

AN ATTEMPT TO CREATE A NEW VALUE OF TRADITIONAL JAPANESE CLOTH: sustainable clothing design using *Sakiori* weaving

Author

Kyoko Kubodera,
Bunka Fashion Graduate University

Corresponding Author: k-kubodera@bunka.ac.jp

Keywords

Sakiori weaving, Sustainable Fashion, Upcycling, Japanese Traditional Cloth, Kimono

Abstract

The purpose of this study is to examine the effectiveness of *sakiori*, a traditional Japanese cloth, for sustainable fashion. Two characteristics of *sakiori* that may contribute to sustainable fashion are discussed: the “power of upcycling,” and the “spirit of using things for a long time with care.” Subsequently, an actual garment was created using *sakiori*, and the effects of its characteristics are examined. The *sakiori* technique, in which the cloth is torn into thin strips and turned into the weft for weaving, gives rise to the power of upcycling. This technique gives new design and uniqueness to the fabric, and the uncontrollable coincidence of the weft attracts people. In addition, as long as a fabric can be torn into yarns, any material, pattern, and color can be used, so it has versatility to be used across various fabrics. Given these characteristics, *sakiori* can make use of deadstock fabrics that have become a problem in the fashion industry. In fact, when observing brands developing products using the *sakiori* technique from deadstock of past collections, we found that not only does this reduce the deadstock, but contributes to the creation of new design concepts.” The “spirit of using things for a long time with care,” inherent in *sakiori*, originates during the Edo period (1603-1868), when cotton could not be cultivated in the cold Tohoku region, and cloth was precious and difficult to obtain. It was from here that such a spirit emerged from the thoughts of the weavers when creating *sakiori* and from the cloth itself, which carries and passes on the existence of people from the past and their stories onto future generations. A garment was created using *sakiori* to examine the characteristics and the role it plays. Kimono fabric was upcycled through *sakiori* into a beautiful fabric, upgraded into a modern and sporty design, and transformed into clothing that can be worn on a daily basis. By using the kimono fabric inherited from the author’s grandmother, she also inherited her grandmother’s and mother’s history and became more attached to the piece. It was confirmed that *sakiori*’s technique and spirit nurtured throughout time possesses great potential in sustainable fashion. In particular, its upcycling power and the spirit of using things for a long time with care are effective against the problem of product lifecycle shortening caused by the mass production and disposal of clothing.

Introduction

The meaning of making clothes is increasingly being questioned. At the 2019 United Nations Conference on Trade and Development, the fashion industry was identified as the world's second most environmentally polluting industry. According to the United Nations, society, economy, and the environment have been negatively impacted by fast fashion. The dominant business model in the sector is that of "fast fashion", whereby consumers are offered constantly changing collections at low prices, and encouraged to frequently buy and discard clothes. The mass production and mass disposal of clothing occur with the lowering of clothing prices in fast fashion and the shortening of the clothing life cycles fast fashion causes. Both mass production and disposal requires the consumption of enormous amounts of energy and water, the emission of greenhouse gases, and other environmental problems such as microfiber pollution of the oceans.

To address these issues, focus is given to two characteristics of *sakiori*, a traditional Japanese fabric: its "power of upcycling," and its "spirit of using things for a long time with care." The purpose of this study is to clarify whether these two characteristics of *sakiori* are effective for sustainable fashion, and to verify their function through the production of clothing pieces.

The research methodology consists of the following three sections. Section 1 defines upcycling and then describes and discusses the characteristics of *sakiori* and its upcycling potential. The relationship between *sakiori* and upcycling will be analyzed based on specific examples of international fashion brands such as Issey Miyake Men and Anrealage. Section 2 examines how *sakiori*'s "spirit of using things for a long time with care" was born from particular historical and cultural contexts. Section 3 examines the effectiveness of *sakiori* for sustainable fashion by actually creating a garment using *sakiori*.

Sakiori and Upcycling

The term "upcycling" is attracting interest as active efforts take place around the world to address environmental issues. These include efforts to reduce waste, reuse goods, and recycle resources. Upcycling is gathering attention as a way to effectively use resources by transforming unused goods and discarded material into products with added value. For example, Ecoalf, a sustainable fashion brand that began in Spain in 2009, has been carrying out a project called "Upcycling the Oceans," in which plastic waste in the oceans is collected, sorted, renewed, and given new life as new products. Similarly, Mafia, a San Francisco-based bag brand that began in 2012, has been producing bags made by upcycling unused sailcloth. These two companies have obtained B Corporation, which is an international certification conferred on companies of high social and environmental utility; they are considered to be outstanding companies in terms of environmentally and socially oriented performance, transparency, accountability, and sustainability. There has been an increase in brands and projects such as these, which use the term "upcycling" in their official descriptions. However, there are ambiguous aspects to the use of this word. Therefore, the definition of the term "upcycling" should be clarified. Wegener C describes upcycling as follows:

In the simplest terms, upcycling is the practice of taking something that is disposable and transforming it into something of greater value. Therefore, when we upcycle, we create something better out of what is already at hand. Upcycling counters the argument that an object has no value once it is disposed of or that it must be destroyed before it can reenter into a new circle of production and value-creation. [...] Upcycling is not just a design approach. The upcycling processes and upcycled products demonstrate the interrelation between old and new and even dissolve 'old' and 'new' as distinct categories in a way that is relevant to our general understanding of creativity. In upcycling, the past is embedded in the present, and that the future is already here. The short story is that creativity does not follow the logic of linear progression from new to old.

(Wegener C, 2016:181)

Thus, rather than turning unneeded products into raw materials or reusing them, upcycling involves producing things that have a higher value than the original products. Moreover, in addition to the design approach to adding value, upcycling involves creative work that transcends the concepts of "old" and "new" and transverses the past, present, and future. Having defined upcycling in this way, and its relevance to *Sakiori* will be discussed.

Ripping and weaving is a great way to utilize fabric deadstock and has the potential to reduce disposal amounts. According to Queen of Raw, an online deadstock market website, the amount of unused fabric in the industry exceeds \$120 billion annually. Considering the environmental impact of fabric production, this is hardly an ethical way of production. The word *saki* in *sakiori* means to tear in Japanese, while *ori* means to weave. Originally, *sakiori* used hemp yarn for the warp, and torn clothes for the weft. By tearing, the original colors and patterns of the cloth are deconstructed, and by weaving, they are given new positions. The uncontrollable coincidence of where the weft ends is what makes it attractive, and gives a new design to the fabric. Not only does it have a warm and unique texture that only hand weaving can give, it also produces original, one-of-a-kind pieces (Figure 1, Figure 2). In addition, the technique can use any material, as long as it can be torn and made into yarn. Furthermore, since the fabric is torn, it is not affected by trends in fabric selection; in other words, it can be used universally across a variety of fabrics.



Figure 1. *Sakiori* vest, Author unknown, production year unknown, Kyoto Prefectural Tango Regional Museum



Figure 2. *Sakiori* rug made of fragments of old textile, Goro Aota, Early Showa Period (1926-1941), cotton and silk, Asahi Beer Oyamazaki Villa Museum of Art

Sakiori is attracting attention as an upcycle material because of these characteristics and is being used in the products of international fashion brands. Issey Miyake Men presented items using *sakiori* in its Autumn/Winter 2013 collection “Winter Wisdom & Urban Mobility” (Figure 3). Previous collections fabric stock was transformed into a modern style using the traditional *sakiori* technique. Recycled polyester was used for the inner parts of the sides and sleeves. In 2014, Anrealage teamed up with workshops and artisans in the areas affected by the Great East Japan Earthquake in the “Tokyo Designers meet Tohoku” project to produce, exhibit, and sell original items. *Sakiori* weaving was done using the leftover fabric of the brand, collectively producing men’s and women’s wear with “Sansa Sakiori Koubo Saccora Japan” Morioka City, Iwate Prefecture (Figure 4). In 2018, “Sansa Sakiori Koubo Saccora Japan”, which collaborated with Anrealage, was also commissioned by Asics Onitsuka Tiger to produce sneakers using *sakiori* fabric (Figure 5). Denim scraps from domestic denim factories and man-made suede material that had been lying in stock were used as weft yarns, and the *sakiori* cloth was used in the upper design of the sneakers. The use of past stock fabric by brands portrays an attitude of sustainability. In addition, the *sakiori* technique can conceptualize the themes and stories of past collections, or mix different themes, contributing to the creation of new design concepts. To reiterate, *sakiori* is creating new values by reusing the dormant resources of today.



Figure 3. Issey Miyake Men 2013 A/W collection, Winter Wisdom & Mobility



Figure 4. Collaborated Jackets between Anrealage and “Sansa sakiori kobo saccoa Japan”



Figure 5. Collaboration sneaker using *Sakiori* between Onitsuka Tiger and Sansa sakiori kobo

The Spirit of *Sakiori*

Sakiori's "spirit of using things for a long time with care" stands face to face with the problem of short product life cycles in modern fashion. Since 2000, the rise of fast fashion has increased the production of clothing and encouraged overconsumption. According to McKinsey Sustainability, the production of clothing doubled between 2000 and 2014. In turn, the number of clothing items purchased increased by 60% per person on average, but the length of time they were kept was roughly halved. According to Carbon Trust, simply wearing clothes for longer reduces various environmental impacts. In terms of greenhouse gases, doubling the lifespan of clothes from one to two years would reduce annual emissions by 24%. In this section, the historical and cultural background of the *sakiori* "spirit of using things for a long time with care" will be discussed.

"Don't throw away any cloth that can wrap three red beans," is a saying in the Tohoku region of Japan, where the weather is very cold. That is how precious cloth, especially cotton cloth, was to the people of this region. During the Edo period (1603-1868), cotton could not be cultivated in such a cold region, so the warm cotton clothes and second-hand cotton clothes brought by ship from Osaka, a big city in the west, were very valuable to them. When these clothes tore, they were patched up, and when they could no longer be worn, they were torn into thin strips and reused as yarn for weaving. This is how *sakiori* was born. A thick and strong fabric, *sakiori* was used for work clothes, sleep clothes, kimono obi-belts, and rugs.

Sakiori is a traditional technique born out of the spirit of using things for a long time with care. An example of the life of *sakiori* can be seen through a kimono. A kimono is made from a single piece of cloth, which is cut and sewn in straight lines, so when it is unstitched, it turns into a collection of parts that form a single piece of cloth. Reaching the end of its life, the kimono is unstitched. Then the cloth is torn into thin strips and woven, thus it is reborn into a new *sakiori* cloth. This cloth is made into a jacket and is first used as a nice piece of clothing for going out. Later, the sleeves are taken off and made into a vest, used as work clothes when carrying items on one's back, or harvesting wheat. When the cloth is worn-out or torn, it is patched up. When it becomes tattered, it is used as cloth for patching, as diapers, or cleaning rags. At the end of its life as a piece of cloth, it is twisted into a rope and lit on fire to repel insects during farm work. Burning to ashes, the cloth becomes compost for the land; hemp and cotton grow from the land, which become cloth, and finally return to the land once again. In this way, the longevity of the *sakiori* cloth used with care, and sometimes handed down over generations from parents to children, to grandchildren, while changing shape multiple times.

In addition, urban areas in the Edo period had systems for increasing the longevity and durability of various products. During this period, material resources were in chronically short supply. Therefore, to avoid wasting precious resources, the development of urban life was accompanied by the development of a recycling system that used sophisticated methods for the collection, reuse, and renewal of waste and unused goods. Recycling was a part of the period's industry, and there were merchants and craftsmen with specialized skills who profited from recycling. Some craftsmen specialized on the repairs of metal hardware such as pots and pans or in sharpening tools such as knives. There were also businesses that focused on collecting materials and products which included used paper items, second-hand clothing, and ashes.

Various ways to increase the longevity and the durability of goods were devised and practiced as natural and integral parts of life.

One reason why *sakiori* was not immediately thrown away, but was treasured for a long time, is because cloth itself was very expensive and precious in the past and difficult to obtain. However, this cannot be the only reason; we all have clothes and items that we cannot throw away, and not necessarily because they are expensive or valuable. For example, I still cannot throw away the clothes and small pouches my mother made for me when I was a child. This is because I imagine the time she spent making them while thinking of her daughter, and this adds value to them. Moreover, the communication and memories that occurred between my mother and the items, are the reason for their existence. In *sakiori*, the act of tearing the cloth and weaving it by hand while thinking of someone becomes the added value of the cloth. Not only does *sakiori* include the background of the creator, but the cloth used for *sakiori* itself carries the stories of the past. *Sakiori* becomes a hub of the past, present, and future, connecting the lives of everyone related to the cloth, and a relationship of attachment between people and items emerges.

***Sakiori* and Clothing Design**

Sakiori was used to create a garment to examine the potential of *sakiori* for sustainable fashion. The *sakiori* cloth used here was produced with the cooperation of Takamitsu Orimono Factory Co., Ltd. (henceforth: Takamitsu Orimono), which is located in Kiryu city, Gunma prefecture, Japan. Kiryu is a silk capital that began offering silk to the Imperial court about 1,300 years ago. In the Edo period (1603-1868), Kiryu was given preferential treatment by the *shogunate* and prospered as a place of silk fabric production. Starting from the production of silk fabrics for kimono and kimono obi-belts, today, active development of textiles occurs using the latest technology and a wide variety of natural and synthetic fibers there. The area has become a textile production hub where outstanding techniques of dyeing, weaving, knitting, and embroidery are concentrated, meeting the needs of various fashion brands in Japan and abroad. Takamitsu Orimono was established in Kiryu in 1913, and is currently managed by Mr. Yasuro Takahashi, the fourth generation. Mr. Takahashi has been certified as a Traditional Weaver of Kiryu Cloth, a Traditional Handicraft designated as such by the Japanese Minister of Economy, Trade and Industry. He specializes in the weaving techniques of *mojiri-ori*, *washi-ori*, and *sakiori* and mainly produces kimono and obi-belt fabrics. The company also runs a direct-to-consumer business model, in which it receives kimonos that are no longer being worn from customers, weaves them into *sakiori*, and makes them into obi-belts.

The cloth used for *sakiori* in this study is a kimono inherited from the author's grandmother (Figure 6). According to my mother, this kimono was made using the kimono cloth my grandmother had saved for my mother's wedding. In Japan, when a daughter marries, she is given a set of 'tools' so that she will not have any trouble in her new life; "*yomeiri dōgu*," which means "bride-to-be's tools." A kimono is one such tool. My mother wore this kimono for special events, such as my elementary school graduation. I inherited this kimono from my mother when I graduated from university. The fabric of the kimono is white with red and white

floral patterns on a background of light pink and light purple plants and trees (Figure 7). The material is 100% silk.



Figure 6. The kimono used for production



Figure 7. Close up view of the kimono pattern

The production method of *sakiori* is as follows: First, the kimono is unstitched and returned to a single piece of cloth. The cloth is then torn into thin strips of 5 mm width with scissors and wound around the wooden bobbin of the shuttle for the weaving machine (Figure 8). The warp is set with 672 warp yarns, and each individual warp yarn is made from reeling 10 threads of 21-denier raw silk. This is the same specification as the *sakiori* obi-belt that Takamitsu Orimono usually makes, and the finished fabric is 31 cm in width. The weft is made by alternating the 5 mm torn cloth yarn and the same silk yarn as the warp. To weave the fabric for each torn fabric thread, the silk thread is passed through the weft five times (Figure 9). It took about one month to produce 10 meters of *sakiori* (Figure 10). The resulting *sakiori* cloth

is a beautiful, transparent, and light tweed-like cloth that softly retains the colors and style of the original kimono pattern, but with less Japanese elements.

The clothing item produced was a half coat with a flared silhouette. In order to make the best use of the *sakiori* fabric itself, I tried to make the design with straight lines and as few pattern changes as possible. The elbow-length sleeves are drop-shouldered, and a large tuck was included in the back to create a fuller silhouette toward the hem. Tucks were also added on the sides around the waist to create a point. The blouson type collar and the zip front closure bring in a sporty element. In terms of pattern making, I focused on how to make the sides thicker and more three-dimensional within the limitation of the 31cm cloth width. I adjusted the vertical roominess by loosening the slope of the shoulders (Figure 11). As for the sewing specification, all the seam allowances were piped with the leftover kimono cloth. The necessary length of fabric was 7.25 meters, and the cut pieces were made with the least possible amount of waste (Figure 12).

Next, I will examine how the creation of this piece reveals the potential of *sakiori* for sustainable fashion. The kimono used for *sakiori* here was handed down from mother to daughter across three generations, but I had never worn it before. Nowadays, kimonos are mostly worn for ceremonial occasions, and rarely in daily life. Additionally, the pattern of this kimono differed from my taste. These issues were addressed by upcycling using the *sakiori* technique. The kimono was transformed into a beautiful, one-of-a-kind fabric through *sakiori* and subsequently made into a modern and sporty coat that can be worn on a daily basis (Figure 13). Furthermore, *sakiori* weaves in the story of the kimono are figuratively being handed down from my grandmother, to my mother, and from my mother to myself. This made me more mindful of inheriting my loved ones lived out memories and to cherish them with affection and care adding to the longevity of this item. I would like to pass this on to my daughter someday.



Figure 8. 5mm width thin strips wound around the wooden bobbin in preparation for weaving



Figure 9. *Sakiori* weaving process



Figure 10. Completed *Sakiori* fabric and Close up view
(left: original kimono fabric right: *Sakiori* woven fabric)

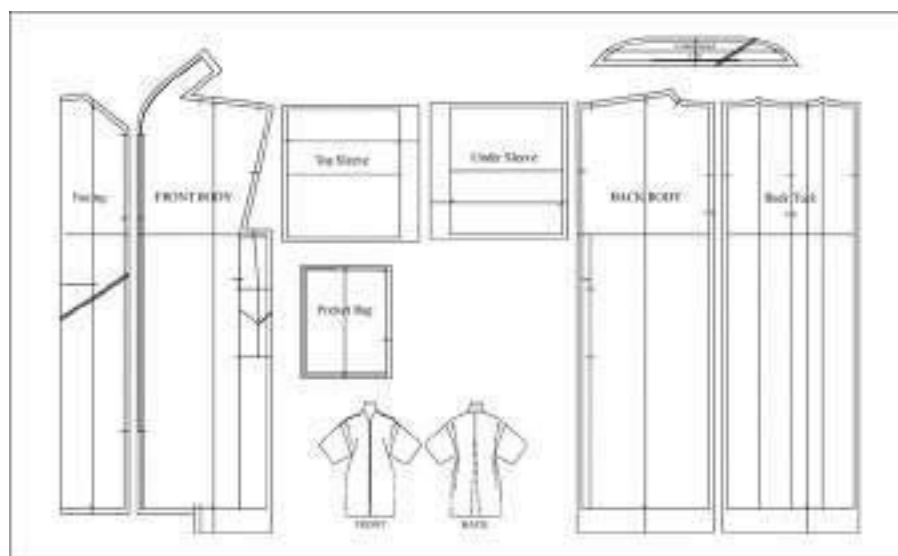


Figure 11. *Sakiori* half coat pattern



Figure 12. Pattern layout for cutting



Figure 13. Completed *Sakiori* half coat design

Conclusion

Section 1 discussed how the upcycling power of *sakiori* can be applied for sustainable fashion. This technique gives new design and uniqueness to fabrics, and can be used to eliminate fabric deadstock in the industry. By focusing on brands that have actually used *sakiori* in their products, it was shown that the *sakiori* technique can conceptualize the themes and stories of past collections, mix different themes, and help to create new design concepts.

Section 2 discussed how *sakiori*'s spirit of using things for a long time with care was born from historical and cultural contexts. This spirit was born in the context of the Edo period, when urban areas had systems to increase the longevity and durability of various products, and where cloth itself was very precious due to the fact it was difficult to obtain. In addition, the weavers' thoughts when making *sakiori*, and the people and stories of the past were passed on to the cloth itself figuratively as it was handed down from generation to generation, creating a relationship of attachment.

Section 3 examined the potential of *sakiori* towards sustainable fashion by using *sakiori* to create an actual garment. A kimono, which was handed down across three generations from

my grandmother was used for *sakiori*, which in turn was made into a half-coat with a sleek, flared silhouette. The kimono fabric was upcycled by *sakiori* into a unique and beautiful fabric, and transformed into a modern and sporty garment that can be worn on an everyday basis.

From this study, it was confirmed that the technique and spirit that *sakiori* has nurtured over time have great potential in contributing to the future of sustainable fashion. In particular, the upcycling power of *sakiori* and the spirit of using things for a long time with care are important in addressing the problem of product life cycle shortening caused by mass production and disposal. The examples introduced in Section 1 and the garment produced for this study and introduced in Section 3 have both similarities and differences. They both used *sakiori* techniques to salvage deadstock and give the fabric new life, creating new products with added value in relation to the temporal concepts of the past, present, and future. On the other hand, while the previous examples performed *sakiori* using deadstock and discarded material, the garment for this study was interwoven with the marks of an individual's existence in this world, as it used the author's late grandmother's kimono. The presence of such marks increases attachment, contributing to the longevity of items. While their versatility and marketability are limited, human attachment and the extension of the longevity of things that accompany this attachment can inspire the motivation to think and design sustainable fashion, as well as helping to re-imagine fashion for the future. Further considerations on versatility and marketability are needed in future research.

Acknowledgments

This research was supported by Bunka Fashion Graduate University. The author wishes to thank President Katsuhiko Hamada and Professor Shinichi Kushigeachi and Professor Tadao Takeuchi for their help and efforts in completing this research.

In making of this garment, the author is grateful to Mr. Shuichiro Kusakari for helping the pattern making process in this paper. The author also thanks Mr. Yasuro Takahashi from Takamitsu Orimono for making the beautiful *Sakiori* weaving.

Figure List

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Figure 2 The National Museum of Modern Art, Tokyo et al., (2021). *100 years of Mingei: The Folk Crafts Movement*. Tokyo, Japan: The National Museum of Modern Art Tokyo, NHK, NHK Promotions Inc, The Mainichi Newspapers., pp80.

Figure 3 Vogue Runway. Available at: <https://www.vogue.com/fashion-shows/fall-2013-menswear/issey-miyake> [Dec. 11, 2021].

Figure 4 Saccora Japan. Available at: <https://saccora-japan.com/project> [Dec. 11, 2021]. Figure 5 Saccora Japan. Available at: <https://saccora-japan.com/project> [Dec. 11, 2021]. Figure 6 Author's own work

Figure 7 Author's own work Figure 8 Author's own work Figure 9 Author's own work Figure 10 Author's own work Figure 11 Author's own work Figure 12 Author's own work Figure 13 Author's own work

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