

Techniques of Weaving Silk from Self-Woven Silkworms and Lotus Thread of Artisan Phan Thi Thuan in Phung Xa Craft Village, My Duc district, Ha Noi, Vietnam

Phi Thi Thu Hoang¹, Dao Thi Luu², Le Thi Hanh Lien³, Nguyen Thi Hai Yen⁴

Institute of Geography, Vietnam Academy of Science and Technology
18 Hoang Quoc Viet Road, Nghia Do, Cau Giay District, Ha Noi, Vietnam

Abstract: *Silk weaving is one of Vietnam's long-standing traditional crafts. With light, smooth, smooth, durable and beautiful characteristics, Vietnamese silk yarn has conquered many commodity markets in the world. Phung Xa village, My Duc district, Ha Noi has been famous for its profession in mulberry growing, silkworms raising, silk weaving, silk weaving, etc. The development of this traditional trade village has gone through many up and down periods. Up to now, besides the strong development of weaving towels, cotton towels, in the commune now, only My Duc Silk Company of artisan Phan Thi Thuan continues to work hard to preserve and develop silk weaving and especially accompanying weaving silk from lotus thread. With a complete production technology process, the products from weaving silk from self-woven silkworms and lotus thread here are all characteristic and unique. Domestic and international customers have interested these products. Especially with the technique of training itself silkworms to weave (i.e. for self-woven silkworms) by Phan Thi Thuan artisan has opened a new way in the traditional silk weaving occupations of our country. The development of these two occupations shows the continuous exploration, creativity, and dedication of artisans to the crafts in a competitive market economy.*

Keywords: silk weaving, weaving silk by lotus threads, self-woven silkworms, Phung Xa, craft village

1. Introduction

Phung Xa Commune is located along the Day River, in My Duc district, Hanoi. The commune has a natural area of 442.56 ha, of which agricultural land is 312.39 ha, non-agricultural land is 130.17 ha. Currently, the commune has 3 villages with a population of 8,712 people [1]. Phung Xa Commune's traditional weaving village is nearly 100 years old, originating from silkworms raising and silk weaving occupations through subsidized cooperatives. Up to now, most of the households here have turned to produce and process textiles and garments according to the market mechanism. Simultaneously, production households, companies, businesses have developed in this commune. This trade village was recognised as a traditional village by the State in 2001. In 2002, Phung Xa Traditional Textile Village Association was established. This is a motivation for the textile industry to grow, contributing to creating jobs for a large number of laborers, people's lives have been constantly improved, and the appearance of the village has changed. The traditional weaving village of Phung Xa commune was awarded the title "Typical Vietnam craft village 2011". [2]

Currently, the majority of households in the village mainly produce and trade in cotton towels. Out of 2,435 households, 2,190 households (90%) participated in the production of cotton towels. The scale of trade village is increasingly expanding; currently there are 40 companies and 50 production and business establishments. They create jobs for 5,000 local workers and 2,000 workers from other localities. The average income of employees is 3.5-5 million VND/person/month. Revenue from handicraft industry accounts for over 67% of the commune's total revenue,

helping to raise the commune's average income per capita to VND 39 million VND/ person/year. [3], [4]

Particularly, My Duc Silk Company, by Phan Thi Thuan artisan continues to work with silk weaving and especially accompanying weaving silk from lotus thread. Mrs. Thuan is considered to be one of the few artisans who still holding on silk weaving in Phung Xa. While mulberry growing and silkworm raising in many villages along the Day River underwent many up and down periods, she still preserves the development of this traditional profession and wishes to pass it on to future generations.

With enthusiasm and continuous creativity, she now owns the unique method of silk weaving, that is: Weaving silk itself, which means that, turning silkworms into a "craftsman" for weaving and she also develops weaving silk from lotus threads for the first time in Vietnam.

2. Material and Methods

1) Field trip

We had a field trip in artisan Phan Thi Thuan's factory. The address is Zone 13, Ha hamlet, Phung Xa commune, My Duc, Ha Noi.

2) Interview

In order to implement this article, we contacted the leaders of the People's Committee of Phung Xa Commune, My Duc District, Hanoi to understand the current status of socio-economic development of Phung Xa commune. Phung Xa traditional craft in recent years, development policies, preferential mechanisms and investment capital for development of Phung Xa traditional craft village, including

My Duc Silk Company by Thuan artisan. Next, we interviewed artisan Phan Thi Thuan about: History of Phung Xa traditional silk weaving village, stages of silk weaving process from self-woven silkworms and lotus threads, achievements after many years of dedication to weaving in Phung Xa, current difficulties and her expectations in the coming time.

In addition, we also interview the workers and labours who working in Mrs Thuan's workshop about difficulties in the process of making silk from fibril of silkworms and lotus threads.

3) Others

We consulted the following documents:

- Strategies, policies: Reports from the Ministry of Industry (2017), Ministry of Planning and Investment (2010) on mechanisms, policies and solutions for sustainable development of Vietnamese trade villages in the years recently.
- Phung Xa traditional trade village: Summary reports on production and business activities from the Phung Xa Traditional Textile Village Association, the socio-economic development reports of Phung Xa commune in 2017 and 2018.

3. Results and Discussion

3.1 Overview of development process and procedure of weaving silk from self-weaved silkworms and lotus threads of artisan Phan Thi Thuan

3.1.1. Overview of development process of weaving silk from self-weaved silkworms and lotus threads of artisan Phan Thi Thuan

Mudflats of Phung Xa village, My Duc district, Hanoi was formerly a large area for mulberry growing and silkworm raising. Through many up and down development periods, up to now, most of the households in Phung Xa village have turned to weaving cotton towels. Currently, only the My Duc Silk Company by Phan Thi Thuan artisan continues to preserve and develop the silk weaving from fibril of silkworms and lotus threads.

Table 1: Important timeline of weaving silk by self-weaved silkworms and lotus threads of artisan Phan Thi Thuan

Timeline	Sự kiện
Year 2010	Starting process of self-woven silkworms
Year 2012	Blankets by self-weaved silkworms appear first
Year 2014	Signification of Gold agriculture products of Vietnam General Council of Agriculture and Rural development
Year 2015	The First prize with innovative solutions for blankets from self-woven silkworms
Year 2016	Blankets from self-woven silkworms appeared in Yellow Book of Innovation of Vietnam
Year 2017	10 scarves from lotus threads
Year 2018	Training workers for weaving silk from lotus threads

Thuan artisan was born in the land of growing mulberry and raising silkworms, in the family, which has three generations for silk reeling and weaving. She has accumulated a wealth of experience, knowledge and expertise in each stage of silkworm raising and silk weaving. Therefore, she has created some unique products with high commercial value, such as blankets and scarves from self-woven silkworms and lotus threads.

3.2 Procedure of weaving silk from self-weaved silkworms and lotus threads of artisan Phan Thi Thuan

3.2.1. Procedure of weaving silk from self-weaved silkworms

Silk weaving itself means that place silkworms close together on a flat surface to let them release filament freely. Silkworms, which are raised for 20 days, can release filament in 3-4 days. In the fall, a yellow silkworm can release 400-450m of filament, while in the summer it is about 300m. Silkworms do not have nests, so they cannot pull round cocoons, but they still have to release filament instinctively. During this process, it is important to calculate the appropriate distance between silkworms for them to weave themselves without getting entangled. In addition, when silkworms themselves are weaving, they do not have cocoons to protect, so they need to be protected from wind, light, and noise affecting their weaving process. After about 3 to 4 days when the silkworm has released the entire filament, then a primary silk blanket is completed. After that, it undergoes a number of technical processes (boiling, cleaning, drying, ...) will become finished products for sale such as silk blankets, pillows, shirts, ... It can be said, this is a unique and innovative weaving technique for traditional Vietnamese silk weaving.

This self-weaving process has reduced many employees, complicated stages such as cocoon pulling; silk reeling ... So, that should bring high economic efficiency, contributing to raising incomes for workers in all stages. In mulberry growing areas, mulberry can grow from 3 to 5 months to be able to pick leaf for silkworms raising. In a year, there will be 2-3 months without strawberries, strawberry growers will take advantage of that time to take care of mulberry trees. Mulberry trees are planted after about 10-12 years, mulberry trees are replanted to ensure the quality of mulberry leaves when picking. One *sao* (1 *sao* = 360m²) of mulberry leaves can raise 20-30kg silkworm. Each kilogram of silkworm is sold for 50,000 VND. Every 20 days, farmers who raise silkworms will have an income of about 5 to 6 million VND. After silkworm release the entire filament, they will turn into pupae. Harvesting pupae for food processing also makes additional income for the labours. At present, weavers and tailors working for Thuan artisan can work at other factories or at home with weaving machines.

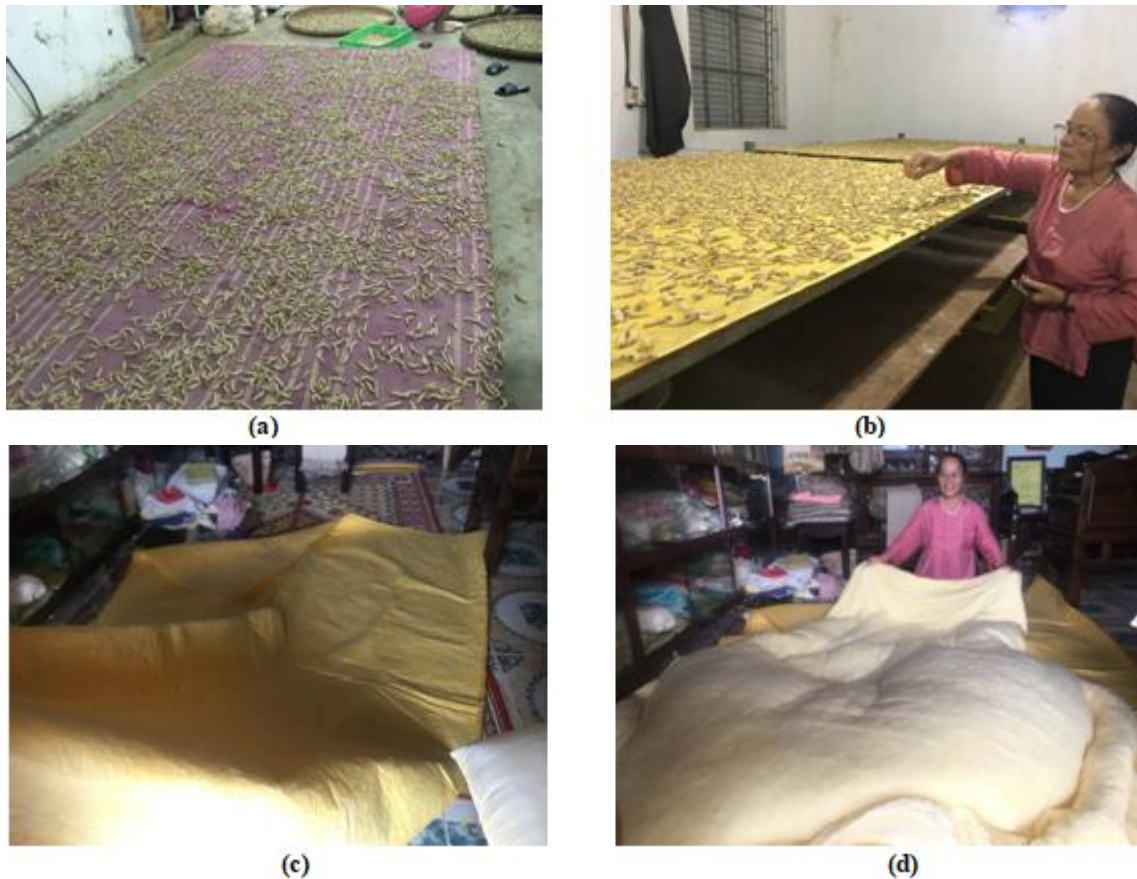


Figure 1: Images about procedure of self-woven silkworms

(a): Self-woven silkworms starts working; (b): Self-woven silkworms make yellow blanket; (c): Primary silk blanket and (d): Finished silk blanket

In 2012, Thuan artisan officially presented silk blankets made by self-woven silkworms and was registered for exclusive invention by Intellectual Property Office of Vietnam. In 2015, she was honored to be awarded the first prize by the Vietnam Farmers Association with the innovative solution "Silk-weaving blankets are made by self-woven silkworms' controller" in the 6th National Agricultural Technological Innovation Contest.

Currently, blankets from self-woven silkworms are sold in kilograms, each priced at 4 million VND. A blanket usually weighs about 2 kg of silk, plus the cost of finishing the product will cost between 12 and 14 million VND. As for silk shirt will cost from 3 to 4 million VND/unit.

Since this success, she has created many high quality products and domestic and foreign customers know them. Currently, they have been present in some countries such as Thailand, Japan, France, Germany, Belgium,

1.2.2. Procedure of weaving silk from lotus threads

Weaving silk from lotus threads was first appeared and developed in the KyaingKan (Chaing Kham) village of Myanmar in 1910. [6]

In 2017, in Vietnam, Phan Thi Thuan artisan was the first to succeed with weaving silk from lotus threads. The production of lotus silk goes through many complex stages and must be completely made manually. In particular, the process that takes a lot of time and effort, is the part of preparing lotus threads material for weaving.

The first step is to clean lotus stems after harvesting. Workers must clean the stalks by soaking them in a flooded tank and using a cloth to clean mud and spines. Then, the worker holds 4 to 5 lotus stems on a small table and uses a knife to cut around the lotus stem, separate them into small segments, drag these segment and twist fragile lotus filament into lotus threads. This process requires very skillful and meticulous workers so as not to break the lotus thread. To achieve the highest economic efficiency, labours harvest lotus stems old enough to ensure that both the largest amount of silk is collected and the flowers and seeds of the lotus plant are harvested. [6]

In order to create a standard-sized scarf measuring 1.7 meters long by 0.25 meters wide, the worker needed 4,800 lotus stems and conducted spinning for 10 days. The next stage is to put lotus thread into the improved silk weaving loom, then weaving. Products made from lotus silk are warm, light, soft, airy, with ave a specific lotus scent and much more beautiful than those from Myanmar.

At Mrs. Thuan's workshop, we can see the whole process of weaving silk from lotus thread. The worker does the stages carefully and meticulously. In this procedure, workers at all stages, such as the lotus breaker in the field, lotus root collectors, lotus washers, labours twist lotus filament into lotus thread, weaver, dye-maker, etc...all of them have their own income. Currently, the price of a scarf made from lotus thread has an average market price of 6-8 million VND depending on the type.



Figure 2: Images about procedure of weaving silk from lotus threads

(a): Lotus stems are sanked in a flooded tank for cleaning; (b): Cut around lotus stem, twist into lotus thread; (c): Lotus threads; (d): Scarves from lotus threads

Because the product has a high price and is made entirely by hand, they are only for a small number of special customers. Currently, only high-income customers and some foreigner visitors are interested in these products. In 2018, her workshop only made 12 silk scarves from lotus thread. In 2019, she is expected to bring to market about 50 ones. In addition, Thuan artisan also makes use of lotus leaves to create unique hats as souvenirs to sell to visitors.



Figure 3: Products from self-woven silkworms and lotus threads in Phan Thi Thuan artisan's workshop

Table 2: Some indicators about weaving silk from self-woven silkworms and lotus thread in Phan Thi Thuan artisan's workshop

No	Indicators	Unit	Content
I. Silk weaving from self-woven silkworms			
1	Number of day for raising silkworms to get filament/fibril	day	20
2	Number of day for self-woven silkworms	day	3-4
3	Price of silk blanket (not include pillowcase, remuneration for finishing)	million VND	4 million VND/kg
4	Price of silk shirt	million VND	2-3 million VND/unit
II. Silk weaving from lotus threads			
1	Number of lotus stem which good worker make into lotus thread in one working day	stem	200-250
2	Number of lotus stem for making scarf with 0,25m x 1,7m	stem	4,800
3	Price of scarf from lotus thread	million VND	6-8 million VND

The silk weaving process from self-woven silkworms and lotus thread by Phan Thi Thuan artisan is very unique and incentive. However, the products are mostly handmade, so it takes a lot of time, effort and low economic efficiency. Products have a high price, so they can only meet a very small number of customers, mainly high-class guests or international visitors.

2. Propects of silk weaving from self-weaved silkworms and lotus threads of artistan Phan Thi Thuan

Silk weaving from self-weaved silkworms and lotus threads in Phung Xa village is currently concentrated in the workshop of My Duc Silk Company managed by Phan Thi Thuan artisan. Although its production scale of the enterprise is small, it has created a significant number of jobs for local workers, especially leisure people. Therefore, it helps them get income to improve their lives.

For silk weaving, now the products produced by enterprises are relatively rich and diversified. Especially, products made by self-woven silkworms such as blankets, silk pillows, etc. they are becoming more and more popular for customers.

Training silkworms as weaving workers not only contributes to improving economic efficiency, but also helps protect the environment of craft villages by reducing the investment costs of machinery and labor in the weaving process.

For silk weaving from lotus thread, although it is a new job, it has many prospects for development.

Firstly, the material source of lotus in My Duc district to get silk yarn is plentiful. According to Mrs. Thuan, at present, her workshop has only exploited 1/20 amount of lotus in the district.

Secondly, the production of lotus threads has to go through many stages so it requires a lot of manual labour. That has contributed to creating jobs for a certain labor division in the village.

Thirdly, products from lotus thread are new, unique and environmentally friendly, so they are likely to grow and replicate. In particular, the development of this product will contribute to diversifying items for tourists when visiting and learning about traditional Phung Xa trade village.

Currently, products of My Duc Silk Company have been branded "silk4world", are sold at home and at the product introduction store at No. 1, Lane 109, Tran Duy Hung road, Cau Giay district, Hanoi.

Although silk and lotus weaving has many prospects for development, there are still many difficulties. Most of the high-priced products, especially high-end products such as silk blankets from self-woven silkworms, scarves from lotus threads, are only produced by order. On the other hand, the customer market is still small, product information is not commensurate with commercial value. Foreign customers who want to buy products from silk weaving and lotus silk take a lot of time when they need to buy.

In addition, due to the influence of the Northern region's climate with a cold winter, the harvesting of lotus material is only seasonal. Therefore, the production of lotus thread will face many difficulties and must be halted when the lotus season is over.

Therefore, it is necessary to the construction of product introduction stores, semi-professional stands, which can be combined with the purpose of sightseeing tourism [7]. In addition, the dissemination of information extensively on these unique products of Phung Xa traditional craft villages needs to be continued in the coming time.

4. Conclusion

Phung Xa craft village with silk weaving from self-woven silkworm and lotus threads has brought to the market unique products to customers, demonstrating the love and creativity of artisans and craftsmen. In order to continue preserving and developing these crafts in Phung Xa in the future, it is necessary to:

Firstly, there should be a well-established policy for good artisans and craftsmen, such as giving loans at preferential interest rates to invest in machinery, creating conditions for the construction and development of showrooms, shops

Secondly, focus on vocational training for workers.

Thirdly, upgrade transport and technical infrastructure at production units of trade villages.

Fourthly, develop information dissemination about this trade village, trade promotion, expanding product markets to domestic and foreign consumers.

5. Acknowledgements

This study was conducted by the authors' group to serve the research topic of Department of Socio-Economic Geography and Humanities, Institute of Geography in 2020.

References

- [1] People's Committee, 2017. Report of socio-economic development in Phung Xa commune, Hanoi.
- [2] Vu Van Chuy, 2018. Organizing the implementation of policies on development of traditional craft village in Phung Xa commune, My Duc rural district, Hanoi. Master's thesis specialized in public policy, Ho Chi Minh National Academy of Politics.
- [3] Phung Xa Traditional Textile Village Association, 2018. Report of Conference of Phung Xa Traditional Textile Village Association in the term 2018-2023.
- [4] Phung Xa Traditional Textile Village Association, 2017. Report of production and business activities of Phung Xa Traditional Textile Village Association in 2017, Hanoi.
- [5] www.tonghoi.vn: Website of Vietnam General Council of Agriculture and Rural development
- [6] Theingi Myint, Daw Khin Nyein San, U Aung Phyo, 2018, Lotus Fiber Value Chain in Myanmar, a study conducted on behalf on the Regional Biotrade Ptrojec, Myanmar.
- [7] Ministry of Industry, 2017, The summary record of an international workshop on the conservation and development of traditional trade villages in Vietnam, Hanoi
- [8] Central Institute for Economic Management – Ministry of Planning and investment, 2010, Some key policies for sustainable trade village in Vietnam, Hanoi.