

## **IMPROVING INDIGO DYED TEXTILE: A COMMUNITY-ORIENTED COMMUNICATION TO SUCCESS**

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### **ABSTRACT**

Time has come for development to be more inclusive of other knowledge systems than the dominant knowledge of science and technology. This study focuses on the synergy of collaboration between local knowledge of Thailand so called “Local Wisdom”, and Modern Science and Technology (MST) which originally come from the West. It could open a new perspective for Public Communication of Science and Technology (PCST) to broaden its scope, renew methods to enrich and reach more people toward Knowledge-Based Society and Sustainable Development for Thailand.

This article aims to demonstrate a strategy for PCST in such perspective from a village in Northeastern Thailand where traditional knowledge and practice of indigo dyed textile have been revived and improved by collaborating LW and MST to co-create a new, adapted and useful knowledge for community economy as well as re-establishing the social and cultural dimensions of this practice in the community.

### **KEY WORDS**

PCST, Local Wisdom (LW), Modern Science and Technology (MST), Knowledge-Based Society (KBS), Sustainable Development (SD)

### **INTRODUCTION**

Thailand, like most of other Asian countries, has a long tradition of arts and crafts. However, modern Thai crafts have experienced the impacts and influences of Western ideas and styles which had been pouring into the country since 19<sup>th</sup> century (Warren and Tettoni, 2001). However, the knowledge and skills needed to produce such crafts do not disappear. They are kept alive even in cities by the continuing requirements of ancient ceremonies. Or artisans live in the villages in isolations and a deeply rooted conservatism keeps them continuing the practices. And these crafts are available when fresh demands for them arise from various directions in more recent times. For example, in the contemporary era when people turn to “green” and environmentally friendly products as in the case of naturally dyed textiles, the market for this handicraft expands. And indigo dyed textile, besides its unique quality, falls into the same case.

Indigo, “the King of Dye”, is among the oldest dyes used for centuries in many parts of the world and in Asian countries such as India, China and Japan, as well as Thailand. After synthetic indigo had manufactured for commercial use in Europe in 1930, natural indigo was almost entirely replaced by synthetic one.

In rural Thailand, the villagers still use indigo dyed textile because its color is durable. This

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textile is usually combined with traditional motifs called “*mud mee*<sup>2</sup>”. Villagers use the textile to make everything they use, from everyday clothes, towels, scarves, to pillows. The dye can be locally obtained and processed from raw material found in their land, no boiling is required, and the remains of the dyeing process can be used in many ways. For example, it can be thrown in the rice fields to repel crabs that could destroy the crops. And it can be the nest for cultivating an edible and gourmet “indigo mushroom”.

A variety of plants can yield indigo dyes, but most natural indigo is obtained from those in the genus *indigofera*, which are native to the tropics. The primary commercial indigo species in Asia is true indigo – *Indigofera tinctoria*.

Mostly all natural dyes from plants use heat in obtaining the colors. Indigo dye is one of the two natural dyes from plants that use vat dye technique (fermented). The fermented cold solution gives the color to attach to the fiber of the textile. The process of indigo dyeing is rather challenging and complicated.<sup>3</sup> The indigo dye itself is not soluble in water, to be dissolved, it must undergo chemical change. When submerged fabric is removed from the dye solution, the indigo quickly combines with oxygen in the air and reverts to its insoluble form. And it can be washed away, or it tires.

Nonetheless, traditionally in Thailand, special formulas can make the dye fixed on the fiber or the textile using no synthetic chemical. Then, the more repeatedly the textile is put in the solution, the deeper is the color. The dye vat needs almost a month to obtain the right condition for dyeing color. There is a say that “Taking care of the indigo dye vat is more than taking care of one’s husband and children.”<sup>4</sup> It takes lots of time, and love and care is needed in tending the vat.

In Thailand nowadays, not many villagers practice traditional indigo dyed textile. Most people in the younger generations in rural area usually leave their hometown to work in big cities. And they prefer mass production clothes. The migration to big cities also results in the lack of family labor to help with the practice, since the dyeing process is rather labor intensive. The craftsmanship of indigo textile then is less visible. What is left is the knowledge possessed by older people above sixty years old. Or in the memory of people of the younger generations who used to see their mothers or grandmothers do it for household and ceremonial uses.

After the Asian economic crisis in 1997, various initiatives to create jobs and generate incomes in the rural sector were evident as the government recognized potential of the rural sector as a shock absorber to millions of jobless people who sought to go back to their hometowns as physical and mental refuges. It was the period when local knowledge (Local Wisdom) in many areas such as agriculture, food, traditional medicine and handicrafts

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<sup>2</sup> *Mud mee* is the special kind of traditional Thai motifs. *Mud* means *to tie*, and *me* means *tiny noodle*. The word *mud me* describes the way of designing the pattern by binding silk or cotton thread using tiny robe. After dyeing, the tiny robes will be taken off and the designed pattern appears. In Indonesia, it is called *ikat*, and in Japan it is called *shibori*.

<sup>3</sup> Wikipedia, the free encyclopedia ([http://en.wikipedia.org/wiki/Indigo\\_dye](http://en.wikipedia.org/wiki/Indigo_dye) Retrieved 11/9/2004) stated that “Indigo does not bond strongly to the fiber, and wear and repeated washing may slowly remove the dye.” This contrasts with the information that Thai villager artisans claim that indigo dye attaches strongly or the color lasts until the life of the textile. And the Thai researcher findings also confirm that the process makes the dye attach strongly. Since the dye is insoluble, it will not go away with washing.

<sup>4</sup> Weaving textile was done exclusively by women. Usually it was regarded as a part-time activity for female family members.

obviously took an important role. One *Tambon* (sub-district), One Product (OTOP) is one of the projects aiming at encouraging each sub-district or *Tambon* to produce community products as an alternative source of income generation. Handicraft is among the major areas in this project.

Local Wisdom is local and traditional knowledge<sup>5</sup> that Thai people have practiced for centuries in all aspects of life. It is knowledge for living and blending with nature. It differs from the global or universal knowledge system of modern science and technology (MST). Indigenous Knowledge Systems (IKS) are often labeled as non-scientific and non-universal, hence, the marginalization prevails<sup>6</sup>. Nevertheless, for the past decades traditional knowledge systems have been studied, better understood and accepted with growing interest and appreciation, even among scientists and development practitioners worldwide.

The revisit and rediscovering the value of LW in Thai society after the economic crisis is one of the best evidences that LW and MST can be complementary without taking supremacy over one another. In this modern era, it is not only democratic to be more inclusive to accept the existence and roles of other knowledge systems, but also necessary for a country to build a true Knowledge-Based Society and strive for Sustainable Development – not because they are fashionable and modern discourses.

Responding to the governmental policy, during 2000-2002 the Science and Technology for Rural Development and Sustainable Development Program, the National Science and Technology Development Agency (NSTDA) commissioned a research project (as technical assistance to community's request) to Rajabhat Sakon Nakhon University, a regional higher education institution to help a community initiative in Nawa, Nakhon Panom Province (northeast) in reviving the practice of indigo dyed textile. As this kind of study had never been done before, scientific research assumed its priority in the systematically study of the codification of this local knowledge and the production of learning packages. After that, the implementation of research findings was focused on promoting community economy in another location nearby, Panna Nikom sub-district, Sakon Nakhon Province where, Mae (mother) Theeta and Jiew her daughter, the artisans have already produced quality products. However, there was an urgent need to improve the dyeing process in terms of time consumed and labor used so that they could be more efficient to meet market demands both at domestic and exportation levels.

Considered from the economic viewpoint, indigo dyed *mud mee* is becoming famous both within Thailand and in countries such as Canada, Japan and United States, as well as in Europe. This is a sophisticated craft that requires high degree of skill, expertise, quality raw materials to produce a piece of art, and last but not least, the ethical and value driven framework to guide the artisans along the production process. The price of indigo dyed textile

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<sup>5</sup> Local Wisdom is one of the terms used (almost interchangeably) to refer to Indigenous Knowledge (IK). However, in Thailand the term Local Wisdom is preferred as it more focused on 'wisdom' not just 'knowledge'. ScidevNet has provided a definition of IK that, "The concept of indigenous knowledge or local knowledge (IK) refers to the complete bodies of knowledge, know-how, practices, and representations that are maintained and developed by people with long histories of close interaction with natural environment. These sets of understanding, interpretations and meaning are part of cultural complex that encompasses language, naming and classification systems, ways of using resources, rituals, spirituality and worldview". ([http://www.scidev.net/dossiers/indigenous\\_knowledge/ikintro](http://www.scidev.net/dossiers/indigenous_knowledge/ikintro) Retrieved 30/1/2003).

<sup>6</sup> Find more discussion of the dichotomy of Indigenous and Scientific Knowledge in Agrawal, 1995, Dismantling the Divide between Indigenous and Scientific Knowledge, and Agrawal, 1996, Indigenous and Scientific Knowledge: Some critical comments.

is about five times higher than those of other naturally dyed products. The main problem of the dyeing process is that the dye solution can be easily rotten, and usually the villagers do not know what causes it. It is a great waste of time and labor since each preparation for dye solution takes almost a month to be ready for use. When it works, the paste from this preparation can be used for a few years. Improvement in production processes that leads to a decrease in the time consumed and in the labor used would be highly beneficial for the village communities in the region, not merely one at the site of the research.

### **THE SCIENCE COMMUNICATION PROCESS**

Dr. Anurat Saithong from Rajabhat Sakon Nakhon University was head of the research team. It is important to note that, this head researcher took the inspiration to study indigo dyed textile from her personal interest even before NSTDA provided her research grant. She revealed that she was fascinated with the fact that the leaves of indigo plant, which are green, when soaked in water become blue. And when it is mixed with ash water, yellow it turns. Finally, when a textile is submerged in this yellow solution, the oxidation amazingly turns it into blue. As a chemist, she believed that scientific experimentation could explain the chemical reaction.

The fact that the researcher was a local person and worked with the villagers on her own personal inspiration, she was considered as an insider who understood social values, attitudes and cultural practices, as well as problems of the villagers she worked with. This young and modern scientist showed her appreciation to this traditional handicraft by fully involving herself in the research activities and wearing clothes made from indigo dyed textile. Since the preparation for the dye solution and the dyeing process were complicated, she and her team had to work closely with villagers in order not to miss any point that could be important.

From the previous study (in Nawa), it was found that the main problem of indigo dyed *mud mee* production was in the preparation of the indigo dye. The identification of the problem and simple explanation enabled the villagers to be more watchful to the physical observation of the dye solution to see when the solution started to go wrong and knew how to prevent it from going wrong. The device that was invented by her team (from the first study) to decrease the time and labor consumed in the process of preparing the dye solution was also applied here in Panna Nikom.

Remarkably, the researcher was aware that the scientific findings should not spoil the charm of this handicraft by dominating scientific method instructions and recommendations over the traditional practice. She respected the way individual artisans had special ways in taking care of their dye vats, especially their traditional belief that attached to the practice of this handicraft. For example, the belief that the dye vat is dwelled by a spirit that takes care of the dye solution. It is this belief that guides them to take good care of the dye vat. If they are not careful enough, the spirit will run away, then, the dye solution will be rotten or “the dye vat dies”.

It was very interesting to see this young and modern scientist worked and spoke with genuine respect through the language style villagers could relate to. For example, she explained the dyeing process using the word “transformation of the body” to signify each changing stage and color. The villagers were proud that people “from big city and educated” appreciated their knowledge and wore their textile.

The research findings helped Mae Theeta and Jiew improve the process of dyeing greatly

after the eleventh year of their struggle and efforts on producing unique and quality products of indigo dyed *mud mee* textile. The success of the studies both from the beginning in Nawa and in the implementation stage in Panna Nikom drew a strong media attention nationwide. Other villagers began to see and wanted to follow suit to improve their works and earn more income. Eighty villagers from eight villages in the same sub-district of Panna Nikom asked Jiew to be their leader for this indigo dyed textile improvement. And the activities went well as all the participants knew more efficient way of the preparation of dyeing solution and the dyeing process.

Exposed to outsiders and knowing of possible markets, villagers continued to improve their work in creating new motifs and designs or being adaptive to market tastes. Knowledge was shared among them and people outside their villages. Networks of villagers from other provinces have been created to share this knowledge. The researcher was inspired by the impact of the study, and she wanted to continue more study on biological aspect of the indigo dyed solution. Though, the knowledge of the processes and techniques has been codified, one cannot do this with motifs. Motifs are usually the production of passion and interpretation that artisans have toward their nature, environment and supernatural forces. The communities have regained their self-confidence in making a living in the perspective of self-reliance, inter-reliance and sharing, the basic values of Thai society.

Now schools and government offices in Sakon Nakhon join the promotion of their local cultural identity in indigo dyed textile by wearing their traditional dress in indigo dyed *mud mee* every Friday. Some local schools have integrated the production of indigo dyed textile in their local curriculum. Rajabhat Sakon Nakhon University, where the research was done, has opened Indigo Dyeing Learning Center for all villagers from everywhere who want to better the production. The success also inspires villagers in Panna Nikom to grow their own cotton (instead of buying from the factory) in order to create more local job and to produce all hand-made products for their communities and environmentally concerned customers.

## **EVALUATION**

If we accept the validity of the three PCST global aims as defined by Pierre Fayard (Fayard, 1991) namely, political, cognitive and creative, the achievement of this science communication in rural community context can be seen in these dimensions:

- Political: bringing scientists/specialists and non-specialists within a village community who comprise a significant majority of the Thai population to work together in a co-intelligent manner.
- Cognitive: Creating useful adapted knowledge through accessibility and transformation processes, with questions originating from, and solutions responding to local issues and conditions, and
- Creative: Enabling or empowering people to use this useful adapted knowledge in their everyday life, and remarkably beyond the context of origin.

Evaluation can also be considered on the basis of the sustainability of the activities within the communities, and how the new adapted knowledge is used, shared with others and continues to be dynamic in terms of enriching and being enriched with other knowledge. LW does not act as knowledge heritage from the past in just making exquisite textiles. Know-how or skills is only the concrete dimension of LW. The abstract dimension, which is its philosophy and worldview, is as much, if not more, important (Phongpit, 1993). Accordingly, the evaluation should take this abstract dimension into account.

With careful consideration, one will find that within LW, potential to be adaptive and concerns for other people, nature, environment, and supernatural forces are inseparable values and worldview. So, the success of PCST can be reflected in how it can enable and empower rural communities to enrich this existing local knowledge by integrating LW with new knowledge coming from MST, including sharing this adapted knowledge.

## **DISCUSSION**

Classical PCST strategies to promote scientific culture have been developed in Thailand less than a decade. However, this case study shows that there is another way modern development can be achieved by integrating LW and MST. The synergy transformed them into a new useful adapted knowledge for village communities. This different way, or “alternative strategy”, does not appear as a struggle or a fight between traditional knowledge and modern science and technology.

PCST (and MST) can learn from LW to have a “multiperspective reflection” (Ciborra, 2002) or the concurrent of alternating use of several perspectives in consideration of phenomena. It is to see how changes, introduced according to one viewpoint, affect properties of the phenomena when regarded from another viewpoint.

As PCST has not been a well-established field in Thai society yet, in general, it is not quite clear who will take the responsibility in performing the task. For the moment, the role of scientists as “civic scientists” is highly important and should be recognized, and promoted. The role of the mass media in dissemination of successful and exemplary cases is important. Moreover, NGOs and Civic Society movements are growing strong in rural development. So, they can link MST from various sources, make it available and accessible for rural community to use it in solving their local problems and meeting global aims of PCST as specified above.

## **CONCLUSION**

PCST can be efficient on this fertile ground of rural community in Thailand for the co-creation of knowledge and will play a crucial role in Thai society. The characteristics of LW and Thai society and culture, in effect, allow Thai people to be active and benefit from integrating their own knowledge and wisdom with the modern one while maintaining their self-confidence, self-respect and other Thai values with a positive outlook to the challenges brought by unrelenting modernization and globalization.

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