STATUS AND DESCRIPTION OF THE TEXTILE INDUSTRY IN BAGUIO CITY AND BENGUET PROVINCE[4]

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ABSTRACT

This study was done to assess the status and describe the textile industry in Baguio City and Benguet Province, and to identify research and development areas towards improving the industry in the light of bringing back the grandeur of the Cordillera region. Data was generated through: rapid market walks, library research, field visits, and informal interviews of the selected industry players.

The textile industry in Benguet includes the components of sericulture, yarn trading, thread and textile factory trimmings, weaving, processing or manufacturing of made-up textile products, wholesaling and retailing of finished products, and the processing of *maguey* or *sisal* fibers.

The sericulture industry is still in its infancy of development with 9.73 hectares of mulberry farms as of 2008 which is expected to increase to 26ha by 2010. Silkworm rearing resulted to a production of 657 kilograms of silk cocoons (2009) and 56kg of raw silk fibers in 2008, produced by members of the Kapangan Environmental Livelihood and Multipurpose Cooperative (KELMC).

Growth in the tourism industry spurred the establishment, and currently influencing the status of the textile industry in Baguio and Benguet. It made possible for the expansion of trade in imported thread and raw materials among 31 entrepreneurs and manufacturers of textile goods providing job opportunities. There were 108 individuals and associations included in the Department of Trade and Industry (DTI) listing of registered firms but as many as 515 individuals are formally and informally engaged in manufacturing, which includes the weaving, knitting, crocheting and the creation of made-up textile goods or novelty items. Those engaged in wholesaling and retailing of manufactured textile products includes 253 establishments. Their contribution to employment and the economy could easily reach more than PhP133 million per year.

Maguey or *sisal* fiber processing became an obsolete home industry among the old folks in Bokod and Kabayan with the introduction of cheaper polypropylene ropes.

Lack of support on marketing and technology, slow turn-over of capital, and the unstable and increasing cost of threads, yarns or textile fibers are some issues the textile industry in Baguio and Benguet is facing.

KEYWORDS: textile, textile industry, weaving, knitting, maguey and sisal fiber processing, sericulture, and textile producers

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INTRODUCTION

The textile and garment sector in the Philippines is a vital part of the country's economy and one of the most important employers. The industry expanded rapidly during the 1960s and 1970s but has recently experienced a decline (Textile Intelligence, 2009). This situation is exemplified by the closure of the garment manufacturers located at the Export Processing Zone in Baguio City. However, small-scale manufacturers of native garments, souvenir items, and accessories in Benguet exist. One major area of concern is the heavy dependence of the manufacturers on imported raw materials and the lack of information on the current status of the industry.

Baguio City, La Trinidad Municipality and, Benguet Province are widely known as tourist destinations. Hand-woven and knitted products, highland vegetables, strawberries, and fiber crafts are among the products usually bought by local and foreign visitors. Most of the woven products are locally made, mostly by migrant families from the Cordillera Region. According to the DTI survey, most of the registered commercial weaving firms in Cordillera Administrative Region (CAR) are in Benguet (37%) and Baguio City (35%). Two of these weaving firms, the Easter School Weaving and Narda's Fashion were able to penetrate export market in the eighties. Unfortunately, both had laid-off some of their weavers due decrease in demand. Their status to date, as well as the status of other micro-industry weavers is unknown.

This study therefore, aims to identify the textile and fiber industry players in Benguet, describe the characteristics of these industries, describe marketing linkages and buying preferences, identify institutions involved in assisting the textile and fiber industry in Benguet, and make appropriate recommendations for future improvement of the textile industry in Benguet. This information will serve as baseline data for further Research and Development (R&D) activities to restore the grandeur of the Cordillera.

MATERIALS AND METHODS

Survey area and respondents

The study was conducted in Baguio City and in the municipalities of Benguet province where weavers, knitters or manufacturers, textile wholesalers and retailers, thread traders, sericulture growers, *maguey,* or *sisal* growers or processors are located based from the secondary information gathered from offices and market walk, namely: 40 respondents in Baguio City, La Trinidad (19), Atok, Tublay and Mankayan (17); Tuba, Itogon and Kabayan (17); and Kapangan, Sablan and Buguias (11). These 104 respondents are engaged in the different aspects of the textile industry, namely: seven sericulture growers, nine in thread trading activities, 40 in weaving, knitting, crocheting, and manufacturing activities, 25 in wholesale or retailing of textile products, eight in *sisal/maguey* processing, and 15 are officers/representatives of the weaving association/sericulture growers organization.

Data gathering procedure

The study approach started with market walk, secondary data collection and review of published and unpublished documents available from various institutions, and key informant interviews. Preliminary workshop was done for the formulation of questionnaires, and identification of respondents. This was followed-by field visits to the different municipalities of Benguet and a tracer survey of individuals and businesses engaged in textile industry and related activities. Data gathering tools such as semi-structured interview schedule, direct observations, and group interviews were used to obtain necessary information.

Data gathered

Data gathered from the respondents are information to describe the textile and fiber industry players in Benguet; the status and characteristics of these industries, marketing linkages, practices and buying preferences; institutions involved in assisting the textile and fiber industry; strengths and weaknesses of the industry; and research and extension linkages. Some pictures of the promotional interventions were also taken.

Data analysis

The socio-economic data and other relevant information were encoded. From the encoded data, the empirical data for the research project were categorized, tabulated, and analyzed. Descriptive statistics, such as frequency counts, numbers, and percentages were used to describe and interpret the data.

RESULTS AND DISCUSSIONS

Baguio City and Benguet Textile Industry

The textile industry in Baguio City and Benguet Province includes: (a) components of sericulture, (b) trading of yarn, thread, and textile factory trimmings, (c) weaving and the processing or manufacturing of made-up textile products, (d) wholesaling and retailing of finished products, and (e) the processing of *maguey/sisal* fibers. Sericulture which includes the processing of cocoons into raw silk is preceded by cocoon production and silkworm rearing, and mulberry leaves production.

Textile manufacturing consists of the primary processing sector which includes the spinning, twisting, weaving, knitting, dyeing, and finishing; and the secondary processing that includes garments and made-up textile goods manufacturing (Basco, Ofreneo and Serrano, 2004). The textile industry is supported by the natural dyes and garments design sectors.

The key players in these textile industry activities is stated in Box 1 with the description of the key players.

Profile of the Textile Industry Players in Baguio City and Benguet

Age. Most of the textile players are in the peak of their productive years, from 25 to 50 years old (Table 1). The remaining 35% are more than 50 years old, and most of them

Box 1. Key players in the textile production

Local thread trader. Responsible for supplying threads/yarn to the weavers, knitters, and crocheters. Some thread traders have their own production as they supply thread sometimes on credit to their contract weavers and knitters and thus, they also act as the market outlets of the weavers/knitters.

Textile producer. The weavers, knitters, sewers, and others who produce or make textile products like woven fabrics, knitted bonnets, slippers, bags, purses and articles made from woven fabrics and other raw materials. Some of them have their own market outlets.

Wholesale-retailer. Direct buyers of the textile producers and are mostly found at the Hangar and Hilltop market, Baguio City. Some of them have their own contract weavers and knitters.

Retailers. This player buys the products from the wholesale-retailers and sell it to the public. Some produce limited numbers of their display products like crocheted products.

Middlemen. Serves as the link between Metro Manila based textile companies and the local thread traders for factory excess thread and cloth trimmings. They also serve as the truckers.

Sericulture farmers. They are farmers who plants mulberry trees for the purpose of producing silk worm cocoons.

Maguey processors. Individuals who plant or gather *maguey* leaves, extract/ process the fiber into rope finished products.

are engaged in *maguey/sisal* fiber processing and thread trading. The younger generation is in sales and they outnumber those in weaving and sericulture. This result is contrary to the DTI report in 2007 where few women at age 17-30 are into weaving. This means that weaving and other textile activities had become an alternative employment source as there is a lack of more financially-rewarding employment opportunities in the urban centers.

Table 1. Age of the textile industry players

AGE	%
25 – 50	65
> 50	35

Gender. Table 2 shows a predominance of the female in the textile industry. Women's involvement starts from the preparation of materials until marketing of the finished products. Even in the sericulture industry, about half of the workers are women. Men's contribution in the weaving industry is in the construction of the loom machines, processing of *maguey*, sericulture, wholesale-retail business, and the operation of the knitting machines. These men-knitters were previously employed in textile companies at the Export Processing Zones.

Table 2. Gender of the textile industry players

Gender	%
Female	82
Male	18

Civil status. Most of the textile players are married and 12% are either single, widow/er, or separated. These data indicate that textile is an important livelihood source, full-time or part-time basis.

Table 3. Civil status of the textile industry players

CIVIL STATUS	%
Single, widow/er, separated	12
Married	88

Educational attainment. Looking at the educational attainment of the textile players (Table 4), it was noticed that the industry employs even those who had only finished elementary, secondary education or vocational/ trade courses. It was also observed that those who had a Bachelor's degree or had reached college level are mostly in the wholesale-retail business.

Table 4. Education of textile players

EDUCATIONAL ATTAINMENT	%
Elementary	21
High School	38
College	36
Vocational	5

Ethnic affiliation. Even if weaving is not a skill among the indigenous Benguet tribes, it is good that in this survey, more Benguet people are also in textile-related activities like sericulture, *maguey* processing, weaving, knitting, and sales of finished products. This is followed by ethnic weavers and sales entrepreneurs from Mountain Province and Ifugao who migrated to Baguio City and Benguet. The rest are lowlanders (like Ilocano and Tagalogs) married to highlanders.

Table 5. Ethnic affiliation of textile players

ETHNIC AFFILIATION	%
Benguet	46
Mountain Province	39
Ifugao	10
Others	5

Weavers found in La Trinidad particularly at Bayabas and Tawang are women from Kan-ew, Bontoc, Mountain Province. Weavers employed at Narda's Trading are from Besao, Mt. Province, while weavers in the Easter Weaving Center are from the municipalities of Sagada, Besao, and Bontoc in Mountain Province. Ifugao women dominate the Apugan, Baguio City weaving group, though there are other members like the Ibalois and Bisaya who have embraced weaving. In the mining areas, like Mankayan and Itogon, different ethnic groups are represented. These are the wives of the miners coming from Mt. Province, Ifugao, Kalinga and other parts of Benguet. Atok and Tublay weavers are both *Kankana-ey* and *Ibaloi*, and in Kabayan, are *Ibalois*.

Weavers from Ilocos Sur play an important role in the textile industry of Baguio City and Benguet. Weavers from Tagudin produce woven cloth like blankets and head turban needed during rituals and cultural ceremonies of Benguet. Historically, Benguet cloths woven by the Ilocanos were traded with the highland products. La Union weavers and knitters market their textile products in Baguio City and La Trinidad.

Household size and religion. Consistent with Filipino family profiles, the average household size is four. The importance of family members in the weaving industry is shown in the activities such as rewinding and sorting of threads, warping, weaving, in finishing, and hauling of products. Children help in the rewinding of thread, and husband is involved in making the back strap and loom machine for their wives. Family labor is observed in the assembly of textile-made products like hats and native slippers, and in manning retail outlets.

Table 6. Household size of textile players

HOUSEHOLD SIZE (#)	%
1-3	28
4-6	47
7-9	15
>10	10

Table 7. Household religion of textile players

RELIGION	%
Roman Catholic	61
Anglican	15
Protestant/Others	24

Most of the textile players are Roman Catholics, followed by Protestants (24%), and the remaining 15% are Anglicans.

Membership in organizations. There are no definite organizations in the Textile Industry. The players in the textile industry are generally on their own initiative. Most of them don't belong to any business or industry organization. Weaving or women's group were initially organized for the textile-related activities in the different municipalities of Benguet and in the City of Baguio but it now appears that only few are members of women's organization who are into weaving (like those in Mankayan, Kabayan and Tublay). Those who belongs in sericulture organization were recently organized (Table 8).

Table 8. Membership in organizations

MEMBERSHIP IN ORGANIZATION	%
None	83
Weaver's/women's organization	9
Sericulture organization	8

Time involved in textile business and sources of family income. Involvement in textile activities is either full-time or part-time. Some momentarily stopped their operations in textile business due to high cost of inputs.

Table 9. Time involvement of textile players

TIME INVOLVED IN TEXTILE BUSINESS	%
Part time	33
Full time	54
Stopped operation	13

Those on full-time basis are those whose main source of family income are in the textile business while those on a part-time basis also derived their family income from employment, farming, and other businesses (Table 10). Part-time players consider the textile business, mostly those involved in the weaving, knitting, and sericulture activities, as supplementary source of family income. Rewinding, crocheting and other finishing activities are done while manning their market retail stalls. In some cases, bamboo-based products are also included in this activity. Thus, there is no individual engaged solely on weaving or crocheting. The textile activities includes: the weaving of both back strap and loom; knitting (hand, machine or flat machine), crocheting, trading (buy and sell), financing, and finishing-sewing or assembling.

Table 10. Major sources of household income of textile players

SOURCES OF FAMILY INCOME	%
Textile business	61
Employment	16
Farming	10
Other businesses	8
Combination of the above	6

Years involved in textile business. Findings show that the textile players are almost equally distributed starting from those having less than 5 years to those with more than 20 years in the textile business. Those who are in the textile business for more than 20 years are generally the weavers and those who are involved in less than five years are mostly the buy-sell retailers (Table 11). Weavers especially from Ifugao and Mt. Province learned weaving since childhood as young as seven years old. Thus, among the respondents, the longest period of involvement in weaving is 48 years and the shortest period of involvement is less than a year.

Table 11. Years in textile business

YEARS IN TEXTILE BUSINESS	%
< 5 years	23
5-10 years	24
11-20 years	27
>20 years	25

Income derived from producing tex-tile products. The textile players who earn less than PhP5,000 per month are mostly comprise of part-time weavers or household producers be-ing paid on a piece-rate basis, including the seri-culture growers and *maguey* processors whose earnings are seasonal or occasional. Those earn-ing a net income of PhP 5,000-10,000/month are the weavers employed on a full-time basis at Narda's Hand Woven Arts and Krafts and Easter Room Weaving at km5, La Trinidad, Benguet, and the small businesses engaged in wholesale-retail of threads and textile-inspired finished products. Businesses with bigger capital earn much more, having an income ranging from PhP10,000-20,000/mo., and having an income of more than PhP20,000/mo. (Table 12). Gross income of weaving firms like Narda's Arts and Trade, Easter Weaving, and Kabayan Weaving was calcu-lated to range from PhP0.3 to 6 million/month.

Table 12. Income from textile business applicant

INCOME DERIVED IN TEXTILE BUSINESS	%
< 5,000	29
5,000-10,000	44
10,000-20,000	23
>20,000	4

Employment generation. Businesses engaged in thread trading, wholesale-retail of fabrics, and textile-inspired finished products employ at least one to 20 weavers or employees and 35% employ 21-40 individuals either on a part-time or full-time basis. Big manufacturers like Narda's and Easter Weaving employs 41-60 individuals which include their sales and marketing staff.

Table 13. Number of employees of textile businesses

NUMBER OF EMPLOYEE/ WEAVER	%
1-20	47
21-40	35
41-60	18

Trainings attended or technology learned on textile. The rise in weaving/knitting skills was indirectly attributed to the demand for woven and knitted items at the local market which in turn revive indigenous weaving skills and the trainings initiated by the Department of Social Welfare and Development (DSWD)-CAR with the funding support of Japan International Cooperation Agency (JICA). Along with other agencies like DTI, Department of Labor and Employment (DOLE), Technical Education and Skills Developmnet Authority (TESDA) and

Benguet State University (BSU), a loom weaving center at Wangal was constructed. Trainings on basic and advance weaving were done in all the municipalities of the province. There were also trainings organized on basic hand knitting, machine knitting, and sewing to the women's groups. Trainings on color combination and product development were likewise conducted. Training of Trainors (TOT) on silk and bamboo weaving were also introduced to some weaving groups in the province.

Status, Problems and Potentials of the Sericulture Industry in Benguet

Description of the sericulture industry. Figure 1 shows the flow of the sericulture industry in Benguet. Mulberry leaf production is a pre-requisite of the sericulture industry as mulberry leaves are food for the silkworm. Then, it is followed by the silkworm rearing for the production of cocoon. For now, the local sericulture ends with the processing of cocoons into raw silk fibers.

The ultimate product of this is silk, known as the "Queen of Textiles" because of its soft, lustrous, elegant and beautiful fabric (Sericulture Rural Development Institute, 1997).

Mulberry cultivation started long before the science of sericulture was introduced in the early 80's up to 90's to farmers in Kapangan, Sablan, and Itogon. Presently, only the municipality of Kapangan is continuously promoting sericulture as their One-Town One-Product (OTOP). Old mulberry plantations were intercropped with chayote and are being revived together with newly established mulberry plantations as of this survey. In Sablan, only one farmer had maintained her mulberry plantation and silkworm rearing. Sericulture in Itogon did not flourish. The area where 30 individuals from Sabkil, Itogon planted mulberry was converted into subdivision. In Bakun and Kibungan, new areas are also being planted to mulberry trees.

Area of mulberry plantation and number of farmers. An aggregate area of 9.73ha mulberry plantation exist (Table 14). These were planted by farmers mostly in Kapangan, majority of which were established three years ago (2006) and the oldest plantation was planted 29 years ago. Another five hectares is targeted to be planted on 2010 cropping. A total of 140,000 saplings (Batac mulberry variety) are currently available to be planted by 17 farmers in the different barangays of Kapangan.

In addition, expansion of the silkworm industry in Bakun and Kibungan was envisioned with a PhP3M assistance from the Dangerous Drug Board (DDB). There were 25 farmers from the five barangays of Kibungan, and 20 farmers from Bakun who just started planting.

By 2010, a total area of 26ha mulberry plantation will be available for silkworm rearing, to be operated by more or less 84 farmers in Benguet. Based on BSU experience, it takes one year from planting the mulberry saplings before harvesting of leaves could start. Ideally, 3-4 saplings per square meter are planted but as observed from the four farms visited, an average of 2.41 mulberry trees/m^2 (54,250 trees/2.25ha) are planted. Some intercropped with tiger grass and chayote in steep slopes or rocky terrain. These four farmers were also able to feed 2.75 boxes of silkworm in 2008. With this, it appears that to feed one box of silkworms, almost 25,000 mulberry trees or one hectare mulberry plantation should be planted. It also appears that despite claims of available technology, mulberry leaf production for silkworm rearing is not optimized.

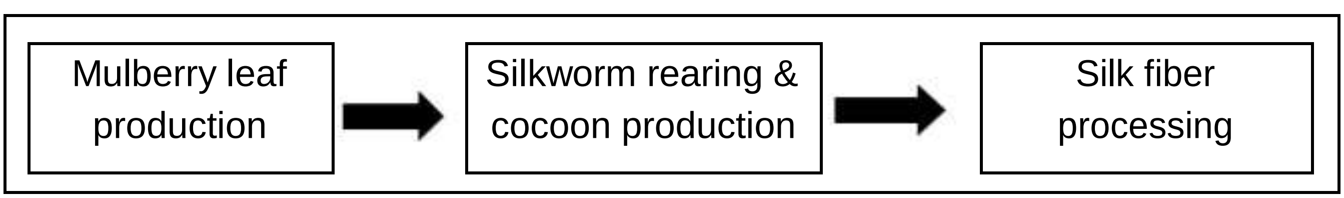

Figure 1. Flow of the sericulture industry in Benguet

Table 14. Area planted and number of farmer with mulberry plantation

MUNICIPALITY/ BARANGAY	ALREADY PLANTED AS OF 2008			TARGET TO BE PLANTED 2009-2010	
	FARMERS (#)	YEARS GROWN (#)	AREA (Ha)	FARMERS (#)	AREA (Ha)
Kapangan	20	3-29	8.40	17	5.0
Labueg	6	3	2.0	3	0.75
Pudong	2	-	1.0	2	1.0
Cuba	8	6	2.4	8	2.0
Pungayan	1	-	0.5	1	0.5
Taba-ao	3	5-25	2.5	2	0.5
Datakan	-	-	-	1	0.25
Sablan	2	16-20	1.33	-	-
Monglo	1	16	0.75	-	-
Talite	1	20	1.0	-	-
Bakun (Kayapa)	-	-	-	20	5.0
Kibungan (Lubo, Sagpat, Palina, Poblacion, Napsong)	-	-	-	25	6.25
TOTAL	22		9.73	62	16.25

Silkworm rearing and cocoon production capacity. During the survey period, only one of the pioneering farmers in Sablan (Mrs. Ambes) maintained her rearing house with a capacity of producing 52-58kg of silk cocoons from 1.5 boxes of silkworm per year. However, in 2008, she shifted to flat silk cocoon production. She produced an average of 7 pieces (1x1m) per one-fourth box of silkworms, or 28 flat sheets/ yr. She sells the flat silk cocoons to a Japanese buyer at PhP600 each.

In Kapangan, 20 new rearing houses were established in various *barangays* from a PhP3.5M grant given by the DDB to start mulberry plantations, build rearing houses, insulated cocoon storage room, and incubation room. Fiber Industry Development Authority (FIDA) also provided a cocoon-dryer. In addition, two rearing houses were put up by the Laginia clan in

Photo courtesy by V. Macanes

Figure 2. Mulberry nursery (6mos) at Labueg, Kapangan

Figure 3. Mulberry farm (23 yrs old) in BSU

Taba-ao, Kapangan. These initial 20 rearing house beneficiaries including members of the Laginia clan revived the KELMC in 2007. KELMC was tasked to coordinate expansion of mulberry plantation and rearing houses, and buy and process the silkworm cocoons. To date, KELMC has 80 members-50 have rearing houses while the others are in-charge of processing the silkworm cocoons to come up with raw silk fibers. KELMC is under the close supervision of Ms. Fe Donato of the FIDA.

Figure 5. Silkworm rearing house in Kapangan

Silkworm eggs from Philippine Textile Research Institute (PTRI). A box of silkworm eggs (20,000 eggs) costs PhP250 and produces 31-36kg of cocoons (Figure 4). At farmer's level, these eggs are reared to become silkworm. Mulberry leaves are produced to feed the silkworm. The months of April to June produce the best quality of cocoons while low production is observed during the months of August to September because of the strong rains. Rearing on November to January is also avoided as quality of mulberry leaf is not good. Fresh cocoons are sold at PhP150/kg. Accordingly, the best quality of silk is being produced in Kapangan due to the favorable environment for silkworm production.

Based on the experience and information provided by four silkworm growers, 63.5kg of cocoons were reared from two boxes of silkworms or an average of 31.75kg/box per time. These KELMC members had reared silkworms 1-4 times/cycles per year. Therefore, KELMC's total production capacity in 2008 should be 1,011kg of silk cocoons/year (i.e., per 9.73ha/1.22 box of silkworms/ha x 31.75kg cocoons/box of silkworms). However, as reported in the local news, 586kg cocoons were produced in 2008 which is 50% lower than the expected production of 1,011kg. Production in 2007 was 418.96kg (Aro, 2009). In 2009, total production was 656.75kg (Donato, 2009). Results also show that farmers can only harvest good quality mulberry leaves to feed silkworm twice a year due to weather conditions. Farmers claimed that their silkworm rearing depends on the availability of mulberry leaves which is in turn dependent on weather conditions, and the timely availability of silkworm eggs.

Accordingly, eight rearing houses were

Figure 4. Silkworms feeding on mulberry leaves and fresh cocoon

put up by the Kayapa Livelihood Association (KALIA) in Bakun while the Local Government Unit (LGU) of Kibungan had targeted putting up an initial 20 rearing houses in barangays Sagpat, Poblacion, and Napsong. However, silkworm rearing is yet to start as there are no records of silkworm procurement from these areas as of March 2010 according to Department of Science and Technology (DOST)-CAR.

Cocoon processing, marketing and raw silk fiber production capacity. Before the operation of KELMC, silkworm cocoons are sold to SRDI at Don Mariano Marcos Memorial State University (DMMMSU), Bacnotan, La Union at PhP70/kg for processing. In 2008, KELMC is buying from members at PhP150/kg. A total of 56kg of raw silk fiber was processed (Figure 6). The raw silk from Kapangan commands a price of PhP2350/kg. In the past, it was sold to Palawan and Aklan to be combined with piña fiber. Now, the raw silk fibers are re-reeled, spun and woven into silk cloth at SRDI, the nearest facility capable of weaving the silk produced by KELMC.

In 2009, KELMC was able to produce 62.8kg of raw silk fibers based on 2008 data. An average of 10.46kg of cocoons produces a kilo of raw silk fiber.

All parts of the cocoons are used into different products. The unreeled cocoon and de-flossed parts are made into other crafts like decorations or being mashed/crushed to be made into special photo paper. A Japanese national in Kapangan plans to buy these de-flossed parts for silk paper photograph prints.

There is a demand for silk cloth especially with the implementation of Repubic Act 9242 otherwise known as “an act prescribing the use of Philippine tropical fabrics for uniforms of public officials and employees and for other purposes.” This is why the local government and KELMC plans to establish its own silk loom weaving. SRDI cannot cope up with the demand for silk, as silk production in this institute is primarily for research and development purposes. During the last quarter of 1998, DMMMSU-SRDI established the Regional Silk Processing Center in Sta. Maria, Ilocos Sur to partially meet the demand for raw silk by local weavers in Aklan and Manila.

Institutional support, problems and descriptions. Institutional support for the development of the sericulture industry had been previously well-taken cared off in terms of R and D institutions and funding support starting with PTRI under the DOST, the FIDA, the Department of Agriculture (DA) for infrastructure and credit, the TESDA who extended trainings on silk and craft development and packaging, the DDB for funding assistance, the DOLE who provided six reeling and two re-reeling machines, and a dryer. The United Nation Development Program (UNDP), the Korea International Cooperation Agency (KOICA), the Plan International and the Jaime V. Ongpin Foundation (JVOFI) in providing

Figure 6. a) The cocoon mounted at the cocooning box and b) the produced raw silk of KELMC for further processing into cloth

Photo courtesy by: Lyn V.

Figure 7. Spinning silk into yarn for weaving into cloth

initial fund support, and the Department of Environment and Natural Resources-Community Environment and Natural Resources Office (DENR-CENRO) for planting materials, and other individuals and institutions mentioned in Inumpa and Bacuso (2007) report. DOST-CAR functions only for production of hybrid silkworm eggs and selling silkworms to farmers. The BSU sericulture project helps in feeding the silkworm parents then sells back the seed cocoons to DOST-CAR for silkworm egg production. FIDA takes care of technical and marketing assistance to farmers.

Even with these support, the long-term economic viability from the small farmers viewpoint on moriculture and silkworm-worm rearing is not clear. Problems on delayed payment of delivered cocoons, shortage of mulberry leaves and laborious maintenance of mulberry plantation were voiced out. The direction towards re-reeling and weaving of raw silk fibers into cloth or whether would it be better-off just to sell the raw silk fibers is not yet clear. There is also no assurance of egg hatching for on-time pick-up by farmers; the prevalence of muscardine or calcino muscardine disease and other diseases; and the health hazards of formalin as disinfectant, are all areas of immediate concern.

Some fashion designers who learned of the sericulture program in Benguet found out that there are no silk cloths to be sold yet by SRDI who has to schedule deliveries for silk cloth. Thus, it cannot cope up with the demand brought about by RA 9242 prescribing the wearing of Philippine made fabrics in government offices. Also, a private commercial filature plant in the country has to close down in 1997 due to low and irregular domestic supply of cocoons. The high demand for silk is a factor for a bright potential of the sericulture industry, and as long as the concerns of the small farmers engaged

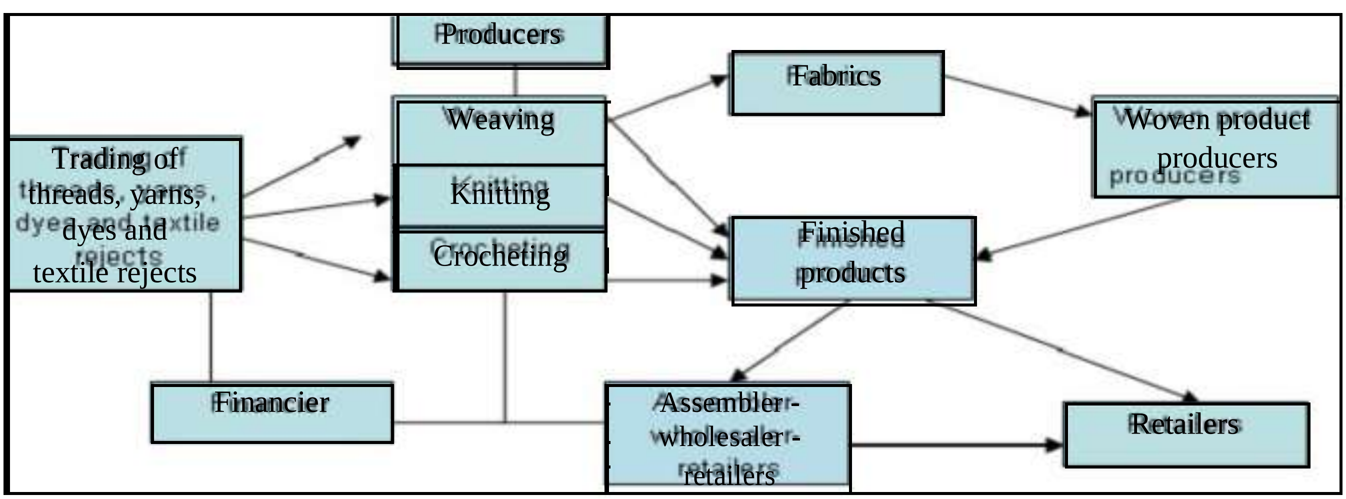

Figure 8. Overview of the textile industry in Baguio City and Benguet

Table 15. Location and number of establishments engaged in trading thread and factory trimmings

LOCATION	#	KIND	QTY/YEAR (KG)	COST/KG (PHP)
Baguio				
Hilltop	10	Thread/ yarn Excess materials	91,200	160- 295
Hangar	15	Thread/ yarn Excess materials	-	-
Quezon Hill	1	Thread/ yarn Excess materials	128,000	140-185
Fermels Marketing	1	Thread/ yarn	-	-
Rommels Marketing	1	Thread/ yarn	-	-
Abatan, Buguias	1	Thread/ yarn	-	290
Balili, La Trinidad	2	Thread/ yarn	-	-

in mulberry production for silkworm rearing are taken cared-off.

Status, Problems and Potentials of the Weaving, Knitting, and Related Trading Industries in Baguio City and Benguet

Origin of the industry. The birth of the textile (weaving, knitting, and crocheting) industry in Baguio City and Benguet Province started with Easter School Weaving, which later expanded with the availability of cheap excess factory threads, yarns, and textile trimmings in the 70's. Since then, many household weavers, knitters and crocheters are the direct buyers of these raw materials which are manufactured into fabrics and finished products as shown in Figure 8. Production is still considered in its traditional stage using back strap, loom weaving, hand crocheting, hand and machine knitting. Innumerable novelty items are also made like coin purses, native slippers, native dolls, hats or caps. Most of the assemblers are wholesalers-retailers and few concentrated on doing assembled products.

Flow of raw materials and finished textile products. The flow of textile production in the local market starts with supplying of threads/ yarns from the factories, export excess and trimmings, and imports from other countries. These raw materials can directly reach the local thread traders or with the intervention of middlemen. Some wholesalers-retailers can have direct access to the factories. Threads will reach the producers through the local thread traders and/or the wholesalers-retailers (Fig 9). With the supplying of finished products scheme,

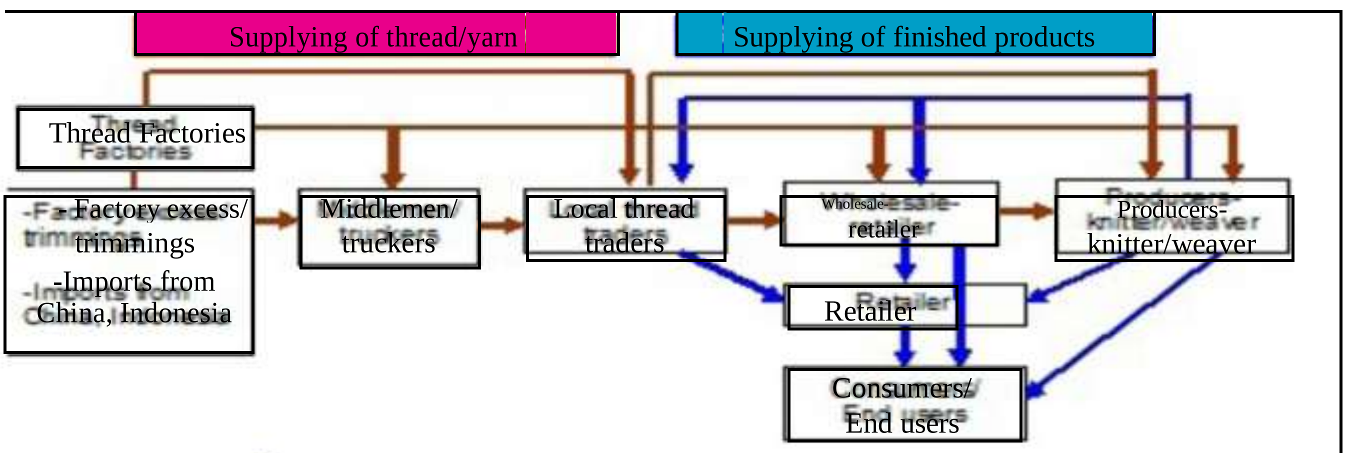

Figure 9. Flow of the textile industry products

the producers sell finished products back to wholesaler-retailers and also to some thread traders, and to retailers.

Trading of thread, yarn, and factory trimmings. The Hilltop Area and the Hanger Area are the main buying stations of threads and yarn in Baguio City public market. For bigger orders, weavers have to go to the traders' *bodegas*, specifically from Carmen Modesto of Quezon Hill, Francesca Cabasoy, Brenda Najelet and Alfredo Rimando of Hilltop, Rommel's Marketing, and Fermel's Shop among others. An estimated 31 establishments/entrepreneurs are engaged in trading of thread, yarn, or textile factory excess materials. The volume of thread, yarn, and factory trimmings traded and used in Benguet could be more than 540MT valued at PhP86.4M/yr (Table 15).

It was noted that from two respondents they can dispose 219,200kg/year of threads valued at +/- PhP33M a year. A kilo of thread can produce more or less 10 yards (14" width) of woven cloth. Prices of raw material ranges from PhP130.00 to 295.00/kg depending on the type of thread, while the excess materials ranges from PhP38.00-58.00/kg. These prices tend to fluctuate seasonally depending on import price changes and availability of supply. Recent closure of thread and textile factories in Metro Manila and expansion in China affected supply and prices. The recent increases in the price of threads also affected the weaver's buying capacity, production volume and quality of woven products. Easter Weaving, Narda's Fashion, and Sim's Knitwear whose supply of thread are more stable having the capacity to buy volume of thread stocks from thread factories in Metro Manila.

Weaving threads used are mercerized, vonnel, polyester, and acrylic. Cotton is preferred especially for those who are doing the *'ikat'* process.

Woven/knitted/crocheted products. Loom woven products are popularly featured as souvenir items and are still major products of cottage industries in the region (DTI–CAR, 2009).Variations of woven products are already made available in the local market. These include the blankets, rugs, doormats, place mats, wall décors, carpets, and pillow cases. Native cloth and attires like *pinagpagan, dilli, kuabaw, bayaong, bandala,* g-strings, *tapis,* and other accessories for ceremonial purposes of the different provinces are sold mostly in the Maharlika Bldg. in Baguio City. The native cloths however are not produced in bulk unlike other woven products. Few local weavers produced ceremonial blankets. These are more produced by the Ilocano weavers and some weavers from Mt. Province.

Cloths in yardage with native concept/ design are commercialized. These are sewn into gowns, dresses, shoulder bags, backpacks, purses, cell phone cases, pen holders, and other smaller items. Unfinished bags (in runner form to be sewn into bags) are in demand in the market for which different color combination and

Figure 10. Threads and yarn products

Figure 11. Samples of knitted, crocheted and woven products

designs are explored by the weavers themselves. Production of slippers with native cloth motif, dolls, accessories for flower arrangements, and other novelty items out of the woven cloths are also done.

Knitted products include: bonnets, mufflers, shawls, scarves, cardigans, jackets, sweaters, blouses, baby dresses, mittens or gloves, ladies' attires like toppers, tube vests, sleeveless, and off-shoulder clothing. The crocheted products are bags, blouses, children's attires, purses, bonnets, and cell phone cases.

Number of establishments/ individuals engaged in weaving and knitting. The Cordillera region is also famous because of its woven and knitted products. These products have caught the interest of the local and international market. This was because woven designs mirrors the richness and uniqueness of

Table 16. Number of individuals/firms engaged in weaving and knitting in Baguio City and Benguet

MUNICIPALITY/CITY	NO. OF WEAVING FIRM (DTI-CAR, 2009)	NO. OF WEAVER/ KNITTER
Baguio City	57	200
La Trinidad	7	100
Itogon	34	30
Tuba	1	25
Mankayan	2	70
Kabayan	2	50
Atok	1	10
Buguias	-	5
Tublay	4	15
Kapangan	-	10
Total	108	515

the Cordillera culture. Weaving in the province had captured the interest of the consumers within and outside the province. Significant transition from the use of back strap weaving to loom weaving was observed to have increased the volume of production.

DTI-CAR (1999) profiled that the loom weavers are found all over the Cordillera region with Benguet (37%) and Baguio City (35%) dominating the regional distribution of weaving business in the region for reasons of accessibility to market and raw material sources; Abra and Kalinga have 5% and Mountain Province with 8%. Of all these establishments and individuals, four are by-names in the weaving industry; namely Easter Weaving, Narda's, Sagada, and Kabayan weaving. Two of these weaving firms, the Easter School Weaving and Narda's Fashion, were able to penetrate export market in the 80's. Unfortunately, due to decrease in demand/ exports, both had reduced the number of weavers.

Per DTI records, there are 108 weaving and knitting establishments/individuals regis-tered in Benguet as of 2009 (DTI, 2009). Baguio City had the highest number of registered weav-ers; and one from Tuba and Atok (Table 16). Esti-mates based on information gathered during this survey, there was an increased in the number of weaving/ knitting establishments, organizations and individuals in Benguet to 515. This includes home-based or community-based individuals employed in weaving/ knitting on a part-time or full-time basis, mostly in Baguio City, La Trini-dad, Mankayan, Kabayan, and Itogon.

The weaving industry in Benguet is the integrated contributions of many independent home-based or small-time weavers in the different barangays. In Baguio City, the weavers are found in Quirino Hill, Quezon Hill, Pinsao, Apugan-Loakan, Asin Road, Gibraltar, Mines View, Pinget, Kias, Holy Ghost, Trancoville, San Carlos Heights, Honeymoon, Bakakeng, Naguillian Road, and Marcos Highway.

In La Trinidad, there are individual weavers and knitters from Ambiong, Bayabas, Tawang, Balili, Lubas, Pico, Buyagan, Wangal, Cruz, and Beckel.

Weavers from the municipality of Itogon are located mostly in Tuding, Ucab, Tram, Virac, Anteg-in, Goldfield, Antamok, Acupan, Camp 30, and in Dalupirip.

In Mankayan, production is more on "order basis" for the members of the Lepanto Loom Weavers' Association. Other weavers are members of the Mankayan Weavers Association (MWA) in Poblacion, and Marivic Weavers at Sapid but few are presently into weaving.

In Tuba, few weavers and knitters can be located from the *barangays* of Philex (Mines), Camp 1 (Dungon), Camp 6, Taloy Sur, and Nangalisan.

In Kabayan, their weaving industry was spearheaded by the Kabayan Weaving Arts and Craft at Poblacion. Individuals with weaving skills or have attended trainings on weaving were noted in Gusaran and Tawangan. However, these individuals are not yet into weaving due to lack of capital for materials like thread.

In Atok, the few who are involved in weaving only are on per order basis. Most are members of the Atok Women's Association but lately, most have shifted to other alternative source of income. A similar case was noted in Buguias where one knitter stopped her operation but continued to retail thread/yarn especially for the students.

Active weavers from the different barangays of Tublay (Acop, Ambongdolan, Basil, and Caponga) were also noted. Most of their products are marketed within their municipality and in the local markets of Baguio City.

No weavers were found in the municipalities of Bokod, Kibungan, Bakun and even Kapangan. Kapangan nevertheless has the Laginia Clan Foundation engaged in made-up woven products like bags, purse, etc.

Skills training. There are three sources of how the weavers learned their textile activities-informal, formal, and combination of informal and formal. Informal source were either from parents, neighbor or from their friends. Only 31% learned textile business from attending seminars/trainings and from school, while some of the respondents learned through informal and formal means (Table 17).

Table 17. Sources of skills in weaving activities, n= 35

SKILL SOURCE	% OF RESPONDENT
Informal (parents/neighbor/ friend)	46
Formal (training/school)	31
Informal and formal training	23

Weavers from Mountain Province and Ifugao inherited their weaving skills from their mothers and older women in their communities through "learning-by-doing". As young as seven years old, the children were taught to operate the backstrap weaving. It was only in the later years that loom was introduced to the weavers although the history of weaving cannot be traced.

In other provinces in the region, weaving is innate to women but not in the case of Benguet. Culturally and historically, Benguet people are more inclined into farming and mining activities. Most Benguet women have acquired the skills and knowledge from the formal trainings facilitated by the national agencies. Weaving flourished in the province in the early 1990's after the formal introduction of the weaving as a livelihood by the DSWD and DTI. Knitting is learned through formal trainings and through kin and neighbors. Accordingly, machine knitting in the municipality of La Trinidad was introduced by an anonymous woman, who acquired her knitting skills in Manila.

In addition, Roces (1991) reported that the Ibaloi and Isneg do not enjoy weaving and are content with tailoring layered clothing from Ilocano plaids. Another story retold by Mrs. Evelyn Laway of Asin, Baguio City tells why weaving is not inherent among the Ibalois. *"Accordingly, a rich man named Melo and his* wife *Shamja from Indonesia, traveled far away to escaped from conflict. Bringing with them some important belongings, they began their expedition passing through the Celebes Sea until they landed at Lingayen Gulf. Looking for a better place to live, they found themselves settled at Loo, Buguias. Later, their daughter, Baksay married a man from Besao. Baksay, being the wife, was obliged to live in her husband's home. There, she passed on the knowledge and skills on weaving. For that reason, skills on weaving was passed on to people of the Mountain Province not to Benguet".*

As DTI reported, weavers are hired

Figure 12. Photos of the loom machines and finished products displayed at Lepanto Community Center by the Mankayan Weaver's Association

Table 18. Arrangement between producers and their buyers, n=26

ARRANGEMENT	%
Cash basis/partial payment	4
Labor based/yard basis/ piece rate	77
Cash on delivery	8
Design dictated by the supplier	8
Share or give % of earnings to the association	4

according to their skills and knowledge of the craft. This way, the firms give minimal training. The weavers in Baguio City are composed mostly of women coming from the different provinces of the region who came to the city to look for employment. Some of them improved their skills when employed at the Easter Weaving and Narda's Trading. Some who were laid-off/ resigned from these establishments put-up their own weaving enterprise. The motivations to continuously engage in the industry are for earnings, and as passion or as hobby.

Table 19. Estimated production capacities per individual worker

PRODUCT	PRODUCTION (PCS)				EARNINGS PER MONTH (PHP)
	Daily (8 hrs)	Weekly (7 days)	Monthly (22 days)	Yearly (12 mos)	
Knitted					
Bonnet,n=11	25	178	712	8544	2136
Muffler w/ hood,n=1	10	70	280	3360	2800
Sweater,n=3	8	53	210	17.5	6300
Shawl,n=2	27	190	760	9120	
Scarf,n=2	5	32	128	1536	5760
Crocheted					
Botis/bonnet,n=1	-	4	16	192	
Sweater,n=1	-	2	8	96	480
Bag,n=1	2	3	12	144	480
Woven					
Bag(unfinish),n=3	8	68	273	3276	8190
Back pack,n=1	3	25	100	1200	
Pouch bag,n=2	2	14	56	672	11200
Table runner,n=6	2	15	61-72	732	7625
Cloth,n=8 (14, 18, 30 and 36" width)	2-4 yds	10-14yds	40-80 (yds)	792 yards	11484
Tapis ,n=3	-	1	4	48	8000
Footrugs,n=4	22	151	605	7260	2420
Wall décor,n=3	1	7	28	336	9800
Sala set cover,n=1	-	1 set	-	-	-
Slipper,n=1	40 pairs	280	1120	13440 pairs	28000
Purse,n=1	40	280	1120	13440	5600
Cellphone case,n=1	55	385	1540	18480	15400
Throw pillow,n=1	5	35	140	1680	8400
Blanket,n=1	2	14	56	672	11200

Income and production capacities from weaving/knitting. The perceived monetary value of people's work differs from place to place and depends on local cost of living, local rates of pay for certain types of work, and how much contact there has been with alternative markets (Buurman, *et al.*, 2004). The wage of some weavers is only about half that of other enterprises or agriculture, but these respondents do it because the wages are regular and suitable seasonal employment. According to some individual household producers, earning income from weaving/knitting at home is preferable to working hard in the fields or rather than nothing. It is also more convenient for the housewives because they can earn while attending to their children's needs at home.

The weavers earn up to PhP150-300/ day, while knitters can earn PhP200-400/day. Regular weavers of weaving firms like Easter Weaving Center and Narda's Trading are paid PhP235 plus allowance of PhP25/day. These firms pay weavers on a piece rate basis but weavers must pass the time and motion test.

Table 20. Narda's Trading Corporation product lines and production capacity

PRODUCT LINES	MINIMUM ORDER	PRODUCTION CAPACITY PER MONTH
Rugs, 1.5 to 3.5'W	50pcs/color/size	1,000 pcs
2.5 to 5'W	24pcs/color/size	500 pcs
3.6 to 9'W	16pcs/color/size	300 pcs
Tapestry	12pcs/color/size	500 pcs
Pillow covers	50pcs/color/size	500 pcs
Placemats and napkins	20doz/color	1,000 pcs
Runners and coasters	10doz/color	500 doz
Upholstery fabrics	50 yds/color	1,000 yds
Bags	50pcs/color	1,000 pcs
Belts	25pcs/color/size	1,000 pcs
Scarves	50pcs/color/size	1,000 pcs
Shawls	25pcs/color/size	500 pcs
Clothing fabrics	50yds/color	1,000 yds

Most of the weavers and knitters are paid on piece rate or yardage basis (Table 18). This arrangement is applicable between the individual home-based producers and the thread traders or credit suppliers. Some producers are paid fully or partially in advance (4%) or upon delivery (8%). Weaving designs are given by their buyers, in the case of wholesaler-assemblers or manufacturers of made-up textile goods. Members of weaving associations give a certain percentage to their association.

Income of those earning on a piece-rate basis ranges from PhP2,136-6,300/mo in knitting, PhP480/mo in crocheting, and from PhP2,420-28,000/mo in weaving/woven products (Table 19). This depends on individual production capacities, kinds, designs, and sizes of the products, and whether part-time/full-time basis. For example, one piece (wall décor) to 55 pieces (cell phone cases) of products is expected to be completed in eight hours. For 14" width cloth, 2-4 yards/8 man-hours or 40-80 yards/month could be woven in a month.

Gross earnings of big weaving firms like Narda's and Easter Weaving were not revealed as they cannot isolate it from their other sources of income. However, based on Narda's production capacity per month (Table 20) and of Easter Weaving who has the capacity to weave 1,500 yards per month/30 weavers or 50 yards of 30" width/weaver/month, their combined gross income from woven products can easily reach more than Php6M/mo. For micro-scale weaving just like that of Kabayan Weaving, the gross income averages more than PhP300,000/mo and doubles when there are orders, but deducting their expenses, the manager earns PhP8,000-20,000 per month, and their 8 weavers/workers earning +/- PhP5,000/month.

The contribution of the textile industry in Benguet economy is in terms of employment of more than 500 individuals and the production

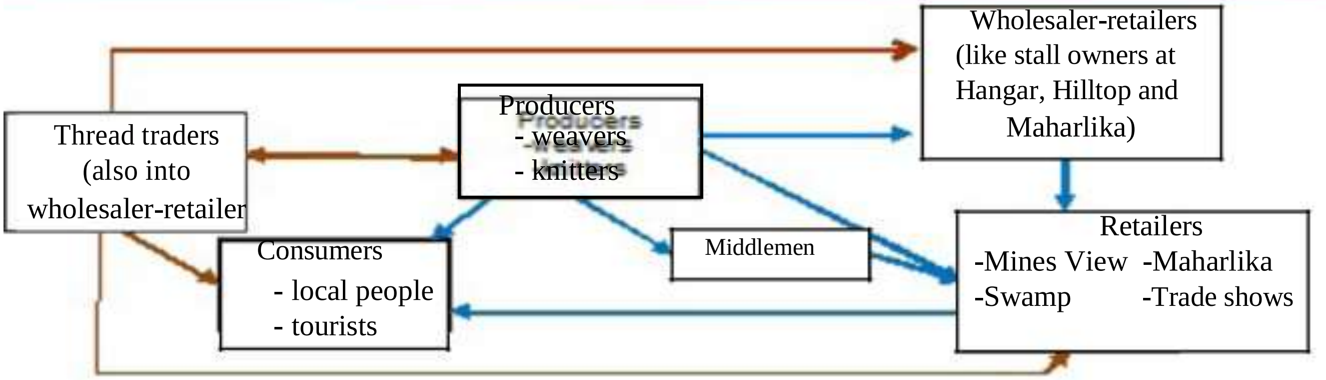

Figure 13. Flow of textile products from producers to consumers

value of woven, knitted, and crocheted products that can easily reach PhP100M/yr.

Market outlets (wholesaling and retailing of textile products). Baguio City is the main trading center for the wholesale and retail of the textile products in the Cordillera region. Textile products are sold in all the tourist destinations in the city. Hangar and Hilltop market serves as the main trading area of finished products; and Maharlika Market accommodates various kinds of textile products coming from Baguio-Benguet, and other provinces.

Established weaving/knitting businesses, like Narda's and Easter Weaving have their own market outlets. For Narda's products, the outlets are in NAIA, Club John Hay, and Narda's branch at Engineer's Hill, aside from the main outlet at Km. 5, La Trinidad, Benguet. Easter Weaving Room maintains its main marketing center at the site (Guisad, Baguio City). The Kabayan Weaving Arts and Crafts sells their products on site (Poblacion, Kabayan), Tiongsan at Km.4, La Trinidad, and at Baguio Center Mall. Dawey's weaving have their outlets on site at Pinsao, Baguio City. The Mayat-an Handicrafts usually market their products during trade fairs and in the internet. Only Narda's Trading, Easter Weaving, and Mayat-an Handicrafts reported contributing to export sales. These weaving firms also cater to orders and attend trade fairs. Product exhibits are also displayed during local town fiestas like Panagbénga and Adivay, and even during international and/or national trade fairs.

Figure 13 shows the flow of textile products from the home-based weavers, knitters, or crocheters to consumers among the small producers. Buyers are usually the thread traders and wholesalers at Hilltop and Hanger markets who buys the produce of their contract weavers/ knitters in cash or as payment of the credit extended. Products collected are also bought by other wholesalers and retailers in tourist destination areas in the city and in some parts of the province. Retailers also purchase some of their goods from small producers and middlemen from other provinces. The products are ready for sale to the end users, mostly local tourists (Table 21).

Table 21. Buyers of textile and fiber craft products, n=33

TYPES OF BUYER	% OF RESPONDENT
Local tourist	24
Traders/wholesalers-retailers	24
Combination of the above	52

Weaving firms and wholesalers claimed that the "Buy Filipino" movement directing all national and local government agencies, government financial institutions, and other government instrumentalities including public schools, military, and police units to use locally produced materials for their uniforms have increased the sales of their locally woven fabrics.

Table 22. Number of wholesalers and retailers and volume of textile products in Baguio City and Benguet Province

LOCATION	NUMBER	VOLUME (PCS/DAY, ASSORTED)	SALES (PCS/DAY)
Baguio			
Easter Weaving Room	1	-	-
Maharlika Alley	50		450-
Mines View	75	43-71	550-1,000
Wright Park	30	-	-
Hilltop Market	15	167	1,000-5,000
Hangar Market	15	20-40	1,500-3,000
Center Mall	2	-	-
Baguio SM	2	-	-
Pinsao	1	-	-
La Trinidad			
Narda's Weaving	1	-	-
Swamp Satellite Market	50	20-30	1,500-3,000
La Trinidad Public Market	10	-	-
Buguias	2	-	-
Total	253		

Number of wholesalers and retailers of textile products. Table 22 shows the number of establishments/ individuals engaged in wholesale and retail of woven and knitted products in Benguet. Stalls in Hanger market actually are display outlets for wholesaler-assemblers or wholesaler-retailers from their own production. Retailers from Mines View, Strawberry Fields, and other municipalities purchase products from Hangar Market.

The Maharlika and Mines View Market are mostly retail outlets selling woven, knitted, crocheted, and sewn textile products. The four major outlets of woven products purposely for ceremonial activities like native attires/costumes and blankets are also found in Maharlika market. Other retail outlets are found in major tourist

Figure 14. Stalls found at Swamp Area, Km 6, La Trinidad displaying different textile products

destination areas like Botanical Garden, Wright Park, Mansion House, Lourdes Grotto, and in SM Baguio.

In La Trinidad, 50 retail stalls are found mostly at the Strawberry Field at Swamp Area, Km. 6 (Figure 14). There are also stalls at the La Trinidad Public Market that sell textile products but in limited kinds and numbers.

Demand for textile products. There is no definite peak months for textile products. This depends on several factors- like cold months where knitted products like bonnets, shawls, and scarves are saleable. Demand also increased during the Panagbenga festival where native cloths/ attires are needed, and during holidays where there are many local tourists. Lean months are during the rainy season where sales turnover is slow or none at all. Usually, it starts from June to September.

Market preference of consumers. According to the retailers interviewed, buyers are more attentive to quality, design, and characteristics of products rather than price. Most saleable item is the door mat or rugs, while bonnets, scarves, and shawls are more saleable to local tourists (Table 23). Foreign tourists prefer wall décor, table runner, placemats, sleeveless blouses, tube blouses, vests, and blouses with native or unique design. This indicates that products with unique design have great potential for export market.

Table 23. Marketing preference of respondents, n=22

PARTICULAR	% OF RESPONDENT
Products with native/ unique design	4
Bonnets/scarves	18
Shawls	9
Rugs/door mats	64
Any of the above	4

Marketing, pricing arrangements, and competition. Weavers and knitters sell their woven cloth at PhP180 per yard (14" width), made-up textile goods from PhP10-75/ item and knitted products from PhP2-35/item. Wholesalers or retailers add a mark-up of PhP1-10 for small items, and from PhP11-50 for bigger items (Table 24). Wholesalers, who "advanced credit" or under "labor payment," usually deduct the amount advanced from the payment.

In cases where the wholesalers have many stocks, or because of cheap imported textile goods, second hand clothing and export over runs, it is usually the small home-based investors and workers who are affected. Their capital will be stocked in the products that they cannot sell. This result to price *"pabagsakan*" or \`consignment terms'.

Table 24. Price mark-ups of wholesalers and retailers, n=20

PARTICULAR	% OF RESPONDENT
1 to 10 pesos per unit	50
11 to 50 pesos per unit	50

Initial investments in weaving, knitting, and wholesaling. To start weaving, an individual must have a loom (usually improvised and homemade) and the threads, estimated to cost PhP3500-4000 for the loom and PhP500-7000 for the threads. The knitters would initially invest on knitting machines estimated at PhP6000 excluding the cost of thread. For the members of the women's association, loom and/ or sewing and knitting machines were provided by the support agencies. The thread traders also serve as sources of capital, usually in the form of raw materials. This supports Casiwan (1998) findings that capital investment ranges from PhP1,000-50,000. Investments of PhP100,000 or more are usually sourced through loans.

For those in the trading business (whole-sale and retail), they can have an investment as low as PhP2,000 but majority operates within a PhP5,000-50,000 initial investment. Higher investments of PhP100,000-300,000 are sourced out through loans or this was an inherited business.

Institutional support to the weaving and knitting industry in Benguet. Most support were initially extended to create livelihood opportunities for women, in terms of training from back strap to loom weaving, products and product designs that includes providing thread credits and marketing arrangements. The DSWD, DOLE, some private individuals, and other non-government organizations were involved. Government support in marketing woven products in national and international markets was also extended by the DTI. The marketing support extended in the early years of Narda's Weaving is well known.

DTI through its industry status report maintains statistics of the textile industry in the region. A Non-Government Organization (NGO), The Pambansang Kalipunan ng mga Manggagawang Impormal sa Pilipinas (PATAMABA) also conducted a research study on the weaving industry in Apugan, Baguio City. As of now, DTI focuses on assisting the OTOP program of the local governments.

The FIDA of the DA evaluates samples of fiber plants growing in the locality, propagates and distributes planting materials of fiber plants like *abaca*. The PTRI of the DOST supplies the silkworm to farmers. These two agencies also provide training and other technical services to farmers.

On the other hand, the Benguet Provincial Agriculture Office (BPAO) is currently propagating *maguey* for distribution to farmers.

Problems and potentials of the weaving and knitting, and related manufacturing industry in Benguet. The circular prompting government offices to buy and wear locally woven clothes have expanded the market of traditional weavers, where to some extent demand for specific product designs are not met.

This could be traced to several reasons, but most of the home-based small producers, the following problems were voiced out:

No organized market for textile products. Although there are many outlets in Baguio and La Trinidad, there is no organized market to control and systematize the marketing of textile products. This leads to price competition sacrificing quality amongst the producers and the marketers.

Lack of contact with the buyers or lack of market linkage. Research shows that there is lack of contact with the buyers (like wholesale-retailer) especially with weavers based in other municipalities like Mankayan and Atok. Since there is no market link, weavers discontinued their weaving operations.

Low price of the finished products delivered to the wholesale-retailers. To some weavers who rely on weaving, they have no choice but to accept that they cannot demand a higher price for their finished products. Moreover, the slow turnover of capital in the case of the wholesale-retail outlets, results to delayed payament to the producers.

Similar clamor was mentioned by Botengan (1976), "but like the women, they tend only to weave on made-to-order basis because of the lack of a regular market outlet. This forced them to sell to the local businessmen at very cheap prices which discourage further production."

High cost of inputs but low cost of finished products. Most of the respondents claimed that there are difficulties in the supply of raw materials, due to the high price of imported thread and other weaving accessories. Prices of raw materials tend to fluctuate seasonally, which also result in price fluctuations of finished products. Shortages of raw materials can make the future production of textile products unsustainable.

Competition with other textile products. The competition of other textile products coming from other provinces, regions, and countries delimit the marketability of the local products.

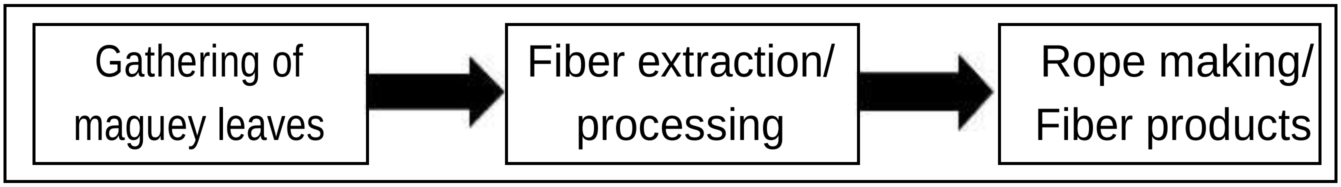

Figure 15. The maguey or sisal industry in Benguet

This is much experienced by the local producers than the market outlets. According to the Human Resource Management Officer of Narda's Weaving, the high cost of labor in this region or country make these products too expensive.

Adding to this is the decline of buyers due to the influx of *"wagwag"* or second-hand items and other imported but cheaper or better quality products. Cheap imports from China and barter goods from Southern Philippines compete with domestic production.

Health risks as a result of engaging into weaving and knitting. Major health-related concerns are back pains, neck pain, eye strain and foot cramps. To some, fibers emitted by thread dust triggered respiratory health problems like asthma. This has a similar result with the PATAMABA study on Apugan weavers.

Limited skills on new designs. Home-based independent weavers do not always have access to available skills program for product development,.

Possible loss of weaving skills. Weaving skills might be lost because younger generation does not have interest in these skills. This is mentioned as an effect of the changes in the curricula, wherein skills like weaving and sewing are optional secondary subjects.

Lack of capital. Financial limitation hinders the weavers and knitters to produce more products of their own preference. It delimits the wholesale-retail outlets to stock more products in preparation for the next peak season. Lack of capital may just be the symptom of more fundamental constraints on business development (Buurman, *et al.*, 2004).

Lack of managerial skills of the organization. Problems met by the associations are mostly related to finances and management-related issues. Few associations are able to maintain their textile-related operations. In some municipalities, weaver's associations were totally dissolved.

Weak support from the government. There are no regular or sustained programs on textile skills upgrading specifically on the areas where weaving is a part of the local economy.

High fees imposed to the stall renters. Taxes and rentals are much higher than the income derived from retailing textile products. Because of this, retailers have mixtures of products to sell, like processed foods, handicrafts and textile products.

Status, Problems and Potentials of the *Maguey/Sisal* Fiber Industry in Benguet

The textile industry includes both natural and man-made fiber production and the manufacture of yarn, fabric, garments and made-up textile goods. Major Philippine fibers include abaca, cotton, and silk, while minor fiber crops are salago, ramie, maguey, pina, buntal, and buri palm (Aragon, 2000).

Maguey production. Among the most abundant fibers crops growing favorably in Benguet is maguey/sisal, most especially in the municipalities of Bokod and Kabayan. This plant was said to be brought along with coffee by the Spaniards during their expedition. Allegedly, its abundance could be traced to its use in earlier reforestation efforts as fire-break crop. Since then, the crop self- propagated and was planted for boundary identification and as fence. *Sisal* plants, locally known as *maguey*, are seen growing in cluster mostly along the steep area of the mountains. It was mentioned that wider area of maguey growing wild can be seen in the forest. However, exact area of plantation cannot be determined.

Maguey processing. Fiber processing (Figure 15) of maguey was a common activity among the people before the World War II. It was also learned during the survey that extraction and processing of fiber from maguey/sisal was an alternative source of income done by the old folks. Still, farming is the main source of living. Interviewed individuals who were engaged in this activity from 1950's to 1980's mentioned that this skill was passed-on to them, which was also passed-on to their children. Later, it became more of an activity to pass the time and source of income among the old men in the community. It was noted that even during social events like *cañao*; old men would bring their *maguey* fibers and slowly twisting these while they are telling stories among themselves. Income derived from maguey rope-making augmented the basic needs of the family more for the education of the children. Accordingly, a rope measuring 6-7 *shepa*, i.e., a length of rope equivalent to both arms extended sideways costs PhP400. Rope is the only product being produced because during those times there are more cows and carabaos. The fiber extraction and processing into ropes is done with the use of simple improvised tools.

More than ten former *maguey* rope processors were identified during the survey. Unfortunately, majority of them totally stopped their maguey/rope processing. Only a few shifted to making ropes from strands of polyethylene sack. Considering their old age, this is convenient because it does not require more physical work on *maguey* harvesting and fiber extraction. Instead, while sitting, they can extract and twist the polyethylene sack strands into rope. More than a source of income, this activity is considered their hobby.

Matured *maguey* leaves are harvested with a sharp *bolo*. A sharpened bamboo or wood is used to scrape off the pulp of the leaves. Knife is not advisable because it is sharp and can easily break the fibers.

The fibers could be extracted through different processes, such as: (a) soaking the gathered leaves in fresh water or in carabao wallow for almost a week until the pulp is soft and the fiber parts are visible, (b) sun-drying the leaves for 2-3 days before scraping to lessen the itchiness caused by the *maguey* sap, (c) *maguey* leaves are dried over the fire instead of sun drying to lessen the itchiness, and (d) direct scraping of maguey fibers after harvesting.

An estimate of 20 to 60 leaves is needed to produce one rope which is about six to ten meters. The length is usually measured by *'shepa'* as locally called, which is estimated to be more or less one meter. The sizes are from small, medium and big (*batadan, kinumes)*. If the processors will do the activity on a full time basis, it usually takes seven days for one rope to be produced. But majority of the respondents takes one month before one rope is ready for marketing.

Problems and potentials in maguey production and fiber processing. The extraction of *maguey* fibers for rope making is no longer an alternative livelihood source because of the following: (1) there is an observed decrease of area where wild *magueys* can be sourced out, (2) matured *maguey* leaves can only be harvested after three to four years from planting, (3) the itchiness of the *maguey* sap hinders them to continue fiber extraction and rope making, (4) inadequate manual labor hampers the full operation of their rope making because family members cannot assist since they have other jobs, (5) there is not enough market for *maguey* ropes since a cheaper alternative like nylon ropes are available, and (6) lack of technology on *maguey* extraction is also a problem mentioned.

Before the 1990's, the Benguet School of

Arts and Trade (BSAT), now BSU-Bokod Campus, was involved with *maguey* product development. Teachers and other women (thru organization) used to make novelty items out of its fiber but they eventually stopped their operation because nobody is extracting *maguey* fibers anymore. With the global trend on using more eco-friendly products, development of novelty products such as bags, rugs, decorations and papers has a potential. Market scope studies for the products to be developed or being developed should be done.

CONCLUSIONS & RECOMMENDATIONS

The establishment of baseline data on the textile industry is necessary for further advancement. The aim of bringing back the grandeur of the Cordillera region by improving its textile industry is a collective effort and in reality, needs more time.

The textile industry components such as weaving, knitting, manufacturing of made-up textile goods, and the wholesaling and retailing of raw materials, and finished products, is still a major source of income of its key players, even though majority are in the informal economy. Woven fabrics and made-up textile goods reflects the culture of the people. The textile industry is not to be separated from the tourism aspect of the city and the province because market outlets can be found in the tourist spots in the city. Even products from other provinces and regions are being traded in the city, and in the province. Its invaluable contribution to tourism and to employment of more than 500 individuals in households or in the 108 registered weaving/ knitting firms and organizations, aside from those employed in more or less 253 wholesale and retail outlets, thread trading worth PhP33M a year, and textile products that could easily reach PhP100M/year, should not be disregarded.

Sericulture, from mulberry cultivation to raw silk fiber production is recently revived or highlighted in the light of putting to an end the illegal cultivation of *marijuana*. However, extreme demand for thread of our local weavers and the demand for silk threads or silk fabrics by other weavers and garment designers in the country is more important to consider. It is expected that mulberry plantation will at least double this 2010 from its 10ha level in 2008, while silk cocoon production will increase to more than 618kg/ year, and that raw silk fiber production capacity of 56kg will increase from its 2008 levels.

While *maguey/sisal* are endemic fiber crops found abundant in the province, maguey fiber extraction and rope making ceased as a supplemental livelihood source of farmers, particularly in Bokod and Kabayan, Benguet. The presence of indigenous fiber processors; availability of technologies on fiber processing and fiber craft; existence of government agencies like BSU-Bokod Campus, DA-LGU, TESDA, DTI, DA, DENR, Department of Agrarian Reform (DAR) and other private entrepreneurs to support the textile industry; the possibility of *maguey/sisal* fibers as an alternate source of raw materials to augment the high cost of imported threads for handicrafts; and the presence of tourists areas like Mt. Pulag, Daclan Hot Spring, Ambuklao Dam, Agno River, including Baguio City as market outlets for the finished products, are all positive factors to develop the industry. Moreover, the *maguey/sisal* fiber is biodegradable. It can be promoted as an alternate source of raw materials for bags, packaging materials, rugs, and other novelty items that help control the use of non-biodegradable materials.

Thus, information, guidelines, and targeted support can help producers to find market niches, diversify products, and improve quality and design to meet the needs of new markets. Some producers returned to farming and others shifted to other livelihood due to weak market leverage and shortage of working capital. It is the government's role to provide relevant trainings and other support to the textile industry to operate effectively.

Based on the information gathered it is possible to draw some recommendations to improve the textile industry in Benguet.

Organized trading center. An organized trading center or market area for all the textile fabrics and made-up textile products is a clamor of almost all of the informal or home-based weavers, knitters and manufacturers. This will prompt the standardization of pricing and product quality, and systematize marketing of textile products. This trading center is also tasked to coordinate trade fairs to showcase the talent and skill on textile production by the local people. Domestic market should not be ignored.

To succeed, producers should respond to market demands by focusing on new standards. Better information on desired quality attribute by consumers in domestic and foreign markets can help local producers meet market demand. Supporting industry players to join international trade fairs to access market information is helpful.

Strengthened organization of the textile industry players. Strengthen the capability building of associations that will have more sense of ownership; be able to manage the organization and to take part in the community development. Training and/or seminar on other areas that may affect their weaving operations like recording, financial management, and leadership should be given. A call for independent weavers to associate themselves for collective decision-making is needed. This may gain them government and other source of support services.

R&D for *maguey* plantation, fiber extraction and product development. There is also a need to extend or pilot test developed technologies on *maguey* fiber production, fabrication of machine for *maguey* fiber extraction, increase plantation of *maguey* and *sisals* to sustain the processing of *maguey* fibers and products. In addition, further studies on the technical and economic feasibility of processing the identified endemic fiber and dye plants are recommended.

Sustained support in establishing textile-based livelihoods. There should be a lead agency to network support institutions and organize groups after conducting weaving/ knitting and similar livelihood trainings. Networking in marketing and financial assistance is much needed by the home-based producers. Programs and plans should be monitored and evaluated and follow-up interventions should be implemented as needed.

Information and advocacy drive to improve quality, design and utilization of locally produced textile products. Encourage more researches with corresponding support there of to improve the quality, use, and design of products integrating use of locally produced fibers, talents and other raw materials.

ACRONYMS

Acronyms used in the study:

BPAO - Benguet Provincial Agriculture Office
BSU - Benguet State University
CAR - Cordillera Administrative Region
CENRO - Community Environment and Natural Resources Office
DA - Department of Agriculture
DAR - Department of Agrarian Reform
DDB - Dangerous Drug Board
DENR - Department of Environment and Natural Resources
DMMMSU - Don Mariano Marcos Memorial State University
DOLE - Department of Labor and Employment
DOST - Department of Science and Technology
DSWD - Department of Social Welfare and Development
DTI - Department of Trade and Industry
FIDA - Fiber Industry Development Authority
JICA - Japan International Cooperation Agency
JVOFI - Jaime V. Ongpin Foundation
KELMC - Kapangan Environmental Livelihood and Multipurpose Cooperative
KOICA - Korea International Cooperation

Agency
LGU - Local Government Unit
OTOP - One-Town One-Product
PTRI - Philippine Textile Research Institute
SRDI - Sericulture Research and Development Institute
R&D - Research and Development
TESDA - Technical Education and Skills Developmnet Authority
TOT - Training of Trainors
UNDP - United Nation Development Program

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