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## Research and Development in Natural Cotton Dye

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### Introduction

From research on community economic development according to the sufficiency economy philosophy in the cotton route which received a research grant from the National Research Council of Thailand for the year 2004. In the research report, there is a 2-dimensional cotton path route. The first dimension is the path of landscape culture that is linked by the culture and relationship of the watershed, namely the continuation of the fiber from The Mekong-Chi-Mun river basin in the Pak Namphobasin, woven into the Chao Phraya-Pasak river basin in the area of the Madras route, has a goal of 14 is the main host area in seven areas, namely Ubonratchathani, Mukdahan, Sakonnakhon, Khonkaen, Chaiyaphum, Lopburi and Nakhonsawan, and is another 7 network areas, namely Amnat Charoen, Kalasin, Udonthani, Loei, Phetchabun, Uthaithani and Saraburi. Episode is the planting of cotton, cotton stroller (cotton swirling by hand, fiber), dyeing, weaving into cloth and processing into cotton products for their own use trade economy.

In the process 6-step cotton product the steps that make the production process of hand-woven cotton fabric of the villagers are very problematic is that the cotton cartons or the molding of cotton lines by hand is not sufficient for the needs of hand-woven cotton products and natural dyeing, both hot and cold dyeing, such as dyeing with bark stained with frantic dyes, mud and indigo dyes, etc., which dyes, chemicals or market colors are harmful to manufacturers or dyes because lead or heavy metal penetrates into the body and dangerous including natural and environmental pollution the research team therefore has the intention to manage knowledge about natural dyeing and transfer technology of natural dyeing to community enterprises, Nongbuadaeng natural dyeing and network.

### Objectivesm of the study

1. To transfer knowledge and innovation in dyeing natural cotton from natural products in local communities, such as the indigo ebony, mud, bark and natural leaves.
2. Prepare a manual for dyeing cotton in natural colors from natural products in the local community
3. To create a network and expand learning and practice in dyeing cotton, natural colors in the organization and the cotton community of Nongbuadaeng and network organizations in local communities,

### Procedure

The researcher will use the RLDP Model (Research and Learning and People Model) research process in the implementation of the delivery of knowledge and innovation in dyeing cotton fabric in 4 steps:

1) R: Research step is the process of composing knowledge and innovations about knowledge and innovation in dyeing cotton, natural color that the researcher and integrating processing into appropriate knowledge and innovation entering into operation with the community organization Nongbuadaeng natural dyed weaving group Nongbuadaeng district Chaiyaphum province is the main target, which is a joint researcher in this research.

2) Steps L: Learning is a joint learning process between the research team and the researcher. And members, along with the Community Enterprise Committee, Nongbuadaeng Natural dyeing weaving group, community leaders, Department of Agricultural Extension Cooperative Promotion Department and the leader of the natural dyeing cotton community Nongbuadaeng district Chaiyaphum province along with a natural dyeing cotton fabric network this knowledge and practice is a natural dyeing, including indigo dye, ebony, bark, leaves and mud dyeing and dyed ebony the researcher selected cold dye by

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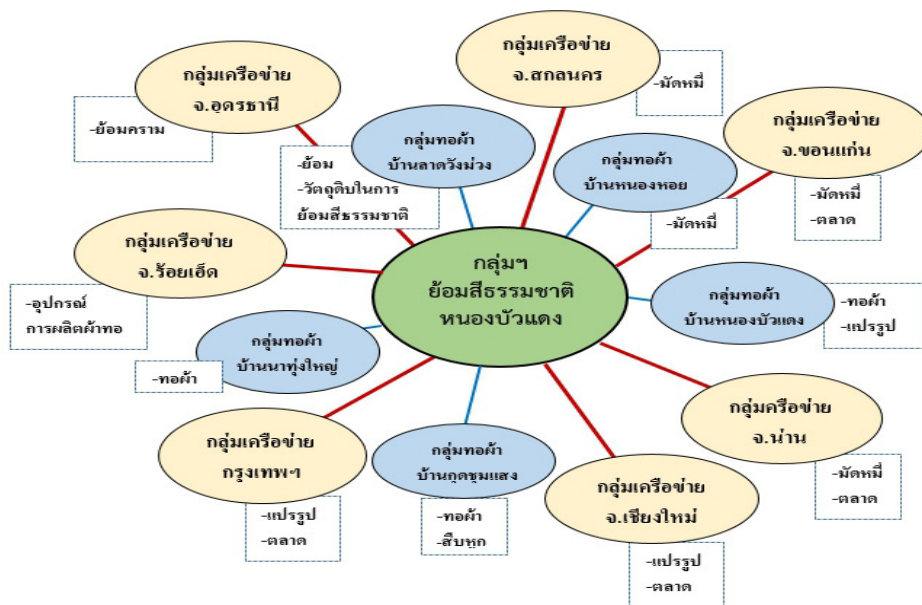
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indigo dye, mud dye and ebony dye is preferred by consumers and the market extensively with both dyeing materials that the dyes produced by themselves are not complicated, especially the mud dye, do not have to invest anything because mud is a natural mud that already exists, and indigo and ebony the dyes can be planted on their own. Every dye is able to form an indigo pot. The family is part of the way of life that every home must have indigo pots, dyeing household clothes.(Old-fashioned old Isan has every household at the present time, there are only households with dyed fabrics)

3) Step D: Development is a procedure for conducting experiments in their own group and organization for skills and development by researchers and academics will follow to see dye operations in each group that is the target area group or when requested by the research team

4) Steps P: Public and People is the process of dyeing natural cotton. Is the production of dyed groups to the market the research team and experts will follow up and evaluate the natural dyeing of cotton groups and manufacturers in order to adjust the quality and maintain the standard of production is natural dyeing.



**Figure 1** Natural dyeing cotton production network, Nongbuadaeng natural dyeing cloth community group

**Summary and Discussion of Results**

This research, the researcher summarizes and discusses the results with the RLDP Model (Research and Learning and Community Community) research process. It can be summarized as a key issue in the RLDP model. There are 4 steps as follows:

1) R: Research procedure can gain knowledge and innovation in dyeing natural cotton fabric that the researcher and integrating processing into appropriate knowledge and innovation entering into operation with the community organization Nongbuadaeng Natural Dyed Weaving Group Chaiyaphum province is the main target. To be a model for other network groups

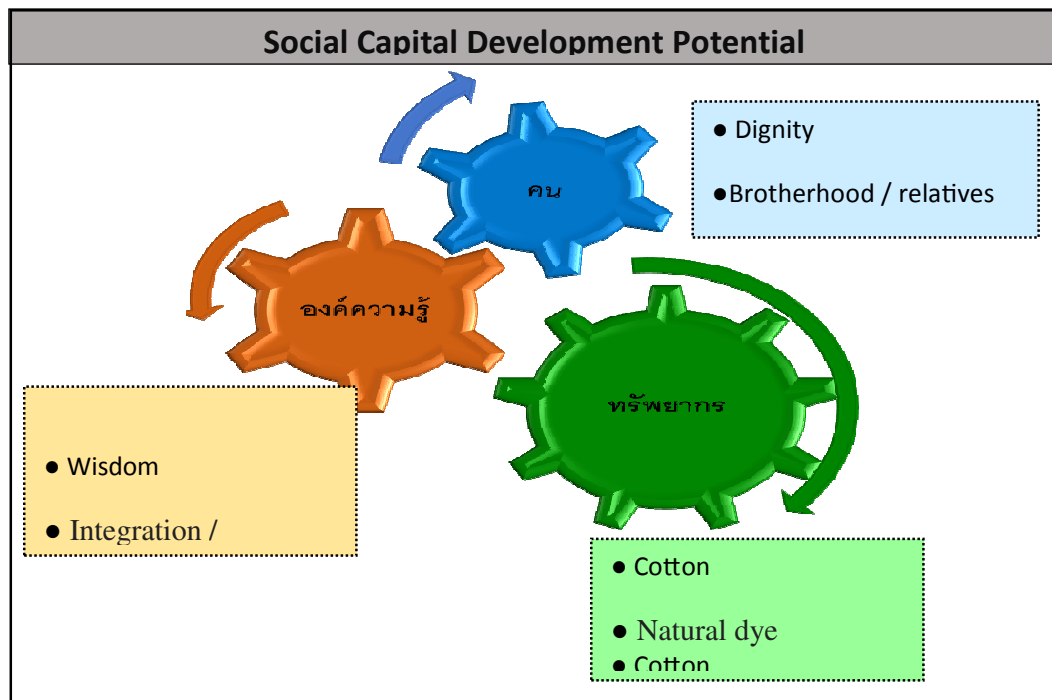
2) Step L: Learning is a joint learning process between the research team. Natural dyeing cotton community Promotion staff of the Department of Community Development Department of Agriculture and Cooperatives Members of the sub-district Administrative Organization, community leaders and community members, Nongbuadaeng Natural Dyed Weaving Group this knowledge and practice is a natural dyeing, such as dyeing, waxing, barking, pebbles, blood soap, ebony, indigo and mud dyeing. Such dyeing is preferred by consumers and extensive markets both dyeing materials that the dyes are produced by themselves are not complicated, especially the mud dye, do not have to invest anything because mud is already a natural mud other natural materials such as indigo and ebony the dye can be

grown by itself and inducing the indigo pot in the house according to the way of life that every home must have indigo pots, dyeing household clothes but at present, only households with dyeing this research is a mutual learning. Both the natural dyeing cotton community and the promotion staff of the Department of Community Development Department of Agricultural Extension Cooperative Promotion Department Staff members, subdistrict administrative organizations, community leaders and researchers.

In addition, the research also found that Nongbuadaeng Natural Dyed Textile Weaving Group Chaiyaphum province with outstanding marketing and product development according to market demand due to interaction with other groups outside communities such as Chiang Mai, Nan, Khonkaen Sakonnakhon Roi-Ed Ubonratchathani Udonthani province and Bangkok causing a wider relationship Interdependence between networks which causes the network or network to connect with each other of the Nongbuadaeng natural dyeing cloth group as the network diagram for the production of natural dyeing cotton.

3) Step D: Development is a procedure for conducting experiments in their own group and organization for skills and development by researchers, speakers and weaving groups various networks have performed natural dyeing and participate in various activities to share experiences and learning together in each group to develop and improve in their own group to have potential strengthened the family warm happy society.

In the development of dyeing of natural cotton started by improving the quality of people, knowledge and local resources which is considered a social capital that exists in the local community of Ban Nongbuadaeng Chaiyaphum province is a characteristic of people in the community with cooperation in mutually beneficial activities have a new social relationship developed from trust and trust with each other, creating a network of links to good relationships with each other as follows:



**Figure 2** Social capital development potential

People capital development potential with the engagement of people in Ban Nongbua daeng community brotherhood and kinship have mutual sacrifices cooperate together participate in work love and respect each other's rights there is a jealous and conscience in preserving the good traditions. Including the wisdom of weaving, dyeing natural colors inherited from the grandfather's generation, making it proud of the knowledge of natural dyed cotton production Together with the group leaders who are good and talented people of the community Have a love and want to preserve the natural dyeing weaving wisdom therefore joining the group to develop the group members to have better living

conditions Is a model for group management until being trusted and accepted by members and groups in other networks.

Development of knowledge capital potential with the knowledge that is existing wisdom and knowledge gained from exchanging knowledge between the network, community leaders, speakers and researchers. Starting from planting cotton fiber production process (electrostatic, ejection, wheeling, braiding), natural dyeing, weaving, processing and marketing to develop various processes with modern technology to adapt to the modern era such as cotton planting techniques Natural dyeing techniques, weaving techniques, product processing to be more diverse and enter the market to be accepted and demanded by consumers to be more international various development processes require experience accumulation. Trial and error Education and training and knowledge from the exchange of learning together.

Development of capital resources the abundance of natural resources of Nongbua Daeng district Chaiyaphum province which is a natural area with mountains surrounded the majority of the population are agricultural workers. When free from the season, weaving Most of the fabric production is cotton. Therefore, the cotton planting of Nongbuadaeng has been long. For use in weaving cloth in the household in which each year, the group must use cotton in large quantities. The members of the group then planted cotton, and then passed through the production process of the fibers from the elimination of the roll to the cotton plait to the dyeing and weaving into the fabric In addition, the natural integrity of Nongbuadaeng Chaiyaphum province causing the plants to provide dyes in the dye, such as the crustacean shell that gives brown color peel pea to green the green blood soap leaves ebony balls give black comsaed seeds give the orange color to the red color and mud that is the raw material for dyeing that is unique for more than 100 years of villagers in Nongbuadaeng district by using mud to dye cotton fibers that causes the color to not fall with long lasting durability and no chemical additives.

4) Steps P: Public and people is a dyeing of natural colored cotton is a product of natural dyeing groups to market in this research, a natural dyeing knowledge guide was prepared. To disseminate to interested people the research team and experts will follow up and evaluate the natural dyeing of cotton groups and manufacturers. In order to adjust the quality and maintain the standard of production including product development and extension of the cotton fabric wisdom to the international market of Nongbuadaeng Natural Dyeing Enterprise Group Which brings the unique dyeing mud that has more than 100 years of villagers in Nongbuadaeng sub-district is processed from fabric from 150-350 baht per meter. The price depends on the color, pattern and difficulty in production. When processed, it will increase the value and be able to compete in the market more as well as developing skills, creating jobs, generating income for members and network groups enabling customers to select more products and with the strength of the mud to dye natural fibers to get beautiful color tones, beautiful colors, long lasting, durable and also preserving the environment because the mud dye contains no chemical additives.

Product processing also depends on the market. The needs of both Thai and foreign customers, such as Japanese customers, need to carry baby clothes, shawls and spreads from hand-woven cotton and British customers. Order natural dyed shawl by designing the pattern and also provide techniques, colors and patterns that are suitable for different seasons Special products such as bags, seminars, sacks, loincloths, hats and shawls, etc. The group has sources for both domestic and foreign products, including Chiangmai, Khonkaen, Nakhon Ratchasima, Nonthaburi and Bangkok, foreign countries, including Japan, Indonesia, etc., and other sales such as shows and selling products according to the government agency, the demonstration is open for interested parties to study, visit and research the presentation of product details on the webpage and recommend products of government agencies Public relations, public works Group product recommendation document in order to develop weaving and dyeing of natural cotton fabric to be modern and in line with the changing society and can spread to other weaving communities and the public in nearby local communities.

### **Suggestions**

#### Suggestions for utilization

1. Woven natural dyed cotton fabric is a wisdom inherited from ancestors is a traditional social capital that exists in the community Therefore, there should be a promotion of cultural and wisdom inheritance through cooperation from all parties both inside and outside the community seriously.
2. Should encourage young people to realize and come to learn about the dyeing of natural cotton In order to inherit and preserve the wisdom of weaving, dyeing natural colors to remain sustainable.

3. The natural dyeing of the Nongbuadaeng natural dyeing cloth community group is unique, especially mud dyeing. Should be promoted and developed continuously to create a unique identity of Nongbuadaeng District and is widely known.

### **Research suggestions**

From the study, the research team has suggested the research to strengthen and develop the working process of the Nongbuadaeng natural dyeing cloth community group.

1. Should study the marketing model of natural dyed cotton fabric to develop the production process of natural dyeing cotton and management to be more sustainable.

2. Should be established as a comprehensive learning center Cotton dyeing from natural colors For the young generation to come to study and learn the production process of cotton dyeing with natural colors to keep them from losing To be a local wisdom that should be conserved, preserved as a local philosopher.

### **Policy Suggestions**

1. In order to raise awareness among young people of the latter generation to inherit the pride of the local philosophers in the conservation of cotton dyeing with natural colors by applying local resources to the maximum benefit and allowing the wisdom of natural dyeing to remain in the local pair forever.

2. There should be promotion and coordination with the local government agencies to have the conservation of dressing with natural dyed fabrics 1 day per week so that everyone can see the value and together to preserve the national identity and culture local is to create an attitude, knowledge and understanding that everyone has a duty to promote a culture that is a national treasure and ethnic pride in being Thai.

With the wisdom of Thai weaving as an important cultural heritage which has been processed and refined for a long time Became the foundation of the way of life of people in each locality Wisdom is also a matter of accumulated experience and learning for a long time. Cultural value And knowledge resulting from skills, beliefs, behaviors and real experiences of people in each locality through the process of observation, follow-up, action, trial and error, synthesis analysis, corrections until new knowledge to be adapted to daily life to suit local life conditions with these things is a good thing should maintain Thai culture for generations.

### **References**

1. Amara Chiralak (2002) Natural Dyed Cotton and Ban Phong Community Way, Boribun Subdistrict, Pink District, Khonkaen Province. Master of Arts Thesis Thai Studies for Development Resource Center Loei Rajabhat University.
2. Ali, S., N. Nisar, & T. Hussain, (2007). Dyeing properties of natural dyes extracted from eucalyptus. *Journal of Textile Institute*. 98 (6): 559–562.
3. Aspland, J.R. (1993). The application of Ionic Dye to Ionic Fibers: Nylon, Silk and Wool and Their Sorption of Anions. *Textile Chemson*. 25(2): 22-26.
4. Chemicals and consumer products division Department of Science Service. Natural dyeing procedures. (2016). Documentation for training course on the development of textile products with natural dyes in Amnatcharoen province in the project to develop the product quality of community products (OTOP), type of woven fabric to standard certification. Bangkok: Department of Science Service.
5. Darika Sao Rom. (2003). Research report on the development of natural dyed fabric products. National Research Council of Thailand, Bangkok.
6. Department of Industrial Promotion. (1998). Documentation of workshops on indigo dyed fabrics. Department of Industrial Promotion, Bangkok.
7. Department of Mulberry Silk. (2007). Dyeing with natural materials. Ph.D.
8. Ecology Dharma and Faculty. (2008). Marketing Management. Bangkok: Samnak Pruek, Makro-Hill international Enterprise LLC.
9. Industrial Promotion Center Region 6 Department of Industrial Promotion and Kasetsart University (2010). Research and development of natural dyeing technology research and development project. Meeting documents

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