

**Sustainable Management of Natural
Resource in Central Vietnam**



Report

Application of Value Chain Approach for Development of Sericulture Sub sector in Tuyen Hoa District, Quang Binh Province

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March, 2006



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1. INTRODUCTION AND SUMMARY

Sustainable Management of Natural Resource in Central, Vietnam (SMNR-CV) is a follow-up of 6 year Integrated Food Security Project (GTZ - IFSP Quang Binh, implemented in the two pilot districts of Tuyenhua and Minhhoa, Quangbinh Province, from 1996 to 2002). The overall goal of SMNR-CV is to improve living conditions of the local population in mountainous areas of the project region, in accordance with a stabilization of the ecology. The purpose and intended impact of the project is to focus on capacity building, specifically assisting stakeholders in the project region to effectively manage their natural resources in a sustainable way.

The general implementation strategy is to consolidate the achievements of the IFSP and develop its outputs further in the fields of i) community-based village and commune development planning (VDP), ii) the application of appropriate farming systems, iii) community-based forest management (CBFM), and iv) the promotion of alternative income opportunities from the marketing and processing of agricultural and non-timber forest products (NTFP). After more than one year of the project implementation, under the framework of supporting income generation opportunities and its major activities for the target groups (result No. 4.), the SMNR-CV has supported these groups in the application of various approaches to identify and develop the solutions towards their income generation. The implemented activities are organizing "Local Economic Development (LED) workshops at provincial and district levels, conducting pre-feasibility surveys for potential products such as bee honey, mulberry and silkworm, bamboo and rattans ... through which respective technical trainings have been organized in order to support increased productivity and up-scaled production of these products.

The ultimate purpose is to work out solutions on how to make the poor get involved and how they can get benefits from the development of the market-oriented economy in general and of specific business in particular; how to increase the value of the available products for producers. Thus, the SMNR-CV has applied the "Value Chain" - a methodology has been using by various development organizations. It allows reviewing and evaluating a product or a specific business from various chains, levels and aspects; thereby it is able to find out and identify the limits and problems to the production, processing and consumption of the product as well as the competition capacity of enterprises getting involved in that business or product. Based on these, strategies and action plans can be set up to enhance the competition capacity and solutions for increasing the added value for local enterprises also are worked out by stakeholders.

The project has selected the sericulture sub sector in Tuyen Hoa district as a potential Value Chain for analysis and support for its development (based on a market research done by the Project in 2005). Upon reference on application of the "Value Chain" methodology developed by GTZ and USAID, the project has flexibly adapted some methods and tools for collection, processing and analysis of primary and secondary data, group discussion and analysis of sericulture value chain diagrams, analysis of problems on inputs materials, product consumption and competition capacity of local players. The collection and analysis of the secondary data were conducted within 18 days, started on 10th January 2006; then an official workshop was organized on March 2-3, 2005 in Dong Le - Tuyen Hoa district, with its intended objectives achieved. In the workshop, strategic solutions and respective indicators for promoting the development of sericulture sub sector were formulated in details and with high feasibility.

2. APPLICATION OF VALUE CHAIN METHODOLOGY:

2.1 - Concept

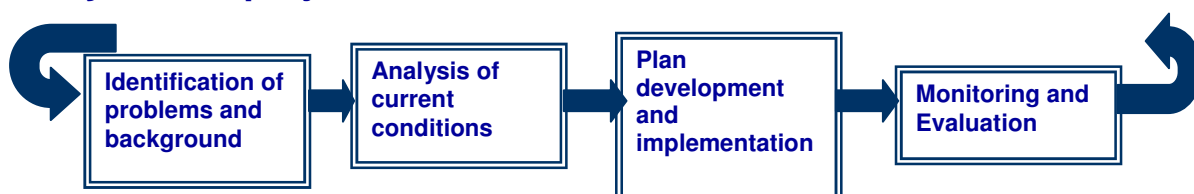
The value chain means

- the sequence of productive processes from the provision of specific inputs for a particular product to primary production, transformation, marketing and up to final consumption
- an arrangement in which every step is organized logically and effectively such as the link and coordination between the producer, manufacturer and businessman and deliverer for a specific product
- an institutional arrangement linking and coordinating producers, processors, traders and distributors of a particular product

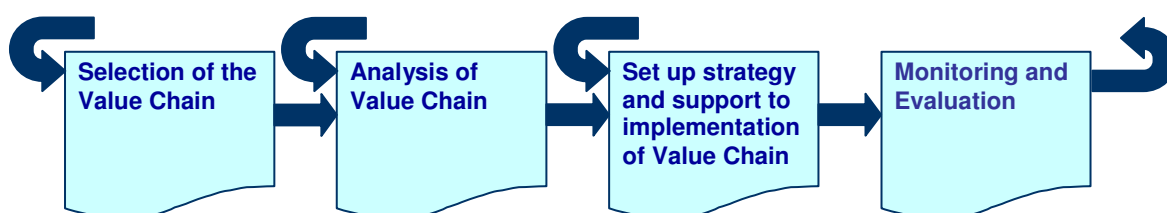
2.2 - Application methods, tools and implementation steps

The application of Value Chain Approach is a part of implementation cycle of a development project. It is shown in the following graph:

Cycle of a project



Application of value chain approach in a cycle of project



Step 1 - Selection of value chain

Based on the information and data of the report on assessment of potential products in the project area and a market research on sericulture in Tuyen Hoa made by Dr. Nguyen Van Long in 2005 and a set of criteria, the value chain of sericulture has been screened and selected to consider how the project can support the production. The selection of sericulture sub sector for value chain analysis was based on following criteria:

- Potential markets both domestic and export: the total cocoon production meet only 30% of total cocoon demand;
- The sub sector attracts a high number of labourers who are the poor (with over 1.000 households in each commune of the District involving in the sericulture sub sector - see the table below);
- Opportunities can be created for other 1.000 households/commune for involving in this production, generating significant income for them;
- Extension and development of sericulture also a way to contribute to the management of local natural resources, especially forest resources.

Mulberry cultivation and silkworm rearing play a very important role for agricultural development in Tuyen Hoa District. Areas and number of households of mulberry

cultivation and silkworm rearing in the local. The new area of mulberry planted in 2004 was almost doubled the previous period with the entry of 2 communes Duc Hoa and Thanh Hoa with over 20 ha.

The table below shows the number of households and mulberry cultivation areas in 5 major communes and the total number of the district:

Indicators	Total no. of households	No of hhs rearing silkworms/ No. of hhs cultivating mulberry	Existing mulberry area (ha)	Mulberry area planted in 2004 (ha)	Total mulberry area in 2005 (ha)
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

Source: Tuyen Hoa District Economic Division.

Step 2 - Analysis of Value Chain

The analysis of value chain involves chain mapping which specifies all processes from inputs to production, processing, marketing and consumption. The analysis was made in line with identification of constraints and opportunities to add values for the chain, thus increasing its competitive advantages. (Please see Annexes 3 - a, b, c for the preliminary maps).

According to the preliminarily-established maps, the real and major constraints they are facing in each process of the chain are identified:

- The dependence of silkworm eggs on Chinese source;
- The low quality and productivity of mulberry leaves;
- Limits of necessary knowledge and skills in mulberry cultivation;
- Inappropriate usage of fertilizers;
- Farmers in the local lack of serious focus on the jobs; lack of investments in time and efforts for cultivation jobs;
- Limits of mulberry cultivation areas and changing other crops to mulberry.
- Limited techniques in taking care of silkworm - silkworm disease exists and lack of medicine for silkworm disease;
- The weather condition in the local is difficult for cultivation;
- Competition on price: Tay Truc company has to compete with other cocoon collectors from Danang and other neighbouring provinces;
- Limits in processing technology and facility in the local;
- Transportation condition is low;
- Unclear land allocation for the sub sector development - strong intervention of local authorities on land renting policies remains limited;
- Lack of market information;
- Low demand/purchasing power on silk products (fashion and garment);
- Lack of product diversification capability.

However, in addition to major constraints, there exists some advantages/opportunities for the sub sector in the local, such as support from local authorities and the SMNR project; this is a traditional career of the district; opportunities to generate jobs for the poor; land is appropriate for mulberry cultivation; and potential of high demand in both domestic and international markets (see Appendices 5 b,c,d). Also, the possibilities to directly export silk to Thailand via Chalo border is quite potential. One of the other options is to diversify products such as producing mulberry tea and wine. Furthermore, the economics of the sub sector seem quite interesting for the actors of the sub sector (see 4 for value addition calculation).

Step 3 – Formulation of strategic solutions for Value Chain

From the above analyses of value chain maps, information about sericulture market collected from different levels (see Annex 5 - a,b,c,d - for some market information), the potentially feasible solutions to address above-mentioned constraints were worked out. The following possible strategic solutions were proposed:

1. Pushing the local authorities to give more supporting policies on development of the sub sector;
2. Providing technical training on mulberry cultivation and silkworm raising;
3. Increasing land area for mulberry cultivation;
4. Using high productive mulberry sapling;
5. Clear plan for mulberry cultivation land;
6. Increasing capacity of the processing unit in the local;
7. Training workers in the processing unit;
8. Selecting and testing silkworm eggs before use;
9. Updating information on new silkworm eggs types;
10. Establishing sericulture associations;
11. Accessing to different market information sources;
12. Providing capital for farmers to expand mulberry cultivation;
13. Establishing sericulture (mainly mulberry sapling) incubators;
14. Organizing study tours for farmers to other provinces;
15. Supporting Tay Truc company in term of land renting with longer time;
16. Contracting cocoon price on market-based situation;
17. Pushing the awareness promotion for farmers to care of mulberry;
18. Testing mulberry tea production.

Among these solutions, seven most important solutions were prioritized as follows:

1. Providing technical training on mulberry cultivation and silkworm raising:

Organization of TOT for key farmers, extensive farmers on mulberry cultivation and silkworm raising with technical assistances from the SMNR Project, University of Agriculture...; technical assistance on taking care of mulberry is needed to help farmers/households have higher productivity. This solution was given highest priority;

2. Selecting and testing silkworm eggs before use: Organization of testing activities with technical assistance from the local authorities and the SMNR Project; Keeping in touch with experts on availability on new silkworm eggs types;

3. Using high productive mulberry sapling: Selecting high productive sapling and keeping in touch with experts on availability on new mulberry saplings. Some high productive saplings such as Sa Nhi Luan is highly recommended;

4. Increasing land area for mulberry cultivation: Local authority needs to provide clear plan for mulberry cultivation areas in addition to strategy to change some traditional but

low productivity crops into mulberry, which has higher economic. Also, each household need to proactively to change land use from other crops to mulberry;

5. Supporting Tay Truc company in term of land renting with longer time: Currently this Company is allowed to rent land for 5 years period. This not help the Company invest in high technology and expand production. A 15-years land renting period is necessary for the Company to invest at long-term plan.

6. Establishing sericulture association: The association will help the sub sector access to market information and keep in touch with relevant agencies such as sericulture experts for new mulberry sapling and silkworm eggs types. The association will have technical assistance from different international technical projects (e.g. SMNR-CV). The role of the association would be:

- Involving in product quality control: making members highly commit in taking care of mulberry and silkworm rearing process;
- Consult farmers/households on appropriate harvesting techniques, adaptation of cultivation to the weather condition of Quang Binh;
- On behalf of members, collaborate with functional agencies and authorities to promote supporting policies, organizing technical training programs;
- Providing market information for members;
- Help farmers/households mobilize funds and apply for credit loans from banks and other credit organizations for development of the sub sector in the district.

7. Pushing the local authorities to give more supporting policies on development of the sub sector: providing financial and technical assistance to farmers. The most important role of local authority is to guarantee clean environment for mulberry cultivation areas by separating other industrial development projects (such as cement or brick production...).

2.3 “Value Chain” Workshop

2.3.1- Objectives:

After information and data of sericulture were preliminarily analyzed (Value Chain analysis) by the Project’s consultant and staffs, a workshop was then organized with the participation of stakeholders further analyze and validate the preliminary results. Objective of the workshop is to share information, enhance the systematic understanding of all Value Chain links, role and relation of the stakeholders through which to encourage their participation and discussion for additional information as well as agreement upon related strategies, solutions and plans supportive for the Value Chain of sericulture.

2.3.2- Participants, time and venue:

To achieve intended objectives, invited participants include stakeholders’ representatives of the sericulture Value Chain in Tuyen Hoa district: 18 representatives from 6 communes (3 for each commune, in which one from commune people committee, one commune extension official and one farmer); 4 staffs from the district Economic Division; one person from extension unit; 1 staffs from the district Environment and Land Division; one representative from ADB project; one from Tay Truc Enterprise; 5 people from the SMNR-CV project and one professor from University of Agriculture, who conducted the market research on the sericulture sub sector in Quang Binh. Total number of participants was 31 (see Annex 1 for list of participants).

The workshop was held on 02-03/03/2006 (one and half days) at Dong Le town, Tuyen Hoa district. The major contents of the workshop include:

- 1) *Introduction of Value Chain (Theory and Methodology)*
- 2) *Introduction of the methodology and criteria in selection of Value Chain of Sericulture, presentation on Sericulture Value Chain Map.*
- 3) *Discussion on the Sericulture Value Chain Map (both functions and actors).*
- 4) *Presentation and discussion on sericulture market information at various levels*
- 5) *Identifying constraints and opportunities of the sub sector;*
- 6) *Working out solutions and prioritizing the solutions;*
- 7) *Formulation of action plan for development of Sericulture Value Chain in Tuyen Hoa district.*

The workshop was moderated by SMNR-CV project's consultant and staffs through presentations on Power Point, group discussion and feedbacks (see Annex 2 for the workshop detailed schedule).

2.3.3- Workshop results:

Based upon preliminary analyses made by the Project's consultant and staffs, the participants were guided to discuss on the value chain analysis, identifying opportunities and major constraints for the development of the sub sector. Under facilitation of the Project's consultant and staffs, participants worked out the strategic solutions and prioritized them in most important sequence. Action plans for each solution were then developed.

The participants were divided into groups to discuss on action plan for each solution as presented in the table below.

ACTION PLAN:

No	Solutions/Activities	Implemented by	Time	Inputs	Related agencies
1	<p><i>Providing technical training on mulberry cultivation and silkworm raising:</i></p> <p>Organization of TOT for key farmers, extensive farmers on mulberry cultivation and silkworm raising with technical assistances from local authorities, the SMNR Project and experts from related bodies at central level</p>	<ul style="list-style-type: none"> - Commune extension units - SMNR-CV project - Farmers/ households 	Annually in February and March	<ul style="list-style-type: none"> - Training manual; - Trainers and training cost 	<ul style="list-style-type: none"> - Economic Division - Commune people committees - District extension units - University of Agriculture
2	<p><i>Selecting and testing silkworm eggs before use:</i></p> <p>Searching for good and productive silkworm eggs;</p> <p>Organization of testing activities with technical assistance from the local authorities and the SMNR Project;</p> <p>Keeping in touch with experts on availability on new silkworm eggs types.</p>	<ul style="list-style-type: none"> - Extension units at different levels - Tay Truc company - Farmers/ households 	<p>Before January every year</p> <p>Continual basis</p>	<ul style="list-style-type: none"> - Selection guidelines - Testing equipment <p>Information</p>	<ul style="list-style-type: none"> - Economic Division - Commune people committees - SMNR-CV project - Technical experts from University of Agriculture
3	<p><i>Using high productive mulberry saplings:</i></p> <p>Revitalizing the mulberry cultivation areas with low productivity</p> <p>Seeking for and using high productive saplings, e.g. Sa Nhi Luan;</p> <p>Keeping in touch with experts on availability on new mulberry saplings;</p> <p>Establishing mulberry incubators</p>	<ul style="list-style-type: none"> - Households/ farmers - Sericulture association 	<p>From late August 06 to January 07</p> <p>Continual basis</p> <p>October every year</p>	<p>Mulberry saplings</p> <p>Saplings, fertilizers, Cultivation technique</p>	<ul style="list-style-type: none"> - Extension units - Economic Division - Commune people committees - SMNR-CV project - Other projects (ADB)

4	<p>Increasing land area for mulberry cultivation:</p> <p>Encouraging farmers to focus on mulberry cultivation by indicating the benefits and economics of the sub sector in the local;</p> <p>Changing cultivation practice - from other crops to mulberry;</p> <p>Local authority provides clear plan for mulberry cultivation areas</p> <p>Technical training for mulberry cultivation extension</p>	<ul style="list-style-type: none"> - Communes people committees - Extension units - Farmers - Communes & District people committees 	<p>Annual basis, started from March 06</p> <p>Every year</p>	<p>Lands, mulberry saplings, silkworm eggs,</p> <p>Technical manual</p> <p>Land planning assessments</p>	<ul style="list-style-type: none"> - Economic Division - Provincial people committee - TA projects such as ADB, SMNR... - Technical experts
5	<p>Supporting Tay Truc company in term of land renting with longer time:</p> <p>A 10 to 15-years land renting period is necessary for the Company to invest at long-term plan so Tay Truc has to officially (written form) commit on investment plan upon request of land renting</p> <p>Pushing the Provincial People Committee to approve the requested longer time for land rent</p> <p>Issuing the final renting decision by provincial people committee</p>	<ul style="list-style-type: none"> - Tay Truc company - Tuyen Hoa people committee - Provincial people committee 	<p>March 06</p> <p>March - June 06</p> <p>By October 06</p>	<p>Written commitment from the company</p> <p>Allocate the land areas</p>	<p>Local authorities include people committee, Economic Division, Environment & Land Division</p>
6	<p>Establishing sericulture association:</p> <p>Establishing lobbying committee - meeting with stakeholders to agree on the foundation of the association;</p> <p>Drafting association regulations;</p>	<p>SMNR project and district authority and key farmers/</p>	<p>Starting from June 06</p>	<p>Lobbying fee</p> <p>Meeting and other</p>	<p>Economic Division, extension units</p>

	Encouraging members to join the association; Seeking for market information.	households		preparation costs	
7	<p><i>Pushing the local authorities to give more supporting policies on development of the sub sector:</i></p> <p>Providing financial and technical assistance to farmers in short term;</p> <p>Providing market information and contracting negotiations;</p> <p>The most important role of local authority is to guarantee clean environment for mulberry cultivation areas by separating other industrial development projects (such as cement or brick production...) and perform regular environmental checks;</p> <p>Clarifying and approving policies for land renting to help local enterprise invest long-term for the development of sericulture;</p> <p>Assisting in technical training for key farmers and extension units;</p> <p>Assisting in establishment of local sericulture association</p>	<p>District people committee</p> <p>Commune people committee</p> <p>Environment & Land Division; district people committee</p> <p>Provincial people committee</p> <p>Commune people committees</p>	<p>1-2 years for communes new entrant to the sub sector</p> <p>One check per month</p> <p>October 06</p> <p>Annual basis</p>	<p>VND 5000 per egg circle; 50-75% financial support for mulberry saplings;</p> <p>Checking equipment</p> <p>VND 80 millions from district people committee</p> <p>VND 5 mil equipment</p>	<p>ADB project</p> <p>SMNR project</p> <p>SMNR project</p>

ANNEX 1: LIST OF PARTICIPANTS VALUE CHAIN WORKSHOP IN TUYEN HOA
Dong Le Town, March 02-03, 2006

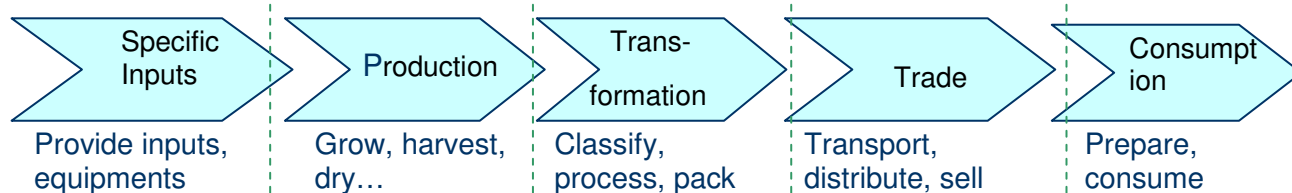
No	Name	Organization
1.	Mr. Nguyễn Tri Phương	Economic Division
2.	Ms. Nguyễn Thị Oanh	Economic Division
3.	Ms. Nguyễn Thị Kim Anh	Economic Division
4.	Mr. Bùi Văn Minh	Environment & Land Division
5.	Ms. Nguyễn Thị Lương	Thạch Hoá Commune
6.	Ms. Hà Thị Liên	Thạch Hoá Commune
7.	Ms. Nguyễn Thị Hạnh	Đức Hoá Commune
8.	Mr. Cao Văn Thức	Thạch Hoá Commune
9.	Mr. Hồ Quý Ly	Phong Hoá Commune
10.	Ms. Nguyễn Thị Thu Hà	Mai Hoá Commune
11.	Mr. Trần Ngọc Tuyên	ADB Project
12.	Mr. Tô Ngọc Hồng	Mai Hoá Commune
13.	Mr. Hoàng Lý	Mai Hoá Commune
14.	Ms. Mai Thị Lập	Thanh Hoá Commune
15.	Mr. Thái Bình Ngọc	Thanh Hoá Commune
16.	Mr. Nguyễn Hữu Tương	Thanh Hoá Commune
17.	Mr. Hồ Xuân Huyền	Phong Hoá Commune
18.	Mr. Cao Xuân Thiết	Phong Hoá Commune
19.	Mr. Đinh Xuân Hanh	Đức Hoá Commune
20.	Mr. Trần Xuân Vân	Đức Hoá Commune
21.	Mr. Hoàng Thanh Đới	Châu Hoá Commune
22.	Mr. Phạm Đức Hoài	Tây Trúc Company
23.	Mr. Hoàng Đức Hoàn	Châu Hoá Commune
24.	Mr. Phan Xuân Dân	Châu Hoá Commune
25.	Mr. Mai Văn Thiệu	Economic Division
26.	Mr. Đoàn Quyết Thắng	Extension Unit
27.	Mr. Trang Hiếu Tường	SMNR-CV Project
28.	Mr. Đoàn Ngọc Lương	SMNR-CV Project
29.	Mr. J.H.Wiemer	SMNR-CV Project
30.	Mr. Trần Ngọc Lan	SMNR-CV Project
31.	Ms. Marianne Meijboom	SMNR-CV Project

**ANNEX 2: AGENDA OF WORKSHOP ON VALUE CHAIN ANALYSIS
FOR PROMOTION OF SERICULTURE IN TUYEN HOA DISTRICT
Dongle, 02 to 03 March, 2006**

Start	End	Duration	Contents	Moderator
7:30	7:45	0:15	Opening words	Mr. Wiemer
7:45	7:55	0:10	Workshop agenda and objectives	Mr. Tuong
7:55	8:15	0:20	Introduction to Value Chain concepts	Mr. Thanh
8:15	8:30	0:15	Presentation of background and selection process of Sericulture for application of Value Chain approach, preliminary chain mappings at micro level.	Mr. Tuong
8:30	8:40	0:10	Divide in 03 groups and how to use color cards	Mr. Tuong & Mr. Thanh
8:40	9:40	1:00	Groups build up chain mapping of functional schemes at micro level.	Mr. Thanh, Mr. Tuong,
9:40	9:55	0:15	Break	
9:55	10:10	0:15	Representatives of groups present results of group discussion	Mr. Thanh
10:10	11:10	1:00	Groups build up chain mapping of actors schemes at micro level.	Mr. Wiemer, Mr. Thanh, Mr. Tuong
11:10	11:25	0:15	Representatives of groups present results of group discussion	Mr. Tuong, Mr. Thanh
11:25	11:35	0:10	Summarize morning session	Mr. Tuong
11:35	13:35	2:00	Lunch	
13:35	13:55	0:20	Present and feed up information, data of Viet Nam Sericulture sub-sector at different levels (Obvious situation, markets and consumptions, institutional status, interrelationship, constraints and opportunities)	Mr. Thanh
13:55	14:35	0:40	Groups prepare and analyze chain mapping at mezzo and macro levels	Mr. Tuong
14:35	14:45	0:10	Representatives of groups present results of group discussion	Representatives of groups
14:45	14:55	0:10	Gather and review results of chain mapping and analysis at different levels	Mr. Thanh
14:55	15:10	0:15	Break	
15:10	15:30	0:20	Gather and agree on constraints and opportunities of sericulture sub-sector in Tuyenhoa District	Mr. Tuong
15:30	16:15	0:45	Groups discuss and work out strategic solutions to address identified constraints and opportunities	Mr. Thanh
16:15	16:25	0:10	Representatives of groups present proposed solutions	Mr. Tuong
16:25	16:35	0:10	Review the main contents and results of the first day Workshop	Mr. Thanh

03/3/2006				
7:30	7:40	0:10	Review the proposed strategic solutions	Mr. Thanh
7:40	7:55	0:15	Guide groups to prioritize solutions	Mr. Tuong
7:55	8:35	0:40	Groups prioritize and stratify identified solutions	Mr. Tuong, Mr. Thanh, Mr. Wiemer
8:35	8:50	0:15	Representatives of groups present results of stratification of solutions	Mr. Tuong, Mr. Thanh
8:50	9:05	0:15	Break	
9:05	9:15	0:10	Guide how to prepare action plans	Mr. Tuong
9:15	10:05	0:50	Groups elaborate action plans according to solution prioritized	Mr. Wiemer, Mr. Thanh, Mr. Tuong
10:05	10:20	0:15	Groups present results of action plans preparation	Representatives of groups
10:20	10:30	0:10	Representative of DPC comments on results of identified solutions and action plans	DPC leader
10:30	10:40	0:10	Wrapping up	Mr. Lan
10:40	10:50	0:10	Pictures taking	Whole participants

ANNEX 3-a: VALUE CHAIN MAPPING - FUNCTIONS



Mulberry Varieties:

+ Sa nhi luan, Bau trang, Chan vit (*Sa nhi luan has highest productivity while the others are old and have low productivity*)
 + Polluted mulberry leaves (*cocoon died when the leaves are polluted*)
 (*Mulberry plantation needs to have long term planning with specific intensive areas*)

Silkworm egg: Luong Quang 2 from China (*unofficial import without quality control*)

Fertilizer: Nitrogenous fertilizer, Phosphate fertilizer

Bamboo basket

Silkworm raising room: *Using the bed room!*

Mulberry Plantation

+ Soil Digging
 + Ground hole for mulberry planting (*Plantation techniques, cultivation in October and November - need new techniques of cultivation*)

+ Grass weeding, fertilizer, water (*lack of fertilizer*)

***Opportunities:** *Diversification of products, mulberry tea, wine made from fruit of mulberry*

Silkworm raising

+ Equipment sanitary
 + Egg care
 + Silkworm feeding with mulberry leaves
 + Turning into cocoon
 + Cocoon collection

*** Careful of cocoon disease in hot summer**

*** Silkworm raising season if from March to October**

Cocoon collection

+ Purchasing (*Private enterprises collect cocoon from the whole country - 80% of cocoon production are controlled by private sector.*)
Viseri can only buy 20% of the total cocoon

+ Cocoon drying
 + Storage
 + Cocoon classification

Reeling (raw silk production)

+ Cocoon
 + Reeling (manual or mechanical)
 + Drying
 + Silk classifying

Silk waste

+ collection of waste

*** In Tuyenhoa has only 1 cocoon buyers, also reeler and purchase price of cocoon is**

currently 12 - 15 thousands lower to national market

price?(insufficient working space, facilities but

opportunity can be automatic reeling system in future)

***Protectionism?**

*** Opportunity for rearers can be household manually operated reeling model with small motor by producing yellow cocoon**

Silk purchase

+ Transport (*Majority of the market are controlled by big traders -with around 100 private enterprises and 40-50 big traders to control the whole sub sector market*)

+ Classifying, (*according to quality of silk*)
 + silk storage
 + Packaging
 + Transport to weavers or to borders of China, Laos, and Cambodia for export purpose (*unofficial exporting ways*).

*** In Tuyenhoa the reeler sells silk to traders in Lamdong, Province (In direct export)**

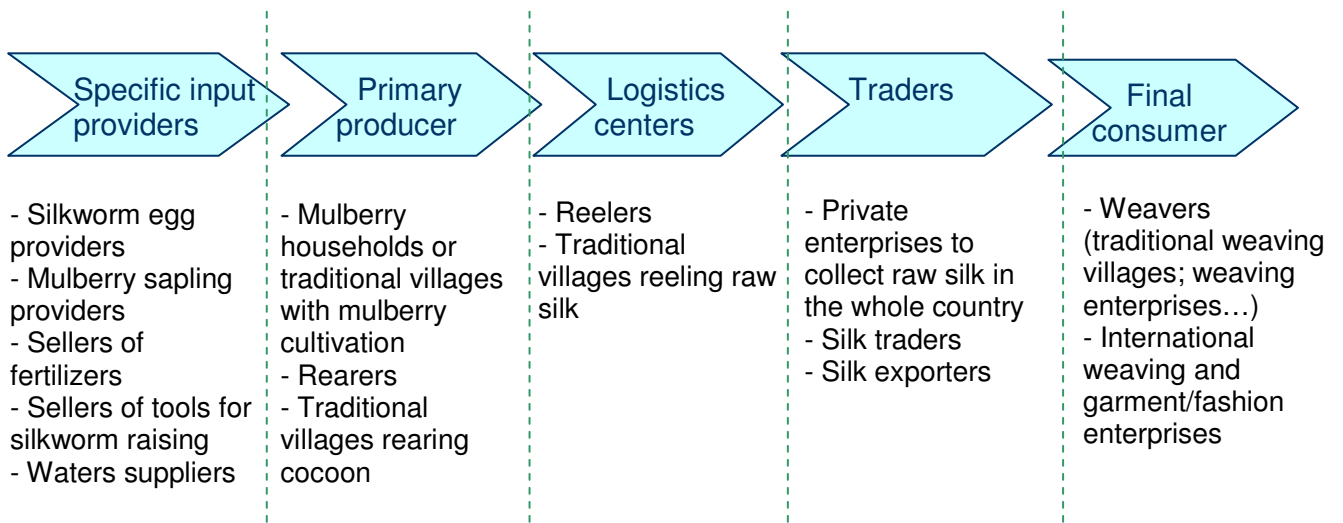
Domestic consumption (about 30% produced quantity of silk)

+ Raw silk used in weaving to produce silk fabrics
 + Silk used in producing handicraft, silk traditional products
 + Silk used in garment and fashion industry serving tourists

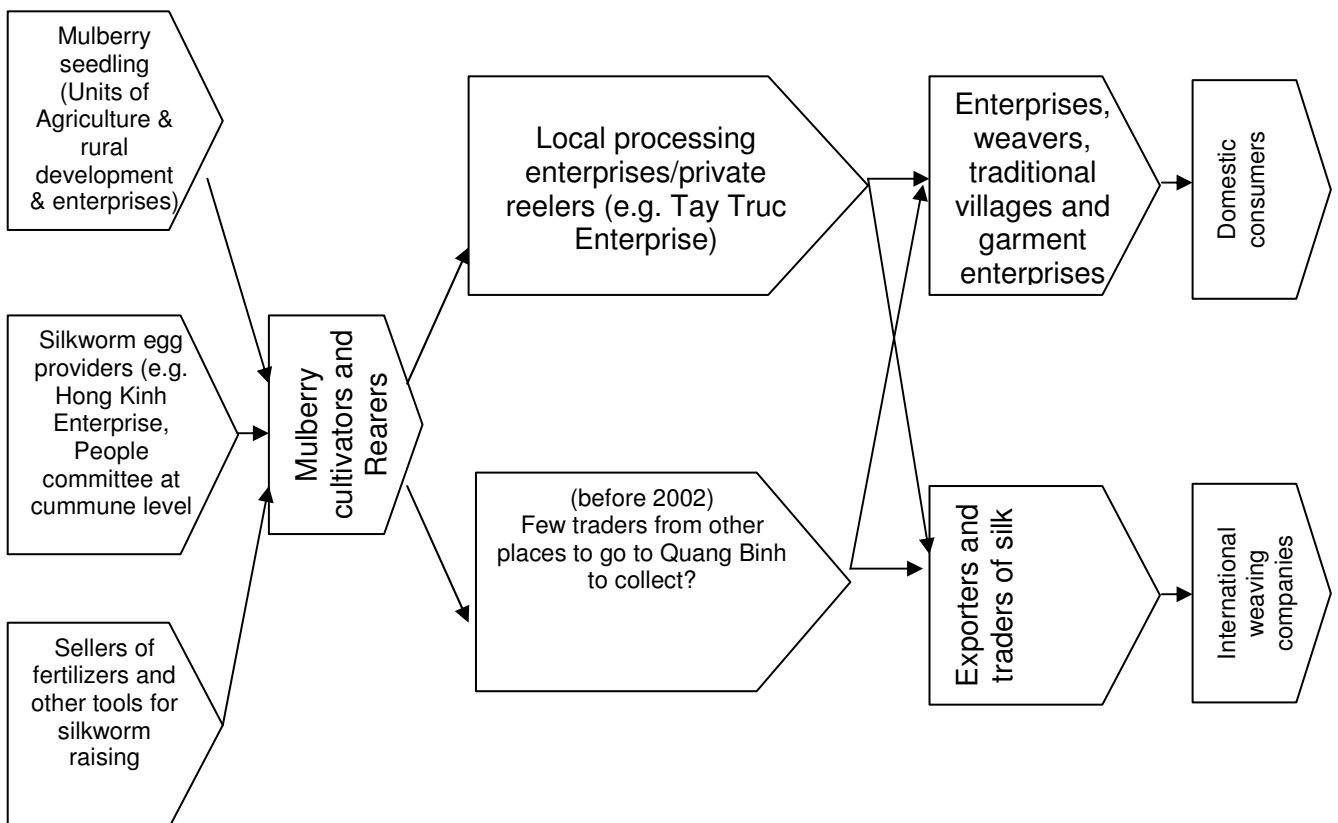
Export market (about 70% produced quantity of silk)

+ Exporting raw silk to Thailand, China, India, Bangladesh ... mainly through unofficial ways
 + Exporting silk yarn and fabrics to Thailand, Malaysia, and China...
 + Exporting silk wastes

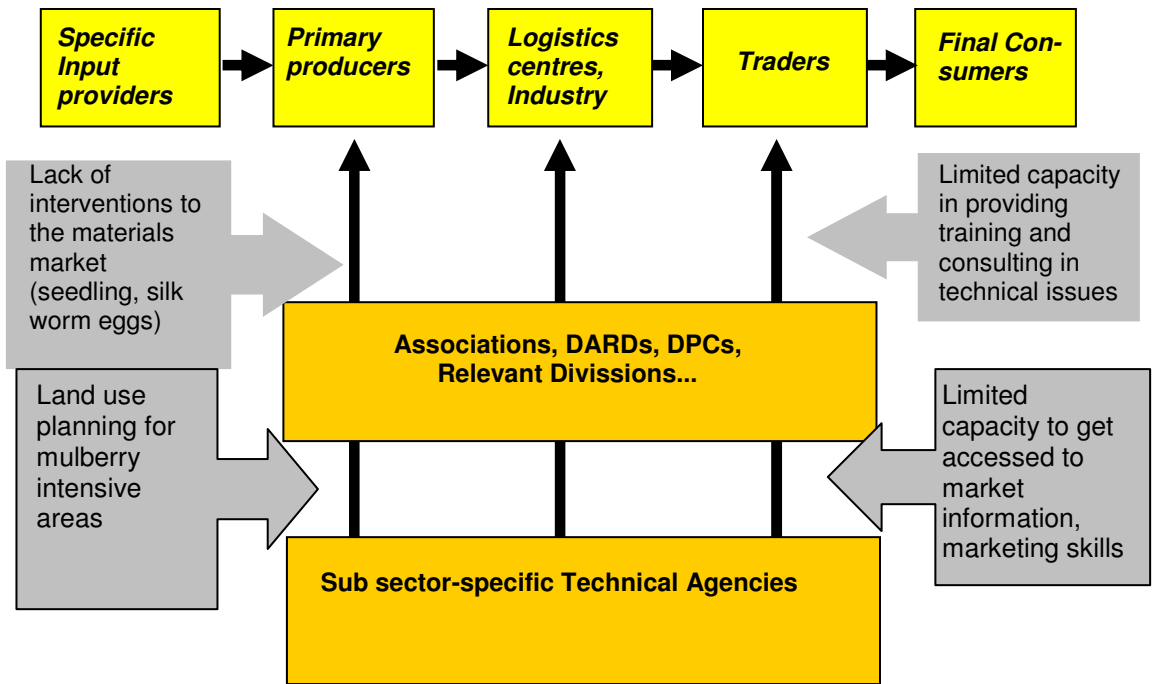
ANNEX 3-b: VALUE CHAIN MAPPING - ACTORS AT MICRO LEVEL



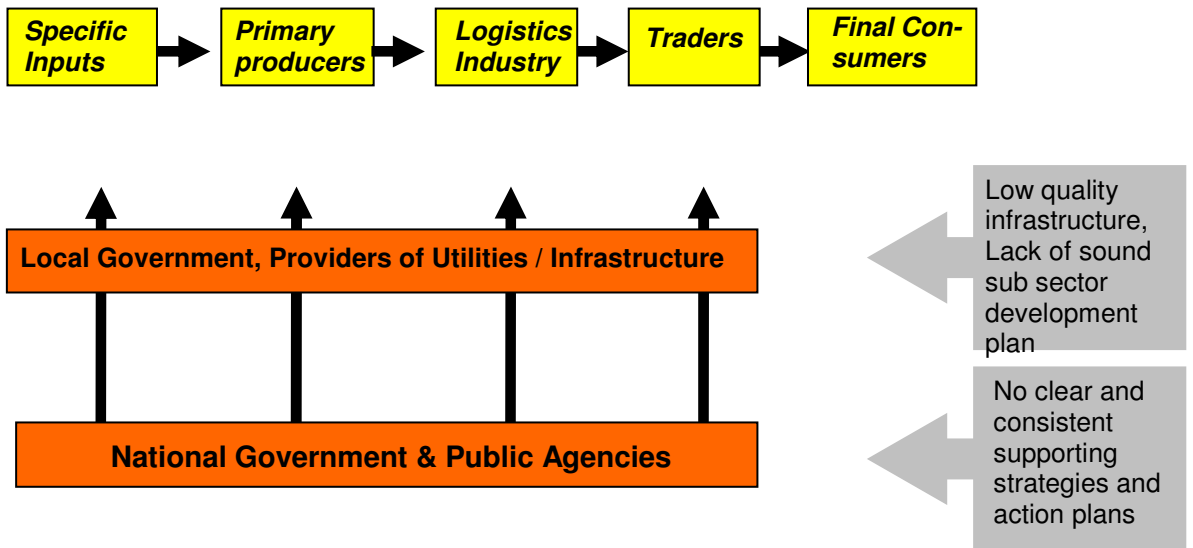
ANNEX 3-c: CIRCUIT OF THE CHAIN



ANNEX 3-d: VALUE CHAIN MAPPING – MESO LEVEL



ANNEX 3-e: VALUE CHAIN MAPPING – MACRO LEVEL



ANNEX 4: VALUE ADDITION ANALYSIS OF THE SUBSECTOR IN TUYEN HOA

The calculation of value addition is 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).

	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

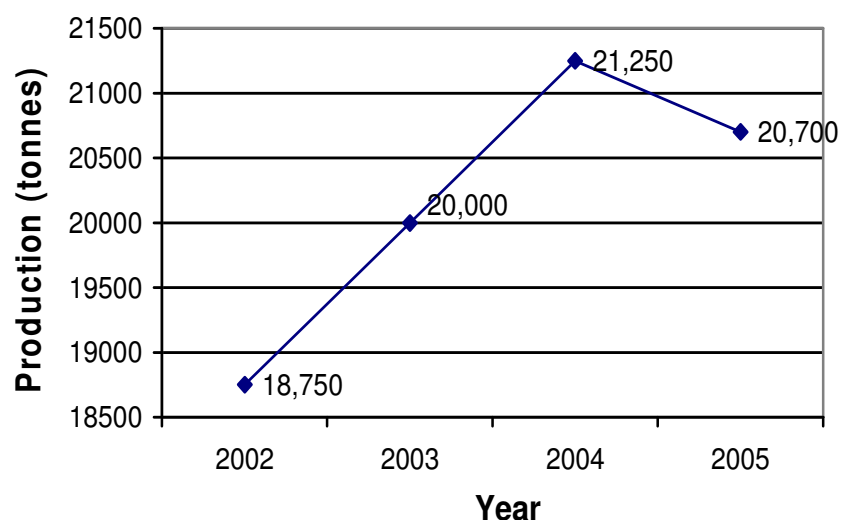
For Rearers:

- 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. 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 $\text{VND } 430,000 + \text{VND } 65,000 = \text{VND } 495,000$. Also cost will be amounted $(\text{VND } 249,000 + \text{VND } 12,000) = \text{VND } 261,000$.
- So, the value addition for reeling process in this case is $(495,000 - 261,000)/261,000 = 89.7\%$

ANNEX 5-a. TOTAL COCOON PRODUCTION IN VIETNAM FROM 2002-2005



Source: Vietnam Sericulture Corporation (VISERI)

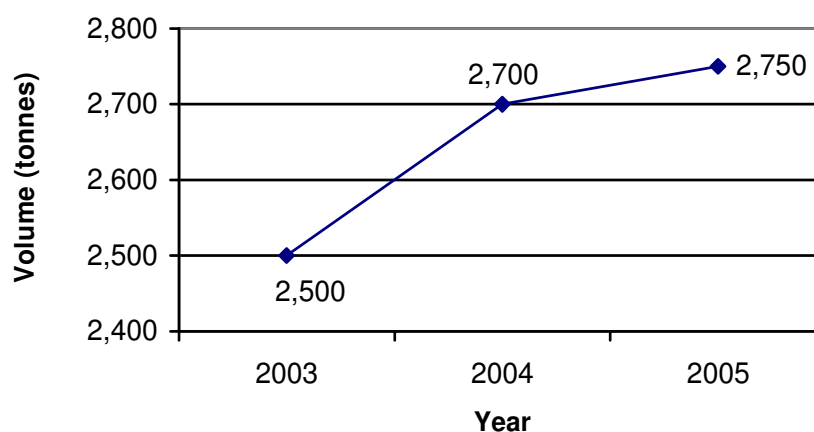
ANNEX 5-b. WORLD RAW SILK PRODUCTION

(unit: tones)

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	11704 2	125629	100

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

ANNEX 5-c. TOTAL VIETNAM EXPORT VOLUME OF RAW SILK 2003-2005



Source: Vietnam Sericulture Corporation (VISERI)

ANNEX 5-d. WORLD LEADING SILK IMPORTERS & EXPORTERS (unit: USD '000)

Stt	Importers	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	
Stt	Exporters	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	Romany		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)