

The Lotus Flower Fiber and Sustainable Luxury

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Abstract The lotus flower—of great religious and cultural significance- is adored for its characteristic of rising above the muddy water, indicating how one can rise above defilements of life. Apart from motivation for life, the plant also provides fibers which are used for making a rare kind of cloth matching with the flawless virtues of silk. Extracting fibers from the lotus stems have been in practice since 1910. Later during the 90's designers of Japan setup workshops to create a foreign market for their fabric. But due to low demand in Japan, the lotus fiber fabric remained a rare and handmade textile. The lotus plants are pure by virtue, and they radiate this purity through their fibers. The fabrics are 100 % organic, and hence they are environmentally friendly. The entire process of fiber extraction, spinning it into yarn and making the fabric is completely handmade making the process time-consuming. This also limits the quantity of the fabric produced. Stems of the lotus plants are collected, cut, snapped, and twisted to expose their fibers. These are thin and white filaments around 20–30 in number, which are rolled into a single thread. Around 20–25 women are needed to extract fibers this way for one weaver to work with. Fibers extracted from the stem are spun into yarn. The extracted fibers are placed in the skeins on a bamboo spinning frame preparing them for warping. Yarns are made by placing the fibers on a bamboo spinning frame and transferring the thread into winders for warping. With much care, not to get tangles, threads up to 40 m long are made. These threads are then taken from the warping posts, and are coiled into huge plastic bags. Yarns for the weft are wound into bamboo bobbins. Yarns are woven in manual looms. Excess

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warp is stored and later released during the course of weaving. During the weaving process, threads are frequently moistened with water, as the lotus fibers need to be kept cool. The fibers are very delicate and should be woven within 24 h of being extracted so as to prevent their deterioration. The fabric looks like a blend of linen and silk, and has wrinkle resistant and breathable properties given by the molecular makeup of the lotus plant. Based on the experience of the Italian luxury brand Loro Piana, but mainly in the Somatua, a company founded by Awen Delaval in Cambodia, this chapter examines the potential of this fiber in the (sustainable) luxury sector.

Keywords Lotus flower · Sustainable luxury · Loro piana · Samatua

1 Introduction

Sustainable development is a problematic expression, on which few people agree what it means. Each person can take the term and “reinvent” it considering his/her own needs. It is a concept that continuously leads us to change objectives and priorities since it is an open process and as such, it cannot be reached definitely. However, one of the most widely accepted definitions of sustainable development—though diffuse and non-operating—is the one proposed by the World Commission on Environment and Development [37] report—Our Common Future—also known as the Brundtland Report, which defines sustainable development as the development model that allows to meet the present needs, without compromising the ability of future generations to meet their own needs. The essential objective of this development model is to raise the quality of life by long-term maximization of the productive potential of ecosystems, through the appropriate technologies for this purpose [12].

Some authors—Frankel [10] and Elkington [7]—define sustainability as the balance between three elements: economy, environment and social equity.

The textile industry across the globe is constantly striving for an innovated supply chain to gain sustainable development in the entire sector. It is high time to reduce the size of the environmental footprints made by this sector. This includes the development of sustainable and eco-friendly raw materials, less energy intensive and minimum polluting process sequences and technologies and so on and so forth. Obviously the role of raw materials in making an eco-friendly product is highly inevitable and occupies an important proportion compared to other elements in the entire life cycle of a textile product. Additionally, employing an eco-friendly raw material can complement the other life cycle phases in terms of reducing their impact; and it helps in terms of obtaining a reduced environmental footprint out of a textile product.

There is an urgent need to manufacture a textile product which stems from renewable resources such as plants/trees (bast and leaf fibers), produced by ecologically sound manufacturing processes, transported and used with minimum

environmental burdens and finally ending its life smoothly without any additional environmental burdens (recyclable and biodegradable at the end of life). The textiles produced with fibers originating from plant resources will satisfy most of the above mentioned needs, although the manufacturing sequences/processes may not be with guaranteed lower footprints, since it highly depends on how the fiber is going to be converted to a final product.

Against this background, textiles made with bast and leaf fibers are gaining huge importance from the sustainability perspective, and there are various plant resources used to create textiles out of them. One of the plant textiles is the lotus fiber fabrics or textiles. The sacred lotus, named as queen of water plants has a sentimental value for the Hindus and Buddhists. The lotus is affirmed as a celestial fiber for the Hindus and Buddhists. Fibers extracted from this auspicious flower are used for textile fabrics intended for various applications. The fabric surface made out of the lotus fiber fabric is seen to be uneven with small lumps, and it can be used for garments or developed as various home utensils [9, 33]. Fabrics made out of the lotus fiber could be an alternative to waterproof synthetics [8].

The lotus flower has a philosophical sense of touch to human lives, i.e., how a human being can rise above the defilements of life, as the lotus flower does by rising just above the grimy and muddy water. It is an admirable characteristic of this flower that one has to learn and practice in daily life. Besides, as stated earlier, the fibers from the plant can be used to produce a fabric with the flawless virtues of a silk fabric. One of the eco-friendly elements that comes into play in terms of manufacturing is that the fibers extracted from the lotus flowers are spun by hand and woven within 24 h to produce a fabric similar to that of silk [9].

This chapter explores the details of the Lotus flower fiber and its processing. It begins by describing the fiber's historical and religious aspects and, ends with this fiber's potential in the luxury sector, and particularly, in the sustainable luxury sector based on two experiences: Loro Piana's (Italy) and Samatua's (Cambodia).

2 The Lotus Flower: Historical and Religious Aspects

The lotus (*Nelumbo nucifera*) also called as Indian lotus, sacred lotus, bean of India is one of the two species of aquatic plants in the Nelumbonaceae family and it belongs to the Proteales order and *Nelumbo* Genus. It is native to Asia and Queensland, Australia, generally cultivated in water gardens. This is an aquatic perennial, at times mistaken for water-lily; however, it has an entirely different structure altogether. It is the national flower of India and Vietnam [26, 36].

The lotus flower has played a major role in the history of many parts of the world, such as Egypt, Thailand, and China.

2.1 Ancient Egypt

The lotus flower has a pretty long history that dates back to Egyptians times, when it had a very important religious value. The lotus is the symbol of resurrection, purity, serenity and peace. Throughout the ancient Egypt history, the lotus has been pictured in various works of art. The lotus is seen everywhere in ancient Egyptian tombs and temples, often held in the hands of gods and royalty. The lotus plant is flower and fruit at the same time, which makes it very special as it would emerge as pure white from the depths of the muddy swamp and grow above the water. The lotus flower was part of the Ancient Egyptian creation story. It portrays the meaning of creation and rebirth (incarnation), since at nightfall it closes and goes underneath the water, and at dawn it climbs up above the water and reopens. It is a symbol of rebirth and eternal life, which is the main theme of Egyptian religion. According to the creation story, Ra, the Sun God, was created from amidst chaos and first emerged from the petals of the lotus flower. When Ra returned to the lotus flower each night, its petals enfolded him once again. The lotus was also used in their math, helping them to count. One lotus would act as 1000 and two lotus as 2000 and so on and so forth [26, 27].

2.2 Thailand

The lotus flower plays a significant role in the life of Thai people. The lotus is the most common flower of Thailand, which can be easily seen in ponds, swamps, small canals, roadside ditches, even in jars and on top of pillars in most of the temples. The lotus flower—actually five kinds of it—can be found in Thai literature. The lotus flower has a very rich symbolism, which has adorned Thai literature since ancient times. Many Brahman goddesses have lotus blooms in their hands and this can be seen in paintings. There are three names in Thai for lotus and water lilies, which are Bua, Pathum and Ubon. These names are popularly used in Thai culture to name people, monasteries, provinces, districts and villages because of their favorable connotations. The Lord Buddha compares man to four states of the lotus. Thai Buddhists always use the lotus in paying homage to the image of the Buddha [27].

2.3 China

There is a long connection between the Chinese and the lotus. Chinese are regarded as gentle people, who keep themselves clean, alive and healthy in a dirty environment. Essentially the lotus flower represents the creative power and purity amid adverse surroundings. It is also a symbol of the seventh month, summer. In China, there are many poems about the lotus flower, often describing how they come out of the dirty mud under the water and yet retain their pureness, freshness and beauty [27].

2.4 Religious Aspects of the Lotus Flower

The lotus flower is considered to be a powerful religious symbol in many cultures, such as Asian, Egyptian, and Indian ones. From prehistoric times, the lotus has been considered as a divine symbol in Hindu tradition. It is often used as an illustration of the divine beauty and its unfolding petals imply the development of the soul. The Hindu deities are often depicted with the lotus flowers as their seats, and the meditating yogis traditionally sit in the lotus posture (Padmāsana) [2, 23]. This can be seen from many paintings/art works. Based on the ancient Hindu tradition, a lotus flower is also considered as a symbol among the earliest Buddhist symbols. It represents an enlightened being, Buddha or Bodhisattva, rising above the muddy waters of the world; and the Buddha is often depicted sitting on a giant lotus blossom [2, 19, 36]. Buddhists believe that the Lord Buddha himself was born on a lotus leaf and many legends tell that when Buddha was born, he walked seven steps in ten directions and with each step a lotus flower appeared. The lotus is thus one of the eight auspicious symbols associated with the eight-fold path to enlightenment, and symbolizes faithfulness [23].

The lotus has different colors and in Buddhism, each color has a different meaning, which is explained below:

White Lotus (Skt. *pundarika*; Tib. *pad ma dkar po*): it represents purity of total mind and spiritual perfection. The white lotus flower is also regarded as one of the four noble truths.

Red Lotus (Skt. *kamala*; Tib. *pad ma chu skyes*): This portrays the original nature and it is also a symbol of purity (more closely, purity of the heart). It is regarded as a symbol of passion, love and compassion, which are obviously the qualities of the heart. It is the flower of Avalokiteshvara, the bodhisattva of compassion.

Blue Lotus (Skt. *utpala*; Tib. *ut pa la*): The blue lotus is a symbol of victory, victory over the senses. It signifies knowledge and wisdom. It is the preferred flower of Manjushri, the bodhisattva of wisdom.

Pink Lotus (Skt. *padma*; Tib. *pad ma dmar po*): This is the Supreme lotus. It is generally meant for the highest deity. The pink lotus stands for Lord Buddha itself, so it automatically stands for Lord Buddha's teachings too [4, 30].

3 The Lotus Flower Fiber: Aspects and Processing of the Fiber

The lotus fiber fabrics are finding great application in the textile sector, especially in the luxury sector. The lotus fiber fabrics can be best described as in-between silk and linen; the lotus flower fabric is naturally stain resistant, waterproof, and soft to the touch. This breathable, wrinkle-free fabric was once used to make robes

for high-ranking Buddhist monks [8]. This section describes the properties of the lotus fiber and processing details of the lotus fiber to produce a textile fabric.

3.1 Properties of the Lotus Fibers

With the purpose of contemplating the fundamental physical properties of the lotus fiber and of providing the theoretical basis for developing the lotus fiber fabric, a study was conducted in 2008. This study reported the tested fundamental physical properties of the lotus fiber, such as density, linear density and moisture regain. As per the results of this study, the density of lotus fiber varies between 1.184 g/cm³, much less than cotton, ramie and wool fibers, but similar to silk and acrylic. The linear density of lotus fiber is 1.55 dtex, finer than ramie and silk fibers, and similar to cotton and cotton type chemical fibers. The moisture regain of the lotus fiber is 12.32 %, larger than cotton and silk, and less than of wool and viscose, but similar to ramie fiber. Further, this study also indicated that the lotus fiber is very fine and beneficial to the resultant yarn strength and yarn evenness. It can be used to spin high count yarns. It was also reported that the lotus fiber has very good absorbent quality [35].

Another study conducted in 2011 reported the structural characteristics and physical properties of the lotus fibers obtained from *Nelumbo nucifera* petioles [28]. As shown in this study, the lotus fiber is a natural cellulose fiber isolated from the lotus petiole and botanically. The fiber is the thickened secondary wall in xylem tracheary elements. The fine structure and properties of the lotus fibers were researched with the aid of transmission electron microscopy (TEM), confocal laser scanning microscopy (CLSM), atomic force microscopy (AFM), X-ray diffraction (XRD), among others, to obtain essential information for their preparation and processing. The results of this study stated that the lotus fibers displayed a rough surface topography and an internal structure different from common plant fibers. The percent crystallinity and preferred orientation of crystallites in the lotus fibers are 48 and 84 %, respectively, as per this study. Considering the average breaking tenacity and Young's modulus, the lotus fibers are similar to cotton. The elongation of the lotus fibers is only about 2.6 % while their moisture regain is as high as 12.3 % [27].

A recent study conducted in 2012 further reported on the other properties of the lotus fiber. This third study was conducted to study the chemical components, morphological structure, aggregation structure and mechanical properties of the lotus fiber with the aid of chemical quantitative analysis, scanning electron microscope, infrared spectra, X-ray diffraction analysis, among others. Based on the results of this study, the lotus fiber consists of cellulose, hemicellulose, fat waxy, lignin, ash, pectin, hydrotrope, and amino acids; being cellulose is the main ingredient. The lotus fiber that shows a ribbon spiral revolving structure vertically has clearly imperceptible cross striation, and it is a bundle fiber composed of many monofilaments. The cross-section of lotus monofilament is circular or similar to a circular

shape. The lotus fiber is a typical cellulose structure with 48 % crystallinity and 60 % orientation, as shown in this third study, which is slightly different from the previous one, mentioned further above. The density, fineness and moisture regain of the lotus fiber are 1.1848 g/cm³, 1.55 dtex, 12.32 %, respectively. The lotus fiber has high strength and low stretch with an initial modulus of 146.81 cN/dtex, its breaking strength is 3.44 cN/dtex and the breaking elongation is 2.75 % [3].

3.2 Processing of the Lotus Fibers¹

The lotus plant blossoms in warm tropical climate and it is able to withstand even below freezing temperatures when it is quiescent. At least, 5–6 h of sunlight a day for a minimum of 3–4 weeks with an air temperature of 80 degrees Fahrenheit and a water temperature in the 40 and 50 s above is the minimum need for a lotus flower to blossom. The flower and its leaves rise on 61 cm to 1.9 m long stems above the water surface from 15 to 46 cm long nodes. To obtain stems of optimum length, the harvesting must take place in the rainy season from June to November when, for example, a lake water level is at the highest point [11]. Just one week prior to the lotus flower harvesting period, popped rice is scattered on the water and offerings are made to placate the spirits of the locality in order to seek their permission and ensure a good harvest. During the day of harvesting, the gatherers propitiate their patroness. Prayers are also offered to the Buddha for a bountiful harvest [31].

When it comes to the processing of lotus fiber fabrics, it is laborious and tedious. Lotus fiber fabrics are prepared by a handmade artisan process that requires time and thoughtfulness as it takes approximately 32,000 lotus stems to make just 1.09 yards of fabric, and approximately 120,000 for a garment [8].

The lotus leaf stems are usually gathered by younger women in the morning time to begin the process. Following the removal of the nubby prickets with a coconut husk, the stems are then placed beside a young woman seated at a low table. A shallow knife cut is made around a bunch of 5–6 stems which are quickly snapped off and twisted to reveal some 20–30 fine white filaments that are drawn and rolled into a single thread which is coiled onto the plate seen on the left. It takes approximately 15 women making thread to keep one weaver busy [31].

Then, the yarns are prepared for weaving by placing the skeins on a bamboo spinning frame and transferring the thread onto winders in readiness for the warping process. Taking care of avoiding any tangling, the 100 yard long threads are then lifted from warping posts and coiled into huge plastic bags, while yarn for the weft is wound onto small bamboo bobbins (see Fig. 1). In general, the lotus fabric is woven on a traditional Cambodian frame loom. The weaving components include a cloth beam, a large warp spacer-beater, and a pair of heddles supported

¹This section refers both to In-Le Lake in Myanmar (the former Burma) and to Lake Kamping Poy in Cambodia, and the production processes in these two regions.

Fig. 1 Obtaining the fibers from the lotus flower stem. *Source* Fraser-Lu and Thanegi [11]. Photograph by Sylvia Fraser Lu, Pandonmar Lotus workshop, Kyaing-kan, In-le, 2000. Published with the authorization of Sylvia Fraser-Lu and the Fowler Museum at UCLA



Fig. 2 Preparing the fiber for weaving. *Source* SAMATOA—Photograph by SAMATOA. Published with the authorization of SAMATOA



by a transverse bar resting above the frame. The heddles are connected by rope to a pair of wooden, disc-shaped foot treadles [31] (Figs. 2, 3 and 4).

There is no warp beam on a Cambodian loom. The excess warp is stored behind the weaver and released as weaving progresses. This limits the width of cloth woven to around 24 in. (60–75 cm). The use of a temple keeps the selvages straight while water is at hand to moisten the threads during the weaving. Given the aquatic origin of the fabric, weavers feel that the lotus fibers need to “remain cool.” The lotus fabric is woven in 100 yard (90-meter) batches, which takes about a month and a half to complete. The weavers have estimated that fibers from around 120,000 lotus stems are needed to weave a set of monk’s robes. The Cambodian lotus fabric is then dyed either with chemical or natural dyes to a reddish/brown shade before being cut into patches of different sizes and machine sewn together in rows to resemble the mosaic-like appearance of community owned rice fields prevalent at the time of the Buddha [31]. Figure 2 shows the work in a Thai/Burmese loom producing the lotus fiber fabric for monk’s robes.

Fig. 3 Stem once the fiber is extracted. The arteries containing the threads can be clearly seen. *Source* SAMATOA—Photograph by SAMATOA. Published with the authorization of SAMATOA



Fig. 4 Manually weaving the lotus fiber yarn. *Source* Fraser-Lu and Thanegi [11]. Photograph by Sylvia Fraser-Lu, Pandonmar Lotus workshop, Kyaing-kan, In-le, 2000. Published with the authorization of Sylvia Fraser-Lu and the Fowler Museum at UCLA





Fig. 5 The various stages of the lotus fiber yarn processing are presented in this image. *Source* Fraser-Lu and Thanegi [11]. Photograph by Ma Thanegi, Pandonmar Lotus workshop, Kyaingkan, In-le, 1999. Published with the authorization of Ma. Thanegi and the Fowler Museum at UCLA

As stated, this process takes approximately one month and a half to complete and there is a no waste as all parts of the lotus are utilized- using leftovers to make lotus teas, infusions, and flour, which ensures the production of an entirely sustainable product.

The lotus flower fabric is an exclusive organic and natural fiber fabric. The lotus fabric is unique, very soft and comfortable to wear offering special breathable and wrinkle-free properties. It is an organic fabric for high quality fashion clothing [25] (Fig. 5).

4 The Lotus Flower and the (Sustainable) Luxury Sector

Luxury is something desirable and more than a necessity [16]. This definition depends on the cultural, economic or regional contexts which transform luxury into an ambiguous concept. However luxury is a sign of prosperity, power and social status since ancient times [18]. Christopher L. Berry in his work “The idea of Luxury” from [1] establishes that luxury has changed throughout time, and that it reflects social norms and aspirations.

The true elements of (authentic) luxury rely on the search for beauty, refinement, innovation, purity, the well-made, what remains, the essence of things, the ultimate best [15].

However this luxury has given way to the *new luxury* through its democratization (massification) that occurred when family and artisan luxury companies sagged against the large conglomerates which had a strong focus on economic aspects. Dana Thomas, in her work ‘Deluxe—How Luxury Lost its Luster’ [32], was very

clear about the consequences of this process: “...*the luxury industry...has sacrificed its integrity, undermined its products, stained its history and deceived its customers.*” This may be considered a turning point to sustainable luxury.

Luxury—according to Kleantous [20]—is becoming less exclusive and less wasteful and more about helping people to express their deepest values. So, sustainable luxury is the returning to the essence of luxury with its ancestral meaning, to the thoughtful purchase, to the artisan manufacturing, to the beauty of materials in its broadest sense, and to the respect for social and environmental issues. Sustainable luxury would not only be the vehicle for more respect for the environment and social development, but it will also be synonym of culture, art and innovation of different nationalities, maintaining the legacy of local craftsmanship [13].

4.1 Emerging Brands and Established Brands in Relation of the Lotus Flower

Within the luxury industry, it can be observed that new companies or brands—the so called “Emerging Brands” according to Hockerts and Wüstenhagen [17]²—are based on values, and this is attractive for a select number of consumers since this kind of companies can generate a big impact due to the potential for reaching a larger market [34]. These Davids have an active attitude based on a very pronounced approach to values with the intention of generating social and environmental changes. They are well motivated to “break” the rules and promote disruptive solutions to environmental and social issues. They are less constrained by existing realities than larger organizations, have less vested interest in the status quo, and have less to lose and more to gain from innovation [28].

But, in addition, to achieve a profound social change, the role of personal values is very important: idealistic values regarding environmental and social goals that can be translated into value economic assets [5]. They have a transformational leadership behavior, inspiring and guiding the fundamental transformation that sustainability requires [6].

In turn, and also according to Hockerts and Wüstenhagen [17] there are “Established Brands” (see footnote 2) that is, the major international brands that are anchored to the usual mindset even though they have started to develop sustainable strategies [14]. A number of recent reports shows that the established brands’ progress towards sustainability is slow. Even though some brands have a proactive attitude towards the challenge of sustainability, it is observed that, in general, the industry reacts to the market and consumers’ demands.

²Actually, Hockerts and Wüstenhagen [17] talk about “Emerging Davids and Established Goliaths”.

Find below two companies working on the sustainable luxury sector with the Lotus Flower Fiber. One of them—Loro Piana based in Italy—is a well-established brand, while the other—Samatoa based in Cambodia—can be called an “emerging brand.”

4.1.1 Loro Piana

Until July 2013—when LVMH—the European luxury conglomerate- acquired an 80 % stake of the company for 2 billion euros—Loro Piana, an “Established Company,” brought six generations of experience. Founded in 1924 by Pietro Loro Piana—with origins dating back to 1812 per the vision of Pier Luigi’s great-grandfather Giacomo Loro Piana [21]—the company is a specialist in very high-end, luxury cashmere and wool products made in Italy. The company combines the latest technology, traditional craftsmanship and Italian tailoring.

In 2013 the company’s expected revenue was €700 millions with a +20 % EBITDA [24].

This company offers exclusive men and women lines with a worldwide network of over 130 stores.

It has access to world class raw materials, such as vicuna, cashmere and baby cashmere, fine merino wool and, finally, the lotus flower fiber from the In-Le Lake in Myanmar. According to [21], despite Pier Luigi Loro Piana’s concern that the lotus flower fiber is used to make hand-crafted monks’ garments and are sacred to the Buddha, the company engaged the local community for its harvesting since “*the lotus flower fabric’s pleasantly irregular appearance looks like raw silk or Antique linen...Its feel, however, was incomparable to any fabric we had ever come across before*” [22].

Given this hands-on approach, a limited number of blazers are produced each year. Packaged in a beautiful, handcrafted lacquer box, the Lotus Flower jacket—available only in its natural ecru color—is custom priced, and limited-cut lengths are offered for made-to-order blazers. For these reasons, the company has trademarked Loro Piana Lotus Flower fabric. The company innovatively created two products: one of them is a jacket called Roadster Villa D’Este,³ specially designed to commemorate the 75th anniversary of the Elegance Contest⁴ and tagged at €8,205.00, and the second product is a scarf that combines lotus flower fiber, silk and cashmere.⁵

³The Roadster Villa D’Este 100 % made of the lotus flower fiber’.

⁴It is a fancy competition of classic cars.

⁵This scarf composition is lotus flower fiber (45 %), silk (15 %) and cashmere (40 %), and it is tagged at €1,980.00.

4.1.2 Samatoa⁶

This company “was founded in Cambodia in 2003 by Awen Delaval⁷ with the single purpose of creating an ethic luxury fashion brand under the principles of fair trade with a view to elevate artisans to world status in the international fashion market. On the one hand, it produces fabrics with natural raw materials, such as pineapple, banana, silk, organic cotton and kapok and, on the other, haute couture ethic garments. In 2012 an international panel of experts underscored the company’s innovation in producing a fabric with a mix of the lotus fiber and silk, and then coloring it with natural dyes. This innovation was precisely why UNESCO awarded the company the 2012 UNESCO Award of Excellence in Handicraft.⁸

Samatoa adheres to sustainable development principles. Some of the criteria applied by the company in the social field are to be a participative organization which respects individual freedom of expression without discrimination, is against child labor, and ensures a minimum salary, union rights, time off and vacations, health and safety, no sexual discrimination, and fair wages. The company insists on no discrimination at all management level: recruitment, job allocation, remuneration, entitlement to social advantages, discipline, and work contract termination [31].

In environmental terms, Samatoa is committed to respecting specific eco systems, to the responsible use and conservation of natural resources, to the efficient use of energy, and to not use chemicals in the entire process from thread to finished products, nor any substances that are toxic to humans and the environment. The natural fibers offered by Samatoa do in no way compete with the food supply chain [31].

⁶“Samatoa” means “fair” in Khmer.

⁷Awen Delaval, a dedicated Frenchman at the heart of a fair-trade promotion association, was exposed to (and toughened by) the poverty in Cambodia during a trip to Asia. Seduced by the teaching of the Lotus Sutra, he created a plan in the same humanist vein. An ethical alternative to the powerful textile industry, contrasting productivity-driven and socially-exploitative attitudes, particularly with women, Samatoa is a change from how typical factories, run by big textile brands, operate. Having a 10-year experience as the chief of a textile cooperative, he also developed The Lotus Center Battambang which today is a unique experimentation studio for research on the lotus fibers and byproducts.

⁸UNESCO “Award of Excellence for Handicrafts” in Southeast Asia has been established to encourage craft-workers to use traditional skills and materials. The Award of Excellence program (formerly known as the SEAL of Excellence) aims to ensure the continuation of traditional knowledge and skills, and the preservation of cultural diversity in the region. In addition, the promotion of handicraft is a major contributor to sustainable economic development and poverty reduction in local economies.

5 Conclusions, Analysis and Forward-Looking Concerns

The lotus flower is considered to be a powerful religious symbol in many cultures: *“Religious robes are a Buddhist badge of identity, a visual reminder of the weaver’s religious vows and honored status. While cotton robes are accepted and worn by monks throughout Burma (today Myanmar), robes woven from the lotus fiber are presented only to the most revered of senior monks, who, for the most part, consider them too sacred to wear. Such robes are often preserved in glass cases near the monastery shrine where they are admired and venerated with other offerings made to the Enlightened One.”* Fraser-Lu and Thanegi [11].

It is also a strong cultural symbol: it was associated to art and literature in Old Egypt, China and Thailand.

And all this relates to the true elements of authentic luxury as defined by Girón [15]: **beauty, refinement, purity, the essence of things, the ultimate best.** Even if we take the elements that make up sustainable luxury, which were defined by Gardetti [13], we can see a profound and natural connection between sustainable luxury and the lotus flower fiber. This is about the ancestral meaning, artisan manufacturing, synonym of culture, and respect for social and environmental issues maintaining the legacy of local craftsmanship.

This natural connection makes this fiber potential in the sustainable luxury market to be *“very huge,”* as stated by Alen Delaval, the founder of Samatoa.⁹ And this potential is reflected on the fact that *“...We received many requests from different countries and different designers”* and its *“actual production capacity is booked for 8 months.”* Delaval further added that *“The lotus fibers can be spun in different thickness to make any kind of clothing, accessories or furniture. Furthermore, because of their extraordinary property, the fibers will probably be used for others applications.”*

In turn, while Pier Luigi Loro Piana said in reference to the lotus flower fiber that *“We will not lose this tradition”* [21], in the presentation of the book titled *“The Lotus Flower: a textile hidden in the water”* [22], he added, *“Feeling certain we had discovered and extraordinary and ‘new’ raw material, we began to do what was necessary to be able to bring it into the Western world and make it know to our customers.”* This brings about two interconnected aspects: the balance between profit-making and the concern about environmental and social aspects in a broad sense and, particularly, the concern about the local religious, cultural and artisan legacy, especially when talking about the East. This becomes more important because Loro Piana belongs to an economic group, LVMH, though many of its brands are already developing sustainability strategies.¹⁰ This aspect is related to the Western consumer culture.

⁹Based on an e-mail exchange with Mr. Delaval.

¹⁰E.g., Loewe has been the first brand of the LVMH group in developing its Sustainability Report. It did so in 2013. Another example is Loro Piana itself with its Vicuna Project in Peru, intended to save this endangered species (besides ensuring a source of raw material).

It is clear that the development of lotus flower by-products faces challenges. Within a framework of growing business momentum in the West, the first challenge is to build a local and shared vision of the intentions with this plant and its by-products. Questions such as the following would need to be answered: What does it take? What knowledge should be created or respected? How could this process evolve? How could sustainable preservation be developed? How to educate or raise awareness in the Western consumer about the Eastern religious and cultural advantages? How to promote their respect? Which would be the limits? Should there be any limits?

Other challenges may be posed in different questions: What type of business model will work for the lotus flower fiber within the framework of sustainable luxury? Could conservationist organizations be involved in this process? And finally, how can we build trust and respect in local economies?

In closing, the answers to these questions would be completely different, and they will lead to diverse strategies if we consider them from the perspective of Loro Piana (LVHM)—a established brand, or from that of the Samatoa—an emerging brand, based (from its onset) on sustainable development values.

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