

Report

Value Chain Analysis for Sericulture Sub-sector in Quang Binh province

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OVERVIEW OF SERICULTURE SUBSECTOR IN VIETNAM AND QUANG BINH

- a. Overview of Sericulture sub-sector in Vietnam
- b. International silk market and Vietnam silk imports exports
- c. Sericulture sub-sector in Quang Binh

a. Overview of Sericulture sub-sector in Vietnam

Sericulture is a traditional sub-sector in Vietnam but the current production capacity does not put Vietnam in the list of “world sericulture production countries” but in the list of “group of silk production countries”. The major characteristic of the subsector is the fact that there is not a consistent, country-wide development plan. The area of Bảo Lộc, Lâm Đồng province, can be considered as the largest sericulture production region, followed by some other provinces such as Nghệ An, Thái Bình, Vĩnh Phúc, and Sơn La. In 1985, the Union of Vietnam Sericulture Enterprises (UVSE) was founded in Bảo Lộc. And not only in Bảo Lộc, many other areas of Lâm Đồng province had set economic target for the subsector. The size of the subsector had been increased dramatically along with the birth of the UVSE. During 1985-1994, the subsector achieved many successes in developing its infrastructure. A number of new enterprises/factories were established such as Đại Lào, Còhinda, Đăm Bri; Tháng Tám, Lộc Đức, Đơn Dương, Nam Lâm Đồng. In 1990, four new reeling factories with most modern technologies in Asia were launched, including: Đại Lào, Bình Minh, Rạng Đông, and Hòa Bình. In 1993 another silk firm named Vietnam-Italy was founded. Also, the UVSE created a Sericulture research center and some silkworm egg producing factories. Mulberry plantation areas was at the peak with ten thousands of hectares and annual silk production volume of 400 tonnes.

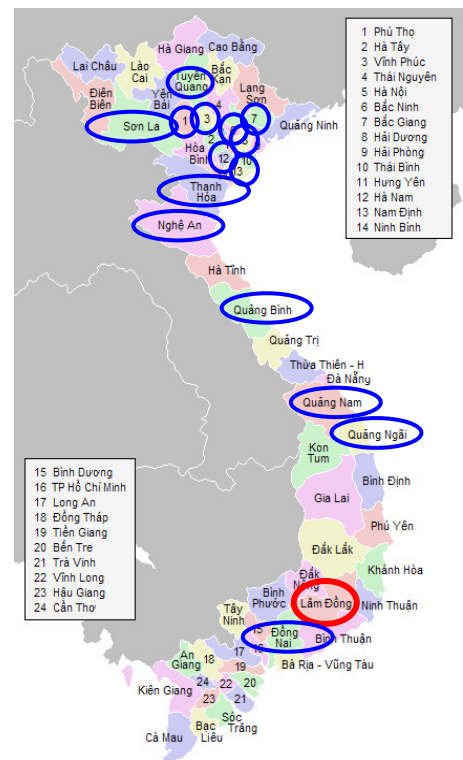
However, in 1994, the subsector was terribly affected by a crisis from international market that led to a downgrading time. Farmhold cocoon production decreased dramatically and many farmers switched to other subsector. From a very big corporation, the UVSE became a big debtor of many banks. A debt of 624 billions VND and a production stagnation situation put the Union to bankruptcy. The reason for this failure was mass investment in infrastructure without risk management plan. Since 1995, the Union has been restructured and renamed Vietnam Sericulture Corporation - VISERI. Despite the reborn name, the Corporation has not made a brighter picture of business. A crisis of the subsector is still existing. Most of the activities within the subsector are controlled by the private traders or enterprises. The leading role in the subsector of VISERI as expected by the Government is not realized and there is not a clear plan for the development of the subsector.



Major Sericulture Production Regions and Actors

Now the main areas for sericulture production are Northern provinces such as Mộc Châu - Sơn La, Vĩnh Phúc, Tuyên Quang, Phú Thọ... and central provinces like Lâm Đồng (marked with bold red circle on the map aside - where the mulberry production is largest and most of enterprises with modern processing technology are located). Other provinces with big sericulture production include Bảo Lộc - Lâm Đồng (accounted for 40-50% total subsector production volume) Quảng Nam, Quảng Ngãi, Đồng Nai, Vĩnh Phúc, Sơn La, Tuyên Quang, Phú Thọ, Bắc Ninh, Bắc Giang, Hải Dương, Nam Định, Hà Nam, Thái Bình, Thanh Hoa, Quang Binh, Nghe An (marked with blue circle on the map).

Big enterprises in the subsector to mention include Vietnam Sericulture Corporation (with 32 member companies); Asia Silk Joint Stock Company; (Bảo Lộc - Lâm Đồng); Sericulture Collectives of Bảo Lộc - Lâm Đồng; Văn Nguyên Company (BảoLộc - Lâm Đồng); Collective Đông Thành, Nam Cao, Kiến Xương, Thái Bình; Đà Nẵng Services and Joint Stock Company; Reeling Collectives of Nam Phước, Duy Xuyên, Quảng Nam; Bảo Trọng Private Enterprise, An Giang Company Ltd. v.v. Beside these, famous traditional sericulture villages such as Hà Đông; Nha Xá, Duy Tiên, Hà Nam; HTX Nam Cao, Thái Bình; Duy Xuyên, and Quảng Nam are included in the list of the country biggest sericulture producers.

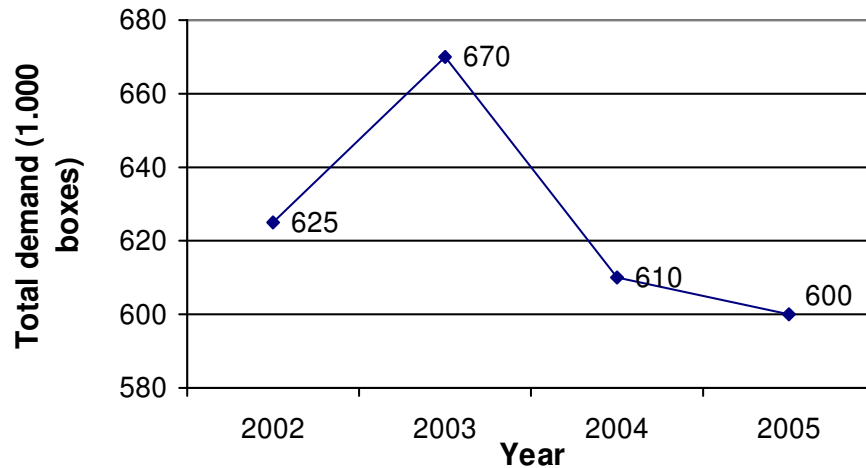


Majors products of the subsector

Rearing and reeling enterprises are linked with farmers through different ways such as providing mulberry sapling, silkworm egg and technical assistance ect. then buy from them cocoon. They spin raw silk from these cocoons, weave by themselves for export purpose or sell to garment/fashion companies. Data and information relating to products of the subsector in Vietnam are collected and processed as follows:

- > **Silkworm Egg:** Total annual demand of silkworm egg in the whole country is around 600 thousand boxes (see figure 1) but there is not high quality providers. Almost 70% of them are imported, mainly from China by private traders and without strict quality control. There are several silkworm egg producing centers belonging to the Ministry of Agriculture and Rural Development (MARD) but they are not credited by mulberry cultivators and rearers.

Figure 1. Total annual demand of silkworm egg in 2002-2005

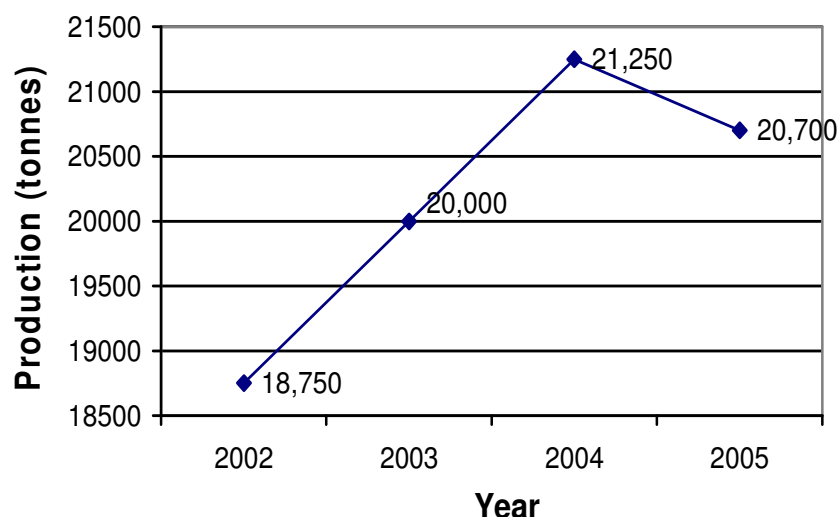


Source: Vietnam Sericulture Corporation (VISERI)

In 2005, the demand decreased to 600 thousands boxes (equivalent to VND 15 billions) in comparison with 670 thousand boxes in 2003, to some extent expressing the degradation in term of size of the subsector.

- **Areas and Mulberry leaves productivity:** Mulberry is the main inputs for rearing process: rearing the egg and taking care of the silkworm until it turns into a cocoon. However, there is a serious lack of proper development plan for this most important process in the cycle mulberry-cocoon-silk-fabric. For the last tens of years, low quality of mulberry and silkworm egg still remain a hot topics for the development of the subsector. Before 2005, mulberry production areas were around 25.000 ha but since 2005, it is estimated to have only 23.000 ha (according to VISERI estimation). Vietnam is still passive in developing basic inputs for the subsector. Currently, around 90% of areas are producing old mulberry sapling with pretty low productivity of 8-10 tonnes/ha, producing 1 tonne of cocoon; while some other neighboring countries have much higher productivity: 1 ha of mulberry area brings about 40-50 tonnes of leaves and producing 3-5 tonnes of cocoon.
- **Cocoon as inputs for reeling process:** As mentioned above, low quality of silkworm egg leads to low productivity and high production cost. Before 2003, cocoon price was quite stable at VND 22,000 - 27,800 per kg. But since 2004, cocoon price has been raised at quite high level by private traders. White cocoon price reaches 40 - 45 thousand VND per kg and yellow cocoon is priced from 30 - 38 thousand VND per kg. The total cocoon production in the whole country is around 20 thousand tonnes (figure 2), equivalent to around VND 828 billions. These cocoons meet only 30% of reeling capacity of the country (in which only 10% are met with requirement of automatic reeling factories, which need high quality of cocoons). The imbalance between supply and demand has led to the rise of price over the last years. There is no cooperation between the producers, thus private companies and traders are free to set price on the market without strict control of quality and producing low quality silk.

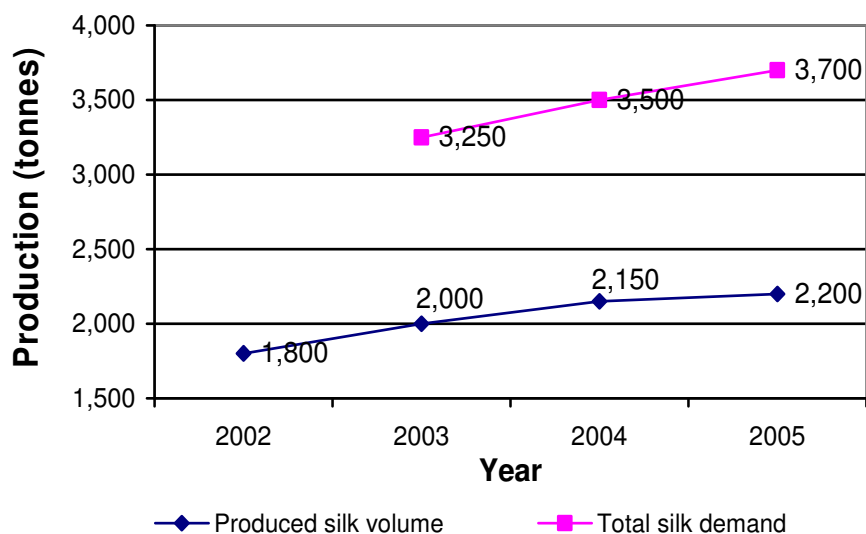
Figure 2. Total cocoon production in Vietnam from 2002-2005



Source: Vietnam Sericulture Corporation (VISERI)

- **Silk:** This is the main product of the subsector. Cocoons are reeled with different styles, quality and usage purpose. On average, 1 tonne cocoon produces around 120 kg silk. Thus, with almost 21 thousand tonnes of cocoon will theoretically produce around 2,520 tonnes silk. Data from VISERI (figure 3) shows that silk volume processed is lower than this theoretical number (2,200 tonnes only). The value in 2005 of produced silk is around VND 880 billions. The value of total demand in 2005 therefore is VND 1480 billions.

Figure 3. Domestically produced silk volume and total silk demand in the country

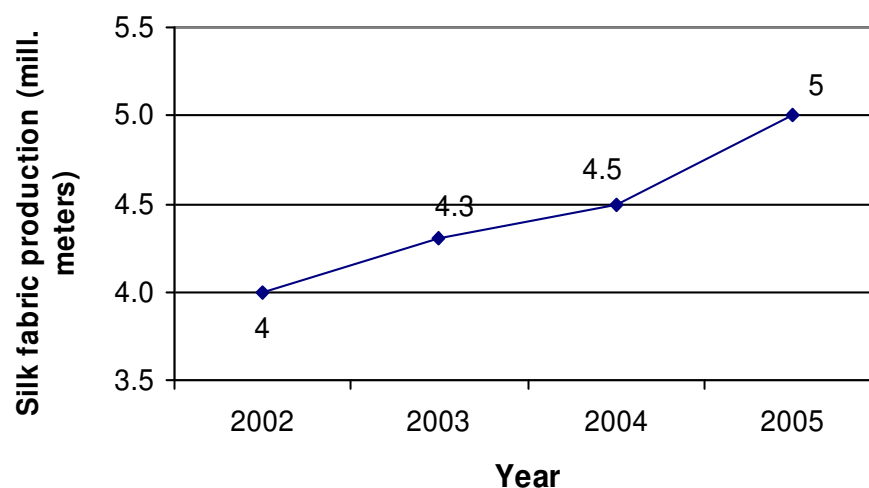


Source: Vietnam Sericulture Corporation (VISERI)

About 80% of internally produced silk are exported to Thailand, China, India... but Vietnam still need to import around 1.500 tonnes in 2005 (see next part relating to import-export information).

- **Silk fabric:** Raw silk will be used as inputs for silk fabric production. 20% of domestically produced raw silk and imported raw silk are bought by processing/weaving enterprises, households or weaving villages to make around 5 millions meters of fabrics in 2005 (figure 4), equivalent to VND 3,500 billions. Among this volume, around 70% are exported to Thailand, Malaysia... (see Market information part). Only 30% are domestically consumed by fashion/garment industry.

Figure 4. Silk fabrics production 2002-2005



Source: Vietnam Sericulture Corporation (VISERI)

- **Silk fashion:** Products made from silk are now very diversified: from long dress, skirts, scarves, jackets, ties, shirts, to cushion covers and pillow/bed covers... However, domestic silk fashion/garment industry is still very less developed, lacking of various design, production promotion in addition to the problem of low quality;
- **Silk waste:** Silk waste can be used to make Spunsilk yarn or some other low quality yarns. In general, silk waste processing technique is still very simple and underdeveloped.

b. International silk market and Vietnam silk imports exports

China and India are leading the world silk production. China produces 82% of the total world silk volume and India follows with 13% of total production. Data from Sericologia and International Seri-Culture Commission (ISCC) in the Table 1 shows the relative world silk production.

Table 1 - World raw silk production (unit: tonnes)

Country	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	% Share
China	67113	68500	60300	57500	56959	61648	64567	68600	94600	102560	81.64
India	13909	14126	15236	15544	15214	15857	17351	16319	15742	16500	13.13
Japan	3240	2580	1920	1080	650	557	431	394	287	287	0.23
Brazil	2468	2270	2120	1821	1554	1389	1485	1607	1563	1512	1.20
Korea Rep	946	506	272	210	200	165	157	154	150	150	0.12
Uzbekistan	1320	2500	2000	1500	923	1100	1260	1260	950	950	0.76
Thailand	1313	1144	1039	900	1000	955	1510	1510	1500	1420	1.13
Vietnam	2100	1500	1000	862	780	780	2035	2200	750	750	0.60

Others	2967	2766	2117	1572	1250	1952	1692	3814	1500	1500	1.19
TOTAL	95376	95892	86004	80989	78530	84403	90488	95858	117042	125629	100

Source: 2004 - Sericologia 44 (3) & ISCC-2005

Global silk exports and imports

India is the world second leading silk producer but also the world largest silk importer. Import of silk in 2004 reached USD 136 millions (see Table 2) while export value of the country ranks number 7 in the list of world leading exporters with more than USD 2.2 millions (see Table 3). China is totally different: this leading silk producer imports only USD 15 millions (see Table 2) in 2004 and export the largest amount of USD 236 millions, ranking the top of the list (see Table 3).

Japan is one of the largest market of silk products. This is also the country which has the most modern technology in silk processing in general. Japan ranks number 3 in both import and export of silk, after Italy. Total import value of these two countries marked up more than USD 100 millions (see Table 2).

Following the list, top importers of silk products include Korea Republic, Rumania, Germany, France, Bangladesh, Turkey and Thailand. Total import of these country in 2004 reached to USD 65 millions. Also according ITC's statistics, the US imports almost USD 700 thousand in 2003 but fell down to only USD 294 thousand in 2004.

Table 2 - World leading silk importers (unit: USD '000)

Stt	Country	2000	2001	2002	2003	2004
1	India	105,991	134,243	135,209	138,353	135,962
2	Italy	108,504	92,860	63,145	59,199	56,625
3	Japan	87,071	60,567	48,911	43,417	43,429
4	Korea Rep	43,724	35,845	34,981	26,986	27,286
5	China	14,301	10,170	7,103	9,695	15,516
6	Rumania	1,060	2,482	8,911	7,666	14,948
7	Germany	33,756	21,819	14,249	15,806	10,645
8	France	9,161	11,266	8,330	5,259	6,683
9	Bangladesh	23,289	14,357	4,423	4,597	5,207
10	Turkey	2,815	3,795	2,933	2,952	3,854
11	Thailand	8,980	11,077		2,560	

Source: International Trade Center/UNTAD/WTO (www.intracen.org)

Table 3 - World leading silk exporters (unit: USD '000)

Stt	Country	2000	2001	2002	2003	2004
1	China	330,982	281,245	267,644	238,530	236,056
2	Italy	3,203	3,778	9,335	9,093	14,502
3	Japan	2,157	1,103	635	3,243	12,143
4	Germany	25,212	21,702	12,135	13,568	9,304

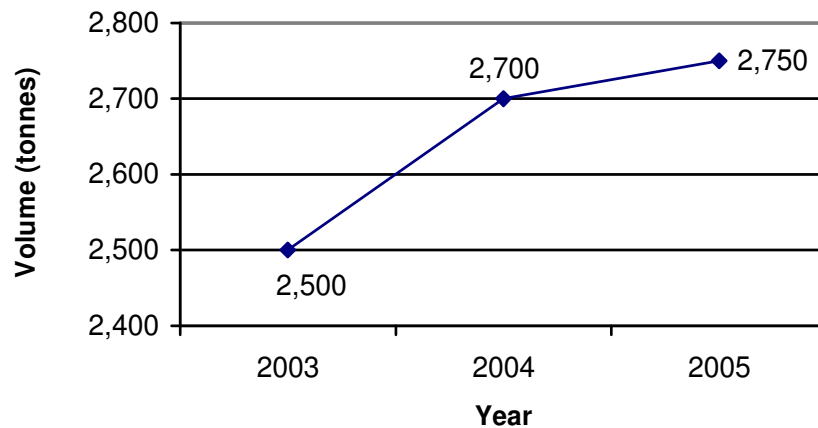
5	Rumani		23	192	3,610	8,681
6	US	2,059	2,183	2,299	2,641	2,588
7	India	11,348	11,337	4,141	2,895	2,208
8	Brazil	1,323	2,116	2,531	2,256	1,715
9	UK	2,164	1,516	1,440	1,259	1,207

Source: International Trade Center/UNTAD/WTO (www.intracen.org)

Vietnam import and export of silk

VISERI data shows that Vietnam is now mainly selling raw silk instead of using domestically for garment/fashion industry. Total silk production of the country in 2005 was around 2,200 tonnes (figure 3) while total export is 2,750 tonnes (figure 5), monetary value at VND 1,182.5 billions. In fact, Vietnam is now importing raw silk from China and re-exporting one part, the rest are consumed domestically by garment/fashion industry.

Figure 5. Total export volume of raw silk 2003-2005



Source: Vietnam Sericulture Corporation (VISERI)

Besides exporting raw silk, Vietnam also exports silk wastes (around 400 tonnes per annum), silk fabrics (over 3 millions meters) and more than 1 million units of silk fashion products (see Table 4).

Table 4 - Some exporting silk related products from Vietnam

Items	Unit	2003	2004	2005
- Silk wastes	Tonnes	350	400	400
- Silk fabrics	1.000 metters	3.000	3.150	3.500
- Silk fashion products	1.000 units	1.000	1.200	1.200

Source: Vietnam Sericulture Corporation (VISERI)

The main market for Vietnam silk export is Thailand (unofficial ways through Cambodia and Laos). The estimated annual volume of silk export to this country is over 1,000 tonnes. China is the second largest market with more than 500 tonnes per annum. The rest are exported to India, Bangladesh... and mainly performed by private sector through unofficial ways.

Vietnam imports are mainly equipments and raw silk. One part of imported raw silk is used for fashion/garment industry and the rest are re-exported to Thailand, China, India...

Table 5 - Some import items of the subsector in Vietnam

Items	Đơn vị tính	2003	2004	2005
- Equipments	USD	500.000	800.000	1.000.000
- Raw silk (materials)	tonnes	1.250	1.350	1.500

Source: Vietnam Sericulture Corporation (VISERI)

c. Sericulture sub-sector in Quang Binh

So far, at the district level, there are 8 communes cultivating mulberry and raising silkworms on an area of about 130 ha, attracting the participation of around 1,100 households in cultivating mulberry and about 640 households in both cultivating mulberry and raising silkworms. Presently, many different kinds of mulberry varieties are being grown in the communes, namely Bau trang, Chan vit, Sa nhi luan. Of them, Sa nhi luan has the potential of high productivity. However, due to farmers' low awareness as well as improper technique application, mulberry trees in some fields in Duc Hoa and Thanh Hoa communes are distributed too thin, resulting in many dead mulberries. In addition, many mulberry trees are died due to cutting quality and shallow cultivation leading to unevenly distributed mulberry trees with good quality ones in this place and bad quality ones in another place. Also, farmers do not pay any attention to intensive mulberry farming. No basic fertilizer or only little manure (0kg - 300kg - 500kg per sao) is applied. In some communes like Mai Hoa and Thanh Hoa, mulberry leaves are not harvested comprehensively, accordingly, many old leaves and old and small branches left inhibit the growth of mulberry trees, resulting in low productivity. Every year, mulberries are pruned once at the end of October to the beginning of November (equivalent with the end of September to the beginning of October according to lunar calendar). Farmers have no experience in munching of mulberry trees or pruning mulberries in both winter and summer. Common mulberry diseases are leaf rust and brown spots, however, only little damage is caused. In terms of mulberry productivity, high productivity is achieved, from 18 - 25 - 30 ton of leaves per ha in a year, in the good mulberry fields in the communes of Mai Hoa and Phong Hoa whereas only from about 5 to 7 to 10 ton of leaves per ha in a year are gained in many bad mulberry fields with bad quality mulberry varieties in other communes. In the months of May, June, July and August, scorching sunlight and drought always make great influence on the growth and quality of mulberry leaves. Many years passed by, mulberry fields have not been covered with alluvium. Especially in 2005, long drought has seriously affected productivity as well as quality of mulberry leaves.

Table 6: Areas and number of households of mulberry cultivation and silkworm rearing

Indicators	Total no. of hhs	No of hhs rearing silkworms/ No. of hhs cultivating mulberry	Existing mulberry area	Mulberry area planted in 2004	Total mulberry area in 2005
Communes					
1- Chau Hoa	1,068	256/256	13.20	3.95	17.15
2- Mai Hoa	1,670	151/151	11.54	3.93	15.49
3- Phong Hoa	1,274	180 / 237	24.40	14.40	38.80
4-Duc Hoa	1,217	18 / 123	0	8.88	8.88
5- Thanh Hoa	1,225	91 / 256	0	14.70	14.70

Others	-	-	19.74	20.20	39.94
Total	6,454	696/1023	68.84	66.06	134.96

Remarks: The figures on mulberry cultivation area were collected from Tuyen Hoa District Economic Division. Adapted from GFA Report done by Dr. Long (2005)

At present, Luồng Quảng 2, a Chinese silkworm variety of white cocoons, is being raised in Tuyen Hoa District. This variety has been popular in Vietnam because of its high productivity of cocoons, and good silk produced which is suitable for mechanical silk unravelling. The best temperature for raising silkworms is from 24 to 28°C. Under hot and humid condition, silkworms can hardly exist. Thus, raising silkworms in summer crop can not give better results than doing in autumn spring crop. In some localities of Hong River Delta, farmers only raise silkworms of white cocoons in the autumn spring crop and hybrid variety of yellow cocoons is raised in summer crop because of its better suffering from hot and humid condition. In the communes of Chau Hoa, Mai Hoa and Phong Hoa, where mulberry cultivation has existed for years, farmers have some experience in rearing silkworms. Whereas in Duc Hoa and Thanh Hoa communes, mulberry cultivation was only introduced in 2004, thus the first brood of silkworm is being raised in 2005. In general, many steps of raising silkworms are not well carried out. For example, In many broods of silkworms, egg conservation and incubation are not good, therefore, egg hatching is uneven on the same egg sheet and egg laying circle. In addition, techniques related to treating the molt of larvae are not properly applied. Farmers do not know or donot apply the method of raising young silkworms by covering anti-dry paper, which is proved very effective under the low humidity condition. They still lack knowledge related to raising silkworms and put no emphasis on disease prevention and treatment, particularly when raising Luong Quang 2 in the summer crop with high temperature. Consequently, results of raising silkworms in 2005 are not satisfactory. Methods of keeping, transporting and laying eggs are not quite good, accordingly, egg hatching is uneven on the same egg sheet and egg laying circle. Result of 2004 was rather high, on average 11,1 kg of cocoons per egg laying circle.

Table 7. Rearing silkworm in Tuyen Hoa, Quang Binh

	2004		Jan - Jul 2005	
	Quantity	Value (VND '000)	Quantity	Value (VND '000)
Mulberry area (ha)	50.0			
No. of eggs (egg layering cycle)	2442		2017	
Harvested cocoons (kg)	27,101.7	724,140	11,141.0	300,806
Average cocoon (kg)/egg laying circle	11.1		5.5	

Source: Addapted from GFA Report, by Dr. Long (2005)

Farmers in Tuyen Hoa District find no difficulties in selling cocoons. Before 2004, they sold cocoons to silk unravelling units in the provinces of Quang Nam, Da Nang and Vinh, who directly purchased cocoons in Tuyen Hoa. In 2002, cocoons cost 16,000 VND per kg. That price was 18,000 VND per kg in 2003. The year 2004 saw the highest price because cocoon demand was increasing and the construction of silk production unit in Tien Hoa commune was completed. The District People's Committee allowed this unit to purchase cocoons at the floor price of 27,000 VND per kg from all the communes of mulberry cultivation and silkworm raising in Tuyen Hoa District. To avoid price squeezing and monopolization, Agriculture Division (currently Economic Division) is assigned to manage this floor price basing on the national market price. Whenever there is considerable difference (over 3000 VND per kg)

between cocoon price on the national market and this floor price, this unit has to adjust the buying price. Through the interviews from 5 representative communes under the survey, opinions of the District People's Committee as well as calculation of compiled figures, it is shown that the current sericulture has more potential of giving high effect than many other crops on the same land and on the same area. Hence, in the recent years, in order to encourage farmers in the communes of mulberry cultivation and silkworm raising to do this job, the government has shown their interest in sericulture and financed partially. Specifically, the government have supported 100% mulberry varieties (equivalent with 1,500,000 VND per ha) and partially support silkworm eggs, 5000 VND per egg laying circle. As a result, sericulture in Tuyen Hoa has more favorable conditions to develop. According to opinions of staff and farmers in the five communes, 100% of farmers, who have cultivated mulberry, still have a liking for cultivating mulberry now. A small number of farmers, accupying 14,3% to 20%, like to cultivate mulberry, however, they are still worrying about crop failure due to bad impacts of silkworm diseases.

SUBSECTOR PROMOTION & DEVELOPMENT POLICIES

- a. *Institutions involved in silk subsector promotion*
 b. *Some policies affecting the development of the subsector*

a. Institutions involved in silk subsector promotion

These institutions include the Ministry of Agriculture and Rural Development; Provincial Departments of Agriculture and Rural Development; District People Committees; Research institutions such as Vietnam Agriculture Science Institute (VASI), Central Sericulture Research Center (now belonging to the VASI according to the Decision 220/QĐ-TTg dated September 9, 2005 of the Prime Minister), Agriculture universities; Vietnam Sericulture Association; Provincial Associations of Sericulture and some international organization. Followings are brief introduction of each organization:

Ministry of Agriculture and Rural Development: This is state administration agency in agricultural sector. The role of the Ministry is to formulate macro policies for the agriculture in general and sericulture subsector in particular. Each year, the Ministry allocate an amount of financial budget to the development of the subsector thought research and technology transfer activities. These activities are performed by institutions such as Vietnam Agriculture Science Institute (VASI), Central Sericulture Research Center or state-owned enterprises (for example VISERI).

Central Sericulture Research Center: This is the main research body of the subsector, belonging to the Ministry of Agriculture and Rural Development until September 2005. The Center has been merged to the VASI according to the Decision 220/QĐ-TTg dated September 9, 2005 of the Prime Minister. The main functions of the Center are:

- Research and create new mulberry sapling, new silkworm egg; mulberry cultivation techniques; silkworm raising and transfer the techniques and technology of the subsector to the beneficiaries such as traditional villages, companies and other organizations working in the subsector;
- Developing processing (rearing, reeling, weaving...) technology and assist key players in the subsector to apply new techniques and technology in order to get higher productivity;
- Training, technical coaching for students, enterprises or villages upon requests on all techniques relating to the development of subsector.

Each year, the Center gets around VND 3-4 billions (equivalent to USD 200,000 - USD 250.000) from the State budget. This limited resource does not allow the Center to have extensive supporting activities. The performance of the Center remains very limited.

Provincial Departments of Agriculture and Rural Development; District People Committees: These are the most important agencies to promote the development of the

subsector. They can directly influence on the development of the subsector in the locality. Different provinces will have different policies to promote the subsector, through different measures:

- Support policies to buy silkworm egg;
- Financial support to create new silkworm eggs;
- Reduce agricultural tax for mulberry cultivation areas or enterprises involving in rearing, reeling, weaving... silks or traditional villages;

In general, upon the importance of the subsector in different provinces, the Departments of Agriculture and Rural Development and the District People Committees will set appropriate policies to promote the subsector.

Vietnam Sericulture Association: Assessments of private sector, traditional villages and enterprises on the role of the Association is pretty negative. The Association does not have any specific supporting activities to support the development of the subsector. It represents mostly for state-owned companies (mostly belonging to VISERI) and lacks of private representation.

Provincial Associations of Sericulture: Not all provinces having an association of sericulture. Few locals have their own association but its role remains very limited. There is almost no specific supports for the development of the subsector within the local;

Universities of Agriculture: These are research and training institutions relating to agriculture in general and sericulture in particular. Most universities have faculty of sericulture but students do not really want to subscribe for the major. Instead, most universities impose an amount of required credits to students and it is generally considered as supporting subject. Research activities remain very limited in these institutions;

International Agencies: FAO is so far the only institution to involve in the development of the subsector. However, the support is quite modest with a support project few years ago. The general assessments on the project are not so positive with the results achieved. Currently, there is no supporting project from this international organization;

Besides those above institutions, **Vietnam Sericulture Corporation (VISERI)** plays the leading role to promote the development of the subsector as expected by the Government. However, as mentioned in the first part of this report, VISERI took the failure of the UVSE and still struggling with debt and stagnation. The Prime Minister has decided to declare bankruptcy of 12 companies and to equitize the rest 15 companies with hope to turn around the Corporation. The reasons of this failure is that VISERI focuses too much on infrastructure investment, equipment purchase and technology investment but lacks of proper investment for inputs research to produce high productive mulberry, silkworm egg... Most of basic inputs have been imported and heavily affected by Chinese suppliers. Currently, VISERI bears a total debt of over VND 660 billions, in which VND 624 billions have been mortgaged but the Government for the last 10 years.

Table 8 - Name and Address of institutions involving in the subsector promotion

Stt	Name	Address	Tel	Fax
1	Ministry of Agriculture and Rural Development Minister: Cao Đức Phát	2 Ngọc Hà, Ba đình, Hà nội	04.8468160	04.8454319
2	Departments of Agriculture	15 Quang Trung, Đống	052.820543	052.821673

	and Rural Development of Quảng Bình Director: Nguyễn Xuân Dung	Hới - Quảng Bình		
3	Vietnam Sericulture Association Chairman: Nguyễn Văn	18B Quang Trung, Bảo Lộc - Lâm Đồng	063.863310	063.717145
4	Vietnam Agriculture Science Institute Director: Tạ Minh Sơn	Thanh Trì - Hà Nội	048613937	04.8615487
5	Agricultural Project Management Unit Director: Dương Văn Xanh	3 floor, A9 - 2 Ngọc hà, Ba Đình, Hà nội	04.7334253	04.7334254
6	Vietnam Agriculture Newspaper Chief Editor: Lê Nam Sơn	14 Ngô Quyền - Hà Nội	048256492	048252923
7	Vietnam Sericulture Corporation Director: Dương Xuân Tuý	20 Quang Trung, 2 Bảo Lộc, Lâm Đồng	063.864376	063862093
8	Central Sericulture Research Center Director: Đặng Đình Đàn	Ngọc Thụy, Gia Lâm - Hà Nội	04.8271805	04.8271805
9	Southern Plant Joint Stock Company Chairman: Ngô Văn Giáo	282 Lê Văn Sỹ, Dist 1, Q Tân Bình - TP. HCM	08.8442414	088442387
10	FAO Việt Nam Representative: F. Guerrieri	3 Nguyễn Gia Thiều Hanoi	049424208	049423257

b. Some policies affecting the development of the subsector

At macro level, there are some policies set by the Government and relevant Ministries specify the policy over the development of the sericulture in Vietnam. However, they seem to be too general, for instance, in the Decision 55/2001/QĐ-TTĐ of the Prime Minister on Approval the Strategies to develop Garment & Textile industry of Vietnam until 2010, there is one paragraph:

*“Promoting the investments in areas with cotton plantation, **mulberry cultivation and cocoon production**,... materials and other inputs replacing imports...”*

With this macro policy, the Government has decided to support VISERI for the last few years in importing silkworm egg, equipments and technology. However, this support seems inefficient and put the Corporation in more trouble situation.

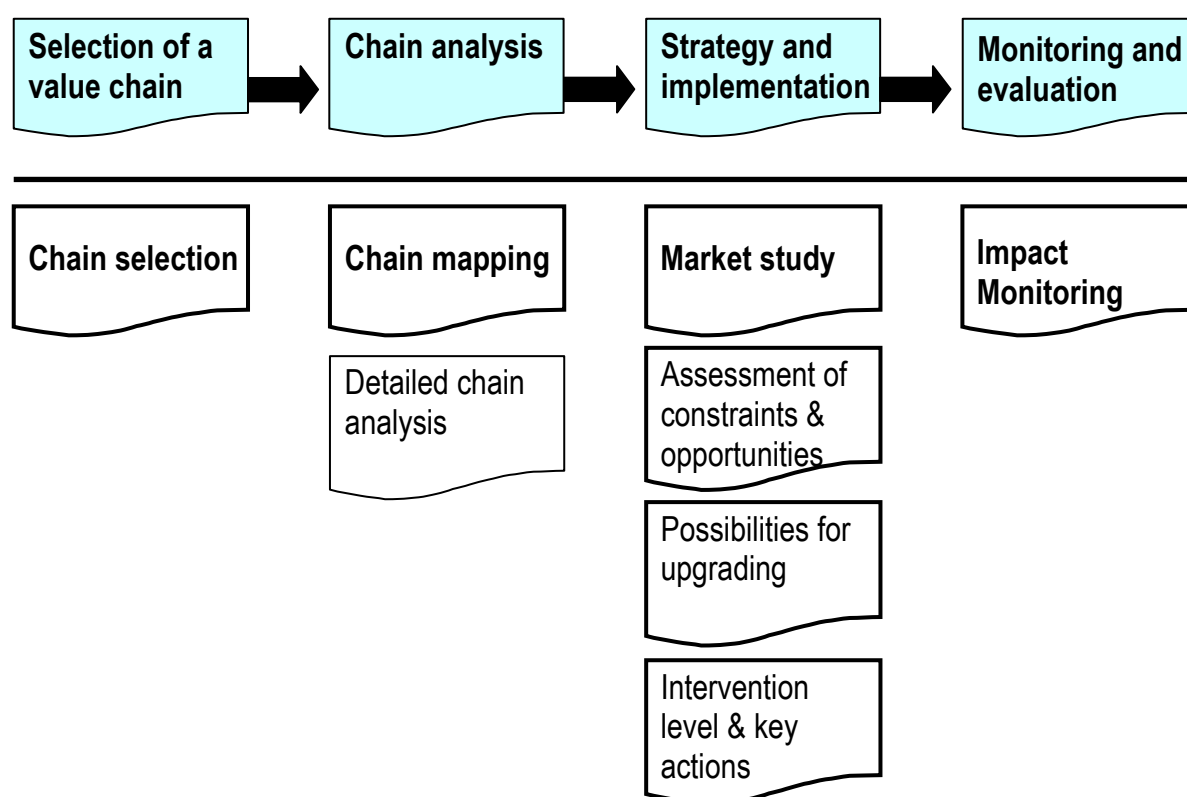
At the same time, this strategy is open for local governments to set support policies to develop the subsector. As mentioned earlier, different provinces set different supporting policies (direct finance or through tax reduction) relating to the subsector promotion.

VALUE CHAIN ANALYSIS OF SERICULTURE SUBSECTOR IN QUANG BINH

- a. Functional chain mapping
- b. categories of actors in value chains and their relations
- c. Constraints of the subsector
- d. Some preliminary recommendations for subsector promotion

The methodology used in this part to analyze the subsector is value chain. The purpose of value chain analysis is to identify the opportunities and constraints of the subsector, to identify the possible solutions/strategies to promote the development of subsector and also the level of intervention to the strategies implementation. The figure 6 illustrates the stages of analysis. The reasons of subsector selection were presented in previous parts. This part will focus primarily on value chain analysis, the actors of the chain and the links between them.

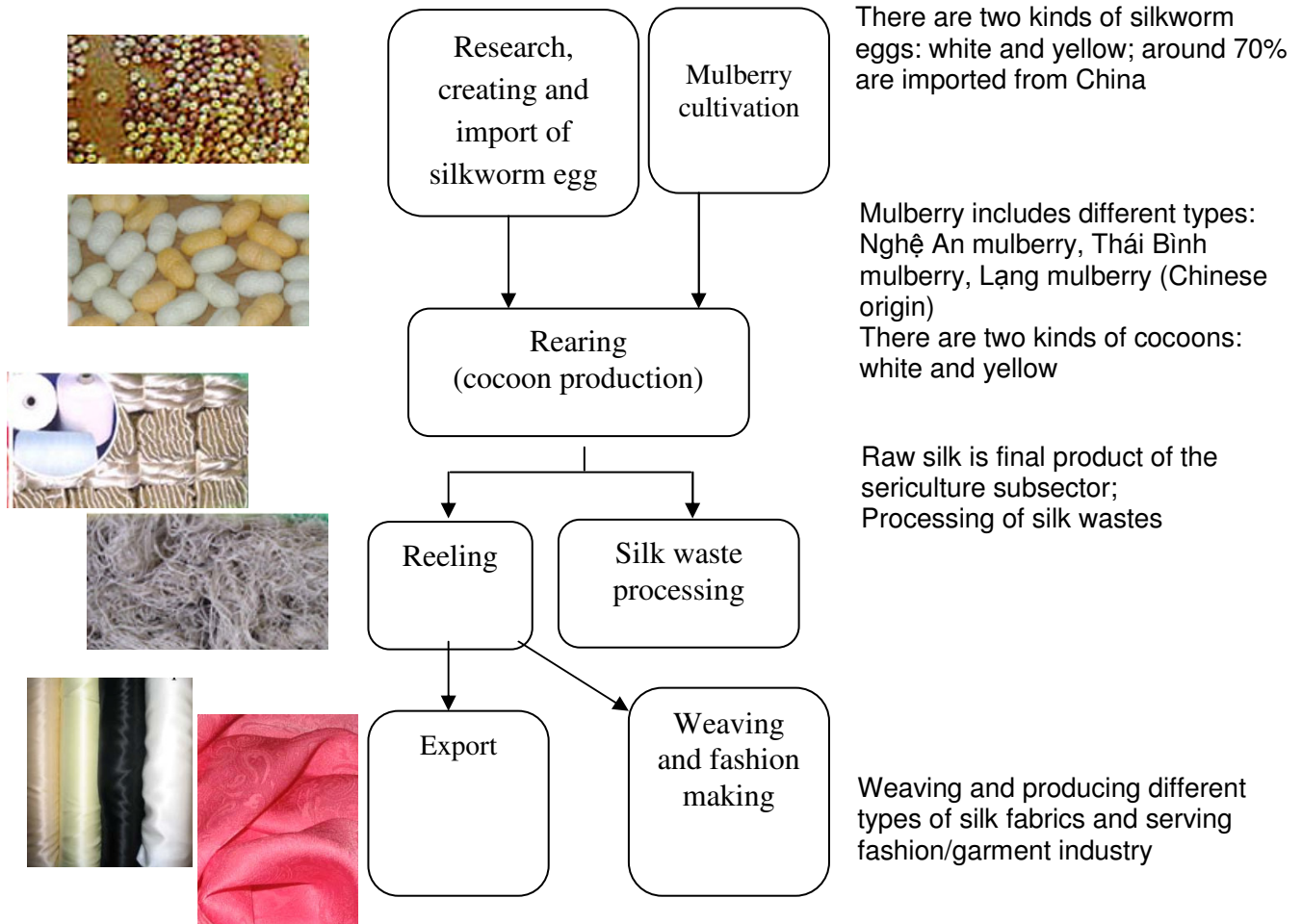
Figure 6 - Value chain analysis



Source: GTZ materials, 2005

a. Functional chain mapping

The manufacturing procedure of the subsector can be described in the simple flow chart below:



Input suppliers: As mentioned in previous parts, almost 70% of silkworm egg are imported from China even there are some companies involving in developing silkworm egg. Most of them belong to VISERI but quality of this basic input is not guaranteed. Mulberry sapling is also a critical issue of the subsector;

Rearers: They are engaged in rearing the eggs and taking care of the silkworm until it turn into a cocoon. They are the ones who have to take care of the quality of the cocoon by maintaining nutrition (clean mulberry leaves) and care of silkworm;

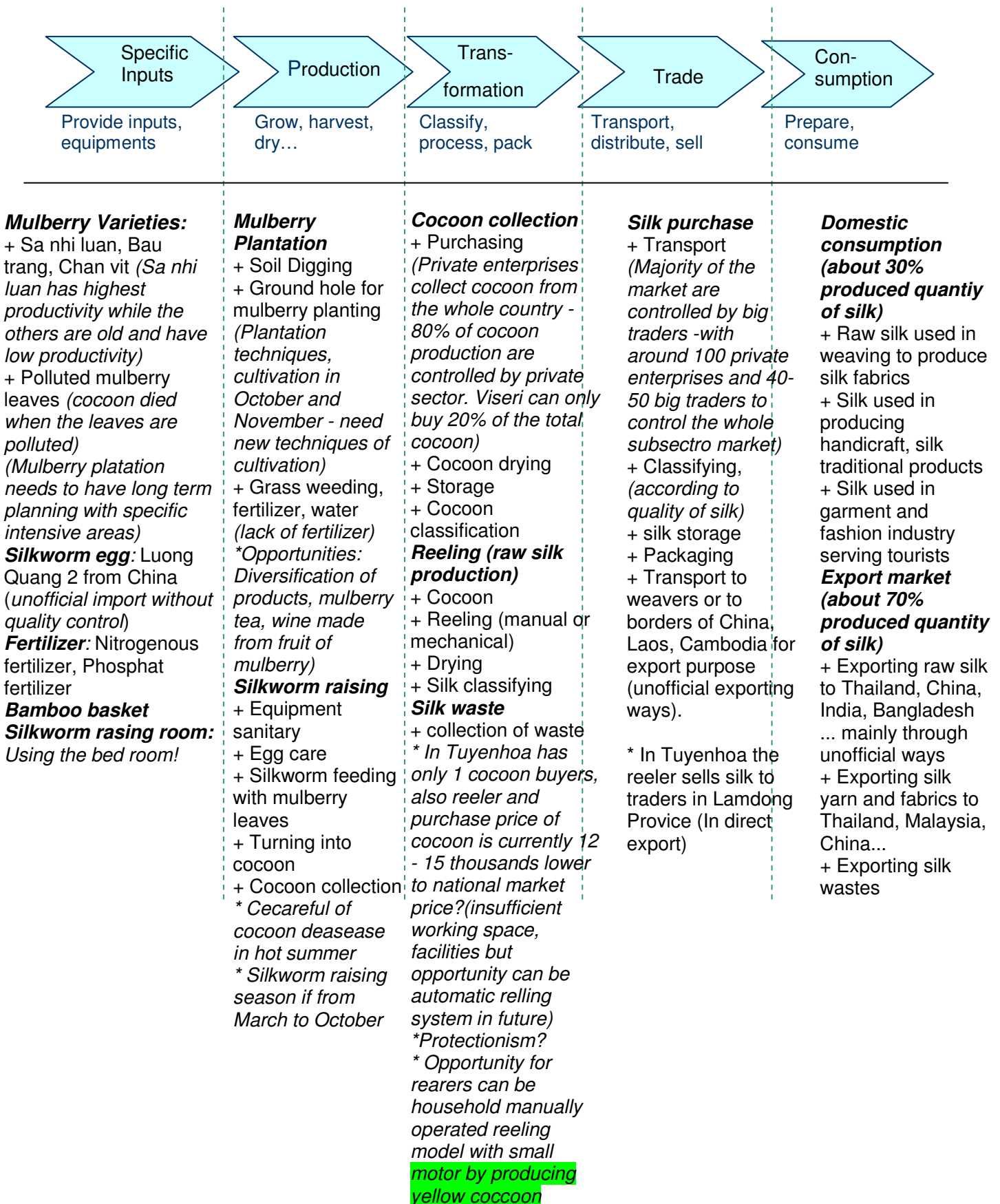
Reelers: These groups buy the cocoons from the rearers and spin raw silk from these cocoon; silk yarn is final product of the subsector and will be used as inputs for waeving process; some reelers perform processing silk wastes and some sell directly;

Weavers: This is process of making silk fabrics. There are two ways of weaving using handloom and powerloom.

Traders and Exporters: As mentioned in previous parts, most of raw silk produced domestically are exported through unofficial ways. They also involve in trading basic inputs so they are also setting the price of most products in the subsector.

Looking at

the value chain map, which is presented below, we can see the details and characteristics of each process.



Value addition analysis of the subsector in Tuyen Hoa, Quang Binh

The economics of cocoon production had been made by GFA in a survey conducted in 2005 by Dr. Long. The calculation of value addition will be based on all assumptions made by GFA (e.g. non considering labor cost) and the reality of the supporting policies in the province (i.e. subsidy 100% mulberry leaves and supporting VND 5,000 per one silkworm egg circle). According to this calculation, the total cost of producing 27 kg cocoons per sao is only VND 236,000 (see Table 9). Thus, unit cost of cocoon per sao in Quang Binh is VND 8,741/kg.

Table 9: Analysis of economics in sericulture in Tuyen Hoa (1000 VND/500 m²)

	Quantity kg	Unit price VND '000	Value VND '000
Total value of production	27 kg of cocoons	27	729
Total cost			236
Annual depreciation			40
Variety (silkworm eggs)	2.5	18.0	45.0
Manure	300.0	0.2	60.0
Urea	10.0	4.5	45.0
Kalium	10.0	2.5	25.0
Treatment medicines for silkworm diseases			20.8
Labor day	15.0		0.0
Net income per sao			493.2
Net income per ha			9,864.0
Net income per labor day			33

For Rearers:

- The white cocoon price is VND 27,000/kg. So the value addition of rearing process is: $(27,000 - 8,741)/8,741 = 209\%$

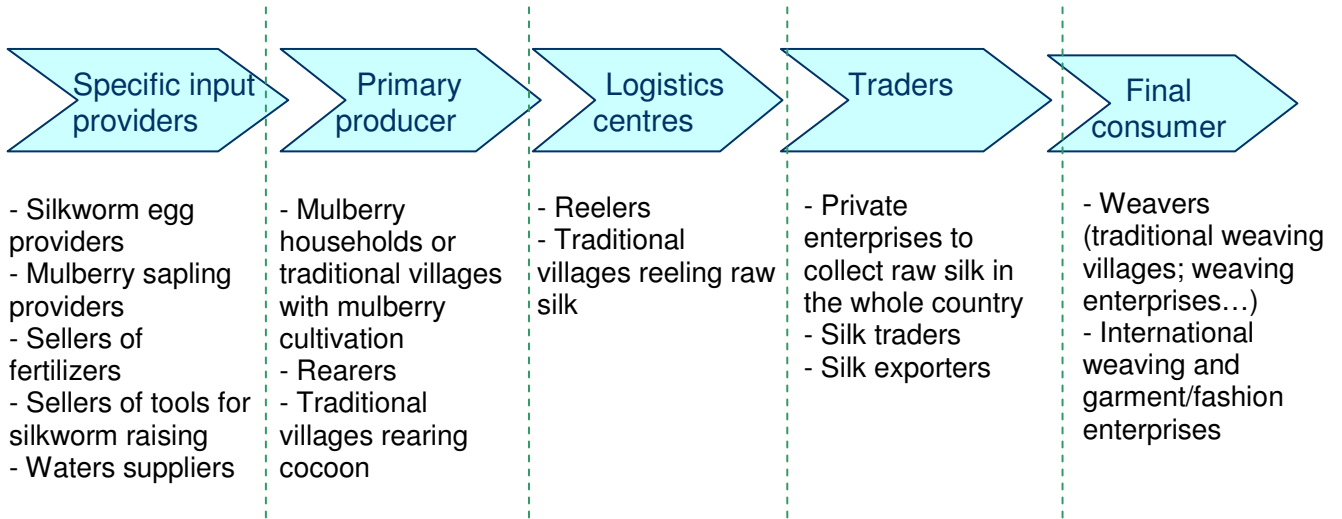
For Reeling

- On average, 7.5 kg cocoon produce 1 kg silk. Assuming a reeler buys 7.5 kg cocoons, which cost $7.5 \times 27,000 = \text{VND } 202,500$
- Other costs associated with reeling to produce 1 kg silk:
 - o Coal/electric power: VND 10,000
 - o Manpower cost: VND 28,000
 - o Depreciation: VND 5,000
 - o Others (estimates): VND 3,500
- TOTAL COST TO PRODUCE 1 kg SILK:
 $202,500 + 10,000 + 28,000 + 5,000 + 3,500 = \text{VND } 249,000$
- The domestic white silk price at this moment is around VND 400,000/kg. In addition to that, the reeler can sell silk wastes collected from the reeling process with a value of VND 65,000. So the total revenue generated from producing 1 kg silk is VND 465,000.
- Therefore, the value addition for reeling process is $(465,000 - 249,000)/249,000 = 86.7\%$
- However, if the reelers at the same time doing exporting (in fact most of private reeling enterprises doing this way through unofficial ways to Laos, Thailand, China and Cambodia). The selling price of silk exporting to Thai market now is around VND 430,000/kg. The costs associated with export are estimated at VND 12,000/kg (transport, manpower...). So, the total revenue in this case is VND 430,000 + VND

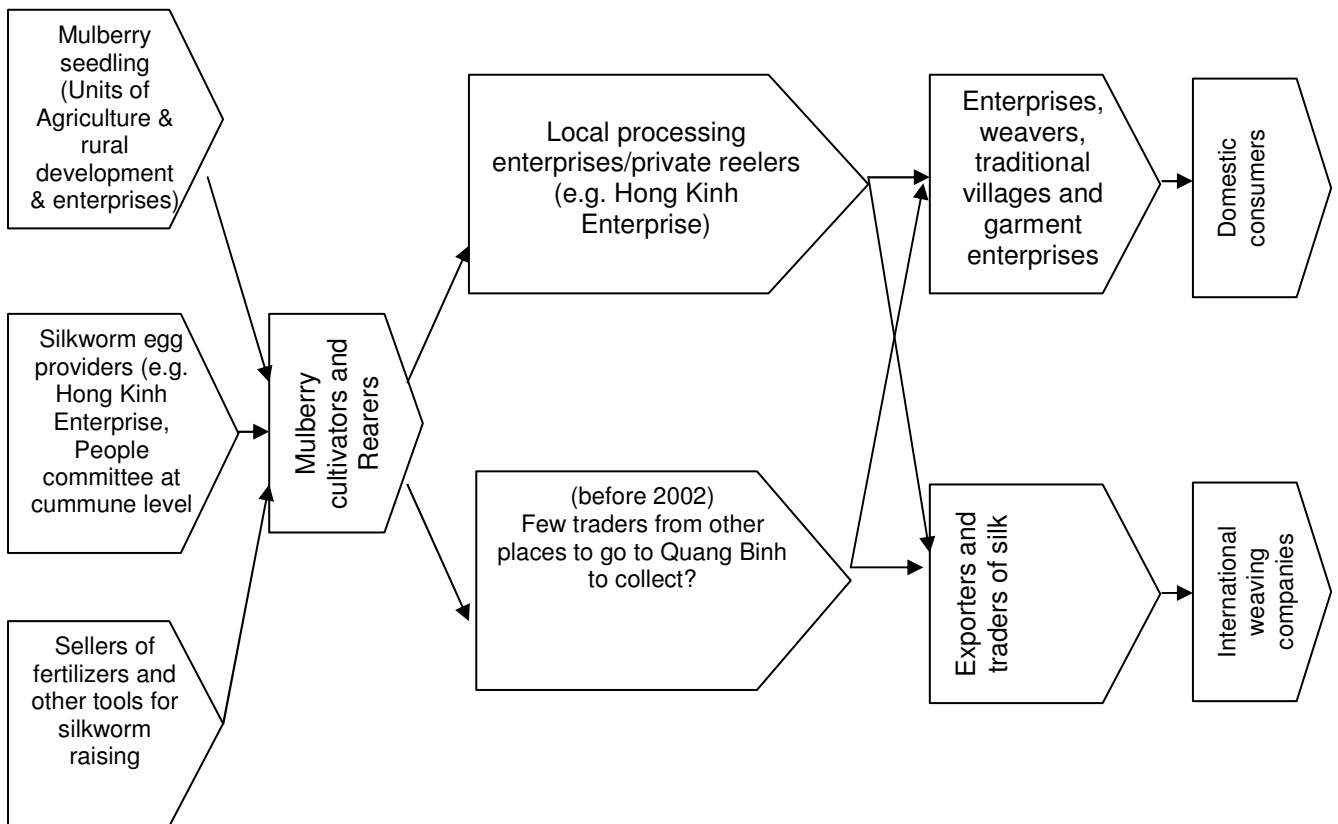
65,000 = VND 495,000. Also cost will be amounted (VND 249,000 + VND 12,000) = VND 261,000.

- So, the value addition for reeling process in this case is $(495,000 - 261,000)/261,000 = 89.7\%$

b. Chain mapping of actors (micro level) - categories of actors in value chains and their relations

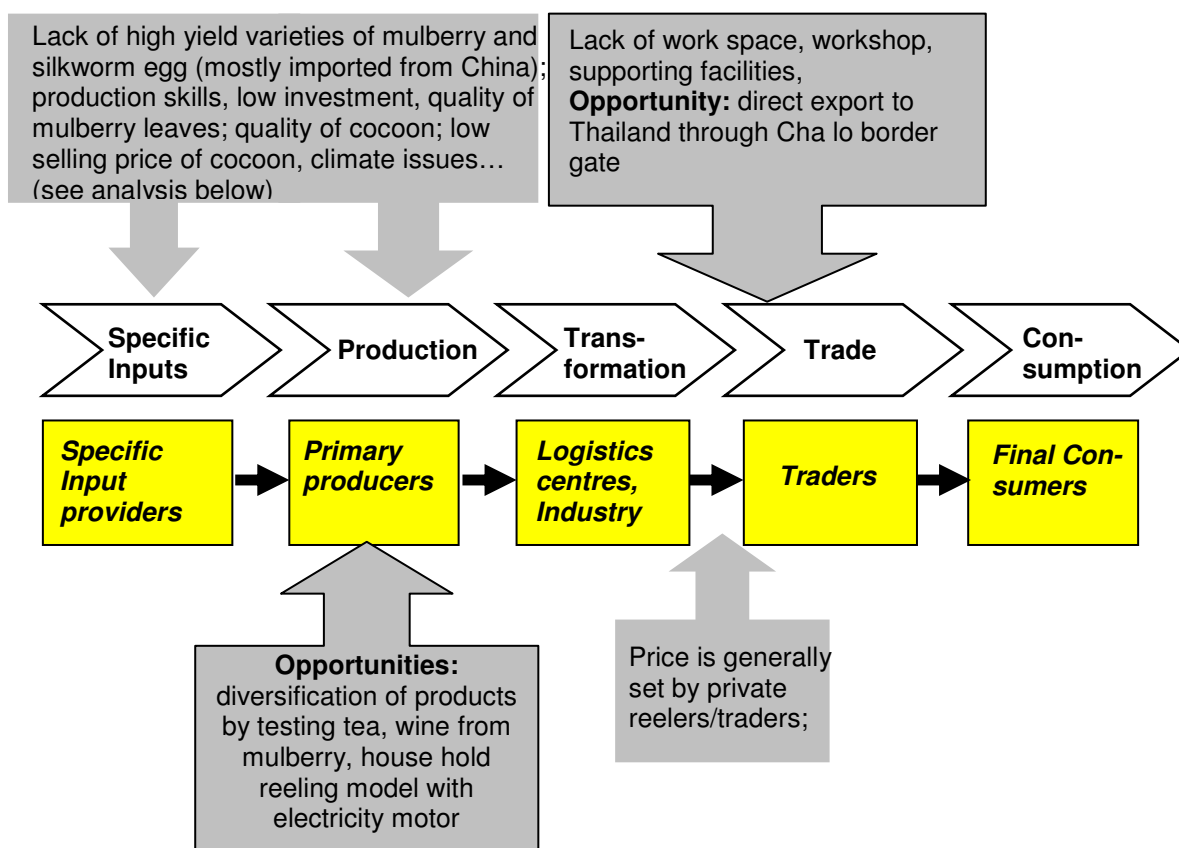


Circuits of the chain



c. Constraints and opportunities of the subsector

At Micro level:



Climate: The average temperature in January, February and December is lower than 20°C; and it is sunny and hot, with low humidity from May to August. The dry season starts from January, February, March and December; whilst the rain season concentrates in August, September and October. The temperature amplitude as well as humidity between daily time and night time is so much different. The weather in 2005 is so much changing; it is not favorable for the growth of mulberry trees and the silkworm rearing (due to the prolonged hot and sunny weather).

Mulberry varieties and technical skills of reares: The used mulberry variety imported from Ha Tinh (White variety mixed with Chan Vit variety) offer thin leaves, similar to the one currently cultivated in Thanh Hoa commune. These varieties do not offer high productivity. The mulberry trees have been cultivated for many years; plus that the harvesting for leaves has not done properly and no intensive cultivation applied. These results in old trees, emergence of roots, small branches and low productivity of leaves. The survey has shown that local farmers do not care much about mulberry intensive cultivation. According to the local farmers (100% of interviewed farmers), they did not apply basic fertilization, or applied basic fertilization but with a very limited amount of fertilizers or only 250-500 kg of manure/sao, no phosphorous or no potassium. Only fertilization is applied twice annually, with the amount of 5-10 kg of nitrogenous fertilizer, or 5-10-15 kg of N,P,K. The leaf harvesting is not done properly in many areas; harvesting is not timely to feed silkworms, mulberry leaves are not fully used; mulberry fields or trees are not tended or not pruned after each round of silkworm rearing. These facts lead to results of low productivity of mulberry leaf, average productivity of mulberry leaf in Tuyenhua is approximate of 7 - 9 tons/ha.

Silkworm raising technical skills:

Farmers have not paid attention to the quality of mulberry leaves. Farmers have not known or have known the related techniques but they have not paid attention to disease prevention and control for silkworms. While a number of people too much expect on the effectiveness of medicines for silkworm diseases. Proper respective techniques have not yet applied in different stages of silkworm rearing. The application of methods for egg storing, transportation, incubation is not good enough so that the eggs did not hatch evenly in the same round. It affects the life of small silkworms. Local farmers have not yet known the technique of silkworm rearing using anti-dry cover paper sheets when the humidity is low.

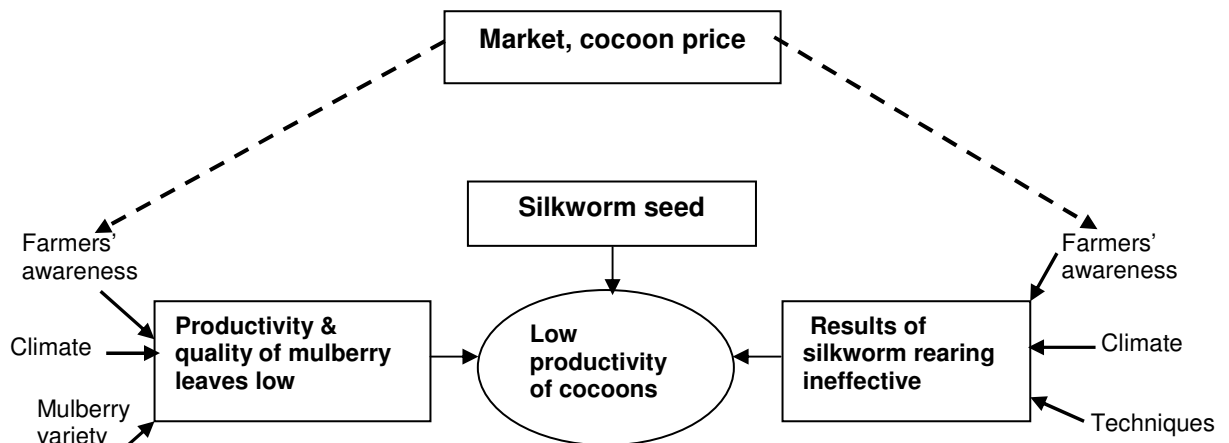
*** Some opportunities:**

- Product diversification: learning from Lao's organic farm that they cultivate mulberry for cocoon raising and silk producing, they also make tea from mulberry leaf. Mulberry fruits is used to brew red wine (see pictures). Tuyenhua farmers can test and market this products in order to get more income but attention should be considered while care taking and fertiliser use.

- It is necessary to consider a model for silk reeling at household level in which farmers in other regions use electricity motor to process cocoon by hand. This requires more investment how ever, it will bring more value to their product.

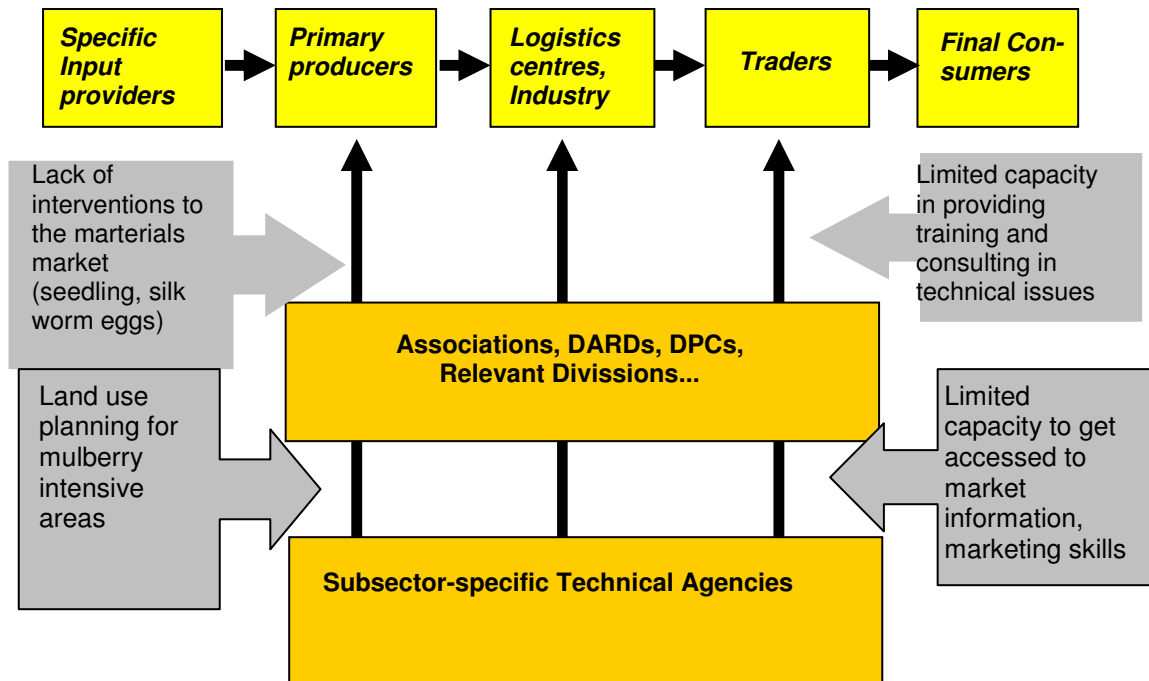
- The silk cord reeling company of Tay truc can think of the new markets accrossing to Chalo border gate to Thailand which may charge the same transport costs to Lamdong Province.

- In the future, Tay truc company can think of upgrading technology to automatic weaving system in order to gain more value to their stage of production.



Source: Adapted from GFA Report, by Dr. Long (2005)

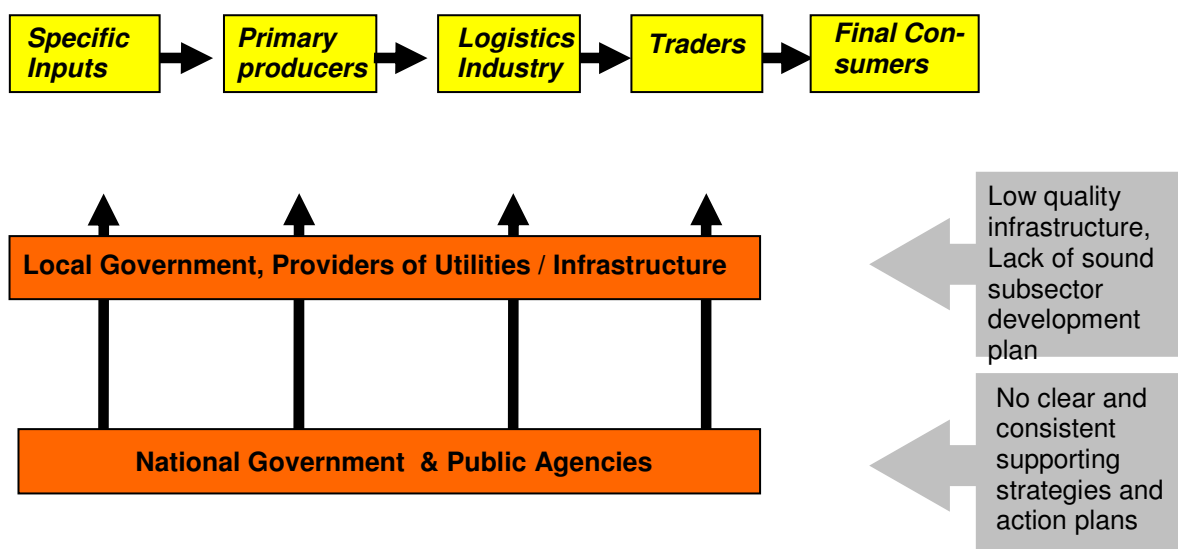
At Meso level:



As mentioned, the role of Vietnam Sericulture Association (VSA) and provincial associations of sericulture are very limited. The Association does not have any specific supporting activities to support the development of the subsector. There is no intervention from the associations in term of market for specific inputs: mulberry leaves and silkworm eggs neither cocoons prices. The perception of actors in the subsector on VSA is quite negative in term of intervening in the supporting the development of the subsector.

Subsector-specific Technical Agencies include GTZ/GFA and research institutions such as Central Sericulture Research Center or some other research agencies belonging to VIRESI. GTZ/GFA is now actively facilitating the development of the subsector specifically in Quang Binh province. The other research intitutions have no specific activities to support Quang Binh's sericulture subsector. Survery conducted by GFA in 2005 showed that the reasons leading to low cocoon productivity include: limited techniques applied; lack of appropriate suporting policies; limited extension acitivites, capacity and performace and no effective management by local authorities fowards sericulture subsector of the province (Table 9 - GFA report by Dr. Long, 2005). The interviewees also showed the needs to have technical training and relevant supporting activities from these institutions.

At Macro level:



The local government of Tuyen Hoa had set clear objectives (set out by the Resolution of the district People’s Council, 3rd meeting for period 2004-2009): Mulberry cultivation areas from 2005 to 2010 should reach 108.25, ha in 2006, 150 ha in 2007; 180 ha in 2008, 220 in 2009 and 250ha in 2010; and the cocoon productivity of 60 tons in 2006 increased to 90 tons to 2010. During the past years, the supports in term of subsidy of mulberry of VND 1,500,000/ha and VND 5,000 per egg layering cycle of silkworm eggs, have been made by the local authority but still there has not been a detailed and sound subsector development plan. The fact is that productivity of the sector is relatively low.

The central Government, specifically relating ministries such as MARD, MPI..., has set very general policies but without a clear action plan to develop the subsector. Therefore, each province has to set its own supporting policies, which lead to different inputs price and inconsistent development plan.

d. Proposed solutions for addressing identified constraints and opportunities

Strategic solutions with detailed action plans to promote sericulture subsector in Quang Binh will be elaborated in discussion with relevant stakeholders during the workshop in the province. Here are just few recommendations which are based upon above analyses:

Constraints	Solutions	Doer	Supporting organisations	Remarks
- Limited technical skills for mulberry cultivation as well as silk worm raising, cocoon harvesting and preservation	- Apply appropriate techniques through on topic technical training - Strengthen technical capacity of Economic Division and District, commune extension officers	Farmers	- Tay truc Company, Economic Division, District Agri. Extension Station, SMNR - CV, ADB ...	
- Low quality of mulberry seeding	- Select and provide suitable high yield mulberry	Farmers	- Economic Division, Tay Truc Company	New varieties should be tested before providing to farmers
- Low investment to production (care taking, fertilisers putting)	- Spend sufficient care taking, fertilisers for mulberry plantation	Farmers	- Tay truc Company, fertiliser stockiest	
- No skills of cocoon processing skills at household	- Using motor in reeling household	Farmer and Economic Division	- Economic Division (takes initiatives in testing and disseminating the model)	The price for the motor is around VND 500,000 per machine but the productivity is higher: only one person involved in reeling and one machine can reel 30 kg cocoon per day. Organise study tour to learn from other province.
- Limited knowledge to utilise available materials for products diversification	- Test and produce tea, wine from mulberry	Farmers and Economic division	Economic Division (takes initiatives in testing and disseminating the model)	Organise study tour to Laos organic farm www.aumtea.com/mulberry_tea_leaf.htm www.immortalitea.com/mulberry.htm www.imsil.go.kr/english/spec2-4.html
- Limited access to new markets	- Enhance capacity in searching new markets, marketing skills, Thailand markets	Tay Truc Company and farmer	Economic Division, ADB, SMNR-CV ...	Access to update market information, learn negotiation skills, marketing skills.

- Limited work space and unsettle workshops and insufficient warehouse	- Upgrade workshop, warehouse	Tay truc Company	Banks, Economic division, ADB and other organisations	
- High transport costs for selling silk	- Silk fabric automatic printers and designing fashion silk products targeting to direct exporters and foreign tourists in domestic	Tay truc company	Banks, Economic division, ADB and other organisations	Investing in garment industry and traditional villages to Creative designers
- Lack of detailed land use planning for intensive mulberry production areas	- Work out comprehensive planning, specific planning for mulberry plantation at commune level	DPC	DONRE, Economic Division, Finance and Planning Division, Infrastructure Division	



According to ancient Korean medical books, 'Bonchogangmok' and 'Dongeuibogam', mulberry leaves and silkworms as folk medicinal materials are effective for the treatment of diabetes , (and) high blood sugar, and the prevention of senility. Mulberry leaf tea is good for diabetics who are not allowed to drink general beverages. Silkworm powder, pills and capsules are wholesome foods.