



## **Reviving and Developing Traditional Handicrafts as a Green Transformation Process: The Case of the Nam Cao Silk Weaving Cooperative in Hung Yen Province, Vietnam**

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### **Abstract**

This paper explores the revival and enhancement of traditional crafts as a process of green transformation, focusing on the Nam Cao Silk Weaving Cooperative in former Thái Bình Province, now Hung Yen Province in Vietnam. The main methodologies include reviewing secondary data, field trips, and interviews. The cooperative's embrace slow-crafted materials and eco-friendly techniques exemplifying a sustainable approach. By employing manual dyeing processes with natural materials, the cooperative reduces harmful chemicals, contributing to a healthier environment. Their circular ecosystem includes mulberry cultivation, silkworm farming, pupa production, and the sale of mulberries and tea from mulberry leaves, creating a sustainable and circular economic model. Additionally, eco-tourism and educational activities of the Nam Cao Cooperative based on mulberry growing and silkworm farming to attract visitors, fostering an agricultural-tourism synergy. The development of the handicrafts and services of the Nam Cao Cooperative not only diversifies the local economy but also strengthens community bonds and instills a sense of local pride, replacing previous feelings of inferiority associated with peasant practices. Especially, with the efforts of the Nam Cao Cooperative and partners, the state has officially recognized the Nam Cao village's silk tradition as a national intangible cultural heritage. This underscores the significant contribution of the Nam Cao Cooperative to the local culture and national cultural economy, highlighting its role in promoting sustainable development and preserving cultural heritage. This case study of the Nam Cao Silk Weaving Cooperative illustrates how the revival and development of traditional crafts can lead to environmental sustainability, economic diversification, and community revitalization, offering valuable insights for similar initiatives worldwide.

**Keywords:** Traditional handicrafts; Green transformation; Nam Cao Silk Weaving Cooperative; Hung Yen Province, Vietnam



## **Introduction**

Traditional crafts have long played a crucial role in shaping the culture and economic fabric of many communities world-wide. In Vietnam, crafts villages specializing in silk weaving, pottery making, bamboo, and woodcraft, among others, provide primary sources of income and contribute significantly to the cultural identity of the various communities. However, environmental changes, rapid economic development, and urbanization have posed significant challenges to the survival and growth of traditional crafts. Industrial production techniques and modern products have gradually replaced handmade crafts, diminishing their value and appeal to consumers. In this context, the concept of green transformation has emerged as a promising new direction for the revival and development of traditional crafts. The green transformation entails not only adopting environmentally friendly production techniques and processes but also represents a comprehensive approach to the promotion of economic sustainability as well a means to the maintaining of traditional cultural and social practices. It constitutes a new developmental model that not only safeguards the environment but also enhances the quality of life for workers while preserving and promoting the traditional cultural values of communities.

This paper aims to explore how the Nam Cao Silk Weaving Cooperative in former Thai Binh Province, now is Hung Yen Province, Vietnam, has implemented a green transformation to revive and develop traditional silk weaving techniques. Specifically, this paper focuses on analysing the eco-friendly production techniques and processes adopted by the cooperative. It will examine how the cooperative has established and maintained a sustainable circular ecosystem and the role of eco-tourism and education in fostering synergy between agriculture and tourism in the region. By examining the specific case of the Nam Cao Silk Weaving Cooperative, the authors aim not only to provide an in-depth understanding of the green transformation process in traditional crafts but also to contribute to the development of sustainable policies and strategies for similar initiatives globally. The lessons learned from the Nam Cao Silk Weaving Cooperative could serve as an exemplary case, thereby helping other craft villages in Vietnam and wider region to recognize the importance of environmental protection, quality craftsmanship, and the creation of sustainable communities.

## **Research Findings**

### **Green transformation at Nam Cao Silk Weaving Cooperative**

Traditional handicrafts have long been an indispensable part of cultural life in many countries, especially in developing countries like Vietnam. Traditional handicrafts include manual production activities, using traditional techniques and tools to create products with high artistic and cultural value. These products often require ingenuity, meticulousness, and creativity from each craftsman and each product bears the personal mark and cultural characteristics of the region where it was created. However, with the development of the market economy and rapid urbanization, many traditional crafts are facing the risk of being lost. Competition from industrialisation and modern products, along with changes in



consumer needs and preferences, poses many great challenges to the maintenance and development of these crafts. Nam Cao silk weaving village (Nam Cao commune, former Kien Xuong District, Thai Binh Province, now Le Loi Commune, Hung Yen Province) was formed more than 400 years ago is famous throughout the country for its uniqueness. Products in Nam Cao silk weaving village are handmade with many stages. From the stage of selecting raw materials to the finished product, it requires artisans to be meticulous and diligent and to attend to every little detail. According to historical records, the manufacture of silk has existed here since 1584. The production tool is a hand-operated owl loom, (Xuan Manh 2004). According to village custom, the transmission of crafts from generation to generation is very strict, so silk weaving only developed in Cao Bat village (Nam Cao commune). Later, thanks to the colourful beauty and softness of the silk fabric, the demand for silk used to sew clothes and many other things increased, and the craft of weaving developed in many other villages and communes nearby. Since then, Nam Cao silk has appeared more and more on the market and is also exported to other countries around the world such as France, Eastern Europe, Laos, and Thailand, etc. In 2023, Nam Cao silk weaving profession was included in the List of Vietnam's National Intangible Cultural Heritage

Nam Cao silk weaving village and its surrounding area has gone through periods of peak development: The French colonial period with about 750 weavers of many kinds of silk. concentrated in the Districts of Vu Tien, Tien Hung, Thuy Anh, Hung Nhan, Kien Xuong. The silk weaving village attracted many skilled workers. The products are often sold at local and district markets. In the past, silk was an expensive commodity and only well-off families could afford it. During this period, Nam Cao silk weaving village mainly wove a tweed-like fabric, that was exported to France. In the late 20th century, with 17 communes and nearly 3,000 looms, attracting about 70,000 workers, each year more than 10 million meters of silk were released to the market. To consume all those products, 19 private enterprises in Kien Xuong were established and worked at full capacity. The manufactured goods were exported to Eastern European countries. After 1991, when the Soviet Union collapsed, the export decreased, causing many difficulties for the Nam Cao silk weaving village (Ba Minh Silk, accessed November 14, 2025). After its peak from early 2000 to 2016, the Nam Cao silk weaving village was at risk of disappearing due to a shrinking market, products that could not compete with industrial fabrics and clothing, and many Nam Cao weavers switched to other jobs. According to the artisans in the village, the Nam Cao silk weaving profession began to decline when the tsunami in Phuket, Thailand in 2012 swept away all the houses, goods, and assets of the silk business here. Wholesalers did not import goods, leading to traders not purchasing goods from the people. The lack of partners and the decline in financial resources caused many people to switch to other jobs, and the weaving profession gradually weakened (Nguyễn Hạnh 2024).

Cherishing traditional cultural values, Ms. Luong Thanh Hanh - CEO of Nam Cao Silk Weaving Cooperative - decided to embark on a journey to revive traditional Vietnamese silk.

*"When talking about Thai Binh Province, people often talk about rice, not silk. But we have developed Nam Cao Silk Weaving Cooperative and affirmed that Thai Binh not only has rice, but also silk. Because silk spinning is still a tradition, the cradle of Thai Binh Province", Ms. Hanh said.*



The Nam Cao Silk Weaving Cooperative has positioned itself with products from the root, that is, from the techniques of growing mulberries to raising silkworms, weaving silk to production and design for export.



**Figure 1a** Nam Cao silk weaving village cultivate mulberry for silk production (Source: Báo Thái Bình) and **Figure 1b** Silkworm farming at Nam Cao village (Photo by Authors)

Currently, Nam Cao Silk Weaving Cooperative has two silkworm breeding areas with a total area of about 100 hectares, meeting the production needs with diverse products such as silk, towels, silk bracelets, hand-embroidered silk bedding and especially 100% natural silk towels and bath towels, etc. From the beginning with only 3 participating households, the Cooperative has now grown to nearly 300 members and plans to develop to 1,000 members. To develop the profession, the Cooperative regularly organizes vocational competitions, especially for children, who are the next generations to continue the silk spinning and weaving profession in Nam Cao Village (Wlin, accessed November 14, 2025).

Green transformation is a concept that arises from the need to protect the environment and pursue sustainable development in the context of increasing ecological pressures. It is a comprehensive process that includes the application of environmentally friendly production techniques and processes, the minimization of negative impacts on ecosystems and human health, while at the same time promoting economic growth and social development (UNEP 2011; OECD 2017). The green transformation is not simply a change in production technologies, but also involves changes in human awareness, values, and behavior toward more sustainable and environmentally responsible lifestyles (UNEP 2011). Sustainable development is a broader concept, commonly understood as being based on three main pillars: economic, social, and environmental dimensions. The goal of sustainable development is to ensure continuous economic development without degrading natural resources and the environment, while improving the quality of life for present and future generations (World Commission on Environment and Development, 1987). In this context, green transformation is considered an important means to achieve sustainable development goals, as it enables societies to reduce the environmental impacts of production and consumption while creating new economic opportunities and enhancing social well-being (United Nations 2015; OECD 2017). By adopting environmentally friendly practices, negative impacts on ecosystems can be minimized, while economic innovation and improvements in quality of life are promoted (UNEP 2011). The circular economy is an





economic model aimed at replacing the traditional linear economy based on resource extraction, production, consumption, and disposal. In the linear economic model, resources are extracted, processed into products, used, and then discarded, leading to resource depletion and increasing volumes of waste. In contrast, the circular economy focuses on reuse, recycling, and extending the lifespan of products and materials in order to reduce resource use and minimize waste generation (Ellen MacArthur Foundation 2013; Geissdoerfer et al. 2017). The circular economic model encompasses the following principles: Sustainable design: Products are designed for easy reuse, repair, and recycling; Efficient resource use: Optimizing resource use throughout the production and consumption process; Reuse and recycling: Maximizing the value of products and materials through various usage cycles; Ecosystem integration: Creating sustainable production and consumption ecosystems, including using renewable resources and minimizing negative environmental impacts within production and consumption systems (Ellen MacArthur Foundation 2013; European Commission 2020). Applying the circular economy model in traditional crafts not only contributes to environmental protection but also creates new economic value, enhances product quality, and improves the livelihoods of workers and artisans (UNEP 2011; European Commission 2020).

The concepts and theories presented above provide a solid theoretical foundation for studying the green transformation process in traditional crafts at the Nam Cao Weaving Cooperative. Through the implementation of green transformation measures, the Nam Cao Weaving Cooperative is not only enhancing product quality, but also contributing to the formation of a sustainable and environmentally friendly economic model aligned with broader sustainable development objectives. About the adoption of environmentally friendly production techniques and the use of natural and recycled materials, Nam Cao Silk Weaving Cooperative has implemented a series of measures to minimize the environmental impact during production. One notable measure is the adoption of natural dyeing techniques. Instead of using industrial chemical dyes, the cooperative opts for natural dyes derived from plants such as leaves, bark, roots, and flowers. This not only reduces the discharge of harmful chemicals into the environment but also produces naturally coloured products that are safe for users and the environment. The Cooperative focuses on using natural and recycled materials. In the cultivation of mulberry trees, they employ organic farming methods without pesticides and chemical fertilizers. This helps protect the soil and water, ensuring that silk products are entirely natural and safe.

*"Silk fabric, after being woven from mulberry silk, when damaged, re cut up and composted into the soil, where it will enrich the soil. This completes the cycle, and protecting the environment. In contrast, conventional fabric might take 200 years to decompose. What is most natural returns to nature,"* as stated by Ms. Hanh, CEO of Nam Cao Silk Weaving Cooperative (Field trip note by authors, 2025).

Additionally, the cooperative explores ways to recycle by-products from the production process, such as selling mulberry fruits and using mulberry leaves for making tea and health products. Regarding circular economic model, the Cooperative has established a 16-step circular economic model where all stages of production are interconnected and mutually supportive, creating a value chain from raw material sourcing to production, consumption, and export. This process starts from mulberry cultivation, silk farming, silk harvesting, dyeing, spinning, and weaving. By-products and waste from each stage are maximally utilized. For example, mulberry leaves are not only used for silk farming but also



for making tea and other products. This approach not only minimizes waste, but also generates additional income sources for the cooperative. The Cooperative has also leveraged the potential of ecotourism and education to promote sustainable development. They have organized eco-tours to visit craft villages, introducing traditional silk production processes and natural dyeing techniques. Visitors can experience first-hand the production stages, from mulberry cultivation and silk farming to the weaving process. Additionally, the cooperative conducts short courses on environmentally friendly production techniques, enhancing awareness and skills among the local community and tourists.

### **Impacts of Nam Cao Silk Weaving Cooperative on the economy and the community**



**Figure 2a** Artisans making the threads from the cover of the cocoons at Nam Cao Village and **Figure 2b** Silk threads made by artisans at Nam Cao Village (Photos by Authors)



**Figure 3a** Artisans doing the textile weaving with traditional weaving device Nam Cao Silk Weaving Cooperative and **Figure 3b** Silk products at Nam Cao Silk Weaving Cooperative (Photos by Authors)

The development of the circular economic model and high-quality handmade products has helped increase income for members of the Nam Cao Silk Weaving

Cooperative. The cooperative achieves a remarkable annual revenue in billions VND, providing employment for hundreds of local workers with incomes ranging from 4 to 10 million VND per person per month (Vietnam + 2023, interview with CEO of the Cooperative). The Nam Cao Silk Weaving Cooperative's mulberry growing area has expanded to many areas in Hung Yen Province, and has also established partnerships with mulberry cultivating areas in Bao Loc, Lam Dong Province. The cooperative's products are integrated into the supply chain, significantly providing jobs and stable income for Hanh Silk Company in Hanoi and many other partner businesses, designers, fashion and furniture manufacturers, and other companies nationwide.

Additionally, rather than relying on a single income source, members can leverage multiple income streams from various products and services, including silk sales, products from mulberry leaves, and eco-tourism. This not only improves the economic livelihoods of members, but also creates stability and sustainability for the community. The Cooperative has significantly contributed to diversifying the local economy by developing a variety of products and services. High-quality silk products are exported to foreign markets, while concurrently developing mid-range items for domestic consumption, generating foreign currency income for the local area. According to VNBUSINESS data in 2020, 80% of Nam Cao Silk Weaving Cooperative's products were exported to European and Asian countries, with the remaining 20% sold in the domestic market (Xuan Mai, 2020). Furthermore, the development of eco-tourism and education has created numerous job opportunities and income sources for the local community. In 2023, Nam Cao silk weaving village welcomed approximately 10,000 domestic and international tourists (Vietnam+, 2023).



**Figure 4a** Tourists experiencing silk weaving techniques at Nam Cao Silk Weaving Cooperative and **Figure 4b** Tourists experiencing silk weaving techniques and local foods, rural culture at Nam Cao Silk Weaving Cooperative (Source: Authors).





**Figure 5** Tourists visiting the shop of Nam Cao Silk Weaving Cooperative  
(Source: Authors)

By implementing green transformation measures and developing the circular economic model, Nam Cao Silk Weaving Cooperative has created sustainable economic value. High-quality silk products made from natural materials and eco-friendly production processes hold higher value than industrial products. This not only increases income for workers, but also enhances the value of traditional handmade products in more sustainable future.

The activities of Nam Cao Silk Weaving Cooperative bring economic benefits and contribute to enhancing community cohesion. Organizing production activities, eco-tourism, and educational workshops on eco-friendly production techniques have created a cooperative environment and knowledge-sharing among community members. This helps build a resilient community capable of coping with economic and social challenges. Conserving and developing traditional handicrafts protects cultural values and fosters local pride. Nam Cao Silk Weaving Cooperative has successfully built a high-quality silk brand recognized at national and international level. Educational activities and advocacy efforts by Nam Cao Silk Weaving Cooperative have brought economic growth and creating value of cultural identity towards environmental protection and sustainable development. Organizing workshops on eco-friendly production techniques and implementing practical projects have increased local artisans' awareness and skills in line with green customers leading behavior change in local residents and visitors' daily lives.

### **Lessons Learned and Recommendations**

The experience of Nam Cao Silk Weaving Cooperative demonstrates that by integrating green transformation measures into practices are crucial strategies for achieving economic, environmental, and social sustainability. Measures such as using natural materials, implementing eco-friendly production techniques, and developing circular economic models not only protect the environment but also generate new economic values. Eco-tourism and learning activities are effective tools for promoting sustainable





development and preserving traditional cultural heritage. Organizing tours to visit craft villages, introducing traditional silk production processes and handicrafts, along with educational activities on eco-friendly production techniques, not only enhance visitors' awareness of environmental and cultural preservation, but also create new economic opportunities for the local community. Circular economic models are effective means to minimize waste, optimize resource utilization, and create sustainable economic values. Utilizing by-products and waste from production processes, combined with developing new products and services, can increase income for workers and foster stability and sustainability within the community. Enhancing local community awareness and skills on green conversion measures and sustainable development are crucial mechanisms for achieving sustainable future. Learning activities, training sessions, and advocacy on eco-friendly production techniques, coupled with practical project implementations, can help communities adopt environmental protection measures and foster sustainable economic development. Collaboration and knowledge sharing among craft villages and cooperatives can help replicate sustainable development models and promote the advancement of traditional handicrafts. Sharing knowledge, techniques, and experiences among communities can strengthen cooperation and mutual learning, thereby promoting sustainable development on a broader landscape.

## **Conclusion**

This paper shows that the application of green conversion measures in traditional handicrafts can bring significant economic, social, and environmental benefits. The case of the Nam Cao Silk Weaving Cooperative in Vietnam serves as a prime example of how these measures can be successfully applied, generating new economic values, protecting the environment, and enhancing community cohesion. It also brings about a reference for other craft villages in Vietnam and wider region to concern more on environmental impacts, quality of products and people' life, and economic growth in sustainable future. Ultimately, preserving and developing traditional handicrafts is not only about safeguarding cultural heritage but also about building a sustainable future for the community. Properly implemented green conversion measures can help protect the environment, improve product quality of people' livelihood, and generate new economic values, thereby contributing to more sustainable development.

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