

**IMPACT MONITORING REPORT**

**SURVEY ON ADDITIONAL INCOME  
GENERATED WITH THE VALUE CHAINS OF  
SERICULTURE AND PEPPER IN 2008**



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Dong Hoi, February 2009**

**ADDITIONAL INCOME OF HOUSEHOLDS GENERATED WITH THE VALUE CHAIN  
PROMOTION IN 2008**

**1. SURVEY SUMMARY**

Regarding the project impact indicator No.2 “In the intervention areas, the additional net income of households and small enterprises involved in the promotion of value chains increases by at least 10% annually”, the SMNR-CV project promoted two Value Chains in 2007. The Impact Monitoring Report implemented in 12/2007 shows that: (1) additional net income of households involved in the Promotion of Apiculture Value Chain increases by 12.36% (compared with the increase of 10% annually as planned). In 2008, one remarkable thing is that the Apiculture Associations were established and independently operational in the two districts (please refer to the Report on Apiculture Lessons Learnt Workshop implemented in 11/ 2008); (2) additional net income of sericulture households reached only 2.81% in 2007. The main reason is that natural calamity caused serious damage for sericulture households. It took at least 6 months for overcoming the damage as planned (please see the Report on Additional net income of households generated with the Value Chain Promotion in 12/ 2007). In order to reduce this damage, the project supported new plantation of 30ha high-yield mulberry which currently develop quite well.

In 2008, the project continued the support for the Sericulture Value Chain Promotion and selected Pepper Value Chain for promotion in Le Thuy. To develop a database for project fulfillment extent regarding the indicator No. 2, the PMB has agreed to conduct the impact monitoring of households involved in the promotion of Sericulture and Pepper Value Chain in 2008 (Impact monitoring report on Apiculture Value Chain is prepared separately and is not included in this report).

**1.1. Survey objective**

The survey aims at (1) evaluating impacts of households participating in the promotion of Sericulture and Pepper Value Chain in 2008 in comparison with the expected indicator that additional net income increases by 10% annually (2) raising out recommendations for the PMB to orient the promotion of Sericulture and Pepper Value Chain in 2009.

**1.2. Survey timeframe and scale**

- Scale: The survey was conducted from 09 to 25/12/2008 in communes with households involved in Sericulture and Pepper Value Chain Promotion.
- Participants: M&E staff, Value Chain Program officer, communal staff and beneficiaries group.
- Information collection from households participating in Value Chain Promotion
- Recommendations collection from communal staff and involving households

**1.3. Basic information for information collection**

**1.3.1. Questionnaire design**

The survey questionnaires were based on the survey objectives (regarding the indicator No.2). The main target of the survey is households which were applied with questionnaires used in the last survey in 12/2007 (easy for comparison and evaluation later). Notably, similar with the survey conducted in 12/2007, additional net income of households from sericulture and pepper was transformed into money terms at current market prices.

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Additional net income:  $(C) = (A) - (B)$ , of which:

- (C) : Additional net income from one sub-sector /VC
- (A): Total output
- (B): Total cost

## **1.3.2. Number of survey samples**

The sample number was identified in an identical way with that in 2007 for sericulture households. For pepper households, the sample number was selected by traditional method (covering 2-5% of the total number of households involved in the Value Chain Promotion) equivalent with 58 of interviewed households (see Annex on additional income from pepper).

## **1.4. Information collection and data analysis**

- Field implementation, interviews of households, communal staff/ village heads on short-term impacts of the Value Chain Promotion in 2008.
- Data entry and analysis was made in Exel in the project office
- Recommendations, observations

## **1.5. Limitations of the survey**

The survey was conducted only in households involved in the Value Chain Promotion in 2007 and 2008 with representative information provided by CPC leaders, village heads, staff of the Sericulture Associations, key staff of interest group of pepper households and observations of project staff. The information in this report is only representative but not general for impacts (although these impacts are short-term) of the project for households involved in the Value Chain in 2008. In addition, there are a lot of changes in the economy, high increase in inputs for production, and since the survey time is not in time with the market change, accuracy of input materials is only relative (can be accepted).

This report is based on information agreed among members of the survey group. It is internal with the aim at providing impact monitoring report for the PMB and sharing information with project technical staff for the better implementation in 2009.

## **2. SURVEY RESULTS**

### **2.1. Inputs/ supports of the project for Sericulture and Pepper Value Chain**

#### **2.1.1. Sericulture Value Chain (general information)**

In December 2007, the survey on sericulture households (85 households) was conducted in 6 communes in Tuyen Hoa district. The Impact Monitoring Report in 2007 shows that the additional net income of these households did not achieve the planned indicator (2,82%/ < 10% annually). The main reason is that sericulture households suffered serious damage caused by the natural calamity (it took 6 months for overcoming) in 2007. In 2008, the project implemented the rehabilitation of high-yield mulberry variety (VH-13) and supported fertilizers for these households to overcome the damage. The new plantation area of mulberry is 30ha. In addition, the project supported Tay Truc reeling factory to get its soon operation in buying cocoons for households.

To help households enhance techniques of silkworm and mulberry tending, seven training courses were organized for 240 households. The project also promoted to establish Tuyen Hoa Sericulture Association in which households and enterprises can share information in developing sericulture for next years. Under efforts of the project, local authorities and

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involving households, the damage caused by the natural calamity in 2007 were partially overcome leading to the stable production. It is planned that the survey on additional net income in 2008 will be conducted in households which participated in the last survey in 2007. In fact, only 70% of these households involved in this survey due to the fact that some of them are not present in the locality at the survey time. Therefore, the working group selected other households for replacement (data in this report is not the same as that in the report in 2007).

### 2.1.2. Additional income of sericulture households

In 2008, the additional income of sericulture households did not achieve the project indicator, (increase by 10% annually). Their additional income decreases by 22.03% compared with that of 2007 (See Table 1).

Table 1: Average additional income of households from Sericulture Value Chain Promotion in 2008

	In 2007			In 2008		
	Increase compared with 2006	Total sample	Tuyen Hoa	Total sample	Tuyen Hoa	Decrease compared with 2007
	%	VND		VND	VND	%
	(1)	(2)	3			
Average additional income from sericulture	2.81	1,659,323	1,659,323	1,157,769	1,157,769	- 22.03

The information collected from sericulture households indicates that the direct reason for the decrease of their income in 2008 is that:

- Harsh natural calamity (caused serious damage in 2007 as mentioned above) together with long cold weather early 2008 caused difficulties for households in investing in mulberry cultivation development.
- In 2008, Vietnam economy faced a lot of difficulties. At the survey time, price of input materials for sericulture like input for silkworm egg increases by 28.7% and for medicines for silkworm diseases by 3%. Meanwhile, cocoon price decreases by 8.5% (compared to 2007, see table 2).

Table 2: Input and output of sericulture in 2008

Comparison index	In 2007		In 2008		In crease (compared to 2007) (%)
	Price VND/ brood	7 egg rounds/ year	Price VND/ brood	7 egg rounds/ year	
Silkworm egg	35,000	245,000	45,000	315,000	28,7
Pesticide (silkworm disease treatment)	10,000	70,000	13,000	91,000	3,0
Silkworm cocoon price (kg)	35,000		32,000		- 8,5

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- Silkworm diseases occur a lot (according to households, these diseases are often found in the third round of silkworm above). As there are no medicines for treatment, it is difficult to prevent the diseases inspite of timely detection. Therefore, households can get complete loss when silkworms are infected with diseases.
- Households are not interested in mulberry plantation. At the survey time, many of them dig out and replaced mulberry plants with other trees providing more profit although it cost them 900,000- 100,000 VND for digging out 1 sao of mulberry (500m<sup>2</sup>). According to the report of Tuyen Hoa Sericulture Association, the current mulberry area in early 2008 decreases by 49%.

**Table 3: Mulberry area in communes in Tuyen Hoa district**

No.	Commune	Total area at the end of 2007 (ha)	New plantation area in 2008 (ha)	Total area of mulberry 1/2008 (ha)	Total area of mulberry 1/ 2009 (ha)
1	Tien Hoa	1.22		1.22	1.0
2	Chau Hoa	10.04	5.0	15.04	5.0
3	Mai Hoa	19.18	3.0	22.18	6.3
4	Phong Hoa	24.63	3.0	27.63	11.0
5	Duc Hoa	12.2	2.5	14.7	10.0
6	Thach Hoa	1.65	8.0	9.65	5.0
7	Dong Hoa	4.09	2.0	9.09	3.0
8	Thuan Hoa	3.6	1.5	5.1	3.5
9	Huong Hoa			2.5	2.5
10	Thanh Hoa	13.27	2.0	15.27	15.0
	<b>Total</b>	<b>89.87</b>	<b>29.5</b>	<b>119.87</b>	<b>62.3</b>

As mentioned above, in 2008 these households did not get profits from mulberry plantation (their additional income decreases by 22.03% compared to 2007). Meanwhile, peanut had good crop and was sold at high price. If they plant peanut at the same area with mulberry, their income from peanut can be 10-15 times higher than mulberry. That's why they are not interested in mulberry cultivation and replace with another plant.

### 2.2. Activities/ inputs for Pepper Value Chain

#### 2.2.1. General information for Pepper Value Chain

As defined in the output of the sub- work area No. 2b (Value Chain Promotion), the project conducted a survey and workshop on pepper in Quang Binh in 2008. In the workshop, the PMB agreed to select some of stages of the Pepper Value Chain for promotion in communes of Thai Thuy, Sen thuy, Van Thuy and Truong Thuy in Le Thuy district. Training courses on transferring techniques of pepper plantation, tending and harvesting were also conducted by the project, specifically:

- Techniques of pepper tending
- Techniques of fertilizer applying and pesticide spraying

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- Techniques of pepper harvesting and drying
- Study tour and experience sharing with traditional pepper cultivation regions in the south
- Establishment and partial support of budget (small credit fund) for pepper household group.

### 2.2.2. Additional net income of pepper households

In the total sample, the additional net income of surveyed pepper households in 2008 decreases by 3.26% compared to 2007 (see Table 4).

Table 4: Average additional income of pepper households

No.	Item	2007	2008	Increase/ decrease	% increase/ decrease
		Total sample	Total sample		
1	Average cost of pepper households	3,149,767 VND	3,368,241 VND	+ 2,184,74	7%
2	Dry pepper yield	198 kg	221 kg	+23	11.6%
3	Average price (VND/kg)	53,800 VND	48,121 VND	- 4,950	-9%
4	Total average amount	11,515,700 VND	10,469,552 VND	- 1,046,148	
5	Net income	6,917,627	7,101,310	- 58,198	-3.26%

Note: (+) increase; (-) decrease

The reason for this decrease is that the input price is changeable and average input cost increases by 7% while output price of dry pepper decreases by 9% averagely. In addition, the project impacts are still short-term (mainly focus on activities of the second and third quarter in 2008) while pepper plants blossom in 09/ 2007 and have fruits in the first quarter in 2008). As a result, it is not enough time for evaluating positive changes after households apply techniques into pepper tending. These changes are only found in 07/ 2009.

### 2.2.3. Short-term impacts of Pepper Value Chain Promotion

Positive impact created by the pepper value chain is to change awareness and traditional method of pepper cultivation of involving households, especially changes in weed clearance, fertilizer application and re-usage of diseased supports.

According to surveyed households, before participating in the Value Chain, they usually use tools for production and weed clearance to cover pepper stumps (these tools hurt pepper roots) as well as re-use supports of dead pepper plants for new plantation (this makes pepper plants easy to get diseases due to alive larva). Through training courses, households find that the above method will hurt pepper roots and larva with disease will come into pepper plants and cause disease for pepper roots. Households have currently applied trained techniques of pepper tending.

Pilot pepper cultivation models and households' application of new techniques of pepper tending has produced good effects. Observations of pepper gardens and information provided by interviewed households shows that pepper plants develop well with longer bunches of fruits; pepper flowers offer more fruits (compared to the last year). Unless there is no mutation pepper productivity and income of households will be higher.

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Credit fund of pepper household groups operates quite effectively (the credit fund includes 100,000 VND from contribution of membership households and 300,000 VND from the project support). At the survey time, this fund is used up for offering loan with the interest of 1.5% per month for households (have enough conditions as regulated) to buy fertilizers for pepper tending.

### **3. RECOMMENDATIONS**

The monitoring and evaluation of impacts (short-term impacts) of the Sericulture and Pepper Value Chain in 2008 related to the indicator No. 2 “In the intervention areas, the additional net income of households and small enterprises involved in the promotion of value chains increases by at least 10% annually” indicates that although this indicator only reflects calculation of the income increase of households involved in the promotion of value chains, sustainability and popularity of one sub-sector is still important. As mentioned above, households participating in the promotion of sericulture value chain tend to not invest or even dig out their current mulberry area for more effective cultivation of another plant. It is necessary to have closed collaboration among the local authority, Tuyen Hoa Sericulture Association and households involved in the sericulture value chain promotion to find out measures for maintenance of the current mulberry area, overcoming short-term difficulties and long orientation for the sericulture. In addition, the project should have necessary activities to help sericulture households lower initial difficulties so that they feel safe in sustainable production. Specific activities can be seen as follows:

1. To maintain and develop sericulture, the project should verify and support households from one or two silkworm egg rounds uninfected with diseases (supported households have to sign the commitment with the local authority, Sericulture Association and the SMNR-CV project to maintain their current mulberry area) so that they feel safe in maintaining the mulberry area. In addition, the project should support the Sericulture Association to self-find inputs (qualified silkworm eggs) and outputs of cocoon products for households in 2009.
2. The project, in collaboration with breeding silkworm production centers, agricultural extension centers at provincial and district level to help households find out causes of silkworm diseases as well as medicines for treatment so that households feel safe in production.
3. For the credit fund of pepper household group, it is necessary to consider and lower loan interest suitably (refer to preference interest of the Bank for Social Policy) to stimulate production and reduce risk of loan payment for households (all households claim that loan interest of 1.5% per month is quite high)
4. The project should support the Sericulture Associations and pepper household group in updating information on market price of silkworm cocoons, dry pepper, especially medicine supply sources for pepper disease treatment including production place, usage time and impacts on ecological environment.

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**ANNEX 1: Pepper Income Survey**

**Table 1: General information of survey respondents**

No.	Commune	Village	Name of houseowner	No. of hhs members	No. of members at working age	Year of plantation	Place of pepper farm (Dummy 1: garden; 0: other)	Total pepper shrubs	Total pepper shrubs in yield stage
1	Sen Thuy	Sen Dong	Le Xuan Hao	2	1	2,004	1	390	280
2	Sen Thuy	Sen Dong	Hoang Thi La	5	2	1,999	1	680	350
3	Sen Thuy	Sen Thuong 1	Le Quang Minh	7	2	1,998	1	350	150
4	Sen Thuy	Sen Dong	Hoang Thai Cho	5	4	2,002	1	600	500
5	Sen Thuy	Sen Thuong 1	Le Quang Hoan	3	2	2,001	1	150	60
6	Sen Thuy	Sen Thuong 1	Hoang Sy Luc	5	2	2,000	1	150	150
7	Sen Thuy	Sen Thuong 1	Hoang Sy Loc	4	2	2,001	1	100	70
8	Sen Thuy	Sen Thuong 1	Dinh Duy Thanh	4	2	2,002	1	100	40
9	Sen Thuy	Sen Thuong 1	Du-ng Huu Thien	7	4	1,999	1	60	60

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10	Sen Thuy	Sen Thuong 1	Le Quang Duong	5	3	2,000	1	50	30
11	Sen Thuy	Sen Thuong 1	Hoang Sy Synh	5	2	1,999	1	500	200
12	Sen Thuy	Sen Thuong 1	Hoang Sy Suong	6	5	1,993	1	80	50
13	Sen Thuy	Sen Thuong 1	Le Quang Hoan	9	4	1,999	1	82	82
14	Sen Thuy	Sen Thuong 1	Hoang Sy Sanh	8	2	1,998	1	70	50
15	Sen Thuy	Xom Phuong	Le Quang Canh	5	3	1,999	1	750	600
16	Sen Thuy	Xom Phuong	Le Quang Thuy	6	2	2,003	1	450	400
17	Sen Thuy	Sen Thuong 1	Le Thi Hue	3	1	1,996	1	140	70
18	Sen Thuy	Sen Thuong 1	Le Thi Ly	4	2	1,998	1	300	150
19	Thai Thuy	Thai Son	Tran Dang Viet	5	2	2,001	1	250	200
20	Thai Thuy	Thai Son	Nguyen Van Do	3	1	2,003	1	300	250
21	Thai Thuy	Thai Son	Tran Dang Quan	6	3	2,001	1	400	300
22	Thai Thuy	Thai Son	Tran Dang Xuyen	4	2	2,001	1	400	320
23	Thai Thuy	Thai Son	Le Thuong Tai	5	2	2,001	1	600	550

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24	Thai Thuy	Thai Son	Nguyen Thi Hanh	4	1	2,002	1	100	85
25	Thai Thuy	Thai Son	Nguyen Van Hoat	6	4	2,001	1	300	200
26	Thai Thuy	Thai Son	Tran Dang Nghi	6	4	2,002	1	350	350
27	Thai Thuy	Thai Son	Tran Dang Yen	6	3	2,000	1	600	500
28	Thai Thuy	Thai Son	Tran Thi Cuc	2	1	2,000	1	230	200
29	Thai Thuy	Thai Son	Nguyen Thai Loc	6	4	2,001	1	300	280
30	Thai Thuy	Thai Son	Tran Dang Dong	7	2	2,001	1	100	100
31	Thai Thuy	Thai Son	Nguyen Van Vui	3	2	2,002	1	305	250
32	Thai Thuy	Thai Son	Nguyen Van Hoi	5	2	2,001	1	150	90
33	Thai Thuy	Thai Son	Tran Dang Trinh	3	1	1,999	1	300	200
34	Thai Thuy	Thai Son	Tran Dang Quynh	4	2	2,002	1	450	350
35	Thai Thuy	Thai Son	Ngo Van Hai	4	3	1,996	1	700	500
36	Thai Thuy	Thai Son	Nguyen Van Dong	6	3	2,000	1	300	250
37	Thai Thuy	Thai Son	Tran Dang Quang	5	3	2,001	1	250	195

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38	Thai Thuy	Thai Son	Le Thi Hoa	2	1	2,002	1	150	130
39	Van Thuy	Van Minh	Nguyen Duc Ngoc	5	2	2,002	1	307	270
40	Van Thuy	Van Minh	Nguyen Thi Ly	5	2	1,998	1	250	220
41	Van Thuy	Van Minh	Do Van Hai	6	3	1,995	1	600	450
42	Van Thuy	Van Minh	Nguyen Van Sam	5	2	2,001	1	500	300
43	Van Thuy	Van Minh	Do Duy Quang	5	3	2,001	1	270	200
44	Van Thuy	Van Minh	Tran Ti Hue	4	2	2,002	1	450	250
45	Van Thuy	Van Minh	Cao Thanh Hoai	3	2	2,001	1	150	130
46	Van Thuy	Van Minh	Cao Tien	5	2	2,000	1	150	150
47	Van Thuy	Xuan Giang	Do Van Kynh	3	3	1,997	1	700	400
48	Van Thuy	Xuan Giang	Dinh Hai Let	5	2	2,004	1	800	650
49	Van Thuy	Xuan Giang	Le Dai Dong	4	3	1,992	1	700	700
50	Van Thuy	Xuan Giang	Phan Trong Dan	5	2	1,994	1	300	200
51	Van Thuy	Xuan Giang	Cao Xuan Ngac	4	2	2,000	1	450	450

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52	Van Thuy	Xuan Giang	Tran Xuan Hai	7	2	2,001	1	160	100
53	Van Thuy	Xuan Giang	Nguyen Ngoc Lam	3	2	2,002	1	105	105
54	Van Thuy	Xuan Giang	Le Van Nam	5	2	2,001	1	300	250
55	Van Thuy	Xuan Giang	Nguyen Tien Minh	3	1	1,999	1	300	200
56	Van Thuy	Xuan Giang	Nguyen Van Hanh	4	2	2,001	1	100	70
57	Van Thuy	Xuan Giang	Phan Thanh Chau	4	2	2,002	1	100	80
58	Van Thuy	Xuan Giang	Nguyen Thi Hai	7	4	1,999	1	260	220

**Table 2: Average costs for pepper plantation in 2007**

Commune	Cost for maintenance of pepper pole	Fertilizer cost	Other type of additive fertilizer	Cost for watering	Cost for pest and diseases medicines	Cost for small tools	Labor cost for tendering	Labor cost for harvesting	Labor cost for pre-processing	Total costs
<b>Sen Thuy</b>	1,125,000	1,067,500	39,000	69,000	14,500	74,500	842,000	623,000	114,000	2,509,722
<b>Tâi Thuy</b>	1,240,000	1,539,500	79,000	125,000	2,222	56,500	1,040,000	895,000	310,000	3,000,500
<b>Van Thuy</b>	2,700,000	2,142,000	93,000	801,000	64,000	60,800	2,480,000	1,150,000	325,000	3,641,650
<b>Average of whole sample</b>	1,688,333	1,583,000	70,333	331,667	27,759	63,933	1,454,000	889,333	249,667	3,069,276

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**Table 3: Average costs for pepper plantation in 2008**

Commune	Cost for maintenance of pepper pole	Cost for manure	Cost for NPK Fertilizer	Cost for other additive fertilizers	Cost for watering	Cost for pest and diseases medicines	Cost for small tools	Labor cost for tendering	Labor cost for harvesting	Labor cost for pre-processing	Total costs
<b>Sen Thuy Average</b>	607,143	251,667	494,444	139,500	271,111	30,000	143,333	817,778	281,111	137,778	2,635,278
<b>Thai Thuy Average</b>	650,000	538,421	310,000	162,000	137,000	65,000	115,500	1,485,000	455,000	198,500	3,638,000
<b>Van Thuy Average</b>	412,500	341,333	506,000	153,056	187,500	66,875	111,400	1,907,500	868,500	267,500	4,460,650
<b>Average of whole sample</b>	562,000	399,348	434,828	151,842	196,034	59,630	122,724	1,423,621	543,621	203,448	3,610,483

**Table 4: Average output volume, price and sale revenues of peppercorns of surveyed household in 2007 and 2008**

No	Commune	Average output in 2007	Average output in 2008	% change of outputs compared to 2007	Average selling price of peppercorn in 2007	Average selling price of peppercorn in 2008	% change of selling price compared to 2007	Average sale revenues of household in 2007	Average sale revenues of household in 2008	% change of sale revenues compared to 2007
1	<b>Sen Thuy</b>	110	162	47.27%	53,650	47,222	-11.98%	6,495,500	7,143,333	9.97%
2	<b>Thai Thuy</b>	244	250	2.46%	51,900	48,200	-7.13%	15,258,000	11,985,250	-21.45%
3	<b>Van Thuy</b>	241	246	2.07%	53,800	48,850	-9.20%	12,793,600	11,947,450	-6.61%
	<b>Average of whole sample</b>	198	221	11.62%	53,117	48,121	-9.41%	11,515,700	10,469,552	-9.08%

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**Table 5: Average net income in 2008 and difference in net income compared to 2007**

No.	Commune	Average net income from pepper in 2007	Average net income from pepper in 2008	Difference in net income of 2008 compared to 2007	% Difference in net income
1	Sen Thuy	3,691,000	4,508,056	817,056	22.14
2	Thai Thuy	11,290,000	8,347,250	-2,942,750	-26.07
3	Van Thuy	5,770,800	7,486,800	1,716,000	29.74
	<b>Average of whole sample</b>	6,917,267	6,859,069	-58,198	-0.84

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### ANNEX 2: Sericulture Income Survey

**Table 1: Number of family's member, labour, year of attendance and current plantation area.**

Communes	Number of member	Number of labour	Plantation area in 2006 (ha)	Plantation area in 2007 (ha)
<b>Dong Hoa Average</b>	4.00	2.00	0.08	0.08
<b>Duc Hoa Average</b>	5.30	2.40	0.10	0.10
<b>Chau Hoa Average</b>	4.13	2.00	0.07	0.07
<b>Mai Hoa Average</b>	4.40	2.40	0.10	0.10
<b>Phong Hoa Average</b>	3.80	2.10	0.10	0.09
<b>Thach Hoa Average</b>	5.30	2.30	0.10	0.10
<b>Thanh Hoa Average</b>	4.80	2.20	0.09	0.10
<b>Thuan Hoa Average</b>	4.40	2.20	0.09	0.08
<b>Grand Average</b>	4.55	2.21	0.09	0.09

**Table 2: List of households providing survey information for added income from sericulture in 2007.**

No.	Commune	Village	Name of household's head	No. of member	No. of labour	Plantation area in 2006 (ha)	Plantation area in 2007 (ha)	Member of Association (Yes = 1; No = 0)
1	Dong Hoa	Thuan Hoan	Nguyen Thi Binh	4	2	0.10	0.10	1
2	Dong Hoa	Thuan Hoan	Tran Van Lam	3	2	0.09	0.09	1
3	Dong Hoa	Thuan Hoan	Nguyen Thi Hai	4	2	0.07	0.08	1
4	Dong Hoa	Thuan Hoan	Tran Ngoc Bich	4	2	0.10	0.10	1
5	Dong Hoa	Thuan Hoan	Le Xuan Nam	4	2	0.08	0.08	1

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6	Dong Hoa	Thuan Hoan	Le Thanh Lam	4	2	0.06	0.06	1
7	Dong Hoa	Thuan Hoan	Nguyen Thi Chau	5	2	0.06	0.06	1
8	Duc Hoa	Phuc Tung 2	Doan Xuan Dao	6	3	0.10	0.10	1
9	Duc Hoa	Phuc Tung 2	Cao Xuan Vien	6	2	0.10	0.10	1
10	Duc Hoa	Phuc Tung 2	Nguyen Thi Thanh	5	2	0.09	0.09	1
11	Duc Hoa	Phuc Tung 2	Doan Xuan Loc	7	3	0.10	0.10	1
12	Duc Hoa	Phuc Tung 2	Doan Xuan Dao	4	2	0.10	0.10	1
13	Duc Hoa	Phuc Tung 2	Tran Duc Kinh	7	3	0.14	0.14	1
14	Duc Hoa	Phuc Tung 2	Doan Tra	5	2	0.14	0.14	1
15	Duc Hoa	Phuc Tung 2	Tran Xuan Van	6	3	0.07	0.07	1
16	Duc Hoa	Phuc Tung 2	Cao Thi Sy	3	2	0.10	0.10	1
17	Duc Hoa	Phuc Tung 2	Doan Van Luan	4	2	0.10	0.10	1
18	Chau Hoa	Kinh Chau	Hoang Duc Hoanh	4	2	0.10	0.10	1
19	Chau Hoa	Kinh Chau	Tran Hoa	4	2	0.08	0.08	1
20	Chau Hoa	Kinh Chau	Nguyen Thi Thanh	4	2	0.06	0.06	1
21	Chau Hoa	Kinh Chau	Tran Thi Nguyet	5	2	0.06	0.06	1
22	Chau Hoa	Kinh Chau	Pham Truong Xuan	4	2	0.05	0.05	1
23	Chau Hoa	Kinh Chau	Pham Thi Nuu	3	2	0.05	0.05	1
24	Chau Hoa	Kinh Chau	Nguyen Thi The	5	2	0.06	0.05	1
25	Chau Hoa	Kinh Chau	Le Van Tao	4	2	0.09	0.09	1
26	Mai Hoa	Xuan Hoa	Do Huy Tuu	4	3	0.10	0.10	1
27	Mai Hoa	Xuan Hoa	Tran Dinh Luyen	5	3	0.08	0.08	1
28	Mai Hoa	Tay Hoa	Ha Duc Thuan	4	2	0.10	0.10	1
29	Mai Hoa	Tay Hoa	Ha Dung	5	3	0.08	0.13	1
30	Mai Hoa	Dong Thuan	Ha Thi Nghia	3	2	0.05	0.05	1
31	Mai Hoa	Dong Thuan	Ha Van Dung	4	2	0.10	0.10	1

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32	Mai Hoa	Bac Hoa	Ha Sinh	4	2	0.10	0.10	1
33	Mai Hoa	Dong Hoa	Hoang Ly	6	3	0.20	0.20	1
34	Mai Hoa	Dong Hoa	Tran Huyen	4	2	0.08	0.08	1
35	Mai Hoa	Bac Hoa	Ha Van Dat	5	2	0.10	0.10	1
36	Phong Hoa	Cam Trang	Tran Thi Quyet	5	2	0.10	0.10	1
37	Phong Hoa	Ma Thuong	Doan Thi Thuong	5	3	0.15	0.15	1
38	Phong Hoa	Ma Thuong	Dao Anh Son	4	2	0.08	0.08	1
39	Phong Hoa	Cam Trang	Hoang Thanh Phong	3	2	0.10	0.10	1
40	Phong Hoa	Cam Trang	Ho Van Dieu	4	2	0.09	0.06	1
41	Phong Hoa	Cam Noi	Nguyen Thi Hien	3	2	0.10	0.10	1
42	Phong Hoa	Cam Noi	Pham Toa	3	2	0.07	0.07	1
43	Phong Hoa	Cam Noi	Ho Thi Hanh	4	2	0.10	0.10	1
44	Phong Hoa	Cao Trach	Tran Xuan Que	3	2	0.09	0.09	1
45	Phong Hoa	Ma Thuong	Le Van Lan	4	2	0.07	0.08	1
46	Thach Hoa	T5 Thiet Son	Nguyen Thi Binh	5	2	0.08	0.08	1
47	Thach Hoa	T5 Thiet Son	Tran Thi Hoe	6	3	0.06	0.06	1
48	Thach Hoa	T5 Thiet Son	Nguyen Thi Thuy	7	3	0.16	0.16	1
49	Thach Hoa	T5 Thiet Son	Tran Thi Hong	5	2	0.08	0.08	1
50	Thach Hoa	T5 Thiet Son	Tran Thi Huong	4	2	0.12	0.12	1
51	Thach Hoa	T5 Thiet Son	Nguyen Thi Thuy	6	2	0.10	0.10	1
52	Thach Hoa	T5 Thiet Son	Le Thi Thu	5	2	0.08	0.08	1
53	Thach Hoa	T5 Thiet Son	Nguyen Thi Xinh	6	3	0.08	0.08	1
54	Thach Hoa	T5 Thiet Son	Phan Thi Phung	5	2	0.13	0.13	1
55	Thach Hoa	T5 Thiet Son	Nguyen Thi Vinh	4	2	0.10	0.10	1
56	Thanh Hoa	Village 1	Nguyen Tien Binh	6	3	0.10	0.13	1
57	Thanh Hoa	Village 1	Le Viet Loc	4	2	0.06	0.06	1

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58	Thanh Hoa	Village 1	Dinh Thi Huong	5	2	0.09	0.12	1
59	Thanh Hoa	Village 1	Cao Thi Lieu	4	2	0.10	0.10	1
60	Thanh Hoa	Village 1	Tran Viet Tinh	5	2	0.14	0.14	1
61	Thanh Hoa	Village 1	Nguyen Thi Phuong	5	3	0.10	0.12	1
62	Thanh Hoa	Village 1	Pham Thi Gia	4	2	0.08	0.08	1
63	Thanh Hoa	Village 1	Hoang Thi Dong	5	2	0.10	0.10	1
64	Thanh Hoa	Village 1	Nguyen Thi Lieu	4	2	0.07	0.06	1
65	Thanh Hoa	Village 1	Nguyen Thi Mai	6	2	0.11	0.11	1
66	Thuan Hoa	Xuan Canh	Nguyen Ngoc Toan	4	2	0.10	0.10	1
67	Thuan Hoa	Xuan Canh	Le Thi Loan	3	2	0.09	0.09	1
68	Thuan Hoa	Xuan Canh	Nguyen Thi Giang	4	2	0.07	0.08	1
69	Thuan Hoa	Xuan Canh	Le Quang Vinh	4	3	0.10	0.10	1
70	Thuan Hoa	Xuan Canh	Le Van Nghia	5	3	0.08	0.08	1
71	Thuan Hoa	Xuan Canh	Tran Van Vinh	4	2	0.08	0.08	1
72	Thuan Hoa	Xuan Canh	Nguyen Thi Hoa	5	2	0.10	0.10	1
73	Thuan Hoa	Xuan Canh	Nguyen Thi Tam	4	2	0.07	0.06	1
74	Thuan Hoa	Xuan Canh	Phan Thi Hien	6	2	0.11	0.11	1
75	Thuan Hoa	Xuan Canh	Tran Thi Thom	5	2	0.06	0.05	1
1	Dong Hoa	Thuan Hoan	Nguyen Thi Binh	4	2	0.10	0.10	1
2	Dong Hoa	Thuan Hoan	Tran Van Lam	3	2	0.09	0.09	1
3	Dong Hoa	Thuan Hoan	Nguyen Thi Hai	4	2	0.07	0.08	1
4	Dong Hoa	Thuan Hoan	Tran Ngoc Bich	4	2	0.10	0.10	1
5	Dong Hoa	Thuan Hoan	Le Xuan Nam	4	2	0.08	0.08	1

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**Table 3: Volume and average income for years**

Commune	Volume gained in 2007 (kg)	Total income in 2007 (VND)	Volume gained in 2008 (kg)	Total income in 2008 (VND)
<b>Dong Hoa Average</b>	70.74	2,597,429	56	1,811,686
<b>Duc Hoa Average</b>	46.30	1,477,960	52	1,605,410
<b>Chau Hoa Average</b>	54.38	1,897,625	44	1,396,475
<b>Mai Hoa Average</b>	53.50	1,839,500	41	1,277,700
<b>Phong Hoa Average</b>	97.00	3,592,000	77	2,219,600
<b>Thach Hoa Average</b>	46.60	1,494,680	49	1,517,200
<b>Thanh Hoa Average</b>	66.00	2,418,000	71	2,265,600
<b>Thuan Hoa Average</b>	70.40	2,522,400	59	1,654,600
<b>Grand Average</b>	63.04	2,224,112	56	1,723,396

**Table 4: Average cost for mulberry planting and silkworm raising surveyed in 2007**

Communes	Silkworm variety	Cost for fertilizer	Medicine for silkworm disease	Production tool	Other cost	Labour cost	Total
<b>Dong Hoa</b>	190,857	0	78,571	52,857	42,857	242,857	608,000
<b>Duc Hoa</b>	181,200	0	0	51,500	0	203,000	435,700
<b>Chau Hoa</b>	160,750	12,500	48,750	42,500	25,000	212,500	505,750
<b>Mai Hoa</b>	230,300	0	24,500	42,500	58,000	239,000	594,300
<b>Phong Hoa</b>	245,600	0	88,100	63,015	58,000	283,000	737,715
<b>Thach Hoa</b>	205,400	0	0	47,000	0	217,500	469,900
<b>Thanh Hoa</b>	216,000	0	37,000	22,000	0	311,000	586,000
<b>Thuan Hoa</b>	215,600	0	47,000	43,500	22,000	254,000	582,100
<b>Grand</b>	207,507	1,333	38,747	45,402	25,067	246,333	564,789

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**Table 5: Average cost for mulberry planting and silkworm raising surveyed in 2008**

Communes	Silkworm variety	Cost for fertilizer	Medicine for silkworm disease	Production tool	Other cost	Labour cost	Total
<b>Dong Hoa</b>	215,714	0	57,143	38,571	25,714	192,857	530,000
<b>Duc Hoa</b>	222,000	0	0	46,000	0	232,000	500,000
<b>Chau Hoa</b>	159,375	10,000	35,000	35,000	22,500	190,000	451,875
<b>Mai Hoa</b>	191,100	0	19,000	26,500	16,000	186,000	438,600
<b>Phong Hoa</b>	295,500	0	92,000	64,000	52,000	266,500	770,000
<b>Thach Hoa</b>	234,000	0	0	53,000	0	239,000	526,000
<b>Thanh Hoa</b>	297,600	0	50,500	14,000	0	334,000	696,100
<b>Thuan Hoa</b>	262,500	0	46,500	25,000	7,000	238,000	579,000
<b>Grand</b>	237,493	1,067	36,800	37,800	14,800	237,667	565,627

**Table 5: Average net income of households involving in sericulture VC surveyed in 2008.**

Communes	2007 (VND)	2008 (VND)	Changes in net income against 2007 (VND)	Percentage of net income change (%)
<b>Dong Hoa</b>	1,989,429	1,281,686	-707,743	-33.79
<b>Duc Hoa</b>	1,042,260	1,105,410	63,150	13.00
<b>Chau Hoa</b>	1,391,875	944,600	-447,275	-30.21
<b>Mai Hoa</b>	1,245,200	839,100	-406,100	-30.30
<b>Phong Hoa</b>	2,854,285	1,449,600	-1,404,685	-47.41
<b>Thach Hoa</b>	1,024,780	991,200	-33,580	-1.08
<b>Thanh Hoa</b>	1,832,000	1,569,500	-262,500	-13.70
<b>Thuan Hoa</b>	1,940,300	1,075,600	-864,700	-37.89
<b>Grand</b>	1,659,323	1,157,769	-501,554	-22.03