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# Traditional Textile Design for Social Innovation Toward Sustainability in Japan

Yuko Fukatsu<sup>1</sup>

## Introduction

Production of traditional textiles by local communities often tends to become too traditional and old-fashioned separating from our lives and social life. However they are made of natural materials in safe and good quality, so-called earth-friendly materials. Reexamining such traditional textiles are going to be significant for the sustainable life and society in our times and in the future because they contain aspects both old and new, past and future, and tradition and innovation.

In 1954, the Japanese government established a law of Cultural Properties Protection including intangible cultural properties such as traditional textile technologies. According to Agency for Cultural Affairs of Japan, definition of intangible cultural properties is the following:

It refers to stage arts, music, craft techniques, and other intangible cultural assets that possess high historic or artistic value for Japan. Intangible Cultural Properties consist of human “technical artistry” which is embodied by individuals or groups of individuals who represent the highest mastery of the techniques concerned. The national government designates especially significant Intangible Cultural Properties as “Important Intangible Cultural Properties” while simultaneously recognizing individuals or groups that have achieved advanced mastery of the pertinent technique as the holder or holders of that Important Intangible Cultural Property so as to ensure the transmission of traditional artistry. Recognition of holders may take one of three forms: individual recognition, collective recognition, or group recognition<sup>2</sup>.

I had worked as a textile conservator<sup>3</sup> and a researcher for intangible cultural properties such as textile techniques<sup>4</sup> as well as a museum curator of textiles<sup>5</sup>. I used to visit local communities in order to research and to make documentation and to preserve traditional textile techniques. Protecting people who is holding traditional techniques by the government is of course valuable, but their current activities seem to be identified as cultural heritage and museum collections. Nowadays, their achievements have not enough reflected on our fashion and lifestyles at all. In addition, the young generation has no conscious interest in those traditional activities at all. Without cooperation of the young, it is obvious to be difficult that we will firmly hand over the tradition to the future generation and so traditional matters must be an inseparable part of our daily lives engaging their attention.

In this paper, I will explore to reexamine traditional textiles in Japan and to translate them in order to design new ideas and products for social innovation toward sustainability. Firstly, I will describe my background how I have reached to this issue. Secondly, I will introduce several activities that I have done with textile specialists, and my colleague and students at Tama Art University (TAU) where I belong<sup>6</sup>. Then I will explore textile designs for social innovation toward sustainability.

## Background of this study

Since 2000, I have participated in Banana Textile Project<sup>7</sup> - Global Environmental Issues and their Relation to Design Education supervised by Kyoko Hashimoto, a professor of the Department of Product and Textile Design, at TAU, Tokyo. She described about the concept of the project as the following:

In this project, we have selected banana fibers as the material to be used for the production of



environmentally friendly products by linking otherwise wasted fiber resources and design. Our project's goal is that our research will result in products that can be commercially used and will contribute to a more sustainable world as well as cross cultural communication through the introduction of specific design and technological information that can be used in developing countries<sup>8</sup>.

At banana plantations and fields of the world, banana stalks have been thrown away after harvest, and they were so-called waste materials. Extracting fibers from banana stalks, making yarns, weaving textiles, and designing textile products, we realized that waste materials could be changed into valuable materials. Also finding procedures of extracting banana fibers without chemical treatments, electronic equipment, water and electric is important.

The idea was derived from traditional Japanese textile called *basho-fu* produced in Okinawa, Japan. Since 1974, the Kijoka Basho-fu Association has been authorized as important intangible cultural properties and Toshiko Taira has been authorized as a living national treasure since 2000. The *basho-fu* is made of banana fiber extracted from *musa basho* called 'Japanese fiber banana' originated in China, on the other hand, the banana fiber that we focused on is extracted from so-called 'fruit bananas' whose species are more than two thousand in the world. Because of fruits, the fiber of the fruit banana is not enough strong and appropriate to make threads. However, sustainable and ecological point of view, we challenged to apply fruit banana's fibers for making threads and fabrics.

Learning from traditional techniques, we developed a method to extract fibers from fruit bananas, to make yarns, to make fabrics and to make papers. In Japan, we have no banana plantations and almost all fruit bananas have been imported from tropical areas. Thus, banana fibers were provided from Philippine via Taisho Boseki Industries Ltd. We intended to carry out this project to cooperate with foreign countries where produce bananas. Many of them are developed counties with various social issues such as economic crisis, energy shortage and poverties. We hoped that our ideas would help their communities and economies.

With support of United Nation Industrial Development Organization (UNIDO), Japan International Cooperation Agency (JICA) and local institutions and communities, faculties and students of TAU took a trip to Uganda and Rwanda in Africa in 2008, Philippine in 2009, and Laos in 2010 and held workshop and seminar to introduce and spread the idea and methods. In Africa, faculties provided lectures about possibilities of the use of waste materials and about our approaches to banana fibers, and students planed to carry out a workshop to weave a banana cloth and to make a bag of banana felted cloth. In Philippine, students designed a cushion and apron for campaign products for Dole Japan Co. Ltd. and ordered to produce products made of banana textiles to a textile studio at Puerto Princesa in Palawan Island, cooperated with Dole Japan Inc. and Dentsu Inc. In Laos, supported by JICA and a local cooperation, students held workshops to weave textiles including banana fibers in a village of Katu people, Hoay Houn Village located in Southern Laos.

In addition, students created their own works of art and design, and exhibited to the public; a conference was organized and experts of sustainable design, scholars and ambassadors were invited from all over the world, and the result of the educational project was highly evaluated by the Ministry of Education, Culture, Sports, Science and Technology. Throughout this project, it seems that contribution to international society was somehow achieved. In the next step, I thought that I would like to design sustainable products for local communities in Japan, taking times to understand current situation, people, culture, and lifestyle.



## Practical Based Learning at University Education

Learning from the previous experiences, I started to understand and examine a local community where TAU is located. Nowadays, cultivating the land and plant, extracting fibers from plants, spinning yarns, weaving and dyeing textiles by hands is not carried out in the university education. In Department of Product and Textile Design at TAU, textile design refers to industrial design and students prefer to learn creative and industrial printing, weaving and dyeing techniques in order to be a textile designer. Only a few students are interested in earth-friendly materials and traditional textiles but no one knows that our university's hometown, Hachioji, used to be the center of sericulture, as well as the center of silk textiles.

In Project Based Learning program at TAU, I carried out two collaborative design projects. One is the use of waste materials collaborated with the Hachioji Textile Industrial Association. In order to understand the textile culture of the hometown and to design new products from student's point of views, a collaborative project was carried out in 2012<sup>9</sup>. Researched on the hometown, students realized that Hachioji used to be a center of sericulture, and silk threads were gathered by merchants into Hachioji, and transported to the Yokohama harbor in order to export abroad in the late nineteenth century. That is why the road near TAU was still called 'The Silk Road,' a path to the abroad. When people does not wear kimonos any more, textile productions in Hachioji quickly changed their kimono fabrics into fabrics for western clothes and necktie. As a result, the productions fitted into modern society of Japan. However the number of textile productions has declined in spite of that they have made effort to keep their business since now. Students had opinions that qualities of material are extremely high but there is no interesting product for the young generation at all. They might have bought some necktie or scarf for parents or grand parents but for themselves or friends. Understanding the background and current situation of the hometown, students faced into waste materials such as fragments of necktie and punched paper cards of Jacquard weaving machines. They selected materials one by one, and design into cushions, tapestries, lampshades, glass-covers, buttons, as well as graphic design of the logo and pamphlet (Fig.1).



Fig.1 Textile products made of waste materials designed by student of TAU photo by Yuko Fukatsu

Another is sustainable design for Iriomote Island in Okinawa where the traditional life style has been still preserving<sup>10</sup>. For introduction to sustainable design, I and Yuka Kawai<sup>11</sup>, a professor of TAU, lead students to an ecological demonstration, 'Lets Weave a Future Tree on 100% Organic Tapestry!' at 'ECO Park 2013: ECO Action for the Future' sponsored by Japan Broadcasting Cooperation,



Tokyo. I conducted students to plan an organic tapestry making performance. Akiko Ishigaki, a textile artist and a director of Eco-tourism Association of Iriomote provided various plants for wefts. She is one of textile experts living in an old village, Sonai in Iriomote with his husband Kinsei Ishigaki. The village has preserved traditional rituals and networks on the basis of farming for a long time. Weaving fabrics for rituals and traditional performance, they have insisted on importance of hand making fabrics for sustainable lifestyle and society in several documentary films such as *Basho to Spun Steel* (1978), *Gaia Symphony* (2003), and *Silent Voices* (2008).



Fig.2 Let's Weave a Future Tree on 100% Organic Tapestry!' at 'ECO Park 2013: ECO Action for the Future  
Students and participants are weaving a message into the tapestry together. Photo by Yuko Fukatsu



Fig.3 Let's Weave a Future Tree on 100% Organic Tapestry!' at 'ECO Park 2013: ECO Action for the Future  
The tapestry was woven and take it out from the loom. Photo by Yuko Fukatsu



Various types of plants from Iriomote, Kudzu fibers from Shizuoka, cotton from India, and banana fibers from Philippine were gathered for the project. Students were designed a symbolic tree of life for the tapestry and prepared for weaving performance. They also discussed how they make visitors participate to the performance and get messages for the future (Fig.2). As results, various types of seeds of plants and more than two hundreds of messages were woven into the tapestry (Fig.3). There is a reason why we used organic materials. Because the organic tapestry is safe to return to the earth, we actually returned it to a field at TAU last winter. Now in there, we have cultivated indigo plants those of which are also earth-friendly materials for dying. In addition, students who became interested in nature and culture of Iriomote throughout this project, visited there in order to experience sustainable lifestyle with nature and traditional culture. Supported by Akiko and Kinsei Ishigaki, they faced both wonderfulness and difficulty of living close to the nature. This experimental fieldwork with students has been continued since then.

### **Reexamining a local textile called *gunbo* in Yaeyama archipelagos**

A study, 'Reexamining Traditional Textiles and Applying for Sustainable Textile Products' has been carried out since 2013. The purpose is to build a basis of textile network with local communities in order to preserve and reexamine traditional textile techniques, materials, culture and environmental issues. In this study, I focused on a concept of a local textile called '*gunbo*' in Yaeyama archipelagos<sup>12</sup>. In there, *gunbo* has been used for daily clothing. For *gunbo*, different kinds of local materials such as hand-spun-cotton for warps and Japanese fiber banana for wefts have been woven together. It has been often patterned with stripes or checks.

*Gunbo* is a highbred textiles rooted into daily life of local people in Yaeyama. It will be able to disappear if local people loose their traditional culture and stop wearing it. It is different from *basho-fu* in Kijoka, an authorized textile as an intangible cultural property, protected by the Japanese government. In terms of social innovation toward sustainability, reexamining not textiles for special occasions but ordinary ones is important. In other word, *gunbo* is a symbolic highbred textile consisted of two different materials so that it could be a textile derived from two different places, cultures, and people. Learning from *gunbo*, I intend to design sustainable and highbred textiles rooted into daily life of Japan and point out three concepts as the following.

- (1) Utilizing earth-friendly materials without any chemical treatment
- (2) Respecting nature, culture and traditional textile techniques
- (3) Collaborating with two or more productions and people

### **Designing a highbred textile**

Utilizing earth-friendly materials without any chemical treatment for textiles is not easy in the current society. However, in Japan, there are a few people who still preserve or reconstructed the procedure. Respecting nature, culture and traditional textile techniques, I planed to make a sustainable and highbred textile collaborating with people who produce silk for warps (fig.4) and Japanese fiber banana for wefts (fig.5).





Fig.4 Preserved cocoons with salt made by Akira Shimura  
Image by Yuko Fukatsu



Fig.5 Preserved cocoons with salt were prepared to reel them out.  
Image by Yuko Fukatsu



Fig.6 A bunch of *kawa-basho* peeled out from outer skin of Japanese fiber bananas made by the author  
Image by Yuko Fukatsu

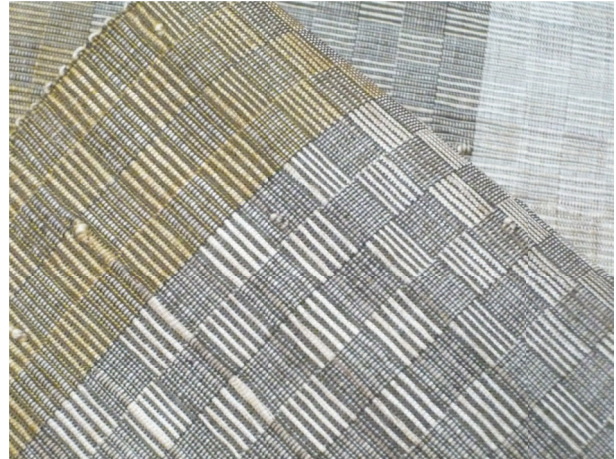


Fig.7 *Gunbo* woven with silk and *kawa-basho* by Kyoko Kameda. Warps: silk, wefts: *kawa-basho*, structure: double warp of plain weave, dye: wild peach tree, *fukugi*  
Image by Yuko Fukatsu

In silk reeling industry, fresh cocoons are heated and dried to seal silk moth inside of the cocoons. As a result, the quality of so-called ‘silk’ has been deteriorated by the treatment. Akira Shimura, a silk master, has dealt with sustainable silk for a long time. Living in Okinawa, in Ehime, and recently in Nagano, he has explored an ideal environment and a silk reeling method without any heat, dry and chemical treatment. He has cultivated a field for mulberry trees, managed sericulture, reeled out silk threads by himself from fresh cocoons or sault-preserved cocoons, made yarns, woven silk textiles, designed clothing and worn it by himself (Fig.4, 5). His silk is indeed an innovative silk, and recently, this type of silk has been produced by other local groups such as Tokyo Silk in Tama area of Tokyo.

I reexamined about sustainability of Japanese fiber bananas and other plant fibers. In Kijoka, for good quality of *basho-fu*, fibers are only extracted from inner layers of Japanese fiber bananas, and the rest of them are not used. In Banana Textile Project at TAU, bunches of fruit banana fibers imported from Philippine were boiled with alkaline solution containing caustic soda (sodium hydroxide) in order to make them soft. In order to extract fibers, natural resources such as water and woods, and minimum energy such as fire and electronics are more or less necessary.



Akiko Ishigaki suggested me the use of Japanese fiber bananas without boiling them in order to extract fibers. It is called *kawa-basho*, just a peeled-out strings such as like raffia (Fig.5). To produce *kawa-basho*, natural resources such as water, wood or fire are not necessary and carbon dioxin is not exhausted. Kyoko Kameda, a textile artist, who has lived in Iriomote more than 20 years. As well as Shimura, she has cultivated Japanese fiber bananas, extracted fibers, made thread, woven textile, designed textile products, all by herself. Recently she has woven a *gunbo* sash of silk and *kawa-basho* (Fig.6). The checked pattern derived from traditional textile from Yaeyama.

On the next step, she will weave a *gunbo* fabric with *kawa-basho* warps from Iriomote and silk from Nagano, and I will design the fabric into product for our daily life in order to connect two different productions. In addition, I will continue to explore the role of traditional textile design for social innovation toward sustainability in our society.

## Conclusion

Although my study for Textile Design for Social Innovation toward Sustainability in Japan has been still continuing, I have lead following conclusions.

- (1) In order to recreate traditional textiles, whole environment including nature, culture and people's manufacturing techniques should be examined.
- (2) Textile design with a corroboration of different productions will be created unique relationships between materials and people.
- (3) Not only textile products but also holistic design or social design will be needed for social innovation toward sustainability
- (4) Participation of the young generation who is going to be the leader for the next generation will be significant.

Reexamining traditional aspects in local culture and translating them into current society is not easy to carry out. However, it will be necessary for us to not only design products but also intangible elements such as life styles, communication, network, culture and education in order to carry out social innovation toward sustainability.

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<sup>2</sup> Cultural Affairs: Policy of Cultural Affairs in Japan (2013) 41.

<sup>3</sup> The author had been a conservation assistant and Andrew W. Mellon Fellow in Conservation of the Department of Textile Conservation, The Metropolitan Museum of Art, New York (1999-2001).

<sup>4</sup> The author had been a visiting fellow in the Department of Intangible Cultural Properties at Independent Administrative Institution National Research Institute for Cultural Properties, Tokyo (2007-2009).

<sup>5</sup> The author had been a curator of Joshibi University of Art and Design Art Museum, Kanagawa (2010-2012).

<sup>6</sup> The author has been an associate professor of the Department of General Education, Tama Art University, Tokyo since 2012.

<sup>7</sup> [Http://www.tamabi.ac.jp/tx/banana/](http://www.tamabi.ac.jp/tx/banana/)

<sup>8</sup> Kyoko Hashimoto: Banana and Textiles: an Earth Friendly Collaboration, Tama Art University (2008) 5.

<sup>9</sup> It was carried out in a PBL program, 'Materials and Manufacturing Techniques' at TAU in 2012.

<sup>10</sup> This project was carried out in a PBL program, 'Introduction to Sustainable Design' at TAU in 2013. It was supported by NHK Promotions, DESIS(Design for Social Innovation toward Sustainability) Laboratory at TAU, Kuuru Studio at Iriomote, and Eco-Tourism Association of Iriomote.

<sup>11</sup> Yuka Kawai is a professor at the Department of Product and Textile Design at TAU.

<sup>12</sup> Yaeyama archipelagos consist of 10 island including Iriomote island.