturing practice principles and standards of the World Health Organization (GMP-WHO)

e) To create products of high quality, low cost and high competitiveness in the market

f) To invest in the construction of factories for medicinal plant preliminary processing, processing and extraction, and medicinal plant trading centers so as to establish a favorable market for the supply and consumption of medicinal plant products

Notably, Bac Can located in the Northeast is one of eight ecological regions in the plan of medicinal plant development. Besides, Giao Co Lam is in the list of 54 striking species of medicinal plants in the plan of large scale plantation in eight ecological regions (Annex II of Decision No 1976/QD-TTg).

4.2 Support projects

4.2.1 Beekeeping pilot model

Project of Creating Protected Areas for Resource Conservation using Landscape Ecology (PARC) with funding from Global Environment Facility (GEF) and the United Nations Development Program (UNDP/TRAC) was implemented from 1999 to 2004 by Forest Protection Department (FPD) of Ministry of Agriculture and Rural Development (MARD) and the United Nations Office for Project Services (UNOPS). Ba Be National Park was one of locations of this project. In the framework of Component 2 “Community Development”, PARC trained the technical transfer and supported 30 households in Ba Be National Park to develop beekeeping model. Up to now, 12 households have still maintained and developed beekeeping with advance method.

4.2.2 Giao co lam demonstration plots

In 2013 and 2014, district Department of Agriculture and Rural Development developed a pilot model of Giao Co Lam in Na Don village, Phuong Vien commune. There were 13 households participating in the model with an area of 0.7ha. Giao Co Lam is mainly planted in the shady gardens and forests. Participants have been supported with seedlings and technical guidelines of care. Now, people can harvest Giao Co Lam from the model, resulting in another way of economic development that contributes to job creation and income improvement.

In May 2015, People’s Committee of Bac Can province approved the scheme “Plant and process Giao Co Lam of Bac Can province”. This scheme has been conducted by Institute of Health Economics and Social Issues of Thai Nguyen University. Accordingly, on-going activities of the scheme are studies, Giao Co Lam model development in Cho Don district in an area of 1ha; Giao Co Lam tea processing with different packaging forms such as tea bags, tea in vacuum bags, Giao Co Lam medicine. The scheme will also develop a full process of Giao Co Lam plantation, tending and harvest.

4.2.3 Bo khai demonstration plots

In 2009 and 2010, Center for Research and Development of Agricultural systems – Vietnam Academy of Agricultural Sciences cooperated with Farmers’ Association of Cho Don district to implement the project on forming groups of Bo Khai processors and consumers in Bang Lung town. The project attracted over 10 households who were trained in the techniques of setting up nursery, plantation and tending of Bo Khai. Until now, Bo Khai gardens begin developing well. Some households have harvested and sold Bo Khai. There has been replication of Bo Khai models in other area such as Ngoc Phai, Bang Lang of Cho Don district.

V. Analysis of selected value chains with upgrading strategies

5.1 Honey beekeeping

Honey is a natural complex food with high nutritional value. It is naturally produced by bees from the nectar of flowers and honeydews. Honey contains readily available sugars, organic acids and some amino acids as well as certain macro and micro elements and it is a rich source of many biologically active compounds. Honey is a concentrated sugar solution and although the content of the different sugar types

depends on the variety of honey. The major sugars in honey are always mono saccharine, namely glucose and fructose; additionally, small amounts of disaccharides (maltose, sucrose trechalose, isomaltose, nigerose, turanose, kojibiose and others) are present.

5.1.1 World production and international trade of honey

Beekeeping is considered one of the most important agricultural activities around the world. In 2012 total number of bee hives in the world was 81,027,786 which produced about 1.592.000 tons of honey (13.7% increase compared to 2004). The main producers of honey include: China, Turkey, the US, Ukraine, Argentina, Canada, India, Vietnam, etc...

The world top exporters of honey are China, Argentina, New Zealand, Germany, Mexico and Spain (**See Annex 5: Top 10 exporters of honey world wide**). Meanwhile, the world top importers of honey are the US, Germany, United Kingdom, Japan, France, Italy, etc

The data in the below table 3 indicates that the imported value of honey by the world top 10 importers increased 23% in 2013 compared to 2011. World top honey importers and consuming nations are US, Japan and EU (Germany, France, Belgium, Poland)

Table 3: Top 10 Importers of Honey Worldwide

Countries	Import value (In millions CAD \$)		
	2011	2012	2013
United States	381	416	495
Germany	270	281	332
United Kingdom	125	114	130
Japan	117	105	120
France	110	94	117
Italy	57	56	78
Belgium	56	56	65
Spain	45	48	54
Poland	38	35	50
Netherlands	44	39	48
Others	309	348	421
Total	1,552	1,592	1,910

Source: *Global Trade Atlas (July 2014)*

5.1.2 Overview of honey beekeeping in Viet Nam

i) Honey production

Vietnam is located in a tropical area sketching over 15 Latitudes; therefore, there are plenty of sources of bile which blossom for 4 seasons, beneficial for developing bee branch thanks to warm climate. Due to tropical climate, colonies of bees can work for the whole year without hibernation like in temperate zone. Recently, thanks to forest, industrial and fruit-trees like rubber, tea, coffee, acacia, litchi, longan, and so forth, the source of bile for pollen is more beneficial for developing branch of bees. Nowadays, there are 6 kinds of bees in Vietnam among which 5 native kinds were *Apis dorsata*, *Apis laboriosa*, *Apis cerana*, *Apis florea*, *Apis*, *Reniformis* and *Apis mellifera* which is from foreign country.

Beekeeping exists in Vietnam for a long time and many farmers in Vietnam rural areas get a lot of experience and traditional skills from their families, or relatives. People experiencing traditional beekeeping often hunted in natural forests to collect honey and take colonies of bees from forests to keep at home (*Apis cerana* is a common kind for this approach). The process and techniques to raise bees according to the traditional method are quite simple; colonies of bees hunted from forests were raised in round barrels from tree-trunk, which is called log hive. When taking honey, people often have to cut the frame to take honey parts; larva, and pupa were taken away, making the bees keeping less developed, low productivity (about 1-2 kg per colony per year) and usually, when honey is taken away, bees leave their comb.

Modern beekeeping was experimented and came into use popularly since the beginning of 1960 regarding support from Chinese experts. At that time, some state owned factories and beekeepers were established. Since then, by state program, beekeeping has been developing. Applying the advanced methods, beekeepers raise bees in a wooden square box with 3 to 5 bee combs (wax-layer frames) inside the box. In this way, people can take the comb away from the colony; check queen cells easily without ruining the frames. When harvesting the honey, people just take honey while other parts are left, still tied to the bars. The modern way therefore can help beekeepers having better control of bees and increasing honey productivity.

In recent years, beekeeping in Vietnam has gradually developed. A number of bee colonies nationwide have been constantly increasing since Vietnam is listed as one of the bee exporters. The area with a large number of bee colonies and the largest honey production nationwide is Central Highlands including Dak Lak, Dak Nong, Kon Tum, Gia Lai ...The number of bee colonies accounts for 30% of the country's total bee colonies. Honey output accounts for 50% of Vietnam's total output. Beekeeping in Dong Nai – a province in the Southeast also develops with a large number of bee colonies and second-ranked honey output nationwide. In the north, beekeeping develops in Son La, Dien Bien, Tuyen Quang, Hung Yen, Hoa Binh, Phu Tho, Ha Giang, Lang Son. In central Vietnam, beekeeping develops in Nghe An province. Now, there are about 35,000 beekeepers in the whole country. From 2011 up to now, Vietnam has had approximately 1.5 million bee colonies including *Apis cerana* and *Apis mellifera*, in which 350,000 bee colonies are *Apis cerana* (23.33%) and 1,150,000 bee colonies are *Apis mellifera* (76.67%).

Table 4: Output of honey produced and exported by Vietnam

Criteria	Year 2011	Year 2012	Year 2013
Output of honey (ton)	34,000	37,000	48,000
Exported output of honey (ton)	27,000	30,000	37,000
Value (Millions USD)	67,141	58,00	85,66

Source: Vietnam Beekeeper Association and Ministry of Industry and Trade

Data in Table 4 shows that output of honey produced and exported by Vietnam has significantly increased in recent years. Thanks to bigger investment by Vietnam enterprises into the beekeeping to meet abroad orders, especially from the US, the

honey output has increased. Besides, various localities in the Central – Central Highlands have developed production forests (like acacia) that create plentiful feed sources for honey bee.

In 2013, honey volume in the country was 48,000 tons, in which 37,000 tons were for export. In particular, Vietnam exported over 30,000 tons of honey to the U.S., and reached the revenue of US\$75.66 million. Recently, honey export growth rate has increased stably at high rate (14%). Vietnam honey is mainly exported to the U.S market at price much lower than that of other countries (US\$2.48/kg).

It is due to uneven honey quality of Vietnam enterprises. Various exporters have not followed and improved the process that meets the standard demand of importers. Antibiotic residue and content of sugar in Vietnam honey is more than that of other countries. In around 2 years, US anti-dumping duty on Chinese honey will be surely lifted. Therefore, Vietnam honey will have to compete with cheap honey of China in the US market.

ii) Domestic market

Overall, demand for honey in domestic market remains low, at around 7,000 tons/year. In terms of honey consumption per capita, the figure is 70g/person/year. The rate of honey consumption in Vietnam is 1/15 of the rate in Germany (the world top in honey consumption per capita), about 1kg/ person/ year. Vietnam's consumption accounts for ¼ compared with average consumption of importers (around 200g/person/year). However, experts on bees have showed that the demand for honey in domestic market tends to be increased, at about 35g/person/year in 2007 up to 55g and 70g/person/year in 2011 and 2013 respectively.

The consumption of honey in Vietnam is influenced by various factors such as taste and consumption habit, price, quality, orientation to export. Regarding the taste and consumption habit, Vietnamese people prefer honey harvested from forest with a belief toward honey as a source of nutritious natural medicine, anti-depression and disease treatment. Accordingly, in previous years when honey was scarce, people were willing to buy honey from the forest with high price. For such purpose, demand for honey was low, mainly for the elderly, pregnant and post-natal women, children.



Therefore, honey is not listed as a common type of food and not used popularly as a component in other types of food such as cookies, candies and beverage. Vietnamese people are still accustomed to pure honey that is occasionally mixed with medicine, alcohol or herbs so the consumption is low. Vietnamese consumers are willing to buy honey from forests with high price that

ranges from 50,000 VND to 120,000 VND per 0.65l bottle (from 77,000 VND to 185,000 VND). This price is many times higher than export price. Vietnamese consumers seem not to be accustomed to honey produced with advanced method and single flower sources (coffee, rubber, acacia, etc.).

The inspection and accreditation of products in general and honey in particular in Vietnam are not stringent, also affecting honey consumption. It is difficult to differentiate types of honey (honey with much or little sugar, single or multi-blossom ...) Consumers seem unsure about honey sold in retail shops (although the products have labels on them). Therefore, domestic market of honey mainly depends on retailing and trust between sellers and buyers rather than understanding of the product.

5.1.3 Description and quantification of the value chain in BBP Project area

i) Beekeeping situation in Bac Can province:

Although there is much potential of natural resources, Bac Can is not listed as a province with developed beekeeping. Thanks to more convenient transport condition and support from programs and projects, there have been more and more localities applying advanced beekeeping method. It is estimated that there are around 300 beekeeping households in Bac Can province, mainly in Bach Thong district. There are 10 to a few dozens of beekeeping households in other districts such as Cho Moi, Ngan Son, Na Ri, Cho Don, Ba Be. Despite a small number of beekeeping households, 60 professional households keep an average of 30 colonies, resulting in significant income for themselves (30-40 million VND / household/ year)

ii) Beekeeping in Ba Be National Park

Like other mountainous areas in the North and Central Vietnam, a number of people in 8 communes in Ba Be National Park area often go to the forests to catch bees for honey from April to July every year. Besides, some people keep bees through



traditional method of catching bees in the forests for domestication. However, traditional beekeeping has been gradually eroded by several reasons such as: increasing use of chemicals and pesticides in cultivation; lots of shortcomings in traditional beekeeping techniques such as disease prevention and treatment for bees, bee harvesting affect the maintenance and development of bee colonies.

Advanced beekeeping techniques had been introduced in Ba Be National Park since 1999 -2004 by the Project “Creating Protected Areas for Resource Conservation using Landscape Ecology” (PARC). The project conducted a training course on technical transfer and

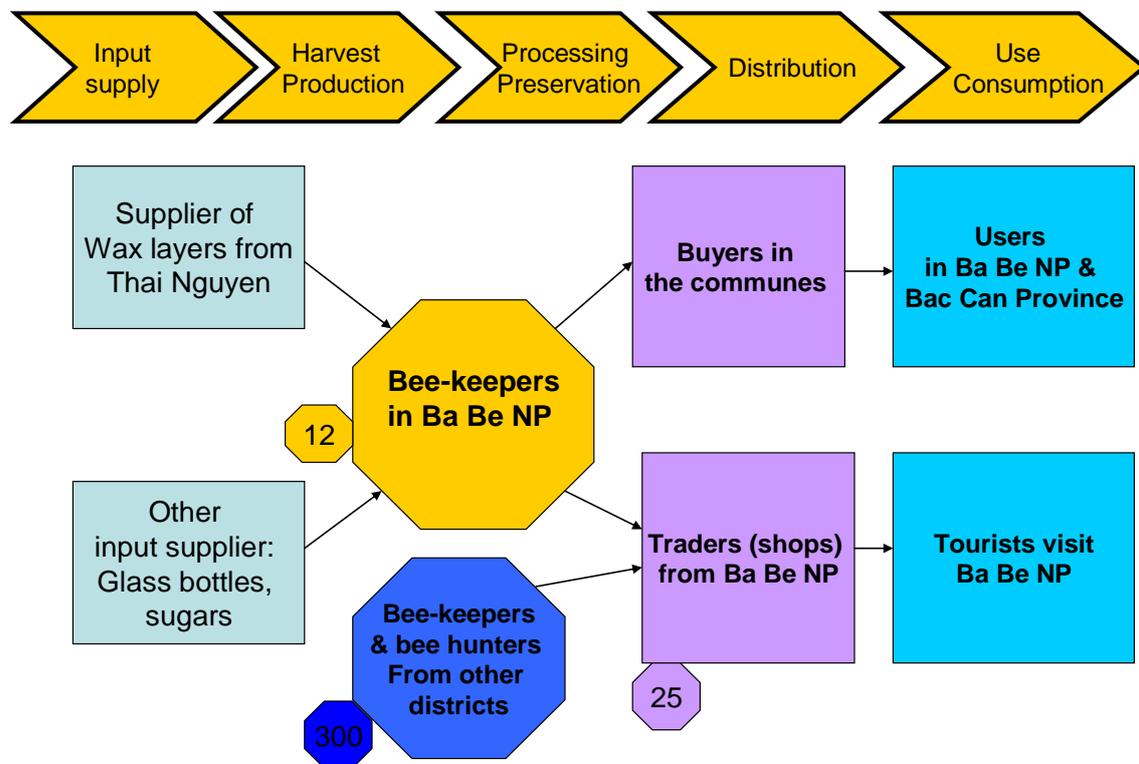
supported to build beekeeping models for 30 households in Ba Be National Park area, 12 households of which still maintain and develop advanced beekeeping method up to now.

Diagram 1 describes honey value chain in Ba Be National Park according to stakeholders in the value chain. Their role and task is described as follows:

i) Honey buyers:

There are two groups of honey consumers in Ba Be National Park. The main group is a large number of visitors to Ba Be National Park. The other one is local consumers in Ba Be National Park and Bac Can City.

Graph 1: Honey value chain map in Ba Be AHP



Source: Compiled by the consultant

In terms of visitors to Ba Be National Park, there are about 30,000 arrivals from various places across Vietnam. Foreign customers hardly buy honey. As analyzed above (section iii, 3.1.2), tourists buy honey in Ba Be National Park because they trust in honey produced in natural forests that is good for health and able to treat a number of diseases. Therefore, they are willing to buy honey with relatively high price from 280,000 to 300,000 VND per 0.64 liter bottle of honey. This price is 4.5 times higher than that of exported honey, 2.5 times higher than that of other localities' honey sold in Hanoi. Also, because of small supply of honey in the area that does not meet the demand of customers; the price of honey is high.

ii) Honey traders:

About 25 big and small grocery shops in tourism sites of Ba Be National Park are mainly owned by local people. Their shops which are just the tents sell various kinds of local products such as honey, local medicines, shiitake (a type of mushroom), arrowroot vermicelli, peanuts... A number of shops sell beverages.



Only a few traders collect honey from beekeeping households in Ba Be National Park while others collect honey from other districts such as Bach Thong, Cho Moi. Because of the seasonality of tourism in Ba Be National Park, honey traders work mainly in crowded season (from April to October). Only a few permanent shops open to cater for a small number of tourists who are mostly

foreign visitors or those visiting at weekends.

iii) Beekeepers

Three interviewed households said that they kept bees for additional income. Those who directly keep bees and take care of them are men. They have beekeeping experience of over 12 years. It is remarkable that their tenacity and passion lead to success in beekeeping. Two of three beekeepers were trained beekeeping from PARC project, the other learned from other people in Cho Don District. They have maintained a quite large number of bee colonies in recent years. The data of the last two years indicates that all of them have kept over 14 bee colonies. They said that they had controlled bee colonies with appropriate techniques. Besides, they can catch bees in forests and take them home for domestication. However, the skills and knowledge in beekeeping of two participants in PARC project are better than that of the other's. The first two beekeepers are more active in all stages while the latter lacks skill of disease prevention and treatment and technique of bee queen creation. In addition, the not yet trained beekeeper has to make beekeeping equipment and tools by himself because he does not know where to buy standard-reached tools, notably wax layers of bee comb. Therefore, the bees make a big effort in nesting, causing lower honey output.

All three beekeepers said that they lacked effective technique such as artificial creation of bee queens and disease prevention and treatment. In terms of natural condition to beekeeping, they said that there was a moderate quantity of flora, pollen and honeydew. They all want to develop beekeeping. However, they plan to take their bee colonies to a number of other local sites for enough natural sources.

** Consumption market, income from beekeeping and value added*

The three beekeepers said that it was easy to sell honey. They mainly sell honey at home and take honey to shops in Ba Be National Park for sale. Data on honey revenue, quantity of honey and value added of interviewed households are presented in Table 5 as follows:

Table 5: Calculation of revenue and value added of beekeeping households

Name	No of bee hives	No of 65ml bottled honey	Honey revenue (VND)	Total intermediate costs (VND)	Value added (VND)	Value added/bee colony (VND/bee colony)
Dong Van Thanh	14	40	8,000,000	3,620,000	4,380,000	312,857.14
Be Cao Dang	25	80	16,000,000	7,550,000	8,450,000	338,000.00
Be Thieu Khanh	44	110	22,000,000	12,982,000	9,018,000	204,954.55
Average			15,333,333	8,050,667	7,282,667	285,271

Source: Data aggregated by the consultant

The data shows that beekeeping creates significant income for the households, accounting for around 20% of their total income. Each bee colony cost around 285,000 VND. Therefore, investment in beekeeping is more efficient than that in other farming activities such as pig and chicken raising.

iv) Input suppliers for beekeeping:

Currently, beekeepers have to buy beekeeping materials such as wax-layers, glass bottles and sugar. Wax-layers are provided by a supplier from Thai Nguyen (near Bac Can province). According to bee keepers in Ba Be National Park, the wax-layers are reasonable in terms of price and guaranteed regarding quality. Besides, it is quite favorable to purchase wax-layers (shipping and billing through coaches). Glass bottles are supplied by restaurants. Accordingly, beekeepers often go to restaurants and food stalls to buy empty wine bottles. Sugar is provided by traders in communal markets based on market price.

5.1.4 S.W.O.T analysis of the value chain

Strengths, weaknesses, opportunities and threats of beekeeping in Ba Be National Park were discussed by participants in the workshop as follows:

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Beekeeping is traditional business • Existing good demonstrations of honey beekeeping (available basic techniques of honey beekeeping) • Local honey is evaluated as good quality by buyers • Plentiful sources of flora and honeydew because of large area of mountains • Available materials for making bee boxes, frames • Willingness and high demand of local people for honey beekeeping • Available breeding source from forest 	<ul style="list-style-type: none"> • Most of beekeepers do not get access to beekeeping techniques • Many beekeepers are lacking honey beekeeping techniques such as disease prevention and treatment in bees, artificial creation of queen bees • Honey output is lower than that of other areas • Lack of breed bees • Marketing and sales skills are limited • Control of honey quality has not been focused • The collaboration among beekeepers is limited • Many people do not fully understand the value of

	beekeeping
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Increasing demand for honey • Near Ba Be National Park tourism site • Tourism project from Saigon Tourist Co., Ltd • Convenient transport condition to tourism sites • Potential supports from projects • The attention from local agencies and authorities in terms of techniques and policies 	<ul style="list-style-type: none"> • Use of plant protection products and pesticides • Diseases of bees • Natural enemies: wild bees, lizards... • Unstable weather and climate

*** Opportunity of market to Ba Be National Park honey:**

A number of market opportunities to Ba Be honey are visible. Firstly, Saigon Tourist Co., Ltd has invested about 20 million dongs for service and tourism project in some sites of Ba Be National Park. Saigon Tourist is one of the leading tourism enterprises in Vietnam. With a network of 54 hotels nationwide, professional tourism business of Saigon Tourist will attract a large number of tourists to Ba Be National Park. Besides, that the price of milk and other nutritious drinks tends to increase is an opportunity for honey to meet the demands of consumers. Also, thanks to convenient transport condition, beekeepers and traders in Ba Be can get access to new markets.

5.1.5 Environment and biodiversity conservation concerns

In addition to direct income from selling honey, beekeeping contributes to raising crop yields (for both food crops and fruit trees). Besides, all beekeepers are aware of using chemicals and pesticides sensibly. They are also concerned about fruit tree growing and afforestation, natural forest and environment protection.

5.1.6 Upgrading strategies

Upgrading strategies for honey value chain in Ba Be National Park are based on findings on chain mapping analysis, summary of SWOT and opportunities of market to honey.

Upgrading strategies in Ba Be AHP focus on the following points:

- a) Conduct ToT training for the existing successful beekeepers in Ba Be AHP and select the most capable trainers.
- b) Develop appropriate organizational structure of beekeepers; create environment of beekeeping promotion in the community; promote the sharing of beekeeping experience and technique, ensuing the mechanism of benefit sharing and beekeeper-associated responsibility.
- c) Promote to transfer and apply advanced beekeeping techniques from existing successful beekeeping models.
- d) Build a brand for beekeeping honey in Ba Be AHP
- e) Enhance the capacity of beekeepers; create business linkage between beekeepers and traders, distributors based on the “win-win” approach.

5.1.7 Suggested facilitation action plan

Strategies/Activities	Time	Implementers	Supporting agencies	Estimated budget (Eur)
a) Conduct ToT training for the existing beekeepers in Ba Be AHP and select the most capable trainers				
a.1 Organize advanced training and ToT training course on beekeeping for the existing successful beekeepers in Ba Be AHP	December , 2015 (10 days for 2 periods)	12 typical beekeepers in Ba Be AHP	Experts on beekeeping from VN Bee Research Center (BRC) BBP Coordinator AHP Project Officials of Ba Be AHP	900 and 12 consulting days of experts on beekeeping
a.2 Advise, monitor and support the successful beekeepers with advanced beekeeping techniques after the training	January, 2016 (5 days)	12 typical beekeepers in Ba Be AHP	Experts on beekeeping from BRC BBP Coordinator Officials of Ba Be AHP	300 and 6 consulting days of experts on beekeeping
a.3 Evaluate performance and skills of potential trainers on beekeeping to select six best trainers	January, 2016	Officials of Ba Be AHP	BBP Coordinator AHP Project	
b) Develop appropriate organizational structure of beekeepers				
b.1 Assess the need for beekeeping in communes in Ba Be AHP	January, 2016 (8 days/8 communes)	06 local beekeeping trainers in Ba Be AHP	Experts on beekeeping in BRC BBP Coordinator Officials of Ba Be AHP	500 and 9 consulting days of experts on beekeeping
b.2 Assess the need of interested persons in forming beekeeper club in potential communes (select the 03 most potential communes)	February, 2016 (6 days)	06 beekeeping trainers in Ba Be AHP	BBP Coordinator Officials of Ba Be AHP	600
b.3 Develop operational regulations, business plans of beekeeper clubs with the participation of club founders	February, 2016 (6 days/ 3 clubs)	Beekeeper club founders VC Consultant	BBP Coordinator Officials of Ba Be AHP	600 and 12 days of VC consultant
b.4 Support for formation of beekeeper clubs in three potential communes	March, 2016	Founders of beekeeper clubs People's Committee of communes	BBP Coordinator Officials of Ba Be AHP	600
b.5 Establish beekeeper association	July 2017 – October 2017	Campaign Committee of	BBP Coordinator Officials of Ba Be	

Strategies/Activities	Time	Implementers	Supporting agencies	Estimated budget (Eur)
of Ba Be district based on the results of beekeeper clubs		district beekeeper association establishment	AHP	
c) Promote to transfer and apply advanced beekeeping techniques from existing successful beekeeping models.				
c.1 Organise study tours to developed beekeeping demonstrations (Khang Ninh, Ba Be, Bach Thong District)	March, 2016	Beekeeper club founders of 03 potential communes Representative of the CPC	BBP Coordinator Officials of Ba Be AHP	400
c.2 Conduct careful beekeeping TNA to right trainees	April, 2016	02 beekeeping trainers in Ba Be AHP	BBP Coordinator Officials of Ba Be AHP	300
c.3 Organize advanced beekeeping training courses for selected trainees and provide bee hives to trained persons (02 bee colonies per trainees, 04 centrifugal machines for 02 courses)	April, 2016	02 beekeeping trainers in Ba Be AHP 40 selected persons in 03 communes	BBP Coordinator Officials of Ba Be AHP	4,000
c.4 Provide follow up technical consulting and supports new beekeepers with advanced beekeeping methods	May – August, 2016 (5 days/4 periods/4 months)	02 beekeeping trainers in Ba Be AHP 40 selected persons in 03 communes	BBP Coordinator Officials of Ba Be AHP	700
c.5 Visit and check beekeeping progress in beekeeper clubs of 3 communes	August, 2016	Chairman of beekeeper clubs	BBP Coordinator Officials of Ba Be AHP	300
c.6 Organise the next training round on advanced beekeeping techniques for needed persons of 3 beekeeping clubs in 3 communes (replication of the models)	September 2016	02 beekeeping trainers in Ba Be AHP 40 selected persons in 03 communes	BBP Coordinator Officials of Ba Be AHP	6,000
c.7 Provide follow up technical supports of applying advanced beekeeping method at home for new beekeepers	September 2016 – January 2017 (5 days/4 periods/4 months)	02 beekeeping trainers in Ba Be AHP 40 selected persons in 03 communes	BBP Coordinator Officials of Ba Be AHP	700
d) Build a brand for honey in Ba Be AHP				

Strategies/Activities	Time	Implementers	Supporting agencies	Estimated budget (Eur)
d.1 Discuss and agree on branding plan with the full participation of representatives from beekeeper clubs	September, 2016	Leadership representatives of beekeeper clubs	BBP Coordinator Officials of Ba Be AHP	300
d.2 Adopt measures to ensure product quality: products meet standard and uniformity among localities	October, 2016	Members of beekeeper clubs	BBP Coordinator Officials of Ba Be AHP	300
d.3 Use advanced equipment and tools to control honey quality	November, 2016	Members of beekeeper clubs	BBP Coordinator Officials of Ba Be AHP	500
d.4 Design and agree on the honey product label	December, 2016	Leadership representatives of beekeeper clubs	Consultants BBP Coordinator Officials of Ba Be AHP	300 and 6 consulting days of designer and consultant
d.5 Introduce new labeled products to market	January, 2017 – March, 2017	Leadership representatives of beekeeper clubs		300
d.6 Learn from market response and adjust the label to match the market	April, 2017	Leadership representatives of beekeeper clubs	Consultants BBP Coordinator Officials of Ba Be AHP	500 and 3 days of consultant
d.7 Register trademark and quality	May, 2017 – July, 2017	Leadership representatives of beekeeper clubs	BBP Coordinator Officials of Ba Be AHP	500
d.8 Connect with market outlets to serve tourists in Ba Be AHP	August, 2017	Leadership representatives of beekeeper clubs	BBP Coordinator Officials of Ba Be AHP	500
e) Enhance the capacity of beekeepers; create business linkage between beekeepers and traders, distributors on the “win-win” approach.				
e.1 Train skills of negotiation and business planning for leadership of beekeeper clubs	June, 2016	Leadership representatives of beekeeper clubs	Consultants BBP Coordinator Officials of Ba Be AHP	600 and 4 days of consultant
e.2 Develop contracts between beekeeper clubs and honey shops in tourism sites in Ba Be AHP	July, 2016	Leadership representatives of beekeeper clubs	BBP Coordinator Officials of Ba Be AHP	300

Strategies/Activities	Time	Implementers	Supporting agencies	Estimated budget (Eur)
e.3 Conduct sales and purchase contracts with honey contribution shops	From July 2016	Leadership representatives of beekeeper clubs	BBP Coordinator Officials of Ba Be AHP	300
Total			20,100 and 52 man-days of consultants	

5.2 Giao Co Lam medicinal tea (*Gynostemma pentaphyllum* Cucurbitaceae)

5.2.1 Giao Co Lam in the world wide and international trade of Giao Co Lam

Jiaogulan is a plant of the genus *Gynostemma*. There are twenty-one species of *Gynostemma* growing throughout China, with many of them growing abundantly in the Southwest. Most of the species have other Asian distribution in one or two countries. The pentaphyllum species is the most widespread, with distribution in Bangladesh, India, Japan, Korea, Laos, Myanmar, Nepal, Sri Lanka and Vietnam. In China, one or more of jiaogulan species can be found growing wild in the provinces of Shaanxi, Sichuan, Yunnan, Guizhou, Guangxi, Hubei, Hunan, Jiangsu, Zhejiang, Anhui, and Hainan. Jiaogulan can be found growing in the mountains and plains, at an elevational range of between 1,000 and 10,000 feet (300-3200 meters)³.

According to an abstract of the review paper⁴ “*jiaogulan (Gynostemma Pentaphyllum) is age old herb in traditional Chinese herbology. It has been widely researched. It is true Rasayan (Rejuvenator/Antiaging) herb as it is immunomodulator, adaptogen, antioxidant, anti-cancer, neuroprotective, nootropic and hepatoprotective*”.

The review paper also refers to a research of Dr. Tsunematsu Takemoto from 1970 to 1984 which discovered that Jiaogulan contains four kinds of saponins exactly like those in *Panax ginseng* and seventeen other kinds of saponins very similar to those in *Panax ginseng*. The work of Dr. Takemoto then proved Jiaogulan to enhance endurance, inhibit tumors and help protect the cellular immunity in humans, as well as provide many other healthpromoting benefits.



There are 69,900 results when searching “trade of Jiaogulan”. There are tens of advertising pages selling Jiaogulan tea and Jiaogulan capsules on e-commerce site Alibaba, in which the majority of suppliers is from China. Price of packaged Jiaogulan tea ranges from 10 USD/kg to 38 USD/kg, etc.

In addition, a number of companies in Thailand⁵ and US specialize in processing and supplying Jiaogulan tea to US and Canadian market. However, the HS (Harmonized System) for Jiaogulan tea cannot be found so there is no data on the volume, value of import and export on the international market.

³ <http://www.jiaogulan.net/Jiaogulan-book/chapter%204.htm>

⁴ International Journal of Research in Pharmaceutical and Biomedical Sciences, ISSN: ISSN: 2229-3701

⁵ <http://www.jiaogulan.com>

5.2.2 Overview of production and trade of Giao Co Lam in Viet Nam

In Vietnam, Giao Co Lam (*Gynostemma pentaphyllum* Cucurbitaceae) has been collected from forests by some local people for use for a long time. It is called with different names such as Dan tong, Ngu diep sam, Sam phuong nam, Cay bo dang. In 1997, it was named Giao Co Lam by Prof.PhD. Pham Thanh Ky who was former rector of Hanoi university of Pharmacy after he found it in Fansipan mountain located in Lao Cai province. He had known Giao Co Lam during his business in China many years ago. Giao Co Lam is transliterated from Chinese called Jiaogulan. Since 1997, there have been various studies on Giao Co Lam guided by Prof. Ky. The studies have indicated that Giao Co Lam harvested in Vietnam helps to strengthen health system, lower high cholesterol, fight atherosclerosis, reduce blood sugar, prevent oxidization, protect livers and prevent aging. The main element of Giao Co Lam is saponin. Besides, it contains flavonoid, amino acid, vitamin and 35 micro elements of relatively high content such as Se, Zn, Fe, Mg, Mn. His team extracted 7 new saponins with Damaran structure similar to ginseng's (Source: <http://suckhoedoisong.vn/dien-dan/vi-giao-su-danh-10-nam-can-man-nghien-cuu-cho-moi-cay-thuoc-20141212164635472.htm>). Giao Co Lam grows mainly in a number of provinces in the North such as Cao Bang, Lao Cai, Tuyen Quang, Ha Giang, Hoa Binh and scarcely in some provinces in the Central.

Giao Co Lam has been increasingly concerned and used since Prof.Ky proclaimed



his studies. Therefore, a number of enterprises have collected, processed and sold Giao Co Lam to consumers through various different distribution channels. Currently, some enterprises have specialized in processing and selling Giao Co Lam in quite large scale in Hoa Binh and Lao Cai (in Sa Pa). The main product of these enterprises is Giao Co Lam that is distributed to numerous provinces and cities along the country. Its main distribution channel is through pharmaceutical shops in

cities such as Hanoi, Hoa Binh, Sa Pa (dozens of shops in each city). These shops often support online sales and door-to-door delivery services (**See Annex 6: List of Giao Co Lam trading companies**).

However, current materials for processing Giao Co Lam medicinal tea in Vietnam are collected from nature, mainly from the forests. Therefore, the source of materials is at risk of being depleted as people are not concerned about the regeneration ability and lack the knowledge of sustainable harvest. It is remarkable that there are various species of Giao Co Lam in nature which are distinguished through their leaves, including species of three leaves, five leaves, seven leaves and nine leaves. According to the scientists and physicians on herbal medicine, only five-leave and seven-leave species have healing effect. However, consumers hardly distinguish those species after they are processed into tea while most processing facilities have no registration of inspection and quality. In addition, the management of Giao Co Lam medicinal tea quality seems not to be strict. Therefore, consumers may find 7-leave Giao Co Lam medicinal tea processed by different facilities with price gap from 80,000 dong/kg to 280,000 dong/kg.

5.2.3 Description and quantification of the value chain in BBP Project area

In Bac Can province, Giao Co Lam grows naturally in many places, mainly in Cho Don, Na Ri and Ba Be district. In Ba Be National Park, people have collected Giao Co Lam as a kind of vegetables and medicinal herb for a long time. Since 2009, some households have begun collecting big quantity of Giao Co Lam for sale to Giao Co Lam processing units in other districts.

Diagram 2 describes Giao Co Lam value chain in Ba Be National Park according to stakeholders in the value chain. Their role and task is described as follows:

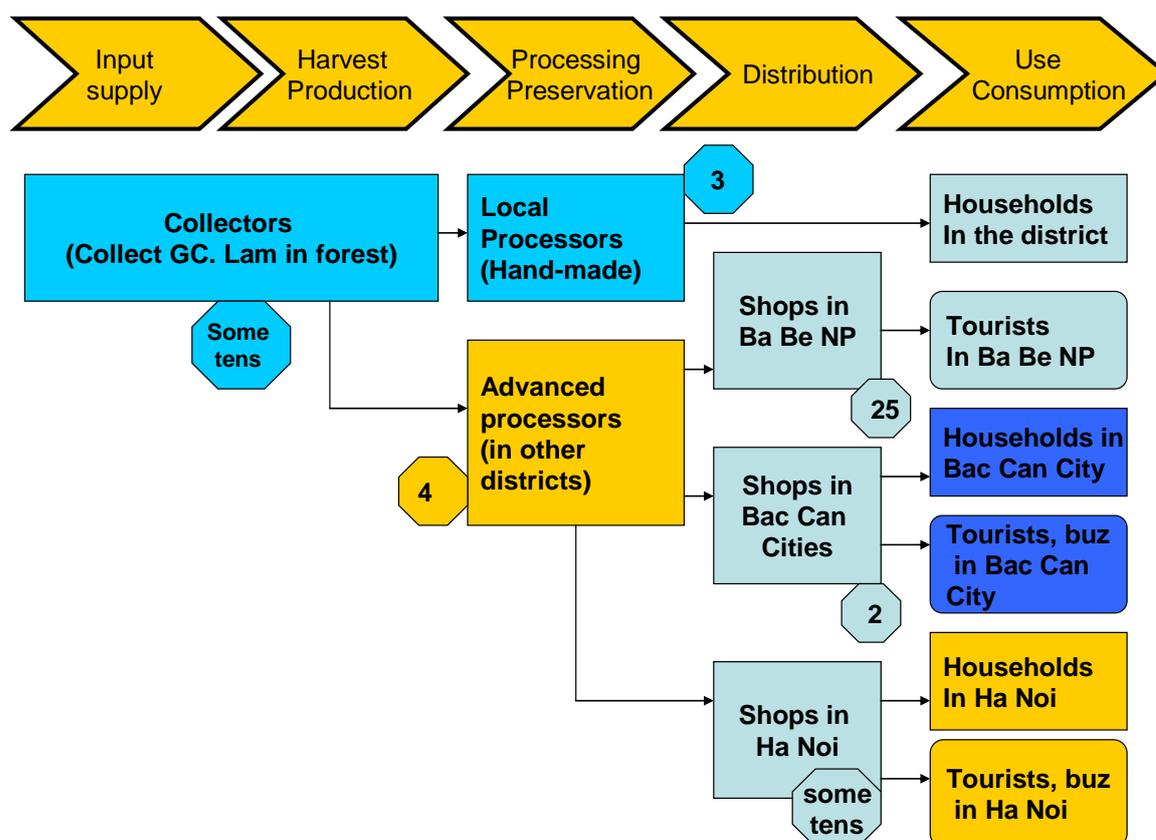
i) *Giao Co Lam buyers:*

There is a diversity of Giao Co Lam consumers in Ba Be National Park. The main groups of customers include: households in Ba Be National Park, tourists to Ba Be National Park, customers from Bac Can city, Hanoi and households in Hanoi.

The households in Ba Be National Park buy local Giao Co Lam primarily as gifts for their relatives and friends in other provinces but not a big quantity.

Best consumers are tourists to tourism sites in Ba Be National Park with the trust of health improvement and disease treatment. Each customers buy one or two 0.5-1kg packages. Some customers want to buy more but they cannot because of inconvenient transport (they travel with many other people in a car). Most customers make no bargain. The traders in Ba Be have quite stable sale with selling price of 120,000 – 140,000 VND/kg of Giao Co Lam.

Graph 2: Giao Co Lam value chain map in Ba Be AHP



Source: Compiled by the consultant

The second group of customers is tourists and businessmen to Bac Can city and Hanoi. They buy Giao Co Lam in the shops in the cities. There is a quite big gap of price between Giao Co Lam tea in Bac Can city (200,000 VND/kg) and that in Ba Be. There are various types of Giao Co Lam tea in medicinal shops in Hanoi with different selling prices. There is almost price gap of mass-produced Giao Co Lam tea (young and old leaves, strings in Ba Be) and Giao Co Lam in shops in Ba Be National Park (120,000 VND/kg).

ii) Giao Co Lam traders:

Corresponding to the regional markets, groups of Giao Co Lam traders in Ba Be National Park include: The shops in tourism sites in Ba Be National Park, Giao Co Lam shops Bac Can City and shops specializing in pharmaceuticals in Hanoi.

The owners of Giao Co Lam shops in Ba Be National Park are also above mentioned honey trader. Most of them are local people. Their shops which are just the tents, sell various types of local products such as Giao Co Lam, honey, local medicine, Shiitake (a kind of mushroom), arrowroot vermicelli, peanuts... A number of shops sell beverages. It should be noted that these traders purchase Giao Co Lam tea from some processors in Cho Don district (about 25 km far away). They sell Giao Co Lam tea primarily to visitors. Because of the seasonality of tourism in Ba Be National Park, honey traders work mainly in crowded season (from April to October each year). From November to March (of the next year), only a few definite shops open to cater for a small number of tourists who are mostly foreign visitors or those visiting at weekends.

There are two shops selling Giao Co Lam tea in Bac Can city, one of which plays role as a showroom for product of Women's Union in Bac Can province. This shop sells a variety of other local specialties such as Giao Co Lam tea, Reishi (a kind of mushroom), Shiitake (a kind of mushroom), arrowroot vermicelli, Shan Tuyet Tea in order to promote the consumption of products of the Women's Unions from districts within province. Customers buying Giao Co Lam from these shops are tourists from Bac Can city, customers who collaborate with the provincial Women's Union coming from the Centre and other provinces. In some cases, officials of Women's Union in Bac Can province send Giao Co Lam tea to Hanoi shops to sell to their patrons. The selling price of Giao Co Lam tea in these shops is much higher than that in Ba Be National Park at the price of 200,000 VND/kg of 7 leaf Giao Co Lam tea. However, it is really difficult to distinguish different kinds of tea after being dried and packaged (as mentioned above). The shops introducing products of the Women's Union purchase Giao Co Lam tea from the processing units in Cho Don district at the price of 120,000 VND/ kg.

It is estimated that dozens of shops specializing in pharmaceuticals in Hanoi do sell Giao Co Lam tea. However, most Giao Co Lam tea in these shops was taken from Sa Pa and Hoa Binh. These shops sell many kinds of Giao Co Lam tea including common types such as mixed leaves, old or young stems and kinds of tea classified and processed closely. Therefore, Giao Co Lam tea's prices also vary. The common type of tea usually has price equivalent to that in Ba Be National Park. The closely processed tea has the price of 225,000 VND/kg.

iii) Local Giao Co Lam processing units

There are about three households processing Giao Co Lam tea with manual method. They are in Quang Khe and Nam Mau communes. Processing techniques are very simple. After purchasing Giao Co Lam leaves and strings from some local

households, they chop up and put all of them in a large pot, dry over fire until moderately dry, then expose the tea before packaging for sale. They do not process Giao Co Lam tea regularly, instead, they only produce when there are orders from acquaintances or relatives. They also do not expand processing operation of Giao Co Lam tea because of two main reasons. Firstly, the complete manual techniques in processing lead to limited power and productivity. Secondly, they cannot compete with facilities using mechanized method for fresh raw material.

iii) Giao Co Lam tea processing units in Cho Don District

There are about 4 households processing Giao Co Lam tea in Bang Phuc and Phuong Vien commune in Cho Don district, which is about 25 km far away to the north of the center of Ba Be National Park.

From 2009 to 2011 when demand for Giao Co Lam tea increased quickly (spread from Hoa Binh and Lao Cai province), these households began processing Giao Co Lam tea to facilitate such demand and to satisfy goods orders from shops in Ba Be National Park.

These households have already processed Shan Tuyet tea before Giao Co Lam tea. Therefore, they are now simultaneously processing both kinds of tea with the same technology. However, there is technical and time adjustment in processing Giao Co Lam tea. Under this technology, some steps were mechanized. For example, machines are used to chop and dry materials. As a result, the application of technology has both increased processing productivities and ensured uniformity of tea after processing.



These households process Giao Co Lam tea almost throughout the year to meet the demand of various customers such as shops in Ba Be National Park, shops in Bac Can city and some customers in Hanoi. The average productivity of each household is about 30 kg/day, the

average processing time is 15 days/month. Thus, each household processes and supplies approximately 5,400 kg of Giao Co Lam tea to the market and sells about 28,000 kg of fresh Giao Co Lam collected from the forest (5.2 kg of fresh Giao Co Lam is processed into 1 kg of Giao Co Lam tea on average). All four processing households, hence, sell approximately 112,320 kg of fresh Giao Co Lam from the forest each year (equivalent to 112.32 tons).

Processing households purchase fresh Giao Co Lam from dozens of households in Bang Phuc commune (Cho Don district), Nam Mau, Quang Khe, Hoang Tri commune (Ba Be district). In many cases, these households often ship Giao Co Lam by motorbike to households. In some cases where there are many orders,

processing households themselves have to make order and collect materials from the harvesters.

Processing households often ship Giao Co Lam tea by motorbike to shops in Ba Be National Park. They can ship from 30-60 kg of tea per trip. Selling price of Giao Co Lam to these shops ranges from 100,000 to 120,000 VND per kg.

Table 6 calculates the value added of Giao Co Lam tea processing households. The data shows that each household creates an average value added of 26.102 million dong/month, or 313.224 million dong/ year. Therefore, regarding only Giao Co Lam processing, value added for these households is high.

Table 6: Total investment costs and value added of Giao co lam processor

Items	Unit	Quantity	Unit cost	Total amount (VND)
Initial investment costs				
Centrifugal oven for drying tea	Item	1	40,000,000	40,000,000
Motorbike	Item	1	20,000,000	20,000,000
Fresh Giao Co Lam chopping machine	Item	1	5,500,000	5,500,000
Electrical fan	Item	2	1,500,000	3,000,000
Baskets for materials	Item	5	150,000	750,000
Canvas for drying tea	Item	2	750,000	1,500,000
Other small tools and equipment				1,000,000
Initial working capital (enough for 300kg of fresh Giao Co Lam)				2,400,000
Total				74,150,000
Value added				
Materials		2340	8000	18,720,000
Firewood		5	300000	1,500,000
Electricity		720	1400	1,008,000
Transport		10	100000	1,000,000
Plastic bags		900	1000	900,000
Labels		900	300	270,000
Total intermediate costs				23,398,000
Man-day (60 days for 2 people)				
Revenue				49,500,000
Value added/month				26,102,000
Value added/year				313,224,000
Value added/man-day				435,033

Source: Calculated by the consultant

i) Households harvesting Giao Co Lam from forests

It is estimated that there are 15 households collecting Giao Co Lam in Nam Mau commune and Quang Khe commune. However, four interviewed households said that they harvested Giao Co Lam irregularly during a year. The seasonality and frequency of harvest prolong sparsely throughout the year from April to December 12. They go to collect Giao Co Lam only when there are orders from processors in Bang Phuc commune, Cho Don district (usually at the time these households cannot buy

enough materials from suppliers in Bang Phuc commune and nearby communes). Each collector goes to forests three or four times on average per month during four to five months throughout a year. Thus, each household goes to harvest Giao Co Lams about 15 times per year.

The harvesting areas are of natural forest in both the buffer zone and the core zone of Ba Be National Park. It is quite close from the households to these areas, particularly from 1.5 to 2 km.

According to the harvesters, there are many kinds of Giao Co Lam in Ba Be National Park, i.e Giao Co Lam with leaves of 3, 5 or 7 grooves. They also recognize the varying usage value of such 3 types of local Giao Co Lam. However, Giao Co Lam with leaves of 5 grooves is the most popular one growing in Ba Be National Park. This is also the kind of Giao Co Lam used to make tea and medicines. They said that Giao Co Lam grew much in many areas in the National Park in clumps.

After collecting Giao Co Lam, the harvesters continue some preliminary processing steps as follows: separate the leaves from the strings; arrange fresh leaves in layers, roll the strings; package and then transport for sale. Each household collects an average of 20 to 25 kg/day. After collecting sufficient quantities from 60 to 70 kg in about 3 days, the households will preliminarily process Giao Co Lam and sell the products.

The income of Giao Co Lam harvesters ranges from 240,000 VND to 280,000 VND per two – day period, including the fee of transportation for sale. The average annual income of each household is only from 1,800 million to 2,100 million VND.

The interviewed household said that they hoped there would be someone who make orders and purchase Giao Co Lam in their local area. Besides, they needed to be trained how to harvest Giao Co Lam under the way of conservation and sustainability. Moreover, they wanted to visit processing units. They hoped to be provided with technical assistance and equipment for Giao Co Lam processing in their locality.

5.2.4 SWOT analysis of the value chain

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • They are available in nature • They are indigenous species that are adaptable to local natural condition • They can help to prevent diseases and improve the health • The workforce for planting and harvesting is available 	<ul style="list-style-type: none"> • Lack of sustainable harvest techniques • Source of seedling is not available • It is difficult to distinguish species of Giao Co Lam • Lack of techniques to process Giao Co Lam • Lack of linkage among harvesters • There is not yet local branding of Giao Co Lam tea
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Increasing demand of Giao Co Lam medicinal tea • Increasing number of tourists to Ba Be • Potential supports from Projects and Government programs • Potential for job creation and income increase 	<ul style="list-style-type: none"> • Disease • Compete with products in other places • False advertising • Mixture of different species of Giao Co Lam during processing and packaging

5.2.5 Environment and biodiversity conservation concerns

As incomes of harvesters depend on collected volume, they raise no concern about sustainable conservation and exploitation of Giao Co Lam from natural forests. They often cut the roots and pull out the entire strings. Moreover, they collect both old and young plants without concerning the time of blossoming and fruiting. As a result, many harvesters also recognize that the source of Giao Co Lam from nature is being exhausted.

5.2.6 Upgrading strategies

Upgrading strategies for Giao Co Lam value chain in Ba Be AHP are based on findings on chain mapping analysis, summary of SWOT and opportunities of market to this product. Accordingly, upgrading strategies for Giao Co Lam value chain are recommended as follows:

- a) Evaluate the quality and reserves of Giao Co Lam in nature; zone an area for planting, protecting and sustainable harvesting Giao Co Lam in Ba Be AHP under co-management models of community.
- b) Develop a pilot model of Giao Co Lam nursery that is managed by local interest groups or cooperatives.
- c) Develop pilot model that transplants Giao Co Lam from natural forest to the plant garden of Ba Be AHP and establish seedling multiplication.
- d) Support to develop models of Giao Co Lam plantation for needed households.
- e) Enhance the capacity of Giao Co Lam harvesters and processors; create business linkage between processors and traders, distributors based on the “win-win” approach.

5.2.7 Suggested facilitation action plan

Strategies/Activities	Time	Implementers	Supporting agencies	Estimated budget (Eur)
a) Evaluate the quality and reserves of Giao Co Lam in natural forest; zone an area for planting, protecting and sustainable harvesting Giao Co Lam in Ba Be AHP under co-management models of community.				
a.1 Collect natural species of Giao Co Lam in Ba Be AHP, analyze their physical and chemical composition for medicinal value determination	January 2016	Management Board of Ba Be AHP	Hanoi University of Pharmacy (UPHA) BBP Coordinator	750 and 5 days of consultants
<i>The next steps are conducted only when Activity a.1 gets good results</i>				
a.2 Measure and evaluate reserves of Giao Co Lam in Ba Be AHP	March 2016 – May 2016	Management Board of Ba Be AHP	Hanoi UPHA BBP Coordinator	2,000 and 30 days of consultant
a.3 Organize groups of Giao Co Lam collectors, make plans and regulations of zoning an area for planting,	June 2016 – September 2016	Management Board of Ba Be AHP People's Committee of	Hanoi UPHA BBP Coordinator	500 and 10 days of consultants

Strategies/Activities	Time	Implementers	Supporting agencies	Estimated budget (Eur)
protecting and harvesting Giao Co Lam (concentrated in the buffer zone)		communes Groups of Giao Co Lam collectors		
a.4 Organize 02 training courses on sustainable harvest of Giao Co Lam for 40 households	October 2016	Management Board of Ba Be AHP People's Committee of communes Groups of Giao Co Lam collectors	Hanoi UPHA BBP Coordinator	1,000 and 10 days of consultants
a.5 Monitor the implementation of regulations on sustainable harvest of Giao Co Lam in community	From November 2016	Management Board of Ba Be AHP People's Committee of communes Groups of Giao Co Lam collectors	BBP Coordinator Officials of Ba Be AHP	500
b) Develop a pilot model of Giao Co Lam nursery that is managed by local similar interest groups or cooperatives.				
b.1 Organize study tours to Giao Co Lam processing units in Hoa Binh province	November 2016	Management Board of Ba Be AHP Groups of Giao Co Lam collectors in 2 communes	BBP Coordinator Officials of Ba Be AHP	700
b.2 Assess the need of forming Giao Co Lam processing units in communes under models of interest groups or cooperatives	December 2016	Management Board of Ba Be AHP People's Committee of communes Groups of Giao Co Lam collectors	BBP Coordinator Officials of Ba Be AHP	300
b.3 Support for formation of interest groups/cooperatives on processing and buying Giao Co Lam in the most potential commune	January 2017	People's Committee of communes Groups of Giao Co Lam collectors	BBP Coordinator Officials of Ba Be AHP	300
b.4 Support training courses and provide supports of machinery, equipments of Giao Co Lam processing for similar interest groups/cooperatives	February 2017 – March 2017	Contracted company to provide the centrifugal drying oven. Newly-founded Giao Co Lam processing and	BBP Coordinator Officials of Ba Be AHP	5,000

Strategies/Activities	Time	Implementers	Supporting agencies	Estimated budget (Eur)
		trading cooperatives		
b.5 Develop the standards of quality for Giao Co Lam tea (Set criteria for types of tea such as: type 1, type 2, type 3)	April 2017 – May 2017	Hanoi University of Pharmacy Newly-founded Giao Co Lam processing and trading cooperatives	BBP Coordinator Officials of Ba Be AHP	300 and 5 days of consultants
b.6 Train on packaging, labeling, food safety and production on trial	April 2017 – May 2017	Giao Co Lam processing company in Hoa Binh province Newly-founded Giao Co Lam processing and trading cooperatives	BBP Coordinator Officials of Ba Be AHP	300 and 5 days of consultants
b.7 Process Giao Co Lam under expected scale	June 2017	Newly-founded Giao Co Lam processing and trading cooperatives	BBP Coordinator Officials of Ba Be AHP	
b.8 Introduce and sell Giao Co Lam in shops in tourism sites of Ba Be AHP	From July 2017	Newly-founded Giao Co Lam processing and trading cooperatives	BBP Coordinator Officials of Ba Be AHP	
b.9 Support Giao Co Lam planter clubs/cooperatives to develop pilot Giao Co Lam nursery	From December 2016	Newly-founded Giao Co Lam processing and trading cooperatives	Hanoi UPHA BBP Coordinator Officials of Ba Be AHP	1,500 and 10 days of consultants
c) Develop pilot model that transplants Giao Co Lam from natural forest to the plant garden of Ba Be AHP and establish seedling multiplication.				
c.1 Study and plan the pilot area of Giao Co Lam in the botanical garden of Ba Be AHP	July 2016	Management Board of Ba Be AHP	Hanoi UPHA BBP Coordinator Officials of Ba Be AHP	300 and 5 days of consultants
c.2 Organize study tours to plantation demonstrations in Phuong Vien commune, Cho Don district, Bac Can province	July 2016	Management Board of Ba Be AHP	Coordinator of Ba Be AHP Project	400
c.3 Apply suitable method to transplant Giao co lam from forest to the plant	August 2016 – January 2017	Management Board of Ba Be AHP	Hanoi UPHA BBP Coordinator Officials of Ba Be	2000 and 10 days of consultants

Strategies/Activities	Time	Implementers	Supporting agencies	Estimated budget (Eur)
garden of the Ba Be AHP.			AHP	
c.4 Monitor and evaluate the development of the transplantation model to have suitable actions	From April 2017	Management Board of Ba Be AHP	BBP Coordinator Officials of Ba Be AHP	500
c.5 Evaluate the growth and development of Giao Co Lam in the model after 1 year	January 2018	Management Board of Ba Be AHP	Hanoi UPHA BBP Coordinator Officials of Ba Be AHP	300 and 3 days of consultants
d) Support to develop models of Giao Co Lam plantation for needed households				
d.1 Study the demand for Giao Co Lam plantation in Ba Be AHP	June 2016 – September 2016	Management Board of Ba Be AHP	BBP Coordinator Officials of Ba Be AHP	300
d.2 Organize study tours to Giao Co Lam demonstrations in Cho Don district for needed people (combine with c.2)	July 2016	Giao Co Lam needed people Management Board of Ba Be AHP	BBP Coordinator Officials of Ba Be AHP	
d.3 Support to plan the area of Giao Co Lam plantation in the forest (communes in buffer zone)	November 2016 – December 2016	Consultants from Vietnam Academy of Agricultural Sciences Giao Co Lam needed people	BBP Coordinator Officials of Ba Be AHP	500 and 15 days of consultants
d.4 Organize 1 training course for 20 needed people	January 2017	Consultants from Vietnam Academy of Agricultural Sciences Giao Co Lam needed people	BBP Coordinator Officials of Ba Be AHP	500 and 5 days of consultants
d.5 Support 20 trained household to weed for Giao Co Lam plantation	February 2017	Management Board of Ba Be AHP 20 needed households	BBP Coordinator Officials of Ba Be AHP	2,000
d.6 Provide Giao Co Lam seedlings to households	February 2017	Management Board of Ba Be AHP	BBP Coordinator Officials of Ba Be AHP	1,200
d.7 Monitor, support advice for Giao Co Lam planters	From February 2017	Management Board of Ba Be AHP	BBP Coordinator Officials of Ba Be AHP	500
d.8 Evaluate models of Giao Co Lam plantation	February 2018	Consultants from Vietnam Academy of Agricultural Sciences Giao Co Lam needed people	BBP Coordinator Officials of Ba Be AHP	300 and 5 days of consultants

Strategies/Activities	Time	Implementers	Supporting agencies	Estimated budget (Eur)
e) Enhance the capacity of Giao Co Lam harvesters and processors; create business linkage between processors and traders, distributors in the spirit of mutual benefit.				
e.1 Train skills of negotiation and business planning for leadership of Giao Co Lam cooperatives	June 2017	Consultants Newly-founded Giao Co Lam processing and trading cooperatives	BBP Coordinator Officials of Ba Be AHP	600 and 4 days of consultants
e.2 Develop contracts between Giao Co Lam cooperatives and shops in tourism sites in Ba Be AHP	July 2017	Leadership Representatives of Giao Co Lam processing and trading cooperatives Representatives of shops	BBP Coordinator Officials of Ba Be AHP	300
e.3 Conduct sales and purchase contracts with Giao Co Lam contribution shops	From July 2017	Leadership Representatives of Giao Co Lam processing and trading cooperatives Representatives of shops	BBP Coordinator Officials of Ba Be AHP	300
Total			23,150 and 122 man-days of	consultants

5.3 Bo Khai medicinal vegetable (*Erythrolalum scandens*)

Bo Khai (with scientific name *Erythrolalum scandens*) originating in tropical Asia grows mainly in South China, Laos, Cambodia, Myanmar, India, Indonesia, Malaysia, the Philippines and Vietnam. A number of documents mention its therapeutic value such as “Vaathavallikodi” is an important medicinal plant. The Kanikkar tribe, inhabitants of KMTR, Western Ghats, Tamil Nadu use this plant to relief from rheumatic pain”⁶. However, the trading-related data can not be found in the world market.

5.3.1 Overview of production and trade of Bo Khai in Viet Nam

In Vietnam, Bo Khai is called with other different names such as Hien, Da Yen, Khau huong, Phac hien (Tay ethnic group), Lo Chau Soi (Dao ethnic group). Bo Khai grows mainly in the northern provinces, some of which are in the Central, Central Highlands and South Central Coast. Bo Khai grows the most in the Northeast, including Cao Bang, Lang Son, Ha Giang, Tuyen Quang, Bac Can, Thai Nguyen, Bac Giang. They grow at a height of 100-1500m in the wild along the secondary forests, regenerating or poor forests that are strongly affected by tropical evergreen forests, limestones. Bo Khai is considered as a type of specious vegetables. Their leaves and tops are nutritious that are favored by mountainous people. Bo Khai is often sliced, crumpled, and cleansed to get rid of its smell. After that, Bo Khai is

⁶ Journal of Applied Pharmaceutical Science 01 (09); 2011: 170-173

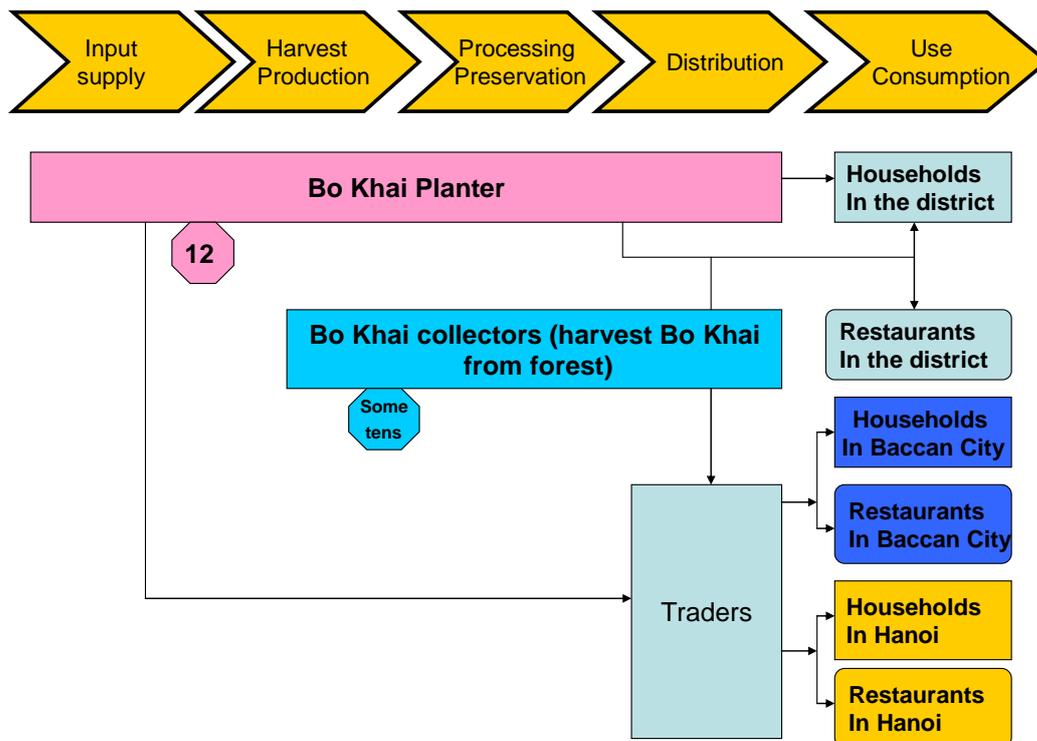
cooked, boiled or stir-fried with tasty smell. Therefore, it is named Huong vegetable (fragrance). Nutritional ingredients contained in Bo Khai: Every 100g of Bo Khai contains 78.8g of water; 6g of protein; 7.5g of fiber; 1,6g of ash; 138mg of calcium; 40.7mg of phosphorus; 2.6mg of carotene, 60g of vitamin C. Both fresh and dried Bo Khai can be used as medicinal vegetable for treating diseases related to kidney, liver and yellow urine. Fresh stems without leaves sliced, dried and then soaked in wine will cure fever and rheumatism⁷.

5.3.2 Description and quantification of the value chain in BBP Project area

Bo Khai grows much in Bac Can province. Local people distinguish two species of Bo Khai, including green species and red species. People distinguish the two species through color of body and top. Red species have color of dark red with medicinal value while green species have color of green used as a kind of food. However, it is difficult to find red Bo Khai from nature as they have been exploited to exhaustion.

Not only local people but also people in cities know the value of Bo Khai. Accordingly, increasing demand for Bo Khai leads to inadequate amount of Bo Khai for customers. Therefore, many households find Bo Khai and take them home for cultivation. Now, there are several dozens of households who successfully plant Bo Khai in their gardens and hills, resulting in significant income for their families. Bo Khai demonstrations exists in Bang Lung town, Cho Don district, Cao Tri commune, Ba Be district.

Graph 3: Bo Khai value chain map in Ba Be AHP



Source: *Compiled by the consultant*

⁷ <http://www.pgrvietnam.org.vn/?lang=vi&tab=news&pid=37&cid=22&id=404>

Diagram 3 describe Bo Khai value chain according to stakeholders in the value chain. Their role and task is described as follows:

i) Bo Khai buyers:

Local people have collected Bo Khai as a kind of food for a long time. Bo Khai can be cooked into various dishes such as soup and stir-fries. After that, restaurants use Bo Khai as a dish in their menu serving local customers, tourists and passers-by. The restaurants in Ba Be National Park serve Bo Khai to tourists. Since then, increasing number of people in the cities such as Bac Can, Thai Nguyen, Hanoi has been served with Bo Khai vegetable. After a few times of enjoying Bo Khai, they want to have it regularly.

The dishes from Bo Khai are quite common in restaurants in Bac Can city. Bo Khai is also sold in the city markets to meet the demand of local people. Selling price of Bo Khai in Bac Can ranges from 25,000 to 30,000 VND/kg.



In Hanoi, Bo Khai is sold in some shops specializing in vegetables and organic products such as Bac Tom shop, Big Green chain. However, there is not a regular supply of Bo Khai for these shops. Selling price of Bo Khai in these

shops ranges from 80,000 to 85,000 VND/kg.

Besides, a number of households and restaurants in Hanoi purchase Bo Khai for use from some traders in Thai Nguyen and Bac Can.

ii) Bo Khai traders:

There are two groups of Bo Khai traders. The first one is traders in the markets (commune, district and city markets); the latter is traders who also transport the products to larger markets (such as Ho Chi Minh city, Bac Can city, Hanoi).

The first group often owns grocery stalls with Bo Khai vegetables and various other products. Bo Khai sold in these shops is consignment product from Bo Khai harvesters and planters, resulting in their extra income of 5,000 VND/kg.

It is estimated that the latter often purchases a large quantity of Bo Khai of 250-300kg for each time. After contacting with the harvesters, planters to make orders under regulations, they collect Bo Khai in a location (often in the commune market). These traders have Bo Khai to be preliminarily processed by the sellers (200g/bundle) as there is no room for storage or packaging. Thus, they transport Bo Khai as soon as they collect them from harvesters. Purchasing price with large quantity of Bo Khai ranges from 18,000 to 25,000 VND. The price varies according to the harvest of Bo Khai with much lower price in the main harvest compared with that in scarce harvest.

iii) Bo Khai harvesters:

It is estimated that some tens of households in Nam Mau and Quang Khe communes go to the natural forests in Ba Be National Park for Bo Khai. The harvest time is often from February to September each year. They harvest Bo Khai twice or three times a month (half a day/time), gaining 5-10kg/time. After that, they bundle up Bo Khai with 0.2 kg for each bundle. Most of them sell Bo Khai to restaurants and shops in the commune markets with price of 5,000 VND/bundle (around 25,000 VND/kg). Remaining amount of 0.5-1kg is for use. The incomes of harvesters range

from 125,000 – 250,000 VND/kg or 3 million – 6 million/year. However, a large amount of Bo Khai declines because of frequent exploitation of local people.

iv) *Bo Khai planters:*

There are about 12 Bo Khai planting households scattering in a number of communes in Ba Be National Park, 7 households of which are in Ngu village, Cao Tri commune. Initially, only a household took Bo Khai to home for plantation⁸. After failures and experience lessons, this household has planted Bo Khai successfully since 2002. This household has owned 200 plants of Bo Khai in 600 m², bringing the main income (about 75 million VND/year).

Neighboring households have learned the models of Bo Khai plantation from this success model. Six other households have planted Bo Khai in an area of 200-400 m². Their average harvested quantity of Bo Khai is about 200kg which is often sold to traders in Bac Can province to supply the market in Hanoi. Besides, they are supplied to the restaurants in the center of district.



Table 7 shows the total investment capital estimation for households who own 600 m² of Bo Khai. Accordingly, annual value added is 75,500,000 dong. Value added per capita is 18,875,000 dong/year (household of 4 people). Thus, the value added from only Bo Khai is higher than the income per capita of the commune (9,624,000 dong/year)

Table 7: Total investment and value added of Bo Khai plantation household

Items	Unit	Quantity	Unit cost	Total price (VND)	Notes
Investment cost for the first 2 years					
Seedling purchase and replication (for an area of 600 m ²)	Cuttings	200	5,000	1,000,000	
Manure	Kg	4,000	500	2,000,000	20 kg/plant for 2 years
Man-day	Day	200	80,000	16,000,000	200 man-days for 2 years
Total				19,000,000	
Annual cost of manure (intermediate cost)		2,000	500	1,000,000	
Man-day	Day	300			
Cost of electricity	Month	6	300,000	1,800,000	

⁸ Household of Mr. Duong Van Hoa in Ngu village, Cao Tri commune

Items	Unit	Quantity	Unit cost	Total price (VND)	Notes
and irrigation					
Cost of small tools	Year			500,000	
Cost of transport	Km	800	1,500	1,200,000	10 times/month/ 8 months
Tota intermediate cost				4,500,000	
Revenue in the year	Kg	3,200	25,000	80,000,000	
Annual value added				75,500,000	
Value added/man-day				251,667	

Source: Calculated by the consultant

5.3.3 SWOT analysis of the value chain

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • A type of medicinal vegetable • Indigenous species with possibility to replicate • Successful existing Bo Khai demonstrations and available experience of plantation • Available source of seedling from nursery and nature • Available local labor force • Utilization of local organic fertilizers 	<ul style="list-style-type: none"> • Small production scale and household scale, limited output • Simple preservation methods after harvests lead to short time for storage • There is not yet close linkage among households, causing weak market bargaining and decreased value of the product
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Extremely high demand • Convenient transport • Potential for job creation for local people • Supports of capital and techniques from Projects 	<ul style="list-style-type: none"> • Drought, floods • Diseases • Use of pesticides, preservatives

5.3.4 Environment and biodiversity conservation concerns

Concern about red Bo Khai conservation is given priority (over green Bo Khai) as red Bo Khai is considered as a precious medicine. Many people collect both roots and tops for disease treatment. Up to now, red Bo Khai in Ba Be National Park is said to be exhausted.

5.3.5 Upgrading strategies

Upgrading strategies for Bo Khai value chain in Ba Be AHP are based on findings on chain mapping analysis, summary of SWOT and opportunities of market to this product. Accordingly, upgrading strategies for Bo Khai value chain are recommended as follows:

- a) Conduct ToT training for the existing local Bo Khai planters and select the most capable trainers to replicate the models.
- b) Develop appropriate organizational structure of Bo Khai planters; create environment of Bo Khai planting promotion as fresh vegetable; promote the sharing of Bo Khai planting, preserving experience and technique among planters of the same clubs and villages, ensuring the mechanism of benefit sharing and beekeeper-associated responsibility.
- c) Promote to transfer and apply advanced Bo Khai planting techniques from existing successful models.
- d) Develop Vietnamese Good Agricultural Practices (VietGap) for Bo Khai planting models.
- e) Enhance the capacity of Bo Khai planters; create business linkage between processors and traders, distributors in the spirit of mutual benefit.
- f) Study and support the transfer of Bo Khai harvesting technique sustainably in Ba Be AHP; conserve red Bo Khai of medicinal value.

5.3.6 Suggested facilitation action plan

Strategies/Activities	Time	Implementers	Supporting agencies	Estimated budget (Eur)
a) Conduct ToT training for the existing local Bo Khai planters and select the most capable trainers to replicate the models.				
a.1 Organize advanced training and ToT training classes on Bo Khai planting for the existing planters in Ba Be AHP	January 2016 (06 days/2 periods)	20 typical Bo Khai planters (in Ba Be AHP and Cho Don district)	Experts from Vietnam Academy of Agricultural Science (AAS) BBP Coordinator Officials of Ba Be AHP	600 and 8 days of consultants
a.2 Advise, monitor and support typical Bo Khai planters with advanced Bo Khai planting techniques after training	February 2016 (5 days)	20 new learners of advanced training	Experts from AAS Sciences BBP Coordinator Officials of Ba Be AHP	300 and 5 days of consultants
a.3 Evaluate performance and skills of potential trainers on Bo Khai planting to select six best trainers	February 2016	Officials of Ba Be AHP	BBP Coordinator	
a.4 Support 03 typical households to develop	March 2016 – July 2016	03 typical households	Experts from AAS BBP Coordinator	1,500 and 10 days of

Strategies/Activities	Time	Implementers	Supporting agencies	Estimated budget (Eur)
Bo Khai nursery			Officials of Ba Be AHP	consultants
b) Develop appropriate organizational structure of Bo Khai planters				
b.1 Assess the potential of Bo Khai planting in communes in Ba Be AHP	March 2016 (8 days/ 8 communes)	06 trainers on Bo Khai plantation in Ba Be AHP	Experts from AAS BBP Coordinator Officials of Ba Be AHP	300 and 10 days of consultants
b.2 Assess the need of interested persons in Bo Khai planter clubs in potential communes (select the 03 most potential communes)	May 2016 (6 days)	06 trainers on Bo Khai plantation in Ba Be AHP	BBP Coordinator Officials of Ba Be AHP	400
b.3 Develop operational regulations, orientation of Bo Khai development in beekeeper clubs with the participation of club founders	June 2016 (6 days/3 clubs)	Founders of Bo Khai planter clubs Consultants for the value chain	BBP Coordinator Officials of Ba Be AHP	400 and 5 days of consultants
b.4 Support for formation of Bo Khai planter clubs in three potential communes	June 2016	Founders of Bo Khai planter clubs People's Committee of communes	BBP Coordinator Officials of Ba Be AHP	300
b.5 Establish Bo Khai planter association of Ba Be district through the evaluation of Bo Khai planter clubs	From July 2017 – October 2017	Campaign Committee of district Bo Khai planter association establishment	BBP Coordinator Officials of Ba Be AHP	500
c) Promote to transfer and apply advanced Bo Khai planting techniques from existing successful models.				
c.1 Organise study tours to existing demonstrations (Ngu village, Cao Tri commune; Bang Lung town, Cho Don district)	July 2016	Founders of Bo Khai planter clubs in 03 potential communes Representatives from People's Committee of communes	BBP Coordinator Officials of Ba Be AHP	400
c.2 Conduct careful Bo Khai planting need assessment to select right households in the clubs who have certain conditions for Bo Khai plantation	July 2016	02 trainers on Bo Khai plantation in Ba Be AHP	BBP Coordinator Officials of Ba Be AHP	400
c.3 Order Bo Khai	July 2016 – December	Management Board of Ba Be	BBP Coordinator	1,500

Strategies/Activities	Time	Implementers	Supporting agencies	Estimated budget (Eur)
seedlings to support needed households (typical households in Ngu village, Cao Tri commune)	2016	AHP		
c.4 Organize 02 training courses for selected persons in 03 communes	December 2016	02 trainers on Bo Khai plantation in Ba Be AHP 40 selected persons in 3 communes	BBP Coordinator Officials of Ba Be AHP	1,000
c.5 Advise and support new planters with advanced planting methods	January – April 2017 (5 days/4 periods/4 months)	02 trainers on Bo Khai plantation in Ba Be AHP 40 selected persons in 3 communes	BBP Coordinator Officials of Ba Be AHP	1,000
c.6 Visit and check status of Bo Khai plantation in Bo Khai planter clubs of 3 communes	From May 2017	Chairman of Bo Khai planter clubs	BBP Coordinator Officials of Ba Be AHP	300
c.7 Select and train more needed households in Bo Khai planter clubs to replicate the models in 3 potential communes	June 2017	Officials of Ba Be AHP Chairman of Bo Khai planter clubs	BBP Coordinator	400
c.8 Order Bo Khai seedlings to support needed households (typical households in Ngu village, Cao Tri commune)	July 2017 – December 2017	Management Board of Ba Be AHP	BBP Coordinator	1,500
c.9 Organize 02 training courses for 40 selected persons in Bo Khai planting clubs	December 2017	02 trainers on Bo Khai plantation in Ba Be AHP 40 selected persons in 3 communes	BBP Coordinator Officials of Ba Be AHP	1,000
c.10 Advise and support new planters with advanced planting methods (second time)	January – February 2018 (5 days/2 periods/2 months)	02 trainers on Bo Khai plantation in Ba Be AHP 40 selected persons in 3 communes	BBP Coordinator Officials of Ba Be AHP	500
d) Develop Vietnamese Good Agricultural Practices (VietGap) for Bo Khai planting models.				
d.1 Assess the condition of Bo Khai plantation area of the club in Ngu village, Cao	May 2017 – June 2016	Danang Environmental Technology Center (DANETC)	BBP Coordinator Officials of Ba Be AHP	300 and 2 days of consultants

Strategies/Activities	Time	Implementers	Supporting agencies	Estimated budget (Eur)
Tri district		People's Committee of Cao Tri commune Bo Khai planter club in Cao Tri commune		
d.2 Organize ToT training on VietGap for officials of district Office of Agricultural and Rural Development, communal officials and chairman of Bo Khai planter clubs	July – August 2016	DANETC DARD of Ba Be CPC of Cao Tri commune Bo Khai planter club in Cao Tri commune	BBP Coordinator Officials of Ba Be AHP	1,000 and 6 days of consultants
d.3 Train on VietGap for Bo Khai planters of the clubs	September – October 2016	DANETC DARD of Ba Be CPC of Cao Tri commune Bo Khai planter club in Cao Tri commune	BBP Coordinator Officials of Ba Be AHP	1,000 and 6 days of consultants
d.4 Apply VietGap	November 2016 – April 2017	DANETC DARD of Ba Be CPC of Cao Tri commune Bo Khai planter club in Cao Tri commune	BBP Coordinator Officials of Ba Be AHP	1,000 and 12 days of consultants
d.5 Upgrade the conditions to ensure the hygiene and food safety	May 2017 – June 2017	DANETC DARD of Ba Be CPC of Cao Tri commune Bo Khai planter club in Cao Tri commune	BBP Coordinator Officials of Ba Be AHP	1,500
d.6 Conduct internal inspection on the implementation of pilot VietGap	July 2017 – September 2017	DANETC DARD of Ba Be CPC of Cao Tri commune Bo Khai planter club in Cao Tri commune	BBP Coordinator Officials of Ba Be AHP	500
d.7 Support product development, market access and distribution channels	October 2017 - December 2017	Bo Khai planter club in Cao Tri commune	BBP Coordinator Officials of Ba Be AHP	500
d.8 Support VietGap certification for pilot models of Bo Khai planter club in Cao Tri commune	December 2017 – January 2018	Bo Khai planter club in Cao Tri commune	DANETC BBP Coordinator Officials of Ba Be AHP	500
d.9 Organize a	March 2018	DANETC	BBP Coordinator	500 and 5

Strategies/Activities	Time	Implementers	Supporting agencies	Estimated budget (Eur)
workshop on evaluating the pilot VietGap Phasel		DARD of Ba Be CPC of Cao Tri commune Bo Khai planter club in Cao Tri commune	Officials of Ba Be AHP	days of consultants
e) Enhance the capacity of Bo Khai planters; create business linkage between processors and traders, distributors in the spirit of mutual benefit.				
e.1 Train skills of negotiation and business planning for leadership of Bo Khai planter clubs	June 2016	Leadership representatives of Bo Khai planter clubs	Consultants BBP Coordinator Officials of Ba Be AHP	600 and 4 days of consultants
e.2 Develop contracts between Bo Khai planter clubs and traders in Bac Can province, shops on safe vegetables in Hanoi	July 2016	Leadership representatives of Bo Khai planter clubs	BBP Coordinator Officials of Ba Be AHP	300
e.3 Conduct sales and purchase contracts with above mentioned customers	From July 2016	Leadership representatives of Bo Khai planter clubs	BBP Coordinator Officials of Ba Be AHP	300
f) Study and support the transfer of Bo Khai harvesting technique sustainably in Ba Be AHP; conserve red Bo Khai of medicinal value.				
f.1 Organize groups of white Bo Khai collectors, make plans and regulations of zoning an area for planting, protecting and harvesting white Bo Khai (concentrated in the buffer zone)	June 2016 – September 2016	Management Board of Ba Be AHP People's Committee of communes Groups of Bo Khai harvesters	Hanoi University of Pharmacy BBP Coordinator	500 and 10 days of consultants
f.2 Organize training courses on sustainable harvest of white Bo Khai for the local collectors	October 2016	Management Board of Ba Be AHP People's Committee of communes Groups of Bo Khai harvesters	Hanoi UPHA BBP Coordinator	1,000 and 10 days of consultants
f.3 Monitor the implementation of regulations on sustainable harvest of Bo Khai in community	From November 2016	Management Board of Ba Be AHP People's Committee of communes Groups of Bo Khai harvesters	BBP Coordinator	500
f.4 Collect species of	January 2016	Management Board of Ba Be	Hanoi UPHA BBP	750 and 5 days of

Strategies/Activities	Time	Implementers	Supporting agencies	Estimated budget (Eur)
existing red Bo Khai in Ba Be AHP, analyze their physical and chemical composition for medicine value		AHP	Coordinator	consultants
<i>Activity f.5 is conducted only when Activity f.1 gets good results</i>				
f.5 Measure and evaluate reserves of red Bo Khai in Ba Be AHP	March 2016 – May 2016	Management Board of Ba Be AHP	Hanoi UPHA BBP Coordinator	2,000 and 30 days of consultants
f.6 Study and plan the pilot area of Bo Khai in the botanical garden of Ba Be AHP	July 2016	Management Board of Ba Be AHP	Hanoi UPHA BBP Coordinator	300 and 5 days of consultants
f.7 Apply selection of Bo Khai seedling from the natural forest, transplantation techniques to the plant garden of Ba Be AHP.	August 2016 – January 2017	Management Board of Ba Be AHP	Hanoi UPHA BBP Coordinator	2,000 and 10 days of consultants
f.8 Monitor and evaluate the progress of the transplantation model to have suitable supports	From April 2017	Management Board of Ba Be AHP	BBP Coordinator	500
f.9 Evaluate the growth and development of Bo Khai in the model after 1 year	January 2018	Management Board of Ba Be AHP	Hanoi UPHA BBP Coordinator	300 and 3 days of consultants
Total			28,450 and 146 man-days of consultants	

VI. Annexes

Annex 1: The ToR

Terms of Reference

for a National consultant to undertake a Value Chain Analysis of BBP (Biodiversity Based Product) Value Chains in Ba Be AHP (ASEAN HERITAGE PARK), Vietnam as well as a First Fact Finding Mission at Sa Pa AHP, Vietnam

Project: Biodiversity-based products (BBP) as a financial source to improve livelihoods and protect biodiversity

1 Background to the BBP Program-Module

The BBP project, implemented in Cambodia, Lao PDR and Vietnam with a 4 year-duration from March 2015 to February 2019, is one of three modules of the German – ACB Cooperation Program “Protection of Biological Diversity in the ASEAN Member States”. The project contributes to the overall *Program Objective*, but also has its specific Project Objective and respective impact indicators. The specific *Project Objective* of the BBP is: The ASEAN member countries (AMS) are supported by the ASEAN Centre for Biodiversity (ACB) in the promotion of biodiversity-based products (BBP) for the improvement of livelihoods and biodiversity protection, according to their needs. The Outputs of the BBP Project are to be:

- A strategy to support BBP Value Chains as well as policies for AMS / ASEAN are implemented
- The central Information Platform of ACB-Biodiversity Information Management (BIM) provides information for the development of BBP Value Chains for the public, private and civil sector in the AMS.
- Selected BBP Value Chains contribute to the improvement of livelihoods and protection of Biodiversity.
- Competences in the development of BBP Value Chains in the private sector of AMS are improved.

On behalf of the German Government via the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, the BBP Project is implemented in cooperation with the ACB (ASEAN Centre for Biodiversity/ Los Banos, Philippines) by GFA Consulting Group GmbH.

2 Background to the BBP Value Chain

ASEAN’s rich natural resources and biodiversity offer significant potential for the region’s socio-economic development. Now more than ever, it is vital to understand and acknowledge the value of biodiversity.

The ASEAN Member States (AMS: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and **Vietnam**) accommodate about 18% of the species of the Earth; 3 of the 18 mega biodiversity countries; about 35% of the global man-grove forests; and 30% of the coral reefs. This wealth in biodiversity poses opportunities for the economic development of the region.

The AMS want to use this economic potential by further developing trade

relations for bio-products (organic trade) nationally, regionally and possibly globally. However, the potential of Biodiversity-based Products (BBP), especially for the local indigenous population in buffer zones of protected areas in the region, is not yet sufficiently analysed, their market potential often unknown. In the promotion of BBP for the improvement of livelihoods and the conservation of biodiversity, the AMS do not get sufficient support.

As part of the BBP project, the **GIZ ValueLinks methodology** on promoting pro-poor green value chains, will be utilized in cooperation with other biodiversity-related projects around the world, to develop a specific module on Biodiversity-based Products.

3 Objective of the assignment

The overall objective is to undertake prioritization of the BBP sectors & sub-sectors and pre-analyse the three most promising value chains (VC) of BBP products in the buffer zones of Ba Be AHP. The analysis will identify the different products and actors in the chain, the systemic constraints, and give a first overview about value shares accrued at different stages in the chains.

A first fact finding mission to Sa Pa AHP will cover similar objectives as listed below, but in not such detail.

The main activities of the consultant are grouped around three main steps of analysis.

Preliminary VC Description:

- **Evaluate existing BBP value chains and project experiences in Ba Be AH,** based on actual livelihood activities of individuals or groups dependent on the natural resources in the buffer zones (e.g. by SWOT analyses);
- **Analyze the most crucial strategies, legal and institutional frameworks, national rules & regulations** for the development of BBP value chains in Ba Be AHP, **always keeping biodiversity conservation practices in mind;**
- **Get first rough data on local production and production systems,** including types, quantities, varieties, prices and value-added of the BBP sub-sectors and VC segments;
- Conduct a first assessment of the **potential market sizes based on key informant interview (local, regional & potentially international markets);**
- Investigate the existing **linkages between collectors/producers, traders, processors and market outlets and create a first value chain mapping;**
- Get first data around the actual and potential workforce in different VC segments, assess numbers of **women who are involved and could be actively employed/self-employed;**
- Investigate the **local quality standards/market requirements and preferences of BBP** that reach the local market;
- Investigate **value addition around primary and secondary processing;**

VC Analysis:

- Determine barriers and options for a future BBP value chain promotion (**gap analysis for local, regional & potentially international markets**)
- **Identify gaps on meso and macro levels** that can potentially enhance the functioning of the chain actors at the micro level;
- **Prioritize value chains within the BBP sub-sectors** on the basis of objective economic, social and environmental criteria (such as value-added, production volumes, market growth, employment and income generation potential, opportunities for income generation and employment for poorer population, women and youth, potential for biodiversity protection and sustainable use of resources etc.)

VC Options:

- Give recommendations on **how the proposed BBP value chains should be upgraded and could be supported**

- Suggest improvements in the value chain system to **ensure direct linkages & infrastructural access of the producers with/ to the major markets to create increased incomes from their products**;
- **Identify the key opportunities and constraints** that limit market growth and/or production expansion;

4 **Qualifications of the Consultant**

- The consultant must have a minimum of 5 years' experience in the BBP value chain analysis and value chain development;
- Previous experience of undertaking value chain analysis and market assessment as well as understanding of the BBP value chains in Vietnam;
- A university degree in Economics, Forestry or related field;
- Proven experience in data collection and analysis;
- Proven experience in value chain analysis;
- **Proven experience in the GIZ ValueLinks methodology** on promoting pro-poor green value chains;
- The consultant should have high level proficiency English both spoken and written.

5 **Location and duration**

Ba Be AHP and Sa Pa AHP
Duration: see Schedule

6 **Schedule**

Start: First week of August 2015

The tentative itinerary of the consultant will be as follows:

First week of August	Start of the BBP-VC-Gap Analysis in Ba Be
Mid August	Conduct Fact Finding Mission in Sa Pa AHP & Final Report for Sa Pa AHP
Last week of August	Presentation of fact findings in Ba Be & Sa Pa AHP during GIZ-BBP-Mission to Vietnam (19-27 August 2015)
Last week of August	Finish of the BBP-VC-Gap Analysis in Ba Be AHP

7 **Reporting and deliverables**

The consultant will submit **two reports**, outlining the specified data for **Ba Be AHP** and the fact finding data for **Sa Pa AHP**

- Submission of the Draft report for Sa Pa AHP Mid of August (soft & hard copy)
- Submission of the Draft Report Ba Be AHP 1 week before the end of the assignment (soft copy)
- Final Report Ba Be AHP shall be submitted as hard and soft copy within the last week of September 2015
- Report Presentation on the GIZ-BBP-Module Inception Workshop (intended for October 2015)

Annex 2: Set of criteria for selecting the most potential products

Sequent steps:

- 1) Please list 07 potential sub-sectors in numbered cells in the bellow table.
- 2) Please read carefully 07 criteria in the left collumn
- 3) Give score to blank cells under the 07 sub-sectors in consideration with your assessment on satisfactory rate for each criteria (Lowest satisfactory rate = 1 point, Average rate = 5 points and High rate = 10 points).
- 4) Please sum up the total scores for each sub-sector.

Criteria	Give score to each product in accordance with your assessment on satisfactory rate for each criteria (from 1 to 10 points)						
	1.	2.	3.	4.	5.	6.	7.
1. Stable markets and selling prices							
2. Many people can involve in the sub-sector (production, processing and selling)							
3. There will be opportunities for increasing income and value added for participated households in the sub-sector.							
4. The poor can easily participate in the sub-sector.							
5. Opportunities for participation and increase of income for Women.							
6. Sub-sector development in connection with biodiversity conservation through sustainable harvest and use of natural resources.							
7. Supports from the government and local authorities							
Sum							

Annex 3: List of participants of VC workshops

List of participants of the VC selection workshop on 4 August

1. Nguyễn Thị Hằng - Chairperson of Nam Mau Commune
2. Vi Thị Dung - Chairperson of Nam Mau Farmer's Union
3. Trương Thị Tư – Head of Nam Mau Women's Union
4. Hoàng Thị Phượng – Deputy head of Quang Khe CPC
5. Triệu Đức Canh – Head of Quang Khe Farmer's Union
6. Đàm Thị Thơ - Head of Quang Khe Women's Union
7. Ma Thị Tới – Farmer in Nam Mau Commune
8. Hoàng Thị Hiền – Farmer
9. Ma Thế Quyên – Farmer
10. Nông Văn Trần: Farmer in Quang Khe Commune
11. Tô Vĩnh Diện - Farmer
12. Lương Văn Thóa – Farmer
13. Triệu Duy Thiết – Farmer
14. Triệu Duy Thủ - Head of Pac Ngoi village, Nam Mau
15. Triệu Văn Vọng – Farmer of Pac Ngoi village, Nam Mau
16. Hà Thị Thập – Farmer
17. Dương Văn Xiêm - Farmer
18. Mạch Văn Dũng – Farmer
19. Hứa Đức Giáp – Farmer
20. Nông Thị Lê – Ba Be AHP
21. Ngân Bá Tín – Ba Be AHP
22. Mạch Thị Trang – Ba Be AHP
23. Nguyễn Thanh Thủy – Ba Be AHP

List of participants of the beekeeping VC analysis workshop on 18 August

1. Ma Thế Sửu – Ba Be DARD
2. Triệu Đức Giang – Ba Be Agriculture Extension station
3. Vi Thị Dung – Nam Mau Farmer’s Union
4. Hoàng Thị Phượng – Quang Khe CPC
5. Đàm Thị Thơ - Quang Khe Women’s Union
6. Lường Văn Thóa – Leo Keo village, Quang Khe Commune
7. Triệu Duy Thiết – Leo Keo village, Quang Khe Commune
8. Triệu Văn Vọng – Pac Ngoi Village, Nam Mau Commune
9. Hoàng Văn Sỹ - Pac Ngoi, Nam Mau Commune
10. Triệu Văn Giang - Pac Ngoi, Nam Mau Commune
11. Mạch Văn Dũng – Pjac village, Quang Khe Commune
12. Đồng Văn Thanh – Pjac village, Quang Khe Commune
13. Bé Cao Đăng – Nà Kiêng village, Quang Khe Commune
14. Phan Thị Thành – Ba Be AHP
15. Mạch Thị Trang – Ba Be AHP
16. Ma Thị Oanh – Ba Be AHP
17. Nguyễn Thanh Thủy – Ba Be AHP

List of participants of the Bo Khai VC analysis workshop on 19 August

1. Hoàng Lục Hiếu – Ba Be DARD
2. Trương Thị Thoát – Ngu village, Cao Tri Commune
3. La Thị Nhoi – Ngu village, Cao Tri Commune
4. Trương Thị Tư – Head of Women’s Union of Nam Mau Commune
5. Hoàng Thị Phượng – Deputy head of Quang Khe CPC
6. Triệu Đức Canh – Head of Quang Khe Farmer’s Union
7. Đàm Thị Thơ - Head of Quang Khe Women’s Union
8. Ma Thị Tới – Farmer
9. Đồng Thị Xuyên– Leo Keo village, Quang Khe
10. Trần Thị Hân
11. Hoàng Thị Liễu
12. Hà Thị Hồng - Pac ngoi village, Nam Mau Commune
13. Triệu Thị Thiều - Pac ngoi village, Nam Mau Commune
14. Triệu Văn Tuế - Pac ngoi village, Nam Mau Commune
15. Phan Thị Thành – Ba Be AHP
16. Ngân Bá Tín – Ba Be AHP
17. Ma Thị Oanh – Ba Be AHP
18. Nguyễn Thanh Thủy - Ba Be AHP

List of participants of the Giao Co Lam VC analysis workshop on 20 August

1. Dương Văn Mao - Ba Be DARD
2. Hoàng Thị Hiền - Leo Keo Village, Quang Khe Commune
3. Hoàng Thị Hương – Leo Keo Village, Quang Khe Commune
4. Hoàng Văn Chính - Pac Ngoi Village, Nam Mau Commune.
5. Ma Thị Huế - Pac Ngoi Village, Nam Mau Commune.
6. Triệu Thị Đàm - Pac Ngoi Village, Nam Mau Commune.
7. Ma Văn Thiết - Pac Ngoi Village, Nam Mau Commune.
8. Nông Văn Giám - Pac Ngoi Village, Nam Mau Commune.
9. Phan Thị Thành – Ba Be AHP
10. Ngân Bá Tín – Ba Be AHP
11. Ma Thị Oanh – Ba Be AHP
12. Mạch Thị Trang – Ba Be AHP
13. Nguyễn Thanh Thủy - Ba Be AHP

14. Cost for harvesting and processing Giao Co Lam (for 10 kg of premlinarily processed Giao Co Lam)

Items	Unit	Quantity	Unit price (dong)	Total price (dong)
Cost for harvesting				
Cost for drying				
Cost for				
Cost for				
Cost for tools and equipment				
Firewood				
Electricity, water				
Plastic bags				
Transport to home				
Transport to shops				
Cost for harvest and royalties				
Other costs				

15. Data on volume of Giao Co Lam harvest and sales in the past 3 years:

Year/Other indicators	Volume of Giao Co Lam harvest and sales (kg)	Value (dong)
2013		
2014		
2015		

16. Where do you often go to harvest Giao Co Lam?

.....
..

Distance from home: fromkm tokm

17. Form of material ownership:

.....
.

18. Consumer information

Who do you sell Giao Co Lam to?

Traders Processors Other:

Where do you sell Giao Co Lam?

In the forest gate At a fix location in the commune

At the processing unit

Giao Co Lam consumption in recent years:

Easy Convenient Difficult Extremely difficult

Payment methods of customers:

.....
.....

Which characteristics of Giao Co Lam do customers often pay attraction to?

.....
.....

Do you find difficulty in selling Giao Co Lam?

Transport: Inconvenient Convenient

Information about selling price:

Being noticed in advance Not being noticed in advance

Other issues:

.....
.....

III. Techniques of harvesting and processing Giao Co Lam

19. Have you mastered completely the techniques of harvesting and processing Giao Co Lam?

Yes Not yet

If not, why?

.....
...20. Difficulties in harvesting and preliminarily processing Giao Co Lam:

.....

21. What do you need more about the techniques of of harvesting and processing
Giao Co Lam?

.....

.

Thank you!

QUESTIONNAIRE
GIAO CO LAM PROCESSING UNITS AND HOUSEHOLDS

I. General information

1. Householder (In capital letters):Age:

2. Telephone number:

3. Number of family members:

4. Ethnic group:

5. Number of people in working age (*Male: 16-60; Female: 16-55*):

6. Types of households:

Poor

Medium

Sufficient

7. Total labors: Female labors :

8. Total area of processing unit land: m2 Area of processing unit:
.....m2

Form of processing unit ownership:

I. Giao Co Lam processing

9. How long have you operated your Giao Co Lam processing unit?
Month.....year.....

10. Reasons for opening Giao Co Lam unit:

.....

11. How many Giao Co Lam processing units in Sapa and in the commune?

.....processing units. Which one is biggest?

.....

12. Has volume of sold Giao Co Lam increased in recent years?

State the reasons:

.....

13. Information about your main customers:

Customers	Location
11.1	
11.2	
11.3	
11.4	

14. According to the customers, which is the most important criteria of evaluation?
(quality, quantity, shipping time, price)

.....

15. Has your selling price stable during the past 3 years?.....,

If not, state the reasons:

16. Where did you buy the centrifugal oven?

When did you buy it?

Total costs of building the oven? million VND?

17. Where do you buy fresh Giao Co Lam?

.....

18. Do you find it convenient to buy fresh Giao Co Lam?

Yes No

If not, why?

.....

19. Volume of purchased Giao Co Lam during the latest years

Year	Volume of purchased Giao Co Lam (kg)	Purchasing price (dong/kg)
2012		
2013		
2014		

Please list types of materials and other outputs for processing Giao Co Lam
including the types provided by your household

.....

20. List the price of inputs during the past years:

Unit: dong

Year/ Inputs	2012	2013	2014
1. Firewood, coal:			
2. Cost for outside labors.....			
3.			
4.			

21. Your revenues in the past years:

Year	Volume of sold Giao Co Lam (kg)	Selling price (dong)
2012		
2013		
2014		

III. Access to loan/credit services and public services

22. Do you get a loan? If yes, how much the loan balance is?million
dong.

23. Where do you get a loan?How much interest rate is?%/year

24. Is it easy to get access to the capital?

25. Does your unit get support from the government?

If yes, state clearly:

.....

26. What are the biggest difficulties and challenges of your processing unit?

.....
.....

27. Do you recommend anything to improve your business?

.....

CHECKLIST FOR GIAO CO LAM TRADERS AND SHOPS

1. In your opinion, how many of Giao Co Lam species are there?
.....
2. How to distinguish species of Giao Co Lam?
Type 1:
Type 2:
Type 3:
3. Different price of Giao Co Lam:
Type 1: dong/kg Type 2: dong/kg Type 3: dong/kg
4. Selling price in the past years:
Year 2012: dong/kg
Year 2013: dong/kg
Year 2014: dong/kg
5. Have you sold much Giao Co Lam recently? Does the number of customers tend to increase?
State the reasons:
.....
.....
6. Who purchase Giao Co Lam most?
The old The middle-aged Adolescents

Women Men
7. Which factor do customers pay attention to most?
Quality Price Others:
.....
8. Where do you purchase Giao Co Lam?
From 1 or many sellers?
9. Contract and method of payment to processors and middlemen
.....
.....

Annex 5: Top 10 exporters of honey world wide

Countries	Export value (In millions CAD \$)		
	2011	2012	2013
China	200	215	255
Argentina	220	215	217
New Zealand	87	104	144
Germany	114	121	131
Mexico	88	102	116
Spain	79	81	93
Hungary	60	63	88
India	66	61	80
Belgium	54	54	69
Italy	32	38	61
Others	506	554	659
Total	1506	1608	1913

Source: *Global Trade Atlas (July 2014)*

Annex 6: Websites of Giao Co Lam trading companies

<http://banthaoduoc.vn/san-pham/giao-co-lam-7-la-sapa/?gclid=CPCP87mqj8gCFSLkwwgodAGAPxg>

<http://vuoncaythuoc.com/cay-giao-co-lam.html>

<http://www.tinhhoayhoc.com/>

<http://www.jiaogulanvietnam.com/p-17-le-jiaogulan-100-naturel.html>

<http://www.baobackan.org.vn/channel/1121/201501/trong-cay-giao-co-lam-huong-phat-trien-kinh-te-moi-o-cho-don-2367380/>