

Minor Field Study in Laos

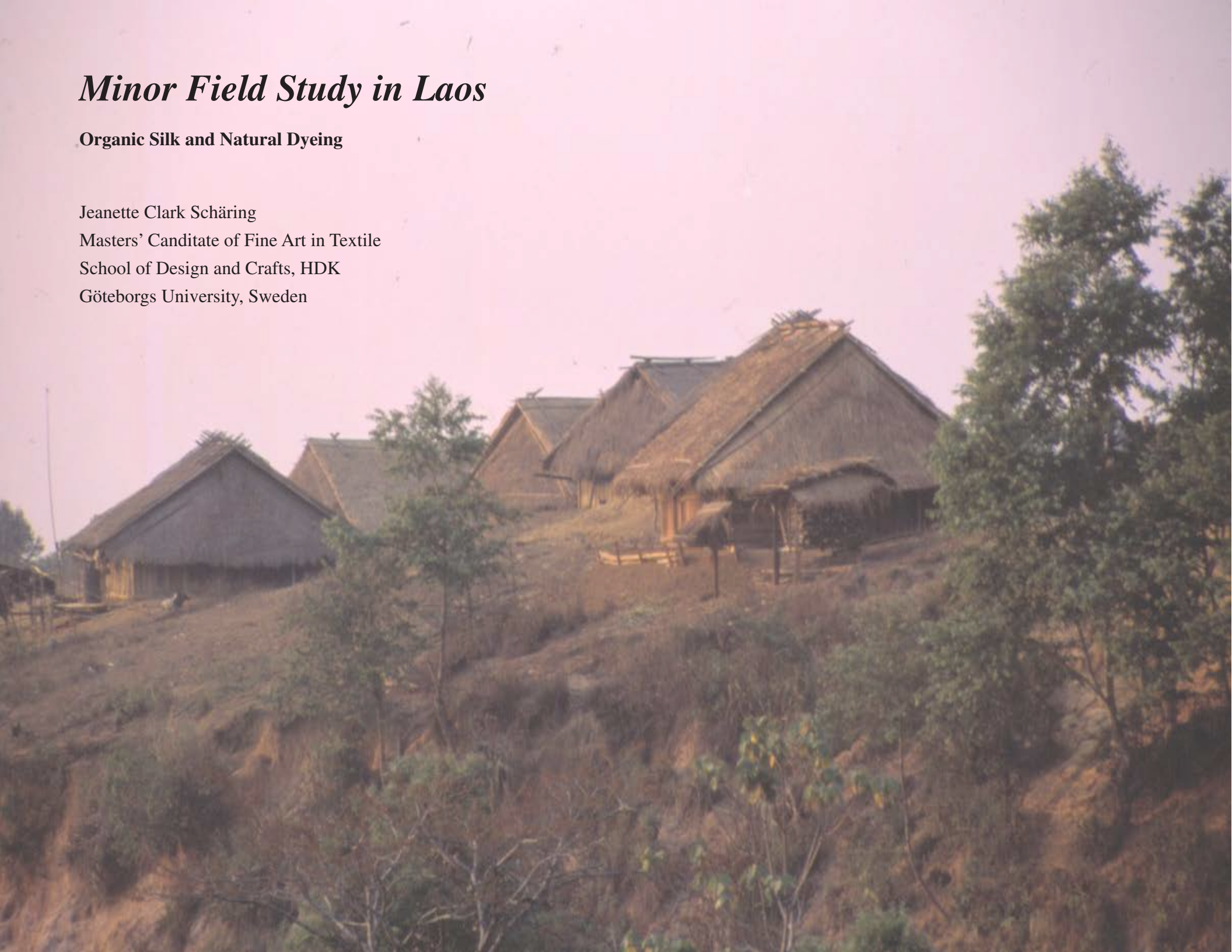
Organic Silk and Natural Dyeing

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Foreword

This project began on boxing day December 26th 2004, an unfortunate day for many, an unforgettable disaster that we landed upon, and this experience truly shaped this project. This minor field study experience was not without many challenging barriers, but will remain an important part in my continuing work and further studies.

I'm currently starting my second year of studying towards a Master of Fine Art in Textile, at the school of Design and Crafts, HDK, Göteborgs University. My interest for the human and our existential condition, history, textiles and natural materials, has motivated me during my education to actively seek these curiosities, and motivated me to apply for a minor field study for organic silk in Laos. As an artist with an interest in natural and organic means I was hoping to find a connection between my artistic expression and this project. I wanted to find paths as an artist to work within projects that can make a difference in the world. Not only has this project served as an interest in my continuing artwork but also broadened my perspective beyond school, and possible paths of how to work with other countries as an artist.

Thanks to SIDA for giving me the possibility of doing a Minor Field Study, Eva Åkesson of Konstfack in Stockholm who helped me to get the MFS, also Adlerbertska Stiftelserna and Stiftelsen Otto och Charlotte Mannheimers fond for the financial support, and my school HDK for the support they have given me.

My gratitude to those in Laos who took the time to answer my copious questions and helped to shape this project, these include Taykeo, Viengkham

of Phaeng Mai Gallery, Mr. T of the Organic farm, Chanthasone and Southasany of the Houey Hong Vocational Training Centre for Women, Lori and Sarah from Lao Sericulture, Patricia Cheesman in Chiang Mai Khankham Douanglavanh and her family, Anja for all her support and numerous wonderful others in Laos who provided help and support during this time.

Special thanks to my husband Bruce for his loving support, who became my hand-leader in the field, Nina Bondeson my supervisor in Sweden, and my dear son Elwin who made our time and communication with people most special.



Abstract

Laos is a South-East Asian country characterised by simplicity, it remains rich in traditions and culture and consists of some 94 different ethnic groups, many of whom live directly from the land. Women in the Lao family have traditionally produced clothing and textile items which remain partially responsible for preserving the culture. But since the increase in the production of manufactured fabrics available at cheaper prices and an open door policy on their imports, the popular use of these hand-made fabrics diminishes daily, transforming the socio-cultural value of traditional handicrafts into mere curiosities with changing times and circumstance.

Textile has for the human in Laos played an important roll in the practical ceremonies and religious life. It has been there for thousands of years, and these textiles can be studied as a material product of their society. The different traditional weaving techniques of Laos have created a diversity of textures and patterns, which appear on the many costumes of the Lao people. These techniques have been passed down form generation to generation by the natural route, verbally and physically.

My research was around the art of organic silk rearing and natural dyeing, both traditions and livelihoods that people have practised for many years. Much was learnt about these arts and the importance of them in the people's cultural and traditional identities. However, the current situation in Laos raised an issue of further discussion in my report - Development or Domestication.



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Aim and Background

My aim and purpose of this project was to do a research around organic silk production. My interests included the whole process, from the growing of the mulberry trees, through to the silkworms, silk spinning, creation of natural dyes and an insight to the advanced weaving techniques involved, such as supplementary weft, supplementary warp, tie and dye. The techniques are interesting, but the history and the human behind the weaving, colouring and yarn preparation of the traditional Laos textiles are of vital interest. These have been firmly established in rituals, in which women produced the handicraft, and its long process was an important social value.

Textile has for the human in Laos played an important roll in the practical ceremonies and religious life. It has been there for thousands of years, and these textiles can be studied as a material product of their society. The different traditional weaving techniques of Laos have created a diversity of textures and patterns, which appear on the many costumes of the Lao people. These techniques have been passed down form generation to generation by the natural route, usually verbally and physically.

Women in the Lao family have traditionally produced clothing and textile items. But since the increase in the production of manufactured fabrics available at cheaper prices, and an open door policy on their imports, the traditional use of these hand-made fabrics diminishes daily, transforming the social-cultural value of traditional handicrafts into mere curiosities with changing times and circumstance. Good quality is exchanged by quantity; women cannot afford to buy their own Lao silk, instead they are forced to buy from neighbouring countries such as Vietnam.



Figure 1. Local Lao woman weaving.

Preface

My research is not based upon scientific facts; my research is subjective, based on essential documentation and facts from informative interviews with key people, and complemented with literature review. For a country plagued by war the Lao people remain friendly but still there exists a barrier, a problem to trust outsiders; which made it difficult for me to obtain and find information. However, I saw this project as a process, and I remained open to what might arise during the course of my research. In addition to the process of silk, I discovered a new source of perspective in natural dyeing which I hope to experiment and work with in the future; the research process introduced me to various forms of aid and raised questions in development and domestication.

During this time in Laos however I became increasingly unconvinced of the intentions and success of some of the ‘sustainable development’ organisations. Their objective is to support the sustainable development of local people in the use of locally available raw materials while preserving their valuable traditional culture and eradicating poverty. These intentions are sound, certainly a good marketing strategy, but in the reality the mission can be fictitious. Certainly there exist projects and organisations that are more for encouragement and education which supports independence rather than dependency.



Figure 2. The local Lao people use their ingenuity with the bombshells dropped by the USA.

Method

My method has been practical and interactive. With an under perspective view and humility means, I had intentions to work with and among the people, but in the reality to obtain a deep understanding proved difficult. What I really wanted to achieve was beyond the scope of this project. I have worked with interviews and partially participated with the Lao people in their daily work and social life, learning from them, and their work.



Figure 3. Vientiane, Laos.



Figure 4. Phonsavan, Xieng Khouang province, Laos.

My research was conducted from my field base in Vientiane, reaching up in to the north-east of Laos, the Xieng Khouang province. Within these provinces I also travelled far out into small *difficult to reach* villages; where I learnt more about their lives, than organic silk. Communication was aided with the help of an interpreter but sometimes I used my own personal forms of expression to communicate with the people.

Introduction

The population of Laos consists of 94 different ethnic groups which can be classified into four main ethnic categories by linguistics and elevation of habitation. Each displays its identity in the use of specific weaving methods, colours and pattern. The Lao-Tai make up about two thirds of the countries population; this group have traditionally used silk and cotton for weaving in upright standing looms. The Lao-Tai use several different techniques for creating patterns, such as continuous and discontinuous supplementary weft, tie dyes, heddle lifting and tapestry. The weavers have been skilled in these different methods and they have possessed knowledge of natural dyeing, but these skills are disappearing. The remaining three



Figure 5. Hmong people.

ethnic groups, tribal thai, Lao Theung (includes Khmu people) and Lao Sung (Hmong or Mien tribes), typically use cotton and hemp, and two of these groups are traditionally using the back strap loom (Boungavong et al, 2001).



Figure 6. Tai Dam woman.

The art of weaving, silk rearing and dyeing has been a tradition passed down through generations; young Lao girls began to weave from a very young age, first watching their mothers from their position in the baby carrier. When they got older they often sat at the loom, next to their mother or grandmother, learning weaving, folktales, poems, proverbs and moral code, which are embodied in the Lao woven motifs. When the girls start to weave, they begin by copying other patterns. Young girls in the past used to compete amongst themselves to weave the best pieces of clothe for their wedding ceremony. After their marriage they continued to do so since they wanted to offer the best pieces of textile to the temples or to their beloved members of the family. They were respected and admired by their particular skill and in some cases they were sought after for that.

Textiles and dress codes were material expressions of loyalty and the motifs represent mythical creatures and ancestors, from ancient pasts and worships of animist and Buddhist beliefs, stories of creation and the after life, carrying power and healing. The outstanding and dominant Ngueak (river dragon) was the most common of nagas who protected the people and guaranteed them rain and fertility.

Naga is a serpent-like creature, there are good and bad nagas, some bring good luck. They are often portrayed in the motifs, Nagas can come disguised as birds or other animals, people respect the Naga, it appears often in Lao textiles, and the Naga originally comes from China. Weaving used to be about culture, a way of expressing feelings and knowledge.



Figure 7. Weaving work in progress.

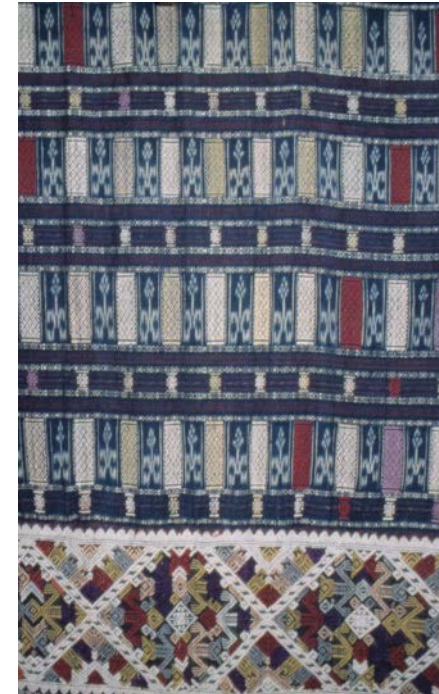


Figure 8. Xam Nuea styled textile.

Women are responsible for the culture

Deeply ingrained in the history and traditions of Lao are the textiles which are produced by women. The women are the producers and consumers of the textiles and have been made responsible for preserving the culture. Women who still wear their traditional costumes are praised for their sense of cultural and national identity, and frowned upon to wear western clothing.

Everywhere women under their houses, sitting by their looms, clacking their loom beaters into late evenings in the light of a small electric bulb. The number of weaving chairs is increasing.



Figure 9. Warping.



Figure 10. Woman sitting by her loom under the house.

History around silk

The history of the silkworm, which is also the story of silk, goes back to ancient times in China. Some of the stories have been handed down through the generations and are probably based partly on fact and partly on legend and myth. Chinese legend gives the title Goddess of Silk to Lady Hsi-Ling-Shih, wife of the mythical Yellow Emperor, who was said to have ruled China in about 3000 BC. She is credited with the introduction of silkworm rearing and the invention of the loom. More recent archaeological finds - a small ivory cup carved with a silkworm design and thought to be between 6000 and 7000 years old, and spinning tools, silk thread and fabric fragments from sites along the lower Yangzi River – reveal the origins of sericulture to be even earlier (www.silk-road.com). There are many different legends about silk; each country in Southeast Asia has its own story about the birth and discovery of silkworms.

‘Oral literature written literature, historical accounts, and the variety of weaving techniques used by Lao women of various ethnic groups suggest that Lao people have been raising silkworms, dyeing silk, and weaving it into fabrics with many motifs and designs for at least 3000 years’ (Boungavong et al, 2001)

Silk is praised and considered as the most precious gift from Mother Nature. It is known since ancient times for its quality. Silk in the Laos local society was an important material

The art of rearing Silk and Weaving

Reeling silk and spinning were always considered household duties for women. In every silk-producing province of Laos the daughters, mothers and grandmothers of every family committed a large part of the day for feeding, tending and supervision of silkworms and to the unravelling, spinning, weaving, dyeing of silk. The man was responsible for the growing of the mulberry tree. This gender quotation can be traced as far back to the fifth century BC, in China (www.silk-road.com).

During times when arranged marriages were custom, the quality of silk, and the women's abilities for silk rearing, dyeing and weaving, would exhibit the attractiveness of women, therefore the woven silk production was very competitive. The creation of products depended on the individual's competence and skills, a time when women were judged on the basis of their craftsmanship rather than their physical beauty. First-rate weaving, silk, and dyeing showed the beauty of a woman, young women with fine skills were very popular among men and were much-admired by relatives and community elders. This was important when they discussed marriage arrangements. It is said that a proficient wife can be seen in the colour of her husband's shirt and the fading quality of the dyeing. It was also said that a Lao woman who cannot weave is not a real woman. Becoming a wife was to become someone in the society.

The following proverbs are examples of the language of courtship and recognise the importance of weaving among society.

*Man: O, my dear heart! How ardent is my wish
to have you weave on the landing of my stairs.*

*How I wish to have you to weave silk
at the foot of the loom,
Having you weave an ikat sinh*, and
feed silk worms at my house.*

Woman: O, my dear young man!

*Going with you I dare not
Because I don't now how to weave "khid"
Pattern fabrics for you to sell,
I cannot weave rattan fruit patterns for you to trade,
I cannot weave horse blankets for you to sit on
As you ride on your trade expeditions.*

(Boungavong et al, 2001)

She turned down the offer to become his wife, because she did not possess the skills required to become the man's wife.

*Weaving crooked, weaving cloth not worth giving,
Raising silk worms not knowing which are awake, which still sleep
Such a girl may not be ready to be married.*

(Boungavong et al, 2001)

The art of silk rearing and weaving was a form of expression for the Lao women, unlike today, every textile piece woven was unique and not for money. During this time they had no kip¹, merely just silver bars that were used for goods and services. Each silver bar was worth around US\$60, a well made sinh² could be worth anywhere up to seven silver bars. Weaving is an integral part of a Lao-Thai woman's life and culture, providing clothing for her family and ritual celebrations and perpetuating beliefs, social structures and history of provenance.

May Faa and the Pretty Girl Folk Tale of the Tai Daeng

Once upon a time there was a poor family of a Mother, Father and a beautiful little Daughter living in a small village. The Mother and Daughter grew mulberry bushes to feed silkworms. The silkworms had to be fed for two full moons before they made their cocoons, and they stayed inside for a long time and hatched only once a year. So the family named this silk worm Ma Faa (Faa means a year).

Then the Mother reeled the Faa silk yarn out of the cocoon. Mai Faa was very strong and very hard to break. The Mother gave Mai Faa to the Father, and the Father made it into a fishing net. After finishing, the Father gave the net to the Daughter who then went fishing. The Daughter carried with her a basket of embroidery equipment such as yarn, fabric and a knife, and she embroidered her Sinh while she fished.

1 Kip is the local denomination of money in Laos

2 Sinh is the name of a traditional Lao skirt worn by the women. A long tube skirt with intricate embroidery, the sinh has been the customary dress of Lao women for many years, although the exact date of its origin is not known.

After a while there came a noise from the river. She looked down and saw along nak (water snake) caught by the net. "Young girl, please help me! I am in pain! The net is very strong. It is stronger than any nets I have ever seen!" cried the Nak.

The Daughter listened to the Nak's pleading and felt pity for it. She took her knife and began to cut the net. She tried hard but the knife could not cut the yarn. Then she tried again while singing a song.

"La ni noi, La ni neu. La ni nut. Cut this yarn to the nest. Cut the nest to the near. Please! Please yarns, leave the Nak"

As soon as the song ended, the yarn released the Nak. The Nak was very happy and invited the Daughter to visit his town under the river. At first the Daughter refused but the Nak asked her again and again to give him a chance to return her kindness.

The Daughter went down to the Nak's town and met with the parents of the young Nak who were the King and Queen listened to the story and were very grateful to the Daughter for allowing their son to survive. Before leaving the Nak's town, the King and Queen gave the Daughter a couple of bags. The first bag contained white ginger, and the second contained yellow ginger. The Daughter returned home with the two bags, and when she opened them the white ginger turned to silver and the yellow turned to gold. Since then the poor family become wealthy and lived together happily.

Ever since that day, when people travel by river, they like to have the Mai Faa yarn tied to their wrists to protect them from the danger of the water snake.

(Nanthavongdouangsy, 2004)

Silk; Sericulture

Silk in Laos comes from the yellow cocoons of the *Bombyx Mori* species. These silky cocoons are spun by one month old silkworms for metamorphosis to moths. These blind flightless moths lay around 500 eggs in four to six days and die soon after. Their cycle of life is complete.

The eggs are minute; just a few grams of eggs will produce thousands of worms which will eat a ton of mulberry leaves increasing their weight 10,000 times during their life cycle. There also exists a local green cocoon, commonly used by Thai-dam in Xam Nuea and Xieng Khuang areas, it is very rare, feeds on a different plant and only lays eggs once per year.

The cultivated silkworm requires a great deal of care, quiet and sanitation are necessities. A silkworm farmer treats them as royalty to the extent of

running their house over to them in the feeding season. The domesticated silk worms are very delicate and can only live in a carefully controlled environment. Perhaps the evolution of *Bombyx mori* to the present state; a moth which has lost its power to fly, only capable of mating and producing eggs for the next generation of silk producers, could be attributed to thousands of years of sericulture. *Bombyx mori* has evolved into the specialized silk producer it is today.



Figure 11. Young silkworms live with the people in the house.



Figure 12. Women working in the mulberry plantation.

Growing the mulberry trees was traditionally mans' responsibility but often the women were involved. Because the worms are so sensitive to chemicals, the mulberry trees are grown organically. These traditional methods of farming have a long history in Laos, but these can easily be forgotten when the trees are grown only for tea. There are eighty two

different types of mulberry tree that are suited to different climates and conditions, some are better for tea.

The small worms are feed with fresh hand-picked chopped mulberry leaves from the top of the mulberry tree; the larger leaves from the bottom of the tree are given directly to the older worms. It is important to keep a maintained temperature. During the course of one month, the silkworm multiplies its body weight 10,000 times; changes colour and sheds its skin four times, before building its cocoon. When it is time to build their cocoons, the worms produce a jelly-like substance in their silk glands, which hardens upon contact with air.

Producing silk is a lengthy process and demands constant close attention. To produce high quality silk, there are two conditions which need to be fulfilled – preventing the moth from hatching out and perfecting the diet on which the silkworms should feed. The silk worms are very sensitive to outside disturbances and must be carefully protected in order for success. The quantity of worms required for silk is numerous, around 1000 worms is enough for just a few hundred grams of silk, 10 kilos of cocoons is enough for 1 kg silk.

Lao silk has the feeling and appearance of Linen, it has the ability to regulate temperatures and absorb moisture while still feeling relatively dry. Silk is an incredible material that has many valuable properties, functions and characteristics that still remain unemployed.

Silk rearing the traditional way

A few cocoons are kept so that the moths can emerge and then they can lay the eggs, which will be used for the next round of silk worms. These moths are put into a basket, where they will pair off into couples, the females are big and the male small. The couples are then taken out and separated in a basket, where they will copulate and the female will begin to lay eggs. *The males are good for eating.* The eggs are then wrapped up in a cloth and hung up for some 13 or 14 days, this creates a type of artificial incubator so that by the end of this time you have some small worms in the cloth. They are then laid out in a basket with small fresh mulberry leaves that are chopped up very finely; the worms are very hungry; it is estimated that



Figure 13. Thousands of very young worms.

each worm eats about 30,000 times its initial weight. A chicken feather is used to wipe away the excretions when they are very small. The worms shed their skin four times, each time they emerge hungry and eat bigger and bigger mulberry leaves. During these times care must be taken not to

infect the worms with tobacco or soap. Very young worms require a lot of care, they need to be fed and cleaned often, and the excretion needs to be consistently removed. Lemon grass is used on the small worms to keep away horse flies and other pests; lemon grass is used up till the third shedding of the skin, it is considered a good medicine. Old food and excretion must be taken away each time the new food is given, once the worms grow bigger they are spread out among more baskets.

The silkworms feed until they have stored up enough energy to enter the



Figure 14. Hungry silkworms.



Figure 15. Mature silkworms soon ready to start spinning their cocoons.

cocoon stage, after approximately 30 days when the worm is big enough and ready, it will stand up and look for a place to spin. The worms are very adaptive at spinning their cocoon and they will spin any place possible which doesn't always give a regular shaped cocoon, bamboo frames help to keep a regular shape which is easier to spin by hand later. The worms like to spin in corners; they construct first a loose hammock, then sit in its middle and create the egg shaped cocoon. Silk worms spin two threads from glands near their lower abdomen using spinnerets on the lower lip. The threads are hardened when exposed to air from Sericin or 'silk gum', secretes from the apertures, this gum causes the fibres to adhere to one another. The worm covers itself with these filaments, and when the cocoon is completed it will begin metamorphosis, the time taken for complete metamorphosis depends upon the species. The yellow Lao silkworm will take around 7-10 days.



Figure 16. The silkworms begin to spin their cocoons.



Figure 17. The silk cocoons are now complete.



Figure 18. Metamorphosis complete, the Bombyx Mori moth emerges.

Modern sericulture

In modern sericulture the majority of farmers are using hybrid¹ silkworms. Many silk farms in Laos are buying the silkworm eggs so they don't need to keep worms all the year around. The most common local species is the yellow and white, but among the hybrids the Japanese species is very popular. The harvest from one Lao local yellow cocoon gives around 300-500 meters of silk, but the hybrid can give over 1200 meter of silk per cocoon. The hybrid worms are far more sensitive and domesticated than the local, which lost all natural instincts against predators. This forces some farmers to begin using antibiotics on the small silkworms to protect them. The majority of silk cultivated in Lao is not of Lao silk worm origin, it is produced from hybrid worms. However, most of the silk used and sold today in Laos is imported from China and Vietnam.

The silkworm house is specially designed to protect the silk worms from changes in temperature and humidity; they are built upon solid concrete bases and constructed in an order as to keep out pests and small animals (not always successful). These sometimes large houses are prepared to store the mulberry leaves and silk worms while they are eating and growing. When the silkworms are ready to spin, they are placed in frames so that the cocoons are regular in shape for easier spinning. The silkworm excretion can be sold as a medicine for diabetes (Solangkoun, 2005).



Figure 19. Silk rearing house.

1 Hybrid worms are created by mixing different breeds of silkworms with the intention of combining the positive attributes of the different breeds.

The reeling process traditional

After eight or nine days in a warm dry place and the cocoons have been sorted, they are ready to be reeled. However the pupae must be killed before the emerging moth destroys the long silk threads. The cocoons can be dried out in the sun for reeling at later date, or placed directly in boiling water to loosen the tightly woven filaments. Each cocoon consists of a single silk fibre about 300 – 500 meters long, (the Lao yellow local cocoon).



Figure 20. Thin yarn from several cocoons. By placing the cocoons in boiling water, the reeler is able to loosen the gummy sericin to unwind the fragile silk yarn from the cocoon. Very simple reeling equipment is used by Lao-Tai peoples. The proverb says that if the cocoon stands up in the boiling water, it means that it is beautiful silk. With nimble fingers, the thin yarn from several cocoons is caught up in a continuous yarn that is very slightly twisted as it passes over a small wheel on the reeling equipment and then placed in baskets. The yarn size varies depending on how many cocoons are reeled together. Various qualities of silk yarn can be reeled from one cocoon, the outer part of the cocoon is coarse, uneven



Figure 21. Simple reeling equipment.

and full of impurities, and the inner part of the cocoon offers a soft and smooth silk yarn. Sometimes the silk is reeled without separating the qualities.



Figure 22. Silk reeling.

It is possible with refined techniques in reeling equipment by hand to extract three different qualities. Rough silk (*Mai Peurk*) made from the thick covering of the cocoon. Medium silk (*Mai Kang*) made from the central layer of the cocoon; this layer provides soft and shimmering silk yarn. The finest quality silk (*Mai Nyod*) is taken from the inside of the cocoon. The medium silk is widely used amongst Lao weavers. For this reason they sometimes produce silk using several layers of the cocoon and call this mixed silk *Mai Sao Louan* (Boungavong et al, 2001).

The yarn of silk can be twisted in single or double thread in order to make it strong enough for weaving. Hand-twisting silk is an art that requires both patience and dexterity. The thread must be repeatedly wound around a spinning spindle and then pulled off, one small section at a time.

Sericin constitutes nearly a third of the silk's original weight. To display the silks gentle texture, the new silk threads must be soaked, cleaned and softened. Traditionally, the silk is soaked in a lye¹, and then boiled in plain water. The soaking time depends on quantity and quality. The Sericin falls away during boiling; softening the silk and turning the silk in to a creamy colour. This can be repeated till the required softness is achieved.



Figure 23. Hand-twisting silk is an art.



Figure 24. The leftovers after reeling the silk.

1 Lye is a strong alkaline solution used to clean the sericin from the silk.

The art of Natural dyeing

Some of the best knowledge of plant dyeing still exists in Laos. Colours extracted from plant and animal sources are called natural dyes. This age-old process requires a particular attitude, requiring knowledge and special skills to make the dyes maintain their brightness and colour. This involves finding the right mordent (fixative) for each colour. Nature dyes can be divided into two different kinds: cold bath dye and hot bath dye, in many cases it has been fermented for a long time before use. The importance of correct temperature is one point within the knowledge and secrets recipes of natural dyeing, an art that has passed down through generations of daughters and daughters-in-law.



Figure 25. Fermenting natural dye.

Dyeing is an art; the moment science dominates it, it is an art no longer, and the craftsman must go back to the time before science touched it, and begin all over again.

(Ethel Mairet, 1916)

Extracts from the flowers, fruits and leaves of plants and trees are used in the dyeing process. Each plant gives its own unique colour and each dye can produce a range of tones. The silk may first be soaked in rice water to condition the thread and make it ready to accept the dye. The dye-making process begins with the appropriate plant material. The final step is to set the dye with a mordent to keep it from running. Traditional mordents in dye fixing are tannin, lye, slaked lime. The acid in the limes, for example, lowers the pH of the dye, changing it so that it is insoluble and will not wash out of the fabric.



Figure 26. Preparation for hot dye bath.

Indigo in Laos



Figure 27. Indigo plant.

for more than 7,000 years (www.thecolorsofnature.com)

Indigo is one of the main dyes used in Laos and has a very long history, as it is one of the world's oldest dyes even though its preparation is one of the most complex. It is interesting to note that the Indigo Fermentation process has already been in existence around the globe

It is said that the wife's skills can be read from the husband's shirt (the quality of the dyeing, if it is fading or not).

A woman with dark blue stained hands appeared in the door of the house, her husband close behind is wearing his old blue hand woven shirt and trouser, a dark shade of blue which appears to withstood the test of time.

Natural dyeing was a long lasting process and it was difficult to dye fabrics or yarns evenly in large quantities, and the colour was not consistent, but that is charming.

So I watched, when she dipped a woven fabric in the fermented indigo four times in four different pots, each time before she dipped the fabric she took out a cup of the fermented indigo and afterwards she poured it back, achieving a fairly dark blue colour. When colouring with indigo it comes out from the pot green, but when the dyed silk material is beaten and exposed to the air it becomes blue. Anyway, after that she put the blue fabric in a red boiling plant mixture with some fresh leaves for some time to make black, and then finally it was boiled in water mixed with earth clay, the mordent to hold the colour.



Figure 28. Dipping in the fermented indigo.



Figure 29. Dyed material is beaten.

The art of Lao weaving

Lao-Tai weavers have never stopped weaving, despite extreme situation in numerous wars and conflicts. The war forced people to live in caves for years and the women continued to weave textiles on smaller looms.

The Lao weaver uses several complex weaving and decorative techniques, often producing textiles with several techniques in one piece attesting to the great skills of the weavers. With the use of these different techniques, the weaving filled large motifs, which gave textures and shadows, creating a three dimensional effects and illusional imagery.

The majority of textile in northern Laos is woven on a balanced tabby, this is a standard standing loom that has a cloth beam without a warp beam. Instead of rolling the warp around a warp beam, the warp is tied in a slipknot above the head of the weaver with a stick so that it can be easily re-tied when the warp needs releasing. The excess warp that has been chained since warping is stored in a cloth bag hanging on one side of the loom. The shafts used for the tabby weave are made with string heddles and bamboo or wood frames. The shafts are foot-operated with string pulley systems attached to a beam above the warp to allow for smooth lifting and lowering.

Today pattern shafts are often made and sold as part of the comb set, so that weavers do not need to learn how to make their own shafts or even how to pick out a design.



Figure 30. Weaving sitting in front of pattern shafts.



Figure 31. Tying together a new warp.

Discussion and Conclusion - Development or Domestication

The concept of modernisation in Laos is that western ideas and perceptions are regarded as best; consequently the peoples' own ideas become 'primitive' and hence not good. Development in Laos is the shift from the traditional towards modernisation, a false adoption of western values which promises progress and advancement. It is these western ideals that permit international 'development' agencies, multi-national companies and foreign investors to take advantage of the people in Laos.

In Laos, there exist a number of foreign investments and 'aid' projects that claim to teach people silk rearing and weaving. Many believe that the path of development begins with the Lao women, today some women weave at home to supplement their family income, but majority of them weave as a major source of income. An average Lao family earns around \$300 per annum, but it is said that a woman's weaving can potentially raise this to \$500 per annum.

I found that there are many organisations, companies and international projects that are abusing the vulnerability of Laos, the land, the resources and especially the people from rural areas who are disadvantaged, poor and disabled. The textile craft industry is no stranger to this exploitation, especially as Lao women play a big role in developing the country's economy.

The art of weaving and the textile knowledge of Lao women would have developed more if it had not been for the wars which periodically diminished and nearly destroyed some regions of Laos. Many of the women who were masters in the art of weaving were prematurely sacrificed before

they had a chance to hand down their artistic knowledge and skills to the next generation of artists. Most historic woven fabrics were destroyed and pillaged by other nations and some people were forced to sell for survival.

The importance of the art of weaving for the women meant that some carried their looms to caves where they lived during the war, so that they could continue weaving for their families. Even through a decade of persistent bombing during the Indochina war, in some regions where the people lost nearly everything, the basic skill's for the art of silk rearing, weaving and natural dyeing were still embedded in the hearts of the Lao people.

The knowledge that disappeared during this time created significant declines in the art of weaving, to the point that foreign experts were engaged to revive and restore the weaving in Laos. International 'aid' projects were employed to teach weaving skills, which the women already possessed. A few of these projects became offshoot business's, which took advantage of the women's skills, exploiting cheap labour and pilfering Lao patterns for their own career and monetary gains.

Weaving was once a form of expression for Lao women, but today is only about business. Textile business extends the length of the trade chain so that the artist receives only a fraction of the final price. The business's and organisations, believe they are helping silk farmers and the weavers by providing a guaranteed market, but I believe that this only makes them dependent upon them. In this dependent situation the weavers are only encouraged to weave simple non-traditional patterns for cheap market

goods or exclusive 'designer' textiles catering the international market. It is incredible interesting that those international designers can draw upon Lao patterns to advance their own career. Only a few organisations encourage the weavers to use advanced traditional patterns and motifs.



Figure 32. The men are now becoming more involved in dyeing.

Labour among men and women has changed very little, women still do the vast majority of the work. Men are beginning to become more involved in the textile industry, sometimes doing natural dyeing and spinning; a few men are weaving but this is still regarded as women's work and it can be difficult for people to accept. Even if weaving has given the women the possibilities to supply their families with the major sources of income, I speculate if today's situation has raised the social status of women who have weaving and embroidery skills? Some of the projects aim to improve women's and men equality in Lao society by assisting skilful women to become independent and thus more successful, business can make women equal to men's status (equal incomes in a modern world) but does it make

women more important? It is said that a successful woman in textile business can be very powerful and influential.

Production of silk in Laos does not meet the demands; many farmers prefer to sell mulberry leaves for tea, which create quicker profits and less work than raising silk worms. Much of the silk that is used for weaving in Laos comes from Vietnam and China, which is often cheaper than the locally produced silk. The local varieties of silk are produced from either hybrid silkworms or more infrequently from the native Lao silkworm.

The real 'native Lao' silk can be difficult to find now; the Lao worms produce a silk that is thick, soft, rough and bumpy. The linen-like structure adds to its natural beauty and its possibility to regulate temperature when used for clothing. However the silk yield from each cocoon is only around 300-500m, less than half of the yield possible from hybrid silkworms. It is the village's which have silk rearing in their history that continue producing native Lao silk, but there exists a problem when they don't separate the different qualities. Lao silk must be hand-reeled; the village women equipped with simple tools often drag out directly from the cocoon or separate only the inner and outer qualities, this produces a silk with inconsistencies that is not suitable for the modern market. In addition it must be hand-spun twice to remove impurities left behind. The modern market demands a silk that is smooth, shiny, easy to work with, and cheap; these are more frequently machine spun hybrid silks that differ in the characteristics of the Lao silk which matures and softens with age and use. There is an organisation that aims to educate techniques to produce three separate qualities from Lao silk that are more suitable to the market. If textile business's in Laos use over 70% Lao silk in their product, they don't need to pay export taxes (Sayavongkhamdy, 2005).

However, many sericulture farmers choose to use hybrid worms to produce silk. The yield from hybrid cocoons is higher and gives two to three times more silk per cocoon, than that of the native Lao worm. However the hybrid worms are very sensitive and often chemicals are needed (sulphur, antibiotics) in the early stage of the silk worm's life, to prevent disease. The silk referred to as 'local' (or sometimes 'Lao') silk is actually a hybrid between Thai and Lao silk where the mother is Lao and the father is Thai, these cocoons give a little more silk than the native one. Most of the silk textiles sold in the markets are either from hybrid worms or imported silk from China or Vietnam, which are falsely sold as Lao silk products. In old textile fabrics, both the warp and the weft were made from the native Lao silk, but today's weavers can't contend with hand spun silk in the warp because of the inconsistencies and sensitiveness of the silk yarn that can be easily broken by the comb.

Organic silk can be difficult to define, there exist no organic standards, and many different stages through the process of silk rearing that can be organic or not. One might assume that silk, being a natural product would be organic, but this is not always the case. Sometimes chemicals are used for softening the silk and sometimes medicine is given to the worms, these are more typical with modern techniques and the use of hybrid worms. Traditional methods are normally organic and mulberry is grown organically due to the sensitivity of the worms. However it was difficult to determine the organic nature of things due of the lack of clear-cut definitions for organic produce. There is one organic farm in Vang Vieng that is producing organic silk in the traditional manner.

The art of gathering and preparing fibre plants and then dyeing with natural

dyes is rapidly disappearing in Laos. The pressures of a cash economy and the need to make handicrafts for tourists and international demanding "cheap" means that people don't spend the time and effort making and dyeing in the traditional ways.

The demand for Lao produced hand woven fabrics has increased rapidly, based on tourism and export; this demands large quantities of dye resources. The chemical dyes sold in the market are cheap and easy to use, but there is no information available from the producers about how to use the dye and the content of these dyes. The weavers are not aware of the required safety precautions in the dyeing process and the safe disposal of the dye wastes. The waste from the dye is typically poured out next to their gardens, rice paddies or ponds.

One day I went to witness what a thought was going to be a natural dyeing session; but unfortunately the language barrier created a misunderstanding and what I witnessed was quite different. The colouring was done next to their cooking in their living area. They were using chemicals for dyeing, little bags that show the skull and crossbones, you wonder if they understand this totally. Holding her nose she told me to step back, it smelt very strong, but astonishment and shock hit us when after dyeing she poured the waste directly into the workers' own vegetable garden. She obviously knew from the smell that it was not good, but she seemed to not understand it was also dangerous to water the vegetables with the waste.

Natural colours can also be as bright as chemical colours, without being hard, unsympathetic and correct like the chemical colours. In my opinion, the resultant colours of chemical dyes are much more garish and certainly



Figure 33. Pattern with natural colours.

artist's imagination seizes and the traditional worker utilises. They know that the slight variations caused by natural human methods add to the beauty and interest, and that a few good colours are worth any number of indifferent ones (www.aurorasilk.com).

When a natural colour fades it becomes only a lighter tone of itself, the colour naturally survives. It is easy to see the differences; the natural colour soothes and touches the soul. Japanese say that indigo protects and soothes the soul, keeping away dark spirits and insects. For Taykeo, a business women who is replicating antique textiles, it has taken over 10 years of experimenting with plants and mordents to get 80 different colours that are similar to the original colours used on the antiques she is trying to replica.

Before colouring silk it is sometimes soaked in water with rice flour,

less typical of the subtle and beautiful hues they formerly obtained from natural plant dyes. Natural colours are alive and varied, holding the light as no chemical colour can. They are beautiful from their beginning to their maturity, when they mellow, one with the other, into a blend of richness that has never been reached by the chemical dyer, and never will be. Perhaps it is the scientific method that kills the imagination. Dealing with exact known quantities, and striving for precise uniformity, the chemist has no room for accidents and irregularities which the

however today the demand and expectation of silk is of that sort; extremely shine, soft and even. By boiling the silk in what they say "the white powder" two different bags with death skull, soda ash or caustic soda to make the silk shiny and very soft. Sometimes the weavers' have dyed with plants requiring much work, only to destroy the final product by using chemicals in the completion of dyeing.

Chemical colouring is unsustainable and potentially harmful to the environment and the human. Many of the chemical dyes have carcinogenic properties and are potentially dangerous to the users' health, more than frequently these chemicals are handled too lightly (Cheesman and Siriwong, 1996). Even in finished products, the chemical colours can leach out from fabrics, especially when wet, causing skin irritations. Some have argued that natural colours are bad for the environment, but even if natural dyeing

is not the best for the environment, it is still better than artificial colouring.



Figure 34. Dye waste.

There exists a group called 'weavers for the environment' who have developed methods of waste filtration that is suitable for both natural and chemical dyes. Water used in the dyeing process is stored after each step in settling tanks with ashes and carbon, to remove the dangerous sediments and chemicals in the waste. Unfortunately few places are using these methods or encouraged to do so. Natural dyeing is environmentally friendly, but natural dyes and mordents

can also be as strong as chemicals and therefore must also be carefully handled and disposed of. Villages involved in 'aid' organisations should be taught safe methods of dyeing and disposal of dye wastes, whether they are using chemical or natural. The encouraging organisations are not treating the waste themselves, so essentially providing an environmental dangerous situation for the villages they encourage.

Natural dyeing in large quantities can lead to deforestation. Responsible natural dyeing requires care of the trees and the replacement of plant resources. The growing demand for naturally dyed textiles in Laos is placing increasing demands on plant resources, which in some cases disappear. Historically, the village people have taken little replaced what they have taken and rubbed mud on the wounds of the trees, after taking resources for their own natural dyeing. Producing the plants required for natural dyeing can potentially become an industry of its own.

It is quite certain that a great many of the handicrafts that have depended upon commercial dyes would produce infinitely better work if they dyed their raw material naturally themselves.

It appears to have become a marketing strategy for organisations and companies to claim that they help villages, eradicate poverty and exercise environmentally friendly practices; but is it just a marketing ploy? There are not-for-profit companies that seek to create income generating opportunities for Lao people in a socially and environmentally responsible manner. The organisations can provide training, tools and markets which offer sustainable opportunities and alternatives to opium production and slash and burn agriculture. But, how is the motivation and success of such organisations?

To provide the people with a guaranteed market can be a sign of goodwill, but often the market is based upon the designers' patterns that only resemble the traditional and never challenge the weavers' skills. In my opinion this makes them dependable on the organisation and their patterns, their concepts and their market. They contend that they are creating a product suitable for the international market, a market beyond the local peoples' reach and unsuitable for their traditional designs. But then why I question, have all the antiques disappeared, and how can a Lao woman¹ successfully sell antique replicas to overseas markets?

Perhaps these organisations have the intentions of goodwill, but I question the success of these in the reality. To provide income generating opportunities for sustainable development requires careful strategies of education, monitoring and support that promote independence. The schemes adopted by some organisations in Laos are still colonial minded which creates dependents that are used for cheap labour. What I observed were people who were dependent upon organisations, many of who required help that they were not receiving. An organisation that claims to help so many people must have the resources to help all those that require it. In order to create income opportunities in a socially and environmentally responsible way, people should be encouraged to use traditional organic methods, to use traditional patterns and create their own independent markets.

¹ Lao women Taykeo is a collector of Lao antique textiles. She makes replicas of her pieces using traditional patterns and traditional techniques. It has taken her ten years of experimenting with plant colours to obtain the same colours found on the antique textile pieces.

There are organisations who claim that silk rearing can be a sustainable solution for villages with little income. If the silk only supplements their income, would you call it sustainable?

If developing countries could increase their share of world exports by just 5% this would generate some US\$350 billion in additional income – seven times as much as they receive in aid. (Oxfam)

No single change could make a greater contribution to eliminating poverty than fully opening the markets of prosperous countries to the goods produced by poor ones. (Koffee Anon)

(www.nzaid.govt.nz)

Trade growth could give Laos more money to tackle poverty, long after the 'aid' money has disappeared. This is most successful when local people can be provided with education, advice and support that encourage independence for the Lao people and the production of fair trade. The potential financial and welfare gains from fair trade far outweigh the financial flows from development assistance. (www.nzaid.govt.nz) Fair trade would enable the Lao people to earn sufficient to cover production costs and thus more sustainable livelihoods, a far healthier alternative than the development projects operating today in Laos.



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