

# THE EMPOWERMENT OF DESIGN AND MANAGEMENT FOR NON-MACHINERY *LURIK* WEAVING INDUSTRY IN CENTRAL JAVA INDONESIA

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**Abstract:** The objective of this research is to formulate a model for the establishment of Non-Machinery Weaving Tool (called ATBM) lurik textile industry in Klaten Regency, Indonesia. This research was an action research involving ten persons. The data were gathered through in-depth interview, participatory observation, and focus group discussion. The establishment model was applied through three phases, that is, 1) conducting need analysis, 2) arranging action plan, and 3) implementing a model of small bussiness management plan. The establishment program was developed through several actions, namely: developing an innovative lurik design, manipulating the non-machinery weaving tools, diversifying the lurik weaving patterns and techniques, growing the capacity of sekir sketcher, granting the capital support, managing the work agreement and contract, motivating the entrepreneurs and workers, and developing the promotional media.

**Keywords:** non-machinery weaving, industry, lurik, textile, design

## 1 INTRODUCTION

*Lurik* textile is one of the oldest and classic weaving fabrics that still exist on many traditional weaving textiles industries in Java Island in Indonesia. Its solid texture and specific design with paralel hard-lines have been the preference clothing for most average people from villages in Central Java. Its traditional function is weakening due to the modernisation in the industrial production of textiles. This partly comes from the way the *lurik* are produced that only relied on the non-machinery weaving tool called *Alat Tenun Bukan Mesin* (from here on called ATBM). The competition of modern textiles industries to provide a qualified textile with more advance design makes the *lurik* textiles more vulnerable. Although wearing the *lurik* textiles is considered less modesty, this material is still produced by small bussiness unit. The *lurik* (which literary means parallel lines) textile industry, however, is now considered as an important national asset that must be renewed to keep them alive as part of Indonesian traditional pride. This paper aims to share a model to empowerment of the small weaving industry and to preserve the *lurik* textiles to become a better design and production.

According to the Law of the Republic of Indonesia, Number: 20 of 2008, micro business is a business unit which owns the net asset of fifty million Indonesian Rupiahs (hereafter the Indonesian rupiah is written as Rp) at the most excluding the land and

building for the business site, or a business unit which annual sale result ranges estimated Rp300 million to Rp2.5 billion [1]. This kind of small industry is weaving craft production. Weaving is a fabric made through a simple way by weaving the warp yarns and *Pakan* yarns by crisscrossing them at 900 [2-4]. The ATBM weaving is a weaving craft whose production process is done manually by using the non-machinery weaving tools (ATBM).

One of the weaving craft center resides in Klaten, Central Java. Their production house is mostly located in the villages, such as in Burikan, Tulas, Karangmelese, Juwiran, and Jobotan. The generic problems they encountered are varied but a multifaceted difficulty. Viewing from their business scale point of view, most of the ATBM weaving industries is considered in the micro-scale industries. Viewing from their motifs, nearly all of the weaving fabrics produced have tradition *lurik* motifs. Viewed from their product use, the *lurik* weaving fabrics produced are used as carrying the shawl with the dimension of 70x250 cm, serviette with the dimension of 60x60 cm, sarong with the dimension of 2x60x220 cm, as garment per piece with the dimension of 110x20 cm or 70x300 cm, and other household accessories.

Moreover, the problem is caused by human resources and skills. The weaving businessmen or entrepreneurs generally only hold a low education background, that is, primary school, and are aged

more than 40 years old. They by and large inherit the business from their parents. Most of their employees (90%) are females. They are aged more than 40 years old and hold a primary school education only, and even some of them are illiterate. Despite their limitations and the low values of the products that they produce, they can still run their production activities up to the present time. This national asset really needs many empowerment programs to keep survive in this highly economic and business competition.

On the other hand, the youths around the ATBM weaving craft centers of Klaten are generally less interested in managing such a business. The female youths tend to choose between working at the medium and large-scale industries in the city although the wages that they earn are lower than the wages if they work as weaving craftsmen. They think that working at the medium and large scale industries is more respectable than working at the ATBM weaving micro-scale business units at home. In addition, the male youths tend to choose work out of their villages, working in other cities or even recently in other countries.

The conditions of social and cultural environment of the community around the weaving craft centers of Klaten are mutual, collaborative, and agrarian and traditional in natures. Based on the internal conditions of the micro-weaving business units, the social and cultural conditions of the local community, the environmental conditions, this research is aimed on formulating an empowerment model of the *lurik* ATBM weaving micro-scale business units through design development.

The empowerment of micro-scale weaving business units or weaving craftsmen is defined as an effort to improve life quality, the prosperities of the businessmen and their employees such as the improvement their economy, social prosperity, education, health, freedom, and security sustainably [5]. It is an educational activity to convey the truths that have been believed. The empowerment must grow as an independence or autonomy, but must not create dependence. The empowerment through design development means that the *lurik* ATBM weaving to design is planned, which includes the aspects of raw materials, processes, products, aesthetics, and functions. At the planning of product design such as weaving product, Prasetyawibowo [6] and Rizali [7] claim that it must consider functional, technical, ergonomic, economic, environmental, social, cultural, and artistic aspects.

## 2 METHODOLOGY

This research was conducted at the ATBM weaving micro-business unit called YS in the Burikan village, Cawas sub-district, Klaten Regency, Central Java, Indonesia. This business unit is regarded being able to reflect the conditions of such ATBM weaving

micro-business units in Klaten regency, which have many weaknesses, but which can survive until now. The location of the business unit is in a remote village.

This research used the qualitative study and action researched. The researcher was involved directly in the process of the ATBM weaving design development and production process. In addition, the researcher also was involved as a facilitator or an agent of change [8] who is responsible to influence the decision-making process done by benefit recipients (businessmen and employees) in adopting innovation. The researcher as a facilitator must have four qualifications, namely: communication ability, attitude, knowledge ability, and social and cultural characteristics [9, 10].

The subjects and samples of the research were determined by purposive and time sampling techniques. The data onto the research were obtained from 10 persons, namely: the entrepreneurs (whole family members), a sekir artisan, 2 yarns dying workers, and 4 weavers. Furthermore, the data were also obtained from the production process sites and activities [11]. The data were gathered through in-depth interview, [12], actively participatory observation [13] and focus discussion group [14]. They were validated by using source triangulation, technique triangulation, peer debriefing, and review for key informants. The data were then analyzed by using the interactive model of analysis [15].

## 3 ANALYSIS

### 3.1 Conditions of the ATBM weaving micro-business unit prior to action

Since the beginning of 2010, the ATBM weaving micro-business unit has occupied two buildings with the total area of 150m<sup>2</sup>. The first building is the residence for the family; it is also used for the production process (sekir process, yarn rolling process) and for storing the raw materials and products. The second building with dirt floor and woven bamboo wall is used for weaving process. This room accommodates 10 looms. The ATBM owned by the entrepreneurs includes 1 yarn rolling process tool, 3 palettes, 3 plastic pails and one drum for boiling the yarns.

The micro-business unit of "YS" is owned and managed by Siti Lestari who was born in 1974 in the same village. She has only primary school education. Her husband is a Junior Secondary School teacher. The business unit has 13 employees, 3 males and 10 females. The former is employed as yarn dyeing, product packaging, and product marketing workers. Of the latter, one works as a sekir artisan, 2 yarn rolling workers who are aged 70 years old and 7 weavers. Most of them only hold primary school education, even some are illiterate. Viewed from the innovation adoption levels

as claimed by Rogers [16], which include 5 levels, namely: innovators (risk takers), early adopters (hedgers), early majority (waiters), late majority (skeptics), and late adopters (slowpokes); most of the workers can be classified as late adopters (slowpokes) except the sekir artisan whose innovation adoption can be categorized into a higher one that is early adopters.

The raw materials to make *lurik* woven fabrics are yarns, and dyeing substances. The materials used for warp yarns and pakan yarns are mercerized yarns with the size of 40/2 so that the woven fabrics produced are quite thick. The dyeing substance used is remazol substance. The *lurik* design motifs produced are the ATBM woven fabrics with traditional *lurik* motifs, dominantly using black, brown, red, green, and blue colors. The monthly production level of the micro-business unit of the YS is 12 warp beams and 1 beam consists approximately of 80 meters. The sale value of woven fabrics with the width of 105-110 cm is Rp24.000 per meter or is equal to US \$2. Therefore, the average income of the entrepreneur is approximately Rp23.034.000 per month or Rp276.480.000 per year. Based on its average revenue per year, the business unit of the YS is classified as a micro-scale business unit [1].

The ATBM weaving micro-business industries are mostly situated in remote villages. Its surrounding environments are mostly rice fields and mountainous areas. The communications with cellular phones are obstructed due to the bad signals. The social-cultural environment conditions of the local people where it operates are traditional agrarian society [17]. When the rice season comes, (rice planting, harvest season, post-harvest seasons), the weavers leave their jobs. In addition, they also leave their jobs when there are social mutual assistance activities, particularly wedding parties [18]. According to Mulder [19], the personality of Javanese is social in nature. One is good when the society regards so. For example, when the sekir artisan (Semi) is absent from work, she is substituting her husband to join mutual assistance activities to build a village office.

### **3.2 A model for empowerment of the ATBM weaving micro-business unit**

Based on the data analysis, the result of the research shows that the model for empowerment of the ATBM weaving micro-business unit through the design development consists of the following phases:

- the first phase is conducting the need analysis;
- the second phase is arranging the program plan
- the third phase is implementing the program.

### **3.3 The need analysis**

The need analysis phase by the entrepreneur is to identify the existing problems and real needs. The former are discovered through direct observation and focus group discussion (FGD) between the researcher, entrepreneur and the employees. There are four problems identified with the research, namely: the production process is less efficient, the motifs and patterns of the produced woven fabrics are still monotonous, the entrepreneur's working capital is inadequate and the entrepreneur is confident that the weaving business unit cannot support their family life. The less efficient production process is caused by the less efficient tools, types of yarn materials, number of yarn materials and production facilities. The produced woven fabrics have monotonous motifs and patterns because *lurik* fabrics have only combinations of vertical lines. The entrepreneur is less courageous of conducting experiments to create new motifs and patterns which go out of the traditions.

The third problem is that the entrepreneur is less confident about her business growth and development. She is worried that her business will be unable to compete with other business units which produce weave fabrics with Machinery Weaving Tool (ATM). The fourth problem is related to the working capital. The entrepreneur does not have working capital. The capital required to purchase the raw materials and to pay for production cost of each beam of yarns (fabric with the size of 110x8.000 cm) is approximately Rp1.760.000 (one million seven hundred and sixty thousand rupiahs). The real needs of the entrepreneur to run her business are as follows: Firstly, the entrepreneur needs knowledge of ATBM weaving processes such as variety of developments of ATBM weaving motifs, selection of weaving yarn types, selection of dyes and their applications in dyeing process, sekir process (yarn rolling process) and weaving process. Secondly, the entrepreneur needs working capital. Third, the entrepreneur and the employees needs work motivation.

### **3.4 The arrangement of problem-solving plan**

The first three before mentioned problems, namely: the less efficient production process, the still monotonous motifs and patterns of produced woven fabrics and the lack of confidence of the entrepreneurs that the weaving business unit can support their family life, are solved by conducting a comparative study with other successful ATBM weaving industry units in other place in Troso village, Jepara regency.

The objective of the research is to learn the weaving design development comprehensively, which includes production planning, fabric motif planning, yarn dyeing process, weaving process, weaving tools, products of weaving motifs and patterns, wage

and marketing system. Based on the results of the comparative study the weaving tool manipulation and design development training are planned, to be the production process more efficient. In addition, the problem of the less confidence of the entrepreneur and employees is solved by giving motivation through FGD. The limitation of working capital is planned to be solved by conducting working capital assistance. This can be done through order and consignment system, revenue sharing system and concessional interest loan system. These three systems are applied according to the need and development of the financial capability of the business unit.

### 3.5 The implementation of problem-solving action of the business unit

The problem-solving phase of the business unit at the action level includes the following actions:

- 1) developing the *lurik* motif designs in accordance with the demand of the consumers by using pakan yarns whose size is larger than that of lusi yarns;
- 2) manipulating the weaving tools;
- 3) diversifying the motifs and weaving techniques by establishing cooperation with partners;
- 4) growing a creative process of the sekir artisan;
- 5) providing working capital aids;
- 6) developing a promotional media;
- 7) managing the work contract system between the entrepreneur and the weavers,
- 8) improving the motivation of the entrepreneur and employees.

#### 3.5.1 Activity 1

The improvement on the motivation of the entrepreneur and employees is done through the comparative study and FGD. The site for the comparative study was the advanced ATBM weaving business unit, that is, Lestari business unit in Troso village, Jepara Regency. The participants of the comparative study were the entrepreneur, her husband as the weaving tool technician, the sekir artisan, one of the marketing staffs and the facilitator or the researcher. The comparative study was done for two days at the aforementioned ATBM weaving business unit. The results of the comparative study are as follows:

- 1) The participants understand variety of weaving yarns and their application. The size of pakan yarns is larger than that of the *lusi* yarns. This difference aims at accelerating the weaving process and reducing the production cost.
- 2) The dye mixture is added with kitchen salt, as to cut the production cost, but the result of the dyeing easily fades.

- 3) The participants, particularly the entrepreneur, are surprised the fact that the weavers at the business unit in Troso are dominantly young males. It is very different from the one in the business unit of the entrepreneur which is entirely done by females.
- 4) The motifs of the produced woven fabrics by the weaving business unit in Troso village are varied. One of the motifs, which draw the interest of the participants of the comparative study, was the technology to produce the presence of tuwis motifs among the *lurik* motifs. The impact on the comparative study is that the participants are very much motivated to develop them.

#### 3.5.2 Activity 2

The *lurik* motif design development is adjusted to the taste consumers by using the pakan yarns, which are thicker than lusi yarns. The process of design development is actually the empowerment of human resources, the entrepreneurs and employees. According to Maxell [20], the empowerment of human resources has three aspects, namely: providing good information, improving skills into a better state, and delegating authority to the employees non-managerially. In addition, the empowerment must satisfy the employees. The development of the creative process in the ATBM weaving designs can be done through four Ps, namely: person, process, product and press [21]. In the development of the ATBM weaving designs the personal uniqueness of the individuals (the entrepreneur and the employees) needs to be appreciated. The entrepreneur and the sekir artisan need to have discussions to determine the weaving design concepts to be developed and the production cost for each beam of yarn. Based on the discussed concepts, which are predicted to fulfill the taste of markets [22] and which comply with the culture of the community [6, 23], the researcher, as facilitator, designs *lurik* weaving motifs on A4 paper.

The development of the ATBM weaving motifs was done by the aid of computer media. It was to accelerate the design process so as to improve the business [24]. The entrepreneur and the sekir artisan were encouraged to be creative and were given independence [25] to choose one or two *lurik* design motifs from the motifs offered by the facilitators and which were supposed to be able to realized by the sekir artisan and to be accepted by the markets.

Based on the comparative study to accelerate the weaving process, the size of the pakan yarns is larger than that of the lusi yarns. Therefore, in the yarn dyeing process the comparison between the number of the lusi yarns and that of the pakan yarns in each beam of yarns to be dyed according to the proportion of colors in motif

designs. The yarns were after dyeing rolled on spools. Then the sekir artisan composed them on the sekir tools according to the selected motif designs. This sekir process was the main phase of the development of the ATBM *lurik* weaving motif designs. When the sekir process was accomplished the yarns were moved to the warp beams. Next, the beams were fitted to the weaving tools or looms (*tutstel*) and the lusi yarns were entered into yarn combs. Then the palette yarns were attached to the cocoon for weaving process.

### 3.5.3 Activity 3

The third activity was to grow the creative process of the sekir artisan and weavers. The development of the ATBM weaving product designs lied on the sekir process conducted by the sekir artisan. The sekir process is a technique to arrange the lusi yarns, what is the extended material, based on the color compositions. The larger number of the colors and the more complicated the color composition are in the weaving motif plan, the more complicated is the arrangement of the yarns or the sekir process. To grow and improve the creativity level of the sekir artisan, the training on composing colors was conducted. In addition, the sekir artisan was also trained to understand the correlation between the ATBM weaving motifs and the backgrounds of their consumers or users. The trainee was given psychological independence and security [25] (Rogers in Minandar, 2009) meaning that the sekir artisan was granted autonomy to develop the motifs according to their creativities and the results of the creativity should not be criticized, which could decline their efforts and motivation.

### 3.5.4 Activity 4

The fourth activity was the provision of working capital. In the development of the ATBM *lurik* weaving motif designs, each motif design or one beam of yarns required the capital of approximately Rp1.800.000 (one million and eight hundred thousand Indonesian rupiahs). Due to such a big amount of initial capital, the entrepreneur didn't dare to take risk. The owner was worried that the new motif's weaving products would not be sold as expected. It was understandable because they usually produced only the *lurik* motifs which were already acceptable to consumers or markets. To develop such different *lurik* motif designs the entrepreneur required working capital assistance with the revenue sharing system. In relation to the development of the new weaving motif designs in this system, all of the production costs (at approximate of Rp1.800.000 or around US \$150.) was borne by the facilitator. When the new design products were not sold out, the entrepreneur would not bear any loss. Conversely, when the new weaving motif products were sold out, the profits were shared by the entrepreneur and the facilitator.

Each earned 50%. Furthermore, the initial capital and profits were used to produce the next new *lurik* weaving motif products or the one ordered by consumers. This model of working capital assistance was done for one year based on the need of the entrepreneur.

After the entrepreneur felt that the new weaving motif designs were accepted by the consumers, the entrepreneur decided to use her own capital in order to earn larger profits. Based on such conditions, the entrepreneur decided to have working capital with "soft loan" model. In this model, the entrepreneur was given loan with the fixed interest of 1% per month. The principal loan and its interest of 1% per month was paid in monthly installments for ten months. The first installment was given the grace period of 2 months. It was enough to give entrepreneur opportunity the conduct the production process and marketing. This soft loan used a collateral system.

The application of the interest and collateral system was merely to educate the entrepreneur to have sense of responsibility, meaning that the entrepreneur was empowered and confident to stand independently and able to deal her capital limitations as well as able to fulfill the consumers' demand on the weaving motifs.

### 3.5.5 Activity 5

Manipulating the looms. The small looms sized 80 cm was able to produce only waeves fabrics with wide of 70 cm. The package of one piece of woven fabric required for clothing was 70 cm in width and 300 cm in length, or 110 cm in width and 200 cm in length. Both sizes had the same selling value that is Rp50.000 (fifty thousand rupiahs). However, two sizes required different length of time to produce of each. The first required longer time than the second. Thus the looms used to produce fabrics, projected for clothing, were less efficient. They were effective and suitable to produce fabrics for shawls, serviettes, and others that use such a dimension of fabrics. Viewed from economic aspects the aforesaid products had a very low economic value. Their weaving motifs were monotonous, and their consumers were relative. The consumers were traditional herbalists (*Jamu*) or villagers with low economic class. Therefore, some of the small looms were modified to be the larger ones with the size of 120 cm, producing fabrics up to the wide of 110 cm. This modification aimed at creating efficiency in the weaving process which in turn improved the income of the weavers. Furthermore, the modified loom can still produce the fabrics with the width of 70 cm in addition to those with the width of 110 cm. Thus, the manipulation of the looms is closely related to innovation, ability of workers, needs of consumers and capital [26].



### 3.5.6 Activity 6

Diversification of weaving motifs and techniques was done through cooperation with partners. The luring weaving motif designs, developed by the entrepreneurs, were tumpal motifs in which one of the fabric edges has a different motif. In addition, the entrepreneur also developed “drizzle” motifs, “hordes of ants out of their nest” motifs and other motifs. The entrepreneur with her artistic experiences could determine her creative process and during the creation she was controlled by her aesthetic experiences [27]. The efforts of developing the *lurik* weaving motifs were developed not only to the *lurik* weaving motifs but also to those integrated with other motifs through other techniques.

The development of designs conducted by the entrepreneur included the following:

1. The *lurik* weaving motifs were integrated with the batik motifs. It was done through stamping technique. The integration of the two different motifs was done collaboratively with partners - the batik entrepreneurs in other regency, namely the Sragen Regency which is located about 60 km from the weaving site. It was mediated by the facilitator.
2. The *lurik* weaving motifs and design were integrated with the flower motifs. This integration was done through painting technique.
3. The *lurik* weaving motifs with the flower design were integrated into embroidery technique.

The new motifs and array design of the *lurik* are developed in various colours and lines composition. As seen in the Figure 1, the original *lurik* motif was mostly with solid parallel lines on purple, blue or black.



**Figure 1** The original *lurik* motif with solid parallel lines on purple, blue or black.

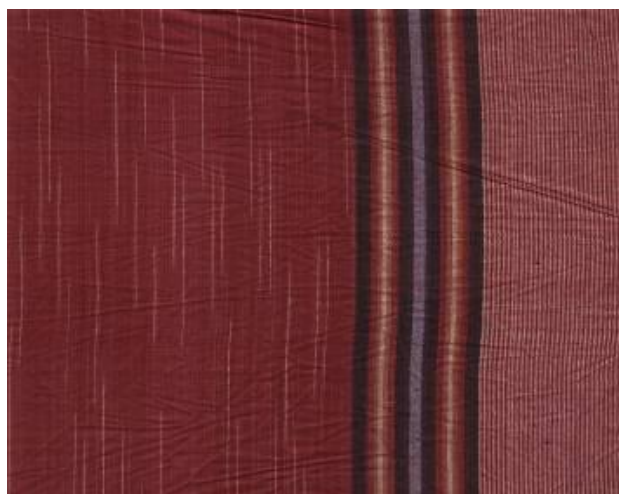
After several trials and actions the ATBM *lurik* weaving industry provided a more dynamic patterns and varied designs. Here are some examples of the innovation in the design and motifs (Figs. 5-7).



**Figure 2** *Lurik* pattern with varied composition and colors



**Figure 3** *Lurik* pattern with additional decoration of *tumpal* in one end



**Figure 4** *Lurik* pattern with randomly mixture woven to create a rainy accent



**Figure 5** *Lurik* pattern with cross and match configuration to produce rectangle motif



**Figure 7** *Lurik* material designed as traditional clothing with drawing flowers applied



**Figure 6** *Lurik* materials with combination the *batik* and stamped technique

### 3.5.7 Activity 7

The seventh activity was the development of promotional media. Due to the limited access of the weaving enterprise – the location of the enterprise is difficult achievable by consumers, promotional media are very necessary. The development included the business cards of the entrepreneur and enterprise, product catalogues and product packaging. The three promotional media was designed with the same concept that accentuating the *lurik* motifs dominated with red colors.

### 3.5.8 Activity 8

The eighth activity was the application of work contract. In the second year, following the expanding market regions and the increasing product demands, the entrepreneur had to recruit more weavers. To motivate the prospective weavers to have self-confidence that the weaving job could operate well and could increase their income sustainably, they were asked to have discussions on the finding of their real needs and problems that they encountered. There were two aspects that the prospective weavers had to understand, namely:

- 1) the product's inefficiency due to the small looms they used and ways to deal it;
- 2) two contract systems as to improving their incomes, that is, contract work and "plasma" business contract.

In the first work contract system, the prospective weavers played role as contract labor workers whose income was determined by the length of the woven fabrics that they produced. For each



meter of the ATBM woven fabrics that they produced, they were paid Rp3.000 (three thousand rupiahs). When a prospective weaver produced eight meters of woven fabrics in a day, she earned Rp24.000 (twenty four thousand rupiahs). The weavers did not bear any risks in this contract system. They were not responsible for the sale of the products and they still received their wages whether or not the fabrics that they produced were sold out. The current incomes were better than the former one when they only produced serviettes (60x60 cm) or carrying shawls (60x250 cm) with the small looms on which they earned only less than one dollar a day (Rp 8.000 – Rp10.000 per day.).

In the second arrangement, the prospective weavers played role as “new entrepreneur or plasma”, meaning that the weavers had looms with the size of 110 cm (manipulated looms) but they did not have initial capital. The capital (yarns) was provided by the plasma core, that is, the entrepreneurs or the micro business unit of YS. The initial capital included 1 boom of lusi yarns whose motifs have been processed (sekir) on the base oo the color compositions by the entrepreneurs and several palettes of pakan yarns. The required yarns were 3 hanks of yarns with the amount of Rp1.520.000 (one million five hundred and twenty thousand rupiahs). When the yarns were woven into a fabric, the fabric was then sent to the entrepreneurs or the micro business unit of the YS to be marketed. When the fabric was sold out, the revenue was used to pay for the initial capital (Rp1.520.000) and Rp160.000 (Rp2.000 x 80 meters of fabric) for the entrepreneurs. The rest was given to the weaver as “her profit”. One beam of yarns requires 3 hanks of yarns. After processing, it was produced the fabric approximately 80 m in length with the width of 110 cm. The price for each meter of the fabric was Rp25.000 and the price of 1 fabric's beam was Rp2.000.000. Thus, the plasma weaver worked approximately 8 hours a day for 10 days, he got the income of Rp320.000 or Rp32.000 per day. It was found that the benefit, that the weaver obtained with this system, was bigger compared to

the one obtained with the contract work system. The weaknesses of this system were that the plasma weavers received their benefits only when the fabrics, that they produced, were sold out and the profit the entrepreneur obtained depended on the price of fabrics in the market during the buying and selling transaction.

The profit of the entrepreneur (core plasma) would be bigger if she was autonomous, meaning that the yarn processing and weaving process were done independently. In this way, she could earn the profit of Rp240.000 (18%) for each warp beam. However, she would have to bear risks if she got a larger volume of order and she could not fulfill the demand. In this way she had to be helped by the weavers. If the entrepreneur positions herself as the plasma core, she only did yarn processing. Meanwhile, the weaving process was conducted by plasma weavers. In this way, she would only receive the profit of Rp160.000 for each warp beam and the profit of weavers would be more or less Rp320.000 (16%) for each warp beam.

In the following Table 1 are presented the initial capital for yarn processing, the benefit of the plasma core (entrepreneur) and the plasma weavers.

### 3.6 Condition of the ATBM weaving micro-business unit following the treatment

Following the empowerment through study and treatment for two years, there have been several changes in the ATBM weaving micro-business unit. The changes are as follows:

- 1) The annual income of the business unit increased from Rp276 million to Rp750 million, meaning that the status of the business unit improved from micro business unit to small-scale business unit. In addition, the wages that the workers earn also improved significantly. For example, the wages of the weavers increased from Rp10.000 to Rp24.000 per day.
- 2) The entrepreneur was able to identify her own problems and real needs and possessed bargaining power against yarn suppliers and to determine the price.

**Table 1** The processing cost for 1 beam of yarns

| No | Types of material                                      | Entrepreneur [Rp] | Plasma Weaver [Rp] |
|----|--|-------------------|--------------------|
| 1  | Price of 3 press of yarns@Rp300.000                    | 900.000           | 900.000            |
| 2  | Price of dyeing substances 400g @90.000                | 360.000           | 360.000            |
| 3  | Dyeing cost of 3 press of yarns @Rp30.000              | 90.000            | 90.000             |
| 4  | Yarn spooling cost of 15kg@Rp4.000                     | 60.000            | 60.000             |
| 5  | Palette cost of 15kg @4.000                            | 60.000            | 60.000             |
| 6  | yarn rolling process cost of 15 kg                     | 50.000            | 50.000             |
| 7  | Weaving cost: 80 m x Rp3.000                           | 240.000           | 0                  |
| 8  | Total yarn processing cost (1-6)                       | -                 | 1.520.000          |
| 9  | Total production cost (1-7)                            | 1.760.000         | -                  |
| 10 | Revenue of product sale (80 m x Rp25.000               | 2.000.000         | 2.000.000          |
| 11 | Profit of core entrepreneur: 80 m x Rp2.000            | 160.000           | 160.000            |
| 12 | Profit of autonomous entrepreneur (10 subtracted by 9) | 240.000           | -                  |
| 13 | Profit of new entrepreneur (10 subtracted by 8 and 11) | -                 | 320.000            |



- 3) The entrepreneur was able to calculate the production cost and time for production each beam of the *lurik* fabric so that she was more daring to speculate to receive order.
- 4) The entrepreneur was more courageous to develop designs of the weaving motifs and to conduct motif and technique diversification.
- 5) The number of fabric products produced increased from 12 beams to 40 beams. Furthermore, the number of motif designs and quality also improved significantly.
- 6) The number of workers increased from 13 to 40, particularly those working as weavers. Moreover, the workers were more skillful in their own fields, and the *sekir* artisan even dared and was able to do innovations in the new *lurik* motif designs by utilizing the remaining yarns.
- 7) The cooperation network with partners also increased. The network has been established with batik industries, convection business units, bigger yarn suppliers, dyeing substance suppliers, marketing divisions and governmental institutions.

#### 4 CONCLUSION

Based on the aforementioned discussion, a conclusion can be drawn that the empowerment of the non-machinery tools of ATBM *lurik* weaving micro-business unit need to be taken seriously. This research for two years achieved enhancement in many parts, that is, the improvement of annual sales from Rp276 million to Rp750 million, the improvement of wages of workers (weavers) from Rp10.000 to Rp24.000 per day, the courage of the entrepreneur to take decisions in developing the weaving motif designs, the increase of the number of workers, the improvement of production, and the improvement of business network.

The relevant model of empowerment of the *lurik* ATBM weaving micro-business unit includes the following:

1. conducting need analysis; the entrepreneur is motivated to identify her own problems and real needs
2. planning programs to deal with the problems and needs;
3. executing actions based on the stipulated plan through the following:
  - improving the work motivation of the entrepreneur and workers;
  - developing the *lurik* motif designs that meet the taste and demand of consumers by using the pakan yarns whose size is bigger than that of the *lusi* yarns;
  - growing the creativity process of *sekir* artisan;

- providing working capital with the models of “revenue-sharing” or “soft loan” in compliance with the entrepreneur’s needs;
- manipulating the small looms to be bigger ones according to the needs;
- integrating between the *lurik* weaving motifs, design and techniques and the other motifs and techniques through cooperation with other different business units;
- developing the promotional media;
- applying the work contracts between the entrepreneur and the weavers through a contract work system called a plasma system based on the weavers’ needs.

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