

**Research Report**  
**Silk Production and Marketing in Cambodia**  
  
**for**  
**UNESCO Cambodia**  
**Revival of Traditional Silk Weaving Project**

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## Table of Contents

<b>1</b>	<b>Introduction</b> .....	<b>1</b>
1.1	Objective of the Research.....	1
1.2	Research Period.....	1
1.3	Research Area.....	1
1.4	Research Procedures .....	2
1.5	Note on the Terminology.....	2
1.6	Note on the Terms of Reference.....	2
<b>2</b>	<b>Findings</b> .....	<b>3</b>
2.1	Types of Silk Fabrics in Cambodia.....	3
1	Sampot Hol .....	3
a	Pedan .....	4
b	Traditional Five-Colored Sampot Hol .....	4
c	Sampot Hol Por.....	5
d	Sampot Hol Kaban .....	5
e	Sampot Hol Ktong .....	5
2	Sampot Pamung .....	6
a	Pamung.....	6
b	Chorabap.....	6
c	Rabak .....	6
d	Chorcung.....	6
e	Anlounh.....	7
f	Kaneiv .....	7
g	Bantok .....	7
3	Fabrics for Daily Wear .....	7
a	Sarong .....	8
b	Kroma .....	8
c	Blanket and Mosquito Net .....	8
2.2	Situation of Silk Production According to Area.....	9
1	Kandal Province .....	9
a	Kean Svay District .....	9
b	Muk Kampoul District .....	10
c	Khsach Kandal District.....	11
2	Takeo Province .....	13
a	Prey Kabas and Samrong Districts .....	13
b	Bati District.....	14
3	Kampot Province .....	14
a	Southern Angkor Chey District.....	14
b	Northern Angkor Chey District.....	15
4	Kampong Cham Province .....	16
a	Kan Means District .....	16
b	Kampong Siem District.....	17
c	Kho Sotin District .....	17
d	Kroch Chmar District.....	18
5	Prey Vieng Province .....	20
	Sithor Kandal District	
6	Kampong Speu Province .....	21
	Phnom Sruoch District	
7	Siem Reap Province.....	22

Les Chantiers Khmers Sericulture Project

2.3 Present Situation of Sericulture in Cambodia.....	23
2.4 Present Situation of Silk Yarn in Cambodia .....	24
2.5 Present Situation of Dyes in Cambodia .....	25
1 Chemical Dyes .....	25
2 Natural Dyes .....	25
a Red Dye - Lac.....	26
b Yellow Dye - Bror Hor .....	27
c Blue Dye - Indigo .....	27
d Black Dye - Mak Klua .....	28
2.6 Present Situation of Ikat/Tie Dyeing in Cambodia .....	28
2.7 Present Situation of Looms in Cambodia.....	29
1 Traditional Looms .....	29
2 Shape of Shuttles.....	30
2.8 Present Situation of the Marketing of Silk in Cambodia.....	30
1 Marketing Channel .....	30
2 Marketing Outlets .....	32
<b>3 Conclusions .....</b>	<b>33</b>
<b>4 Recommendations for Future Development of Cambodian Silk.....</b>	<b>35</b>
4.1 Increasing the Traditional Silk Yarn Production.....	35
4.2 Increasing the Marketing Opportunities of the Village Producers .....	35
4.3 Enhancing Traditional Dyeing and Weaving Skills .....	36
References .....	37
Appendix	

## **1 Introduction**

Since 1970, the long Cambodian civil war has caused serious damage in the traditional lifestyles of the Cambodian people. Normally, answers by villagers to our questions on silk-worm raising or the use of natural dyes would be "I stopped 25 years ago....". It might be fair to say that there has been an interruption in the evolution of culture in Cambodia. However, the villagers still keep their rich tradition and culture in their mind like a small light in the dark. Today, we understand that the villagers are keen to produce traditional hand weaving, but they would certainly face poverty or economic instability ahead.

### **1.1 Objective of the Research**

This is a research that has been conducted for United Nations Educational, Scientific and Cultural Organization (UNESCO) in Cambodia. The objective is to investigate the present situation of silk in Cambodia and to provide suggestions on ways of improving this sector. There are four issues of particular interest in the research:

- 1) the composition and quality of local silk fabric production, including the source of the silk yarn and use of natural and chemical dyes
- 2) the existing standards of rating the quality of locally produced silk fabric
- 3) the silk market in Cambodia, including the volume, types, quality and price of silk being sold
- 4) suggestions on how to improve the quality of Cambodian silk, skills of village-based producers, the marketing system and to expand markets abroad

### **1.2 Research Period**

The field research was conducted in three rounds during the dry season as written below:

- (1) 16 - 25 January 1995
- (2) 15 - 28 February 1995
- (3) 22 - 29 March 1995

### **1.3 Research Area**

The research covers markets and 36 villages in Phnom Penh, Kampot, Takeo, Kandal, Kampong Speu, Kampong Cham, Prey Veng and Siem Reap provinces. Most of the research concentrated in the areas surrounding Phnom Penh.

Although Battambang and Banteay Meanchey provinces in western Cambodia were initially included in the plan, it had to be abandoned due to fighting between the government troops and the Khmer Rouge guerrillas.

#### 1.4 Research Procedures

Most of the data had to be collected first-hand by means of observation and interviews in the field. Dupaigne's "Distribution of Traditional Weaving in Cambodia" (Dupaigne 1980) served as a guideline in initially planning the field research, although much of the information turned out to be outdated. Other available secondary data provided the background in looking at Cambodian silk from a broader perspective, both historically and geographically. The comparison of Cambodian silk fabric production with that of Northeast Thailand is based upon the learnings from the author's personal 13 years' experience of working with silk producers in Northeast Thailand.

Interviews were conducted with silk dealers in the markets and shops, middlemen, villagers who were engaged in sericulture, dyeing or weaving, and government and NGO staff in certain districts. Mr. Nop Sothea translated and facilitated the interviews.

As for the interviews with the villagers, the eldest women in the house were particularly targeted first because they would have the most knowledge of traditional silk production. In many cases, the interviews turned out to be group interviews because fellow weavers from nearby houses would join together. A total of 56 weavers were interviewed. The number of interviewees according to their age is summarized below:

Age of interviewee	Under 39	40-49	50-59	60-69	70-79	80-89	Total
Number	14	11	12	13	5	1	56

#### 1.5 Notes on the Terminology

Regarding the names of the places, this report uses the English-based spelling that is used in the map issued by UNTAC in 1993. Where the name is not included on the UNTAC map, other available maps have been consulted.

#### 1.6 Note on the Terms of Reference

The author is responsible for the choice and presentation of the facts contained in this work and for the opinions expressed therein, which are not necessarily those of UNESCO and do not commit the organization.

## 2 Findings

### 2.1 Types of Silk Fabrics in Cambodia

It has been found in the research that Cambodia silk fabrics can be divided into three main groups according to purpose of usage as well as dyeing and weaving techniques.

The first group comes under the *Sampot Hol*. It is distinguished from the other groups by the Ikat technique and twill weave. The Ikat technique, which is called *Chong Kiet* in the local Khmer language, involves the tying of partial sections of the weft yarn with fiber for resist dyeing that creates patterns on the yarn before weaving. Within this category are various fabrics such as the *Pedan*, traditional five color *Sampot Hol*, *Sampot Hol Por*, *Sampot Hol Kaban* and *Sampot Hol Ktong*.

The second group consists of plain colored twill woven fabrics generally called the *Sampot Pamung*. This includes the *Pamung*, *Chorabap*, *Rabak*, *Chorcung*, *Anlounh*, *Kaneiv* and *Bantok*.

Traditionally, the above two groups of silk fabric were worn exclusively by those in the royal family or the upper class. Although there is no evidence yet, it may be possible that the weaving techniques were restricted to members of certain families or communities who were specially appointed to serve the royal family. This kind of practice is known in other kingdoms such as Okinawa (presently in Japan) in the 15th century and Java (presently in Indonesia) in the 17th century. These textiles were regarded as a symbol of power or were believed to possess magical power. (Okamura 1988) Thus, the use of such fabrics were restricted to certain people. (Desai 1988)

The third group of Cambodian fabrics are those used for the daily wear of the common people. The *Sarong*, *Kroma*, and undyed white fabrics come under this category. Fabrics in this group are available in both silk and cotton.

#### 2.1.1 *Sampot Hol*

*Sampot* means wrapping skirt while *Hol* means Ikat. The *Sampot Hol* demands special and sophisticated Ikat techniques in order to achieve the refined texture which represents the finest of Cambodian textile art. Some masterpieces are found among famous museums around the world or private collections. (Gittinger & Lefferts 1992; Hirayama 1993)

Actually, the origin of Ikat works in Cambodia is uncertain. However the vestiges of the Angkor Empire at Angkor Wat or Bayon offer some interesting clues. On the bas-reliefs depicting the daily life of the people during that time or Apsaras (celestial maidens) with mysterious smiles, I have noticed that there are costumes with floral motifs or geometrical border patterns that very much resemble the Indian Ikat called *Patola* of the same period.

The maritime trade within the vast area stretching from India to China had been going on since the first centuries. This brought about much of Indian culture to Southeast Asia and resulted in the birth of the Indianized countries in this region, such as Funan in the 1st century and Champa in the 2nd century in the southwest of the Mekong delta and Shrivijaya on the Malay peninsula. (Ishii 1985)

The *Patola* was one of the important products that was traded within this area. Some historical records mention that the *Patola* was exported from India to the Malay peninsula in the 13th century and further passed onto the dignitaries of Indonesia. (Desai 1988) There are records of textiles being imported from India by the Angkor Empire. (Chou 1992) I would not be surprised if it was the *Patola* that was brought in and appreciated as a symbol of authority by the royalty. If so, it would be likely that the *Sampot Hol* has its roots in the *Patola* and subsequently developed its patterns and techniques through the centuries to become a uniquely Cambodian piece of art. The difference between the two fabrics is that the *Sampot Hol* is weft-faced twill woven while the *Patola* is plainly woven.

#### a *Pedan*

The *Pedan* is normally used as a wall ornament for religious or wedding ceremonies. There are many kinds of motifs such as temples, Buddha with monks, Apsaras, elephants, lions and nagas. These motifs all have Buddhist connotations.

There is one well-known *Pedan* weaver in Phnom Penh. Mr. Leav Sa Em is a master weaver, who possesses traditional Ikat techniques and creates his own original works. He also provides training in these skills for the UNESCO project. There is another female weaver who works as an instructor at the workshop that is run by a local NGO called KHEMARA. Both weavers are from Takeo province. Although very few in number, there are still some skilled weavers in Takeo province that are able to make this type of special Ikat.

#### b Traditional Five-colored *Sampot Hol*

Most traditional Cambodia Ikat consists of three basic colors: yellow, red and black (brown). More complicated patterns may have additional blue and green, but never more than five colors. Originally, these colors were obtained from natural dye stuffs. The traditional *Sampot Hol* has more than 200 patterns combining the three to five basic colors. Those patterns are composed of geometrical motifs and animal and plant motifs such as flowers, insects and frogs. These designs are never traced on paper but are tied directly onto the weft yarn from memory.

The *Sampot Hol* fabric generally has a length of 360 centimeters and a width of 90 centimeters. An original *Sampot Hol* can be separated into three parts: the main part, the upper and lower border parts, and the striped end piece on both edges. All patterns are composed of small units of dots with four weft yarn per dot. Recently, a lot of *Sampot Hol* fabrics have been produced in the region, but those fabrics are not the same as the original ones. For example, it does not have border and end piece designs and some pieces have only lower border and the main part.

It has been confirmed in the research that the *Sampot Hol* is produced in Bati, Prey Kabas, and Samron district in Takeo province, Sithor Kandal district in Prey Veng province, and several Cham villages in the Kampong Cham province.

#### c *Sampot Hol Por*

*Por* means color in Khmer. This name has been used in the market to refer to the new chemical colors that have a brighter tone than the traditional five-color *Sampot Hol*. The patterns are also simpler than the traditional ones. The *Sampot Hol Por* has been in good market demand in the last four to five years. The most popular colors in the market are violet, fresh green, and coral pink, all of which are dyed with chemical dye stuff. *Sampot Hol Por* are produced in the same area as the traditional *Sampot Hol*.

#### d *Sampot Hol Kaban*

The *Sampot Hol Kaban* is a very personal and special piece of silk for the villagers. Although *Sampot Hols* are normally for women, this particular piece is worn by men. It is woven by the bride-to-be and offered to her husband-to-be on the morning of their wedding for him to wear in the ceremony.

The biggest difference between the *Sampot Hol* and the *Sampot Hol Kaban* is in the end piece. The end piece of the *Sampot Hol* is thinner and has thin stripes, but that of the *Sampot Hol Kaban* is much larger and has intricate geometrical and floral patterns. Floral motifs and geometrical lattice patterns are used on the main part of the *Kaban*. The borders also have a mixture of geometrical and plant motifs. A high degree of Ikat skills is required to weave a fine piece of *Kaban*.

*Chong Kaban* is a method of wearing a *Kaban*. *Chong Kaban* is composed of two Khmer words: *Chong* means wrapping and *Kaban* means two pieces of *Sampot* (skirt). The double size fabric is wrapped around the body at the waist: the end twisted at the front and then passed between the legs and tucked into the waist at the back. Traditionally, *Sampot Hol Kaban* have been worn in the *Chong Kaban* style. Thai and Lao people call it *Chong Kabeng*. *Kaban* also means a double size fabric about 360 centimeters long.

#### e *Sampot Hol Ktong*

*Ktong* is a *Sampot Hol* for married or older women. It is comprised of stripes and small motifs of weft Ikat in between. There is a wide diversity of patterns. For example, the width of the stripes in the pattern ranges from 5 millimeters to 5 centimeters. Normally the thinner striped patterns are worn by elderly women. Some weft stripe patterns have diagonal linear patterns or diamond shapes to enhance visual effects. The *Ktong* is produced in the same areas as those of *Sampot Hol*.

The Khmer villagers living in Surin province in Thailand, near the Cambodia border, have traditional fabrics very similar in pattern to the *Ktong* but they are called *Sin Pa Na* or *Hol* instead.

### 2.1.2 *Sampot Pamung*

The *Sampot Pamung* is woven by weft-faced twill texture with three string heddles, like the *Hol*, but a plain single color forms the base. There are different names for the *Sampot Pamung* depending upon the position of the supplementary weft patterns. Those with stripes on the base section also has a separate name from the ordinary plain color based ones.

However, all of the above can altogether be called *Sampot Pamung* to distinguish them from Ikat fabrics. Most of the supplementary weft pattern is woven in Kandal province.

#### a *Pamung*

Different color yarn is used for the warp and weft in weaving a *Pamung*. After weaving, it would have a distinct luster like a gold beetle. *Gor Tia*, which means the color of the duck's neck in Khmer, is one of the 52 colors of *Pamung*.

#### b *Chorabap*

The most luxurious fabric woven in present day Cambodia is the *Chorabap*. It uses up to 22 string heddles which is the maximum number seen. The number of supplementary weave heddles used depends on the pattern. The weft patterns, which are woven with gold or silver thread, are scattered throughout the twill base. The *Chorabap* is used for weddings and other special ceremonies. There is increasing demand in the local market. The patterns are comprised of floral motifs and geometrical motifs. The fabric is thicker than other types.

There are now only two villages making *Chorabap*: Prek Takov village and Prek Thaong village, both located in Khsach Kandal district, Kandal province, near Phnom Penh. The weavers use two types of shuttles. One is boat-shaped and is used for twill weaving. The other is torpedo-shaped and is for supplementary weft weaving. It is more slender than the one used by the Ikat weavers.

#### c *Rabak*

The *Rabak* is similar in design to the *Chorabap*. The difference is that while the *Chorabap* uses metallic yarns for the supplementary weft patterns, the *Rabak* uses colored silk yarn. Because the *Chorabap* is very delicate and cannot be washed frequently, it is only worn on special occasions. On the other hand, the *Rabak* is easier to care for and has been used as a daily wear by people of high society in the past.

The *Rabak* is produced in the same area as the *Chorabap*. However, I met a woman at Angkor Chey district in Kampot province who claimed that she could weave the *Rabak*.

#### d *Chorcung*

As one can imagine from the fact that *Chor* means patterns and *Chung* means the bottom of a skirt, the *Chorcung* is distinguished by the pattern at the bottom of a skirt, using supplementary weft techniques with silver thread on a twill woven base. The patterns are between 10 to 15 centimeters wide and appear only at the bottom of the fabric. The patterns mostly use geometrical or plant motifs. The weaver told that the patterns came from the *Pha Sin* wrapped skirt in Laos. There are also supplementary patterns like *Chorcung* called *Tdin Jok*. Weavers in Muk Kampoul district and Khsach Kandal district, Kandal province, learned the patterns from Prek Thaong villagers (Khsach Kandal district) 10-15 years ago. Some villagers claimed they learned the patterns 30 years ago.

Recently in Phnom Penh's markets, cheap synthetic *Pha Sin* imported from Laos has been available and is more popular than the Cambodian *Chorcung*.

#### e *Anlounh*

*Anlounh* originally means stripes, and just like its meaning, it can be distinguished by the two colored stripes of 5 millimeters width. Silk and cotton *Anlounh* are available. There is also an *Anlounh* with a *Chorcung* pattern at the bottom called a *Pamung Anlounh Chorcung*. In the research area, the *Anlounh* has been found to be woven in Prek Ampil village, Khsach Kandal district, Kandal province.

#### f *Kaneiv*

*Kaneiv* applies the Ikat technique, but instead of forming motifs, it randomly leaves colors along the length of the yarn. Three different colored yarns will then be twisted together into one thread to be used as the weft. The three colored yarn would then be woven into a twill base with an intricate mixture of colors. This colorful base is usually combined with a *Chorcung* at the bottom and called a *Kaneiv Chorcung*, which is a luxury item.

#### g *Bantok*

*Bantok* uses the supplementary weft technique. Its motifs are very small (about 1 centimeter) and repeatedly woven across the fabric. The pattern comprises a set of small dots forming a square. The dotted squares are woven at 20 centimeters intervals. Traditional patterns comprises of supplementary weaving. Recently, markets in Phnom Penh sell fabrics with small motifs using Ikat techniques, called a new design, *Bantok*. A *Bantok* with a *Chorcung* is also called a *Sampot Pamung Bantok Chorcung*.

### 2.1.3 Fabrics for Daily Wear

*Sarong* and *Kroma* are every-day fabrics for farmers and ordinary people. These pertain traditional Khmer weaving styles while other fabrics have gone through evolution for specific use by people of the royal family or high society.

Villagers in Kampot province, grow rainfed rice once a year. They still raise silk worms, grow mulberry trees nearby their house in the rainy season, reel cocoons to produce silk yarns, and weave fabrics for household consumption in the dry season. They still maintain their traditional way of life passed on from their ancestors.

Many farmers still weave *Sarong* or *Kroma* with both silk and cotton. Cotton *Kroma* is a necessity for Cambodian people as it can be used for multiple purposes. These fabrics are woven in plain form.

#### a *Sarong*

The *Sarong* along with the plain colored *Pamung* is the most commonly woven fabric to be worn as a *Sampot* (wrapped skirt) in Cambodia. The *Sarong* can be divided into three types according to its pattern. The first type is called *Sarong Sor*. *Sor* means white. It has a lattice pattern like the madras-check, with a combination of wide double stripes and thin lines criss-crossing each other. White (*Sor*) and another color is used for the wide stripes, while yellow, red and black is commonly used for the thin lines in-between. These fabrics are produced in Takeo, Kampong Cham, and Kandal provinces. Cambodian people call a silk *Sarong* "*Sarong Soht*".

The second type is referred to by the villagers as the *Sarong Krola Smock* or *Sarong Krola Dom At*. It is distinguished by the *Sarong Krola Phnom Srok* pattern, which is a lattice pattern with green and red double stripes. Thus, it appears more colorful than the first type. It is woven in Kampot and Kampong Speu provinces. The villagers in Banteay Meanchey province and other west Cambodian provinces also have a similar *Sarong*.

The third type is a *Sarong* for Muslims, and is mostly woven by the Cham people in Kampong Cham province. These are made of both silk (warp & weft) and cotton (weft) yarn. This is similar to the "Ikat Mashru" of India where orthodox Muslim men were forbidden to wear pure silk under Islamic laws. (Desai 1988) There are many lattice patterns where it is necessary to add slender weft stripes of about 20 centimeters width as part of fabrics.

#### b *Kroma*

Every Khmer owns at least one *Kroma*. It can be used both by men and women for multiple purposes, such as to cover their heads, to use as a towel, to wear around the hips, and to wrap things. Although there are silk *Kromas*, most of them are made of cotton. There are two basic types of *Kroma* patterns: the small lattice *Krola Moul* pattern and double striped *Krola Plu* pattern (*Krola* means pattern in Khmer). The most common base colors are red and white or blue and white, but there are also other color combinations such as deep yellow and dark green with thin black stripes. The *Kroma* has been seen woven in all the areas covered in this research.

The *Pha Khaaw Maa* woven by the Lao and Khmer people living in north-east Thailand which is very similar to *Kroma* in Khmer. It is used for the same purposes, but only by men. Its pattern is slightly different in that the lattice patterns are bigger.

### c Blanket and Mosquito Net

Many villagers mentioned that in the past they used to weave blankets and mosquito nets. However, this tradition seems to have disappeared with the change in their lifestyle. The villagers of Kampong Siem district, Kampong Cham province still produce twill-woven blankets combining second-hand acrylic or wool yarn taken from old fabrics for the weft and synthetic yarn for the warp. The production is organized by middlemen who provide yarns to the weavers.

Mosquito nets, on the other hand, were found in the market, but the villagers surveyed in this study have all stopped the production two to three years ago.

## 2.2 Situation of Silk Production According to Area

### 2.2.1 Kandal Province

Kandal province totally surrounds Phnom Penh, and extends vertically from north to south. There is an ancient capital called Udong in the northern part, while the southern part borders Vietnam. The Tonle Sap river and the Mekong river run through the northern part of the province before converging at Phnom Penh, after which it separates again into the Mekong and Basak rivers. Most of the southern part of Kandal province is like a big triangular island surrounded by these two rivers and their tributaries. The two rivers flow further through south-east Vietnam, creating the great Mekong delta.

Silk and cotton production brought prosperity to this region while it was a French colony since 1868. Indeed, it is stated on a 1937 map printed by France that silk and cotton were grown in the region. However, during the past 40 years afterwards, cultivation of silk yarn and cotton wool has died out.

In this research, an old man (78 years old) who is living in Khoh Dach village, Muk Kandal district said he remembered that cotton wool was cultivated in this area 40 years ago. A villager (75 years old) of Bak Kheng village also had the same memory. A woman (72 years old) lives in Kien Kliyang village and when she was 16 years old (1940), she wove a *Kroma* from cotton yarn which she had spun by herself. Recently, Kien Kliyang village became a part of Phnom Penh. It is located opposite of Khoh Dach village. There was only one person in Khoh Dach village who remembered seeing silk worm raising about 60 years ago in around 1935.

### a Kean Svay District

Chulai Amphol village is located in Kean Svay district. This village is just 10 kilometers away from Phnom Penh towards the southeast on Road No. 1 which leads to Ho Chi Minh city in Vietnam. As it is a village in the suburbs of Phnom Penh, it is semi-urban than rural.

There are a few well-off households in the village which do not have looms. They grow fruit trees on the bank of the Mekong River, go to work in Phnom Penh, or run their own businesses. However, these households are exceptional and about half of the 600 households in this village have looms. Most have more than two; some even have five or six looms. These looms are not traditional looms, but flying-shuttle looms (*Khai Kon Tra* in Khmer) or semi-automatic stepping weaving machines (*Khai Macin*). These modern looms have been introduced to the village over 40 years ago.

One house had two semi-automatic stepping weaving machines on the ground beneath the stilted house. Ms. Ik Cyantu (35 years old) said that when she was young, these machines were used to weave cotton *Kromas* and mosquito nets. She had never woven silk. The current price for a brand new machine is US\$ 230. With this machine, she can produce up to 20 pieces a day or 200 pieces a month. As this house has two machines, 500 pieces are being produced monthly and sold at US\$ 0.64 each. This adds up to a US\$ 320 monthly gross income for the family. They do not have any other income generating sources. She told us that in the past, a family having two machines was able to lead a comfortable life. However, since the price of cotton yarn increased from US\$ 3.20 to 4.40 per kilogram, it has become very difficult to support the family.

Another house in the same village had two flying shuttle looms. Ms. Em Reurn (52 years old) uses one loom which was made by her late husband. Her daughter uses the other loom. This family earns income from weaving only. They can each weave ten pieces a day, which totals over 200 pieces a month. There are three patterns of *Kromas* that they produce. Two years ago, they stopped weaving mosquito nets because it became increasingly difficult to sell.

This village is situated near Phnom Penh, which has a large market. The villagers have taken up weaving as their sole occupation. In the future, it would be important for the weavers in this area to increase production and to obtain cheaper raw materials.

#### b Muk Kampoul District

Khoh Dach Island is located ten kilometers north of Phnom Penh on Road 6A, which runs along the Mekong River. The island is eight kilometers long and two kilometers wide. Residents on the west bank of the island do not weave. Traditional hand weaving is found on the east side of the island. In Khoh Dach village, nearly all houses have traditional looms, which are four meters in length. Most houses have two or three looms. The villagers weave *Chorcungs* with silk twill weave texture and a silver supplementary weft pattern at the bottom of the fabric. The looms have twelve cotton string heddles: three for the twill weave and nine heddles for the supplementary weft. Up to 18 heddles are used for more complicated patterns. The foot pedals have been restructured into a set of three frames which differ in width but are all 1.5 meters long. The small boat-shaped shuttle comes in two sizes. The shorter one (20 centimeters) is for the supplementary pattern while the longer one (24 centimeters) is for the twill base.

They also weave other fabrics throughout the year, such as *Sarongs* and plain color *Pamungs*. Men normally go to work in Phnom Penh or fish, but there are also some who help weave. Ms. Joey Nat (48 years old), who was born in the village, started weaving *Chorcungs* ten years ago after learning the skills in Prek Thaong village (Khsach Kandal district) located on the opposite side of the Mekong River. Ms. So Sap (48 years old) also

acquired weaving skills from the same village 15 years ago. Prior to that, people in Khoh Dach village wove only a plain monotone cloth called the *Sampot Liet*.

The villagers in this area go through middlemen in obtaining all of their silk yarn and selling all their finished products. They purchase a two kilogram bulk of silk yarn at US\$ 56-57 (February 1995) and sell their *Chorcungs* at US\$ 16-20 per 360 centimeter *Kaban*. As one weaver produces 6-8 pieces a month, the monthly sales proceeds would be US\$ 96-160.

Before 1970, villagers used the yellow silk yarn. They have also used Japanese silk in the past. As far as dyes are concerned, whereas presently they only use chemicals, before 1970, they have used natural dyes such as lac (*Leak Khmer*) that was bought from Kratie province. Mr. Sok Pom (78 years old), a native of this island, recalls that 40 years ago, the area opposite the island prospered with cotton cultivation. He also remembers seeing villagers on this island raising silk worms when he was about 15 years old (in 1932).

### c Khsach Kandal District

After crossing the "Japan Bridge" from Phnom Penh over the Tonle Sap River, going another 200 meters on Road 6A, and making a right turn into a small road, one would reach at a small ferry port. The tap water tower behind the port gave its name the "water-tower port". The ferry can only accommodate one car at a time. Upon reaching the east bank of the Mekong River, I made a right turn to head southwards into Lvea Em district, only to find the road being cut off within three kilometers distance. I therefore headed north towards Khsach Kandal district.

In the first village that I encountered there was no sign of any weaving going on. In the next village of Prek Bonkong, half of the households were weaving. As in the case of many of the other weaving villages in the survey, the villagers could be broadly categorized into three groups in relation to the economic status. The first group of villagers live in thatched-roof houses and own farmland of around 0.14 hectare. The second group consists of villagers who live in wood-boarded houses with about 0.8 hectare farmland. The last group of villagers live in wood-boarded houses but do not own any farmland and specialize in weaving. Villagers living in boarded houses had a few pieces of extra silk fabric on hand, while villagers living in thatched roof houses only had the unfinished fabric on the loom and no extra stock of finished products.

Ms. Son Kon (48 years old) lives in a thatched-roof house and owns 0.135 hectare of farmland to grow bananas and vegetables. There are 5 members in her family. She weaves 5 pieces of *Chorcung* per month which she sells to the middleman for US\$ 26 per piece. Whenever she is in urgent need of cash, she would sell directly at the market in Phnom Penh, but because the dealers know that she is desperate to sell, she could only bargain for US\$ 25.

She acquired weaving skills from her mother when she was 16 years old. At that time, the villagers in this area only wove cotton KROMAs and mosquito nets. She later on learned how to weave a *Chorcung* from a villager in Prek Thaong village.

Further north along the bank of the Mekong River is Prek Takov village. Ninety percent of the households own at least one loom; some own more than two. The looms in this village have a distinct characteristic. The traditional looms seen elsewhere have inclining posts to support the warp beam, but the looms here have straight ones.

People in Prek Takov village weave the *Chorcung*, *Chorabap*, and *Rabak* all with supplementary weft patterns. The *Chorabap* has patterns covering the entire piece and the supplementary weft patterns is woven with gold or silver thread. These are worn on special occasions such as weddings. Colorful silk yarn replaces the gold and silver thread for the *Rabak*. The villagers also produce the *Bantok*.

Ms. Long Ourn (57 years old) has two looms, which she shares with her daughter. Weaving is her main income generating source, but she also does farming and fishing. She began weaving at the age of 16 after acquiring skills from someone in another village. She does not recall any cotton wool or silk worm production in the village. After getting married at 20, she had to start raising her six children. She resumed weaving around 1970 at the age of 32, only to be interrupted by the civil war, after which she had to wait till about 1980 until she could start once again. Five years ago, her son-in-law made a new loom for her daughter. The two looms are now placed side-by-side on the ground underneath the stilted house.

Raw materials and final products are marketed through middlemen. A two kilogram package of Vietnamese silk yarn, which is enough for 10-12 pieces of *Chorcung*, costs US\$ 56 (February 1995). The price used to be US\$ 48 last year. Gold and silver thread for the supplementary weft pattern costs US\$ 3.20 per 10 centimeter roll, which is enough for 6 pieces of *Chorcung*. A *Chorcung* is sold at US\$ 26.

Adjacent to Prek Takov village is Prek Thaong village, which has the appearance of a town rather than a rural village. There is a market near the wharf on the bank of the Mekong. Iron lamp posts that stand along the main road reflects the prosperity of the place in the old times. This village is the center of weaving in this region and is famous for its luxurious *Chorabap*. Every household owns at least two looms. It is very quiet in the village because all the weavers have their minds totally concentrated on their looms when weaving. The middlemen also live inside the village.

Two kilometers further north from Prek Thaong village lies Prek Ampil village. It is situated on the opposite side of Khoh Dach island and one notices many thatched-roof houses. Just until six months ago, the villagers used to weave a cotton *Anlounh* joined together with a *Chorcung* with supplementary weft patterns on the bottom of the fabric. Every weaver produced 30 pieces (180 x 90 centimeters) in a month all year round, which was sold to the middlemen at US\$ 3.20 per piece. However, with the rise in cotton yarn prices, villagers gradually ceased production because it was difficult to make profits. Ms. Mop Reth (53 years old) was seen weaving a striped cotton *Anlounh* at the time of the visit, but she said that it would be the last piece that she would make under present market conditions.

71 year old Ms. Chea Sao remembers that there was cultivation and hand spinning of cotton wool throughout the village 40 years ago. However, the production gradually slowed down over the years up until 1975, when it totally ceased.

All the weaving villages in Khsach Kandal district use chemicals to dye the yarn. Even those in the 70's cannot recall using or seeing natural dyes. This district has inherited high skills in traditional Cambodian weaving. At the same time, the proximity to Phnom Penh has brought about modern chemical dyes at a very early stage.

### 2.2.2 Takeo Province

Takeo province is located towards the south of Phnom Penh. It is within 100 kilometer distance from Phnom Penh and it is possible to go back and forth in a day. It is part of the Phnom Penh metropolitan commercial zone. Takeo along with Kampong Cham provinces are traditionally the two most famous weaving areas in Cambodia. The districts surveyed in this research are Bati, Samrong, Prey Kabas and Treang, but weaving activities were not found in Treang.

#### a. Prey Kabas and Samrong Districts

Although Takeo town is the administrative center of Takeo province, there are no shops selling yarn nor woven products. The center of weaving and silk trading is at Saiwa market in Prey Kabas district, where Vietnamese silk yarn and woven silk fabrics are sold along the 500 meter road.

In order to arrive at the districts' weaving villages, one needs to turn east (left) at Thnol To Teng Market on the way from Phnom Penh to Takeo town on Road No. 2. Between Samrong district town (2 km from Thnol To Teng market) and Prey Kabas district town, there is a 20 kilometer stretch of road where one can find many weaving villages. Samrong, Sla Kanlek, Kandal, Trapeang Sdok, Ampil and Krachang villages are situated in Samrong district. Chumrou, Saiwa, Ampil Kanlek, Trapeang Svay and Reussey Thmey villages are located in Prey Kabas district. 90 percent of the households in Saiwa and Ampil Kanlek villages were found to have traditional looms. Some houses had more than one loom.

The *Sampot Hol Por* with a traditional weft ikat is the most commonly seen product in this area. They have a weft-faced twill woven texture and are woven with three heddles. The looms are four meters long. The 35 centimeter long torpedo-shaped shuttle called the *Tral Weng* has a bamboo body with a bullet shaped head made of hard wood or water buffalo horn.

One Sla Kanlek villager explained that she originally wove the *Sarong*, but switched to the *Sampot Hol Por* a few years ago because of the higher profits. She had to learn the method of making a *Sampot Hol Por* from another villager.

## b Bati District

There are several weaving villages on both sides of Road No. 2 near the Cham Bak market area in Bati district. Coming down from Phnom Penh, when one makes a right turn after passing the market near the district hospital, one comes across Ta Nok and Tro Pen Krosan villages. The villagers have traditionally woven silk *Sarongs* and *Kromas*. Middlemen come to the villages every Sunday to provide silk yarn, pick up woven fabrics and pay for the labor cost. One middleman, who is originally from this village, has been in the silk trading business for 15 years.

After one turns left from Road No. 2 at Cham Bak market and drives a further five kilometers, one crosses over a small hill and reaches Ta Nop and Pey villages. 90 percent of the households have looms. Some houses have added 1-2 looms within the past couple of years. The families in this village appear economically better-off than many other weaving villages visited in the research. Whereas in the case of weavers in poorer villages the fabric that they have at hand is usually only the one on the loom, the villagers here have extra stock in the houses, part of which they would wear themselves. These villages have a comparative advantage that they are located near Phnom Penh and there are frequent visits by middlemen. They also have a choice of directly selling at markets in both Saiwa and Phnom Penh. Therefore, they have more bargaining power. The income generated from weaving is considerable.

Further down the road that eventually leads to Prey Kabas town, there are more villages which have preserved a high level of traditional weaving techniques. There are many kinds of *Sampot Hols* and *Pedans* in this area. One villager had a *Sampot Hol Kaban* which was worn by her husband in their wedding. It was woven by her mother because at that time she did not have sufficient skills.

People in this area weave all year round except for some 15 days during the rainy season that they grow rice. Weaving is the only additional income source apart from rice.

### 2.3.3 Kampot Province

#### a Southern Angkor Chey District

On the west border of Takeo province lies Kampot province. Angkor Chey district is at the northeast end of Kampot province. Tani town used to be a famous center of sericulture and weaving up until 25 years ago (Dupaingne 1980). Unfortunately, there are presently only a few who continue to produce silk fabrics. This province is not included in the Phnom Penh metropolitan commercial zone and thus commercial activity is much subdued compared to neighboring Takeo province. However, the scene of many horse carriages at the morning market in Tani town is reminiscent of the old days.

Daum Doung village is about 10 kilometers from Tani town, after passing through a range of hills. Villagers recall that until 25 years ago, all houses possessed looms. Presently, of the 572 households in Daum Doung and neighboring Cyarap villages, there remain only 14 looms. However, there are villagers who until recently have been raising traditional yellow variety of silk worms for household consumption. Unfortunately, they have ceased production this year and there are no remaining silk eggs. One villager had to stop production because her daughter was seriously ill and she could not do the work alone. A sericulture promotion project would be necessary to revive the traditional yellow silk variety.

The people in this area have been seen weaving the *Kroma*, *Sarong* and *Pamung*, but not the *Sampot Hol*. There are two types of *Kroma* patterns: the *Krola Smock* with a small red and green lattice pattern, and the *Krola Phnom Srok* which is composed of yellow double stripes combined with a red and green lattice pattern. Different colors are used for the weft and the warp yarn for the *Pamung*.

Weaving has been a traditional activity for the women in the dry season and the products have been consumed within the household. They would only occasionally sell the fabrics at the market or other villagers for cash or rice when in urgent need.

One weaver at Daum Doung village explained that she had just started weaving a cotton *Sarong* the previous day, right after finishing with the harvest. She could not afford to buy silk yarn and even for the cotton yarn she had to borrow money from neighbors. Another house had a loom without a beater. The owner knew that her loom was not perfect and admitted having difficulty weaving with just the reed, but she could not afford to purchase a new one.

It was apparent that there were financial constraints in this area. All ten villagers who gathered for the interview expressed their wish to resume weaving only if they had the capital to invest in looms and yarn.

#### b Northern Angkor Chey District

To the west of Tani town is a range of 300-400 meter hills called the Sen Han mountains spread over 15 kilometers from north to south. Takaor village is situated on the west side of these hills. The villagers here have been found to produce yellow silk yarn.

Ms. Ouch Mom (68 years old) raises silk worms four times a year for self consumption during the six months of the rainy season. This produces 2-3 kilograms of silk yarn, which she weaves into fabric. She is thinking of stopping silk production this year because it is difficult to exchange the products for cash or rice. The silk yarn that she produced had a beautiful touch and she was surprised to learn that it would sell at US\$ 22 per kilogram at Saiwa market in Takeo province. The villagers have never had contact with markets outside of the locality and upon hearing of the market potential, they have shown interest in continuing their silk activities.

The villagers normally weave plain color silk *Pamung* and *Sarong*, and a cotton *Kroma*. Ms. Rath Hoy (31 years old) can weave a *Rabak* pattern using seven heddles. She said that her mother, who has already died, was able to weave many different *Rabak* patterns. She had a piece of *Rabak* that she claimed that could only be woven by herself and that others would place orders for her.

The yarn in this area is dyed with chemicals. Mr. Toch Thon (52 years old) from next door Angkcheay village raised lac insects to produce "lac sticks" for dyeing up until three years ago. There are two 100 year Dam Trang trees in front of his house which he used to raise the lac insects. Another man from nearby Veal Tabal village, Mr. Non Ym (52 years old), has also raised lac insects on the Dam Chhnoul tree until 10 years ago. This was both for home consumption and selling.

Villagers have said that there are silk worm raising and weaving activities in neighboring Bateay Meas district. However, it was not possible to visit the area during the research due to time constraints.

#### 2.2.4 Kampong Cham Province

Kampong in Khmer means village beside a port. Cham is an ethnic group that had their own kingdom in this area in the past. The town of Kampong Cham is about 100 kilometers from Phnom Penh towards the northeast. It takes about two and a half hours by boat along the winding Mekong River.

#### a. Kan Means District

The district center is in Peam Chikang, which is located on the right side of the Mekong and further 22 kilometers downstream from Kampong Cham town. The district chief who arrived 30 minutes late for the meeting explained the overall situation of weaving activities in the district. According to him, there are a few households weaving the *Kroma* in Sadau village about 35 kilometers away towards the west. Another 100 households are engaged in weaving in two villages towards the east on the way to Kampong Cham town. Apparently, it was safe to travel because 50 Khmer Rouge soldiers had just surrendered a month ago. Therefore, we targetted the villages to the east and took the road back to Kampong Cham.

There were no weaving villages for the first 8 kilometers until reaching Roka Koy 1 village, where cotton *Kroma* and *Sarong* weaving was found. Ms. Tang Cham (73 years old) has been weaving all year round and can produce 5 pieces of *Kroma* per day. A middleman has been buying them at US\$ 0.60 per piece, but since the rise in cotton yarn, she has made losses and is now thinking of quitting her weaving. She has never woven silk fabrics.

Ms. Mom Dap (58 years old) of Roka Koy 2 village is the wife of the former village headman. She has three looms under her stilted house which she and her daughters use. The bamboo framed looms have been made by her husband. She has never woven silk and for two years she has been weaving plain cotton *Sarongs* and *Kromas* for the Muslims. She can earn US\$ 0.16 (400 riel) for a piece of *Sarong*, which is higher than ordinary fabrics which cost US\$ 0.06. She obtains the cotton yarn and sells her finished products through the middlemen.

A fifth of the 126 households in this village are engaged in weaving. The former village headman has said the situation has been unchanged for 15 years. The only recent change that he has observed is that weavers who have directly purchased the cotton yarn from markets are starting to refrain from their weaving activities due to the rise in prices. Those who obtain the yarn through middlemen have managed to continue their activities because they are paid the labor cost by the middlemen. The middlemen have cut the costs of production by dyeing the yarn by themselves instead of the villagers.

#### b Kampong Siem District

Kompong Krobai village is a Muslim Cham village located next to Roka Koy village. Half of the 92 households in this village have looms, among which 20 households weave silk. The villagers can weave more than 20 patterns of the *Sampot Hol*. Ms. Taros Saramas (40 year old) weaves at a rate of six single size pieces a month, which she sells at a unit price of US\$ 12. She occasionally weaves Muslim *Sarongs* as well. She remembers that they were not able to weave during the Pol Pot era during 1975-1979. She follows the traditional method of tie-dyeing, using banana fibers to make knots on the yarn. She displayed the magnificent *Kontoi Kronggao* or peacock tail pattern, which was popular among the Muslim community.

Ms. Soi Set (38 years old) lives in Chamker Samseup village. Her loom is on the second floor of the house. She makes twill woven blankets (1.2 x 2.2 meters) of various patterns using four heddles. She can weave 2 pieces a day for which the middlemen offer US\$ 2.60 each. Synthetic yarn is used for the warp while recycled yarn from old wool or acrylic cloth is used

for the weft. Weaving is done throughout the year, but she is also engaged in other economic activities such as rice farming and sugar palm and tobacco leaf trading.

Mr. Tieng Sare (54 years old) is the middleman for the weavers and lives in the village. He dyes the cotton yarn before supplying it to the villagers. He serves more than 30 weavers, to which he pays US\$ 0.06 (150 riel) per piece of *Kroma* for the weaving. He uses chemical dyeing material that he obtains in 5-10 kilogram bulks, which is considerably larger and cheaper than the 10 gram packs costing US\$ 0.24 (600 riels) that ordinary villagers would use. He also has an advantage over individual weavers in that he can purchase cotton yarn in larger quantities and thus cheaper prices. Mr. Tieng was a Kampong Cham provincial officer until 1970, after which he worked in Saigon until the end of the Vietnam War. He survived the Pol Pot era although he was forced to move around many labor camps. He settled in Chaker Samseup village in 1979 and started his present business.

The villagers of Kho Kor 1 village weave cotton *Kromas* and *Sarongs*. They have never woven silk. Until last year, about 90 of the 100 households in the village were engaged in weaving, but many quit this year due to increased cotton yarn costs. Ms. Keing Surin (54 years old) was still seen weaving but was uncertain regarding the future. She received her cotton yarn from the above mentioned Mr. Tieng Sare and wove four pieces a day for US\$ 0.06 (150 riel) per piece. She acquired her weaving skills from her mother from the age of 15 and had been weaving since although there were temporary interruptions. Her 40-year experience may come to an end if the labor cost continues to decline and she herself cannot afford to purchase yarn directly from the markets.

#### c Kho Sotin District

Kho Sotin district is located along the Mekong River, on the opposite side of Kampong Cham. Kho Sotin Island lies in the middle of the river further downstream from Kampong Cham town. There are many kapok trees ageing 70 to 80 years on this island. One can cross the river from the island on a small ferry to Chihe village.

In Moha Leap village, which is next to Chihe village along the Tonle Toch River, 80 percent of the households have looms. At the time of the visit, there were no weaving activities seen because the villagers were busy harvesting tobacco. During the weaving season, they normally make cotton *Kromas*. They do not weave any silk. Ms. Tong Phon (60 years old) can weave 5-6 *Kromas* a day. She used to buy her own cotton until last year, but due to the price rise, she started to go through the middleman in the village this year. She explained that the price of cotton yarn rose from US\$ 1.60 in 1993 to US\$ 2.80 in 1994 and US\$ 4 in 1995.

Along the 12 kilometers stretch down the Tonle Toch River from Moha Leap village, there are several villages on both sides of the river that have looms producing cotton *Kromas*. One eventually reaches Love village, which is right across from Prey Vieng province. Love village consists of about 260 households, of which 90 percent have looms. 20 percent possess more than two. This village also has a resident middleman. The weavers buy the cotton yarn from the middleman at US\$ 4 per kilogram, which is sufficient for up to ten *Kromas*. One *Kroma* is sold back at US\$ 1.60, giving them a profit of about US\$ 0.16 (400 riel). Ms. Lonh Son (62 years old) can weave five pieces in one day. Her elder brother dyes the cotton yarn. Her family also has a one hectare tobacco farm, which can generate US\$ 80 income a year.

#### d Kroch Chmar District

Kroch Chmar district can be reached by boat along the Mekong from Kampong Cham town heading towards Kratie province. During the hour and a half journey, one sees rubber plantations along the way. Rubber was first brought into the country by the French in 1910.

Kampong Cham province has both the country's oldest rubber plantation that dates back to 1920 and 95 percent of the country's estimated 50,000 hectares worth of rubber planted land. (Source: Cambodia Business News, 23 Feb 1995)

There is a noticeable difference in the scenery between Takeo and Kampong Cham provinces, particularly in the dry season. The landscape in Takeo is very dry and arid during January and February, whereas Kampong Cham has fertile land covered with tobacco, rubber and kapok and abundant water from the Mekong River. Kampong Cham supplies Phnom Penh with most of its agricultural crops. It has been a prosperous area since ancient times. It is also an ideal place to start a silk worm raising project.

An ILO worker in Kampong Cham informed me that there were silk worms being raised by a villager in Kroch Chmar district. The villager was in Saraong village, a quiet village located 3 kilometers to the east of the river landing. We had been expecting the cultivation of traditional yellow cocoons, but to our disappointment, Ms. Chin Huch (45 years old) was producing white Vietnamese cocoons.

She explained that she started raising silk worms during the Pol Pot era 20 years ago. She was forced to work on Treng island which was traditionally a silk production spot 23 kilometers further down the Mekong. They were raising the traditional yellow breed then. After she was freed from the forced labor in 1979, she returned to Saraong village. She never thought of getting involved in sericulture until two years ago, when she decided to allocate part of her 1.5 hectare banana orchard for growing mulberries. She started to raise Vietnamese variety silk eggs that she obtained last year, but she encountered many problems in the beginning. Therefore, she invited an expert from Vietnam last December to give her technical guidance for 40 days. She also got her hand reeling machine from this expert.

Traditionally, mulberry trees are grown nearby the house, but in the case of Ms. Chin, they are grown on a piece of land about 2 kilometers away from her house. She presently produces 40 kilograms of cocoons per cycle and 10 cycles per year. One kilogram of yarn is drawn from 10 kilograms of cocoons. A middleman from Prek Cangkrans village in Prey Veng province has approached her this year to buy her yarn at US\$ 50 per 2 kilogram bulk. However, she has rejected the offer, preferring to stock more yarn before selling. She is the only one in the village who raises silk worms at the moment. Other villagers are interested but they first want to see if Ms. Chin succeeds.

Mulberry trees are stronger than other plants in a dry environment. Therefore, in Thailand, it has been commonly planted in the arid Northeast, where farmers traditionally raised silk for home consumption. However, with the recent increase in demand for silk inside and outside Thailand, there is a growing need to produce large quantities of silk. Thus, mulberries are being planted on fertile land for higher yields.

Over 40 years ago, Cambodia produced its own local variety silk in Takeo, Kampot and other provinces. However, it presently relies heavily on imported silk yarn. As Cambodia regains peace and the people are able to improve their lifestyle, there is a noticeable rise in the demand for silk. The data collected within this research alone estimates at least 60 tons of silk consumption in the previous year. Despite the steady increase in silk demand, the domestic production of silk is declining. On the contrary, the price of imported silk is steadily rising over the years. The promotion of silk production within Cambodia is recommendable at this stage.

Even an individual villager in a remote area like Kroch Chmar is able to draw resources from Vietnam to start producing silk. This area does not even have any tradition of sericulture nor weaving either. This area may have high potential because the land is fertile

and the farmers have experience in growing various kinds of cash crops. There is sufficient market demand for silk yarn. All that is needed is the skill to produce yarn with stable quality.

13 kilometers down the Mekong from Saraong village lies Trea village. This is a large Muslim Cham community with about 1,000 households. 70 percent of them, most of whom live in Trea 1 section, engage in weaving. Weaving is their main occupation because they do not have any farmland. Until last year they used to grow vegetables and rice in a nearby village, but because the land was controlled by the Khmer Rouge, they had to pay US\$ 4 each as tax. Therefore, they stopped producing there. The only other income generating alternative for them apart from weaving is fishing in the Mekong.

Their main weaving products are *Sarongs* and *Kromas* that are worn by Muslims. It is woven out of a silk warp and silk and cotton weft to abide by Islamic rules that forbid Muslim men to wear pure silk. This is similar to the Ikat Mashru in India. As there is a frequent exchange among the Trea villagers and fellow Muslims in Malaysia, Malaysia is also a good market for their *Sarongs*. The Muslim *Sarongs* have a distinct 20 centimeter strip of thin vertical stripes in the middle of the lattice pattern that covers the entire cloth. The weavers go to Phnom Penh to purchase silk yarn. They also purchase the bark of the *Bror Hoot* tree from Kratie province to dye the yellow color. They use chemicals for the other colors.

#### 2.2.5 Sithor Kandal District, Prey Vieng Province

Sithor Kandal district is situated next to Love village in Kho Sotin district, Kampong Cham province. This is where we found the answer to a long sought question that kept us puzzled during the survey of Kampong Cham. We had seen beautiful *Sampot Hols* in the markets of Phnom Penh which the shopowners claimed came from Kampong Cham provinces. However, when actually visiting the weaving villages in Kampong Cham, we did not come across the kind and amount of *Sampot Hols* that we saw in Phnom Penh.

One enters Prek Sandai village in Sithor Kandal district by crossing a wooden bridge over the Tonle Toch river from Love village. Sandai market is a small market located in the village. We were surprised to find as many as 20 shops selling gold in such a small market. In front of these gold shops were small glass cases displaying gold accessories, a bundle of 500 riel notes and *Sampot Hols*. These shops, which appear to have been built within the past few years, serve as the middlemen for silk fabrics. The *Sampot Hols* are sent to the markets in Phnom Penh by passing through Kampong Cham. Thus, it is understandable that some shopowners in Phnom Penh have mistaken the source of the products.

Next to Prek Sandai village lies Prek Changkran village. Nearly all of the 203 households have looms; more than half possessing two to three. Neighboring Prek Tapok village is slightly smaller with 100 households but over half of them engage in weaving. We have estimated a total of 400 looms in these three villages specialize in the weaving of the *SAMPOT HOL*. About five single size *Sampot Hols* are woven on one loom per day. This means that approximately 2,000 pieces are being produced in this area in a month. Since one piece is sold at US\$ 16, an estimated US\$ 32,000 in cash would be circulating every month. This would explain the reason why there are so many gold shops in Sandai market.

An estimated 500 kilograms of silk yarn per month would be needed at the present production rate. This is equal to about 6.6 tons per year. Middlemen who live in the villages play a major role in the supplying of silk yarn as well as the marketing of the woven

products. They have supplied yellow silk yarn until 1950, but since 1970 they have only seen white Vietnamese silk.

Two types of looms were found in the villages. One is the traditional four meter type; the other is a more compact one that is only 3.5 meters long and is easily assembled.

Natural dyes such as lac and the *Bror Hoot* tree were apparently used before 1970. One Prek Changkran villager said that she used indigo that was purchased from Kandal province until 3 years ago. However, upon visiting the village in Kandal province that she claimed to have bought the indigo from, we found that indigo production had ceased 25 years ago.

The silk weaving production in this village has developed to an extent where households have started to specialize in certain stages of the whole process. Some households specialize in the tie-knot dyeing process while others only weave. This kind of division of labor has not been found in other weaving villages. The people of Love village across the river say that this is because unlike themselves, the weavers of Sithor Kandal district do not have any farmland and are weaving all the time.

#### 2.2.6 Phnom Sruoch District, Kampong Speu Province

The villages surveyed in Kampong Speu province are Kreng Tathe and Kaptouk in Phnom Sruoch district. The staff of a local organization, Khemara, guided us there.

Khemara is an active local non-governmental organization (NGO). Although it was formally established as an NGO in August 1992, they had actually been in operation since 1990. They have a head office, a training center and a handicraft shop in Phnom Penh. They specialize in women in development (WID) projects. Since 1993, they have been working with women in four villages in the Prey Ramdourl commune of Phnom Sruoch district. In 1995, a training center equipped with looms and sewing machines was just opened in Kaptouk village, one of the four project villages.

There are a total of 838 households in the seven villages belonging to Prey Ramdourl commune. There is one primary school with four teachers in the whole commune. Although 700 children are enrolled there, only 300 of them actually attend school on a regular basis. The villagers grow rainfed rice once a year during the rainy season, while in the dry season they would catch fish in the river or weave in the houses.

Ms. Sim Phan (58 years old) still maintains the traditional lifestyle. In the rainy season, she raises local variety silk worms and reels them into yellow silk yarn. She produces two kilograms of yarn each year. She dyes and weaves the yarn during the dry season. We saw red and green yarn, which was dyed with chemical colors, on the bamboo swift frame. She also showed us some undyed yarn, which was very smooth and had a beautiful luster. High quality Cambodian silk is still being produced by the villagers.

Her mother, Ms. Peach is 88 years of age. She claimed she never used natural dyes, but when we inquired about the black colored yarn, she said that she still uses the *Mak Klua*, or the fruit of the ebony tree as the dye. Apparently, *Mak Klua* black is too common for her (and many others that we met in other villages) to be regarded as something special such as a "natural dye". It has long been used for common villagers' clothing that is worn in the house or in the fields. As for the process of *Mak Klua* dyeing, she does not dye the yarn, but the woven white cloth. She weaves the base undyed silk cloth with a twill woven texture by using three heddles. It has a simple pattern called the *Kouth Kehau* meaning "spiral shell". We have never come across white silk cloth in any of the other areas visited in the research. It is apparently part of the traditional custom to use white silk for a variety of purposes such

as to wrap the deceased, to dye in yellow for monks' robes, or to dye in black for daily wear. The Khmer and Lao people who live in Northeast Thailand also use or wear this kind of cloth for religious ceremonies. They also use the *Mak Klua* for black dyes.

Apart from the undyed white cloth, the villagers in this area weave the *Kroma*, *Sarong* and *Pamung*. All the households were known to have raised silk worms until 40 years ago, but the present production had been revived only recently with the assistance of KHEMARA. There are presently 28 households who are engaged in sericulture.

### 2.2.7 Siem Reap Province

Most of the research was conducted in the southeastern part of the country that surrounds Phnom Penh. The only place that we were able to visit in the other parts of Cambodia was Siem Reap province, which is renowned for the Angkor Wat ruins.

There were two silk shops targeted for tourists inside Siem Reap town and another 10 shops for the local people within Lu market to the east side of the town. All the shops were in business for about four to five years. The silk products were brought to the shops by middlemen from Takeo, Kampong Cham, Kandal and Prey Veng provinces. Cotton *Kromas* produced locally by semi-automatic weaving machines were also available at 1,700 riels per piece.

We met a 67 year old Buddhist nun at Bayon in Angkor Tom. She was born and brought up here and told us that she used to weave *Kromas*, *Sarongs* and white *Pamungs* since she was 20 until 1975. Another UNESCO staff who was also born in this locality recalls his mother weaving *Sampot Hols* and dyeing with the *Kee Lee* tree (emarginate leaf).

In the silk shops in Siem Reap town, I also noticed *Sarongs* costing US\$ 15 which I learned came from Phnom Srok district 80 kilometers west of Siem Reap town. This district is now part of Banteay Meanchey province, which was separated from Battambang province and set up as a new province in 1987. Although we intended to survey Phnom Srok district via Battambang during February-March, we had to abandon our plans because the government troops were still fighting the Khmer Rouge guerillas.

The *Sarong* from Phnom Srok has a distinct characteristic in the weft yarn. Two different colored yarn is twisted together to form the weft. This technique resembles the *Sarong Sor* of southeast Cambodia. The difference is that for the *Sarong Sor*, the duo-colored yarn is only used partially in a narrow strip, while in the Phnom Srok *Sarong* it is used for half of the entire weft pattern. The overall pattern of this *Sarong* is a lattice pattern with double stripes, similar to what the Kampot villagers refer to as the *Krola Phnom Srok*, which not surprisingly means "Phnom Srok pattern". The *Sarongs* in Northeast Thailand have larger lattice patterns with twisted duo-color yarn for the entire weft.

[Les Chantiers Khmers Sericulture Project]

16 kilometers west from Siem Riap town along Road No. 6 lies Puork district. There is a provincial vocational training center in the district, which until recently was a resettlement center run by UNHCR to accomodate repatriated persons who returned from the refugee camps along the Thai border.

La Ligue, a French NGO, initiated a sericulture and weaving project called "Les Chantiers Khmers" at this training center in 1993 to help the repatriated refugees earn a living. Mr.

Hok Son (64 years old) is the leader who is in charge of training 100 villagers. There are altogether five wooden buildings at the center: two for silk rearing, one for reeling, one for weaving and one for the trainees' dormitory. Another concrete building is presently under construction.

The project started by improving the dry soil and planting 5,500 mulberry trees over an area of two hectares. The mulberries are cared for by the trainees and although they are still small, they are in good condition. Two French experts provided technical assistance in improving traditional silk worm raising methods. They did not try to totally change the production with modern techniques, but rather tried to utilize the traditional techniques. They have already managed to raise 19 cycles of silk worms.

Fully grown silk worms are transferred to bundles of meter long dead branches, where they start making the cocoons. This method is seen among the Khmers in Northeast Thailand. The silk rearers in Kampot province place the worms on fresh branches with leaves which are attached to bamboo sticks.

The silk yarn reeling equipment are also the same as those used in Northeast Thailand. The equipment in Kampot and Kampong Speu provinces are slightly larger.

The looms at this center are basically the same as the other traditional Khmer looms. There are already 10 looms and five carpenters still making more new ones. Six trainers are presently training 39 villagers in weaving the *Kroma*, *Sarong*, *Rabak*, *Chorcung*, and *Anlounh*. They still have not yet taught the skills of weaving the *Sampot Hol*.

The project plans to further expand the mulberry plot and to import high quality silk yarn from China or Korea because the quality of the Vietnamese silk yarn available in the local markets is not satisfactory. They have completed the first phase of the project in the past three years and are entering into the next stage, which focuses more on product development and marketing. This project serves as a model for silk promotion in Cambodia and the development of the second phase should attract further attention.

### **2.3 Present Situation of Sericulture in Cambodia**

Prior to 1970, many villages in Cambodia were raising silk worms, which were reeled and woven into fine traditional fabrics. Except for Kampot and Kampong Speu provinces, most of the weavers in Cambodia now use silk yarn imported from Vietnam.

[Kandal Province]

A 78 year old resident on Khoh Dach island in Kandal province recalls silk worm raising in the 1930's.

[Takeo Province]

The villagers of Sla Kanlek village in Samrong district reflected the traditional yellow silk yarn that they used to buy until 10 years ago had a distinct shine and was easier to weave than the present Vietnamese imports. One 70 year old woman remembers buying the yellow yarn from Saiwa market more than 10 years ago at US\$ 1.20 per kilogram.

Sericulture had been carried out in the past in Prey Kabas and Bati districts as well. The owner of a silk shop in Saiwa market who used to trade silk yarn and fabrics from village to village remembers that villagers used to raise local variety silk worms throughout the area around 1960. Silk yarn from other countries such as Japan also started to come into the market at that time. Eventually, the local people chose to weave all year round because of the considerable profits and abandoned their sericulture activities. This was also when the silk shops in Saiwa market opened.

[Kampot Province]

Small quantities of traditional silk is being raised and woven for household consumption among the villages of Daum Doung, Cyarap, Ang Kcheay and Takaor in Angkor Chey district. The villagers produce 3-4 cycles of silk annually during the rainy season, which amounts to 2 kilograms of silk yarn. They would weave the yarn in the dry season from January to May. All the households were apparently engaged in sericulture activities until 1970.

[Kampong Speu Province]

Some villagers in Phnom Sruoch and Baset districts still raise silk worms for household consumption.

[Kampong Cham Province]

Treng Island located on the Mekong River used to be a site of yellow silk production until 1979. Ms. Chin of Kroch Chmar district has recently started the cultivation of white Vietnamese silk for commercial purposes.

[Siem Reap Province]

The sericulture project of Les Chantiers Khmers is successfully promoting the production of yellow silk yarn. The scale of production is the largest seen in the survey and it is well organized. The development of similar projects would be important in terms of reviving the disappearing traditional Cambodian silk yarn.

[Battambang Province]

Native villagers and repatriated refugees are producing silk under the support of the sericulture promotion project funded by the government of Canada through UNESCO. It is similar to the Chantiers Khmers project but it is relatively new, having just started last year.

#### **2.4 Present Situation of Silk Yarn in Cambodia**

The survey revealed that nearly 100 percent of the silk yarn marketed in Cambodia is imported from Vietnam. The most common white Vietnamese silk yarn can be divided into four types depending upon the thickness, ranging from 50 denier to 170 denier. There is also yellow silk yarn coming in from Vietnam. Both white and yellow yarn is being reeled with fully or semi-automatic machines. The traditional Cambodian yarn that is reeled by hand has more shine than either of the Vietnamese ones. In particular, the thickest types seemed to have lost its luster.

One silk shop near the Central Market in Phnom Penh is also an importer of silk yarn and owns a separate warehouse that stocks silk yarn. At the village level, the middlemen play a major role in the marketing of yarn. Saiwa market in Takeo province was the only place where a shop selling silk yarn was found outside of Phnom Penh.

Villagers in Takeo province obtain their yarn supply from the middlemen, shops in Saiwa market, and the market in Phnom Penh. The price of silk yarn has been rapidly rising over the past few years, from US\$ 16 per kilogram in 1993, to US\$ 22 in 1994, US\$ 28 in January 1995, and US\$ 32 at the end of March 1995.

A silk yarn trading store at Saiwa market shop sells 5-20 kilograms of silk yarn a day, or about 4,000 kilograms yearly. In January this year, the price ranged from US\$ 22 to 28. In March, which is less than three months, it rose to US\$ 31.

## 2.5 Present Situation of Dyes in Cambodia

### 2.5.1 Chemical Dyes

It was found that in nearly all the of the surveyed area, chemical dyes were being used. Villagers generally use chemical dyes that are produced in Thailand and are sold in 10-gram bags. However, there are problems in the durability of the dyed fabrics. They wash off very easily. Although further examination is needed, the cause may lie in the dyeing method.

It has been observed that villagers first soak tied silk yarn in dye mixture without boiling it. Then they would swing and thrust the yarn onto a large container like a whip several times, after which they would resoak it in the boiled dye liquid. It may be an old technique used, perhaps for indigo dyeing, in order to help the dye permeate into the yarn. However, it may not be appropriate for chemical dyes. Nevertheless, it would be necessary to look into more details to find the causes.

### 2.5.2 Natural Dyes

Traditional Cambodian silk was dyed with natural dyes. There were three basic colors: blue from indigo, yellow from the *Bror Hoot* tree and red from lac. Cotton fabrics were also dyed in black from the *Mak Klua*.

Among the surveyed villages, Trea village in Kampong Cham province still had natural dyeing from the *Bror Hoot* tree. However, in most cases, they would use chemicals to redye the cloth after using natural dyes in the first round.

In many of the villages, people have abandoned natural dyeing at some point in the past. There were some places that lac dyeing was seen on Khoh Dach Island in Kandal province until 1970. On the west bank of the Mekong across from this island, "indigo mud" was produced for dyeing purposes until 1967. Up until 20 years ago, the *Bror Hoot* and lac were used for dyeing in Ta Nop and Pey villages in Bati district and Krachang and Sla Kanlek villages in Samrong district. Lac dyeing was seen in Angkor Chey district in Kampot province only until recently. In Takeo province, natural dyeing existed in Reussey Thmey, Tra Peang Svay and Amphil Kanlek villages in Prey Kabas district but it ceased 40 years ago. Although in the same province, the villagers of Tro Pen and Ta Nok villages do not have any experience in natural dyeing at all.

#### a Red Dye - Lac

*Leak* is the original Khmer word for the lac but the Cambodian people presently use it to refer to chemical dyes. The natural leak is now distinguished from the modern chemicals as the *Leak Khmer* or *Leak Krormor*.

The lac stick used for dyeing is actually the nest of the lac insect (*Laccifer lacca* Kerr). The word lac comes from Sanskrit and means "infinity", describing the characteristic of the insect to increase and expand in great volume. The size of the lac insect is only 1.2 - 1.6 millimeters. Numerous groups of these insects live in nests that they make on trees. Lacs are seen in India, Thailand, Burma and Laos. During the breeding periods of July and December, the insects move to new branches to make new nests. The old nests are then immediately collected and dried. This is called the lac stick. Lac sticks have been used as dyes from ancient times and more recently as raw materials for industrial products. It has been recorded that in 1929, lac stick exports from French Indochina (Vietnam, Laos and Cambodia) amounted to 1,300 tons (Takahashi 1949).

It was found in this research that villagers in Angkor Chey district in Kampot province used to raise lac insects up until three years ago. One villager explained that lac raising had been a family occupation since his father's time. His house was built out of the profits from selling lac sticks. In front of the house were two 100 year old *Dam Treang* trees that were used for the lacs. He stopped raising lacs three years ago because the insects completely died. He explained that the people in this area believe that lac raisers should not touch a corpse, eat hot rice, burn the forest nor kill snakes. Apparently, after he helped organize the funeral for his aunt and "indirectly" came in contact with the body of his aunt, the lac insects started to die. Another villager raised lacs on *Dam Chhnoul* trees until ten years ago when the insects died. It was observed that in both cases, the other trees surrounding the lac raising trees had been cut down. Apparently, the area used to be a small forest. It is probably more reasonable to assume that the environmental change due to the cutting down of the forest is related to the death of the lac insects. It is known that lac insects cannot live in temperatures above 42 degrees centigrade.

Lac sticks were seen in a shop in Oruseei market in Phnom Penh. The shopowner said that they came from Kratie province. The price of the sticks was US\$ 6.80 per kilogram. The lac sticks were apparently being used for polishing furniture and other wooden objects rather than for dyeing.

Villagers in Prey Kabas district explained how to use the lac sticks for dyeing. They would first grind the lac stick and then put it into warm water together with the leaf or fruit of the tamarind and alum. The liquid mixture is used for dyeing.

It is also interesting to note that the villagers of Bati district in Takeo province used the *Cham Poo* fruit (anatto/*Bixa orellana* Linn) to obtain the color red.

#### b Yellow Dye - *Bror Hoot*

The bark of the *Bror Hoot* tree (*Cambogia gutta*) is still used to dye the yellow color in Trea village in Kampong Cham province. The bark is brought here by the villagers of Kratie province. It is sold at US\$ 1.20 per kilogram. Some villages in Takeo province still had *Bror Hoot* dyeing but apparently, the number had decreased from the past, when it was seen in most areas of the province. This tree was also seen in a village in Kampot province.

According to the villagers of Prey Kabas district in Takeo province, the dyeing liquid is made by crushing *Bror Hoot* bark and putting it into boiling water together with alum.

The shop in Oruseei market stopped selling the *Bror Hoot* bark two years ago due to the drop in demand. At that time, the bark was supplied from Siem Reap province. In the villages of Surin province in Thailand, right across the border from Siem Reap, the *Bror Hoot* is called *Peaker* and is still used for yellow dyes.

The heart wood of the *Knorl* or the jackfruit tree is used for yellow in Kampot province. In Siem Reap province, the yellow color is obtained from the wood of the *Kee Lee* (*Cudrania javanensis* Tree).

#### c Blue dye - Indigo

*Cleih* is the Khmer word for indigo dyeing. A 66 year old villager in Bati district in Takeo province carried out indigo dyeing about 40 years ago. She had to talk with her friends in the same village to recall the whole production process. According to them, there are many kinds of indigo. The indigo that they used to grow is the Indigo tree (*Indigofera tinctoria* Linn), that is called *Trom* in Khmer. The *Trom* is fermented and becomes a blue muddy paste, which is called a *Mor*. The *Mor* is diluted with water in a small earthen jar and mixed

with limestone, ash water from the burnt kapok tuft shell, banana fruit, and palm sugar. This mixture is fermented for another five to ten days. The whole process from *Trom* to *Mor* is called the *Cleih*. The dark blue color is referred to as *Kiyou Cya* and the light blue color as *Kiyou Kucya*.

Bak Kheng village in the outskirts of Phnom Penh is another place where indigo dyeing was seen until 1970. It is ten kilometers north of the capital, situated in between the Mekong river and Road No.6. The seeds of the indigo tree had to be bought from Kampong Tom province every year because the color would not be as good if the seed from the first tree was repeatedly used. In December, after the fields are inundated by the water from the Mekong during the rainy season, the seed is planted. It takes four months for the trees to grow one meter high. This is when they collect about 25 kilograms of these trees and soak them in a wooden tub (2 meters width x 1.2 meters height) filled with water for about 12 hours. After taking out the trees, the liquid is stirred with a wooden stick. Eight kilograms of limestone taken from shells is added to the liquid, and laid to rest for another two hours. As the substance sinks to the bottom, the clear water at the top is taken out. The whole liquid is then shifted to a smaller tub, and the same process of taking out the clear water is repeated. Thereafter, the remaining thick liquid is poured into a hole in the ground and left for another day. The thick paste, or the *Mor*, is then taken out and kept in an earthen jar. Mr. Tim Peach (75 years old) says that out of 25 kilograms of indigo he could make enough *Mor* both to use himself and to sell in the market. In 1967, the *Mor* sold at US\$ 0.28 (700 riel) per 25 kilogram package. All of the households in the village were producing the *Mor* and weaving *Kromas*. He recalls that other provinces such as Kampong Tom and Kratie were also *Mor* production sites.

#### d Black Dye - *Mak Klua*

There were two ways in which Cambodian people obtained black from natural dyes. The first method, as seen in the *Sampot Hol*, is to dye the yarn twice, once in red and the second time in blue. This results in a black or dark brown color.

Another method is to use the *Mak Klua* or ebony fruit. This is normally how cotton is dyed in order to make common daily wear for the farmers themselves. The use of *Mak Klua* is too common from the point of view of the villagers that in the beginning, they did not even regard it natural dyeing.

In villages in Kampong Speu province, the *Mak Klua* fruit is used to dye already woven white silk fabric. The fruit is collected ripe, crushed and put into water in a small earthen jar. The fabric is then soaked in the liquid for at least 30 minutes and dried under the sun. This process is repeated four times a day for ten days until the fabric becomes totally black.

## 2.6 Present Situation of Ikat / Tie Dyeing in Cambodia

Apart from the yarn production and the weaving, another important component of traditional silk fabrics is dyeing. In particular, sophisticated Ikat or tie dyeing techniques are at the heart of fine Cambodian silk fabrics. The traditional Cambodian Ikat is a single, weft Ikat. This is unlike India, Indonesia and Japan, where the double Ikat, i.e. both the weft and warp are tie-dyed, is prevalent. (Okamura 1988) The Ikat technique is also known as the yarn resist dyeing technique. In other words, the dye penetrates into the untied, exposed sections of the yarn, leaving the tied sections undyed. The word Ikat comes from the Indonesian word *mangikut*, and has become a universally known term for this type of dyeing technique. The Khmer term for Ikat is *Chong Kiet*, which means "tying strings". The Khmer in Surin, Thailand refer to it as both *Chong Kiet* and *Chong Sin*, the latter being a

mix between the Khmer and Lao languages. The Thai people use the word *Matmee*, also meaning "tying strings".

Although traditionally, banana fibers were used for tying the yarn, recently this has been replaced with plastic strings, just like in Thailand. However, there are some villages in Bati district where the traditional method is still being used. The tree of the "banana fiber" or the *Chach Chhvie* looks like a fruitless banana tree but in actual fact is Manila hemp (*Musa textiles Nee*). Its origins is in the Philippines and its strong, water resistant fiber has been used to produce ropes and fishing nets for centuries. (Norinsho Neetainogyokenkyu Senta 1975) The outer layer of the tree trunk is peeled off with a knife and then dried. The weavers would then tear thin fibers off the bark and tie the yarn. The use of the banana fiber gives a soft touch to the colors as there is some overlapping penetration among the colors. This is also true of the Indian Ikat that uses cotton thread to tie the yarn. Plastic strings give a sharp edge to the colors on the fabric.

Whereas in the above example, one can see places that still maintain traditional practices, at the same time, in other places, modern specialization of labor is seen entering the villages, and some weavers are starting to skip the dyeing process. The cotton weavers in Keau Svay district in Kandal province were seen buying already dyed yarn from the market. In Kompong Cham province, there are middlemen who buy the yarn and dye it themselves before selling it on to the weavers. In places such as Sithor Kandal district in Prey Vieng province, there is a division of labor among silk producers. For example, while some specialize in dyeing, others only weave. Therefore, there are many villagers who do not know how to dye.

## **2.7 Present Situation of Looms in Cambodia**

### 2.7.1 Traditional Looms

An example of the simplest loom can be seen in the weaving villages of Kampong Speu province. There are two 60 centimeter poles dug into the ground in the front area of the house and another pair of 40 centimeter poles about three meters away. In the rainy season when weaving activities cease, one only sees the poles in the ground. In the dry season, a beam is set into the dent in the longer poles to roll up the cloth as it is woven. Similar looms were observed in Khmer villages in Northeast Thailand about ten years ago. However, as the volume of weaving activities picked up, looms with a sturdier framework became more common. The Khmer people in Cambodia and Northeast Thailand refer to the loom as *Khai*, while the Thai and Lao people call it *Kee*.

There are basically three types of traditional looms in Northeast Thailand. The looms of the Lao people are made of a rectangular-cubic frame 1.3 meters wide and high and 2 meters long. The warp yarn is stretched out from the front beam to the rear beam of the loom, passed over the upper rear frame bar, brought forward and tied to the upper front frame bar right over the weaver's head. The frame of the Khmer Thais is 3-4 meters long and has a beam that rolls up the warp yarn towards the rear part of the frame. The Kuy people, who are earlier residents in the area, have looms that are similar in structure to the Khmer loom, but the warp yarn stretches out 10-15 meters before it is wound up onto to a beam that is set into a pair of poles that is vertically stuck into the ground. In the province of Surin, where most of the Khmer people are found in Thailand, 70 percent of the population are of Khmer origin, 20 percent Kuy and 10 percent Lao. This is different from the other northeastern provinces where the Lao people are the most dominant (Srisawat 1991).

Most of the weaving villages surveyed in this research had looms that were similar to those of the Khmers living in Thailand. The loom consists of a frame 3-4 meters long and 1.3

meters wide, with a warp beam attached at the rear. Some variations of this kind of loom were seen in villages in Kandal province except for Prek Takov and Prek Tavon villages, and in Kampong Cham province with the exception of the Cham villages. Here, the poles that support the warp beam are stuck into the ground at a slant. This type of loom is also seen in the Phnom Penh museum.

### 2.7.2 Shape of Shuttles

There are two types of shuttles in Cambodia. The torpedo shaped shuttle that is used for ikat weaving is 35 centimeters long with a diameter of 2 centimeters, and one end is formed into the shape of a bullet. They are traditionally made of bamboo but in recent times, plastic ones are more common. It is referred to as the *Trol Dai* (literally meaning hand shuttle) in Kampot province. The people in Takeo province call it the *Trol Weng* (meaning long shuttle). One can see a very old torpedo shuttle in Phnom Penh Museum that may have possibly been used in the Royal Palace. The bullet part is made of ivory, the shaft is decorated with inlaid shells and intricate traditional Khmer patterns drawn with black lacquer.

The second type of shuttle is called the *Trol Pakaa* (pen shuttle). It is like the shape of a row boat (or a Parker pen like its name) and is 22 centimeters long. This shuttle is used to weave the supplementary weft pattern on the *Sarong*, *Pamung* and *Chorabap*. A shuttle of a smaller size is used when weaving with gold thread.

The Khmer people in Surin province in Thailand use an 36 centimeter long oxbow shaped shuttle. It is very similar to that of the Lao people. It is called a *Kasuui* in Thai.

A 13th century Chinese diplomat named Chou Ta-Kuan wrote a book called the "Customs of Cambodia", recording his observations of the everyday life of the Khmer people during his visit to the Angkor capital. He noted that spinning and weaving was a common daily activity and that a "long bamboo shuttle" was being used. It can also be assumed that the torpedo shuttle had been in use in Cambodia since the very old days because it is used in the weaving of the *Kroma* and *Sarong* in Kampot Speu and Kampot provinces, where much of traditional Khmer weaving still exists. This type of shuttle is actually seen in countries such as India and Indonesia. It is possible that this shuttle as well as weaving skills were introduced to Cambodia together with the inflow of Hindu and Islam culture. The boat shaped shuttle, on the other hand, is thought to be newer type. It is likely to have been brought into the country from Europe.

## **2.8 Present Situation of the Marketing of Silk in Cambodia**

### 2.8.1 Marketing Channel

One crucial factor to consider in terms of marketing is Phnom Penh, which is the largest center of consumption in the country. One should note that it is important for accessing the silk yarn, or the raw materials, as it is for marketing the woven fabrics, or the final product.

In Kandal province, the villagers sometimes sell their products by themselves in Phnom Penh, but most of the times they would go through middlemen. In the case of the villagers of Bati district in Takeo province, half would be sold directly and half through middlemen who come from the outside. The shops in Saiwa virtually act as a wholesale center for the region. Ninety percent of the fabrics that they purchase are sold on in Phnom Penh. Shop owners say that in one month, one shop would deal with 200 pieces of fabric. However, it appears as if the volume is actually larger.

For the villagers of Kampong Cham province, which is famous for handwoven silk fabrics, middlemen are the sole channel for the marketing of their products. In most cases, there are

middlemen in the village who sub-contract village weavers. Under these circumstances, most of the cotton *Kroma* weavers in Kampong Cham province have discontinued their production, only with the exception of those who are hired by middlemen for US\$ 0.06 (150 riel) labor cost per piece, or those who access to cheaper yarn at US\$ 4 per kilogram. Weaving for US\$ 0.06 per piece is extremely cheap, as it only generates US\$ 7.5 per month (5 pieces/day x 25 days/month). It is only the desperate villagers that can tolerate these conditions because they have no other alternative to earn a living.

As for the colors and designs, the shops usually would give orders to the village weavers. This is true with the middlemen who would specify colors and designs that are in high market demand.

The situation in Angkor Chey district in Kampot province is quite different. Because the volume of production is small, middlemen have only started coming to the area very recently, and the number is still very limited. The villagers raise traditional yellow silk cocoons, so whenever they are short of silk yarn, they would purchase from neighboring villagers. They also weave cotton cloth, for which they would buy the cotton yarn from Tani town. The cotton cloth is mainly for household usage, but whenever in need, they would either sell for cash or exchange for rice from other villagers.

The example of Kho Kor village illustrates the impact of increased cotton yarn price on the weaving of *Kroma*. In 1993, one kilogram of cotton yarn cost US\$ 2.80 to the weavers.

Presently, it costs US\$ 5.20. Since ten *Kromas* can be woven out of this much yarn, this means that the yarn cost per *Kroma* shot up from US\$ 0.28 to 0.52. In the markets of Phnom Penh, the price of a *Kroma* ranges from US\$ 0.80-1. This includes the profit margin of both the middlemen and the shops. Peddlers are also seen selling on the streets with a pile of *Kromas* on top of their head. In any case, the retail prices all reflect the increase in raw material cost.

The same constraints apply for the silk market. An average *Sampot Hol* weaver produces 5 double sized (3.6 meter) pieces per month at US\$ 12-24 per piece. Assuming the price was US\$ 20, the producer would be able to earn a gross monthly income of US\$ 100. As the cost of the required silk yarn is US\$ 40 (1.5 kilograms for five pieces), the net profit would be US\$ 60 a month. A recent increase in silk yarn prices has reduced the profit from US\$ 60 to US\$ 50 or even less. Again, the middlemen pass on the higher yarn cost to the weavers, but suppress the price of the woven fabric that the weavers sell to them. Weavers from Takeo province who receive the yarn from the middlemen as in-kind loans are paid very low prices for the woven fabric.

### 2.8.2 Marketing Outlets

In this research, the Central market area in Phnom Penh was found to be the largest market with over 40 shops selling silk fabrics. Toul Tom Pong market and Old market had about 10 shops; the market in regional Siem Reap town had about 10 shops; Kampong Cham town had 8 shops; and Phnom Penh's Oruseei market had only two shops.

The price of a double size (3.6 meters) *Sampot Hol* ranges from US\$ 15-40 in Phnom Penh's Central market. This is a reasonable price given the quality available. Top quality pieces in Cambodia cost US\$ 220-550. In neighboring Thailand, a common double size piece would cost US\$ 60-200. Although it is inappropriate to make simple comparisons between products, the variation in prices does reflect the difference in quality.

In Phnom Penh's Toul Tom Pong market area, there are some shops targeting foreigners and sell old *Sampot Hol* pieces. These pieces indeed look very old and are patched up.

However, the patterns are very intricate compared to the modern ones. One can see how superior traditional Cambodian hand weaving was. Antique fabrics are popular among the foreigners and the number of shops selling such items seems to be gradually on the increase. The price ranges from US\$ 10-100. The popularity of old silk fabrics also reflects the lack of very high quality weaving at present. If Cambodia were to expect more tourists and foreign residents in the future, it would be important to improve the quality of its present products. The same applies for aiming markets abroad. Fine quality Cambodia silk fabrics have already been exported to international markets in the past. There would be potential for foreign demand given the traditional production skills are recovered.

The overall supply-demand relationship for silk fabrics in Cambodia seems to be favorable for the producers, although one cannot be too optimistic when looking at the future market trend. All the shops surveyed have replied that sales have been declining over the past three years. Many shops have started their 3-4 years ago. In many of the weaving villages, producers have added 1-2 looms during the past two years. It is evident that although there has been a boom in the silk market for about three years, this may have started to cool off.

The sudden rise in demand for silk fabrics in the past few years reflects the boost in the economy by the UNTAC boom. After more than two decades of conflict and war, Cambodia finally entered a new phase in its history in October 1991 with the Paris Conference and the start of the temporary administration by UNTAC. This also triggered a wave of new economic investments.

UNTAC troops have already withdrawn from the country. Owners of silk shops in the Central Market say that during the UNTAC period, foreigners constituted 50 percent of their total customer base, whereas at present the proportion has decreased to 20 percent. This, on the other hand, shows that there is also a growth of domestic demand, being supported by Cambodian women who have started to wear the traditional national costume. This may be an indicator of the upgraded lives of the people brought about by the peace that Cambodia seems to have finally grasped. Stability and steady economic growth is crucial for this demand to be sustained.

An example of the effects of economic development on the silk industry can be seen in neighboring Thailand. In the 1980's, rapid economic growth in Thailand triggered a flourishing tourism industry. Many foreign tourists also shifted from the Philippines that was encountering political turmoil. The boom in tourism also boosted the demand for Thai silk. It is greatly hoped that Cambodia's newly revived silk sector achieves sustained prosperity.

### **3 Conclusions**

In order to restore traditional handwoven silk fabric production in Cambodia, it is indispensable to assure the supply of the local variety silk yarn. However, silk yarn from Vietnam is used for the majority of handwoven fabrics produced in Cambodia. We know that many villages once had engaged in sericulture until the period before 1970's. The villagers explained to us about the quality, luster and the ease of use for work of traditional Cambodian yellow silk yarn.

According to my calculation based on about 700 looms in 7 villages in Takeo province that I visited, I can estimate that approximately 30 tons of silk yarns are used per year for weaving activity in this province. Through this small evaluation work, it maybe correct to say that sericulture is a promising activity for farmers to supplement their income.

Furthermore, the price of imported silk yarn has been rising by 20% per year, from US\$16 per kilogram in 1993 to US\$22 in 1994, to US\$28 in January 1995, and to US\$32 at end of

March 1995. If, silk yarn can be produced sufficiently in the country, it would restrain price-speculation and thus stabilize the national silk market. The issues of silk yarn price are important factors not only to secure the national silk industry but also to compete in the international silk market in the future.

Sericulture is considered a female work as it involves reeling and weaving. It is important financially as it could generate certain cash income in poor rural areas. I am convinced that it is more convenient to set up sericulture in areas such as Kampot province which has already had long experiences in this field rather than to introduce it in new places without basic know-how. I expect that this area can support the stability of Cambodia silk promotion.

I believe it necessary to set-up urgently the production of local yellow silk yarn among farmers in co-operation with all organizations or persons concerned.

With respect to the quality of silk yarn, there is now low quality silk yarn which is imported is traded in the markets. If this low quality silk yarn is used for weaving of traditional Ikat (tie-dye) or so-called *Sampot Hol*, the renowned textile of Cambodia, it can be easily identified from its of low quality. This kind of silk yarn is suitable for the production of other types of textiles, but not for the production of traditional fabrics. It is unacceptable as low quality silk yarn does not have good luster and smooth texture.

I noticed that there was a tendency among the villagers to produce traditional silk fabrics with poor quality to meet the increasing of local demand consumption, but unfortunately it neglects the high degree of technical achievement of the past. Fabrics are mostly circulated by middlemen, resulting in difficulty in keeping quality control and technical stability at the village level.

Middlemen play a major role in the marketing of hand-woven fabrics in Cambodia. Individual weavers sell their products to middlemen who are either living in the villages or coming from Phnom Penh. However, as the mechanism of the market becomes more prevalent, this practice may change. It would be most desirable if the village producers themselves have control over their sales.

Traditional silk fabrics in Cambodia had fine quality in the past, but as present there are problems of technical differences due to low quality silk yarn. I learned that the persons who have this traditional high degree of skills in silk weaving are mostly very old. In this light, the organizations dealing with Cambodia silk weaving need to establish concretely and promptly policies and strategies to restore and develop the activities of traditional high quality silk weaving.

## 4 Recommendations for Future Development of Cambodian Silk

### 4.1 Increasing the Traditional Silk Yarn Production

There is a great need to increase the production of the indigenous yellow silk yarn. The quality of the silk yarn directly links to the quality of the fabric. The present silk yarn being marketed in Cambodia is not of the best quality. In order to achieve better Cambodian silk fabrics, it would be important to improve the yarn.

It was found in the research that there are three main areas where, although very small scale, sericulture activities were being carried out, as illustrated in the table below.

Area of Sericulture Production	Characteristic of Area
Kompong Speu	traditional silk production by several farmers KHEMARA project
Kampot	on the verge of discontinuation
Siem Reap	Les Chantiers Khmers Project three years experience
Battamban	UNESCO Project less than one year experience
Banteay Meanchey	UNDP/OPS CARERE
Kampong Cham	Vietnamese silk production by one farmer fertile soil farmers experienced with growing cash crops

These may serve as base areas for initially increasing production. However, a further detailed analysis of the specific localities would be required to determine the actual method of increasing production.

### 4.2 Increasing the Marketing Opportunities of the Village Producers

It has been seen in the research that the village silk fabrics producers are in a very disadvantaged position in marketing their own products. It would be important to increase the bargaining power of the silk producers to obtain better returns for their yarn. In the present marketing system in the rural areas, silk producers deal with middlemen individually and they usually end up accepting whatever conditions that the middlemen offer. Organizing producers groups is one way of strengthening their position. This would enable the marketing of yarn in larger bulks. However, it would also be necessary to improve silk production techniques, set up quality control standards, and to improve the fundamental socio-economic status of the villagers. Support from international organizations, governmental organizations and NGOs may be needed to achieve this.

### 4.3 Enhancing Traditional Dyeing and Weaving Skills

Another factor that would help to preserve Cambodia's silk tradition as well as to increase the marketing potentials of its silk products is to enhance the present level of dyeing and weaving skills. This should also be dealt with as soon as possible because the best traditional skills are in the hands of the elderlies and these skills would need to be passed onto the younger generations. Moreover, when considering the fact that traditional Khmer fabrics were dyed with natural materials, it would also be significant to revive natural dyeing skills. The colors and texture of traditional naturally dyed Khmer silk is extremely fine and delicate. Therefore, the revival of natural dyes would enable Cambodian silk fabrics to gain added value and competitiveness in the world market. Natural dyes are also beneficial in the sense that they are good for the skin and they can be used as medicine.

One recommendable method is to establish a weaving school that incorporates the following four components:

- 1) Collecting old handwoven silk fabrics to be used as materials for learning the skills and designs of traditional weaving.
- 2) Providing the appropriate environment for experienced and skilled weavers to fully utilize their craftsmanship, as the ones who are presently capable of weaving the highest products.
- 3) Dividing the training courses into three levels of skills: beginner, intermediate and advanced.
- 4) Setting up a shop to sell the products.

These components have to be integrated in order to be truly effective. A trainee who finishes the training course in 3) should be able to move onto 2) and even be allowed to produce at home if necessary. 1) and 2) would be important resources in enhancing the skills of those learning in 3). Each training course should last year one year because anything less would be insufficient to acquire skills. The school should have its own marketing outlet (4) and the trainees' products should be targeted for the market.

In other countries that have traditional weaving and handicrafts, similar institutions have already emerged in the process of development of the arts. However, in the case of Cambodia, where 25 years of war have interrupted this development, an institution needs to be established.

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## Appendix 1 Number of Looms in Cambodia

The following table summarizes the number of weaving looms found during the survey. Except for areas where otherwise mentioned, the looms in the table refer to the traditional types.

Province	District	Village	No of households	Percent of households with looms
Takeo	Samrong	Sla Kanlek	97	55
		Krachang	60	90
	Prey Kabas	Ampil Kalek	120	90
		Reussey Thmey	100	70
	Bati	Ta Nok	205	20
		Ta Nop	-	90
Pey		150	90	
Kandal	Kean Svay	Culay Ampol	600	50 (1)
	Muk Kampoul	Kho Dai	-	100
		Prek Bonkong	-	50
	Khsach Kandal	Prek Takov	-	90
		Prek Ampil	-	90 (2)
Kampong Cham	Kan Means	Roka Koy 1	126	20
	Kampong Siem	Kampong Krobai	92	50
		Chamker Semscep	101	50
		Ko Kor 1	100	90 (2)
	Kho Sotin	Moha Leap	-	80
		Love	260	90
Kroch Chmar	Trea(commune)	1000	70	
Prey Vieng	Sitor Kandal	Prek Sandai	150	70
		Prek Cangkran	203	90
		Prek Tapok	100	50
Kampot	Angkor Chey	Daum Doung	-	2
		Cyarap	162	8

(1) Only modern types such as flying shuttle looms and semi-automatic stepping weaving machines

(2) 90 percent until 6 months ago, but presently none are being used