# INTRODUCING SRI LANKAN BATIK BEFITTING CONTEMPORARY LIFESTYLE AND IDENTITIES

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# DECLARATION

The Master Thesis entitled “Introducing Sri Lankan Batik, Befitting Contemporary Lifestyle and Identities” is my own original written paper. The content in the paper is the result of my research and study of traditional and modern batik printing and its application techniques.

I acknowledge and indicate that the bibliography of all the sources consulted are referenced in the paper. And, that it helped me in the process of writing the master thesis.

Also, I certify that all the assistance received in preparing the thesis, has been acknowledged as well and specified in the research. And, that it helped develop good academic practices, which brought awareness in avoiding plagiarism.

I further declare that I have not submitted my master thesis, “Introducing Sri Lankan Batik, Befitting Contemporary Lifestyle and Identities” to other universities for assessment.

Signature: Date:

I certify, that the candidate Miss. Andreea Muresan Lonhardt has carried out the research for the master thesis under my supervision and guidance.

Name of the supervisor:

Signature of the supervisor: Date:

## Abstract

The research paper thesis explores the Sri Lankan textile heritage of traditional batik handicraft to pioneer new printing patterns techniques into clothing, so as to demonstrate the potential of reviving the textile industry that can be propelled to the international fashion scene.
The methodology of carrying out the research includes primary and secondary sources.

The first main part of the study covers the Sri Lankan traditional art of batik making. It looks into its history, origins, and methods of creating the patterns to decorate the cloths. Also, it looks into the ancient process of dying the fabric using natural ways, derived from plants, fruits and roots.
The research was carried out to investigate and analyze the traditional batik methods and printing patterns (samples, photographs, drawings) to enrich the study. And, it relies on methods such as books, batik showrooms and museum visits.

The second part focuses on working closely with a local batik craftworker to develop unique, intrinsic batik samples on cotton, that preserve the authenticity of Sri Lankan Heritage and reflect the contemporary fashion trends. The entire process was carries out in a local batik workshop to study, learn and observe closely the different process of making traditional batik printing and elaborate new samples.

In the third part of research a sample of the innovative batik designs is translated into clothing that follows a coordinated garment look such skirt and top. The look is designed in a fashionable modern way that includes contemporary cuts and production methods. All production methods were accomplished successfully demonstrated in a photoshoot.

After the successful completion of the three primary parts highlighted above, a survey was carried out, to assess the importance of Sri Lankan batik as a cultural identity in the local market and the need of finding new ways of application that reflect modern printing patterns and clothing designs.

The results show the potential to propel the Sri Lankan batik to the international fashion arena by preserving its traditional authenticity and adopting external contemporary fashion influences that follows current international trends.

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# LIST OF ABBREVIATIONS

| | |
|---|---|
| Fig. | Figure |
| F. T | Fish Theme |
| B. T | Botanic Theme |
| M.T | Marine Theme |
| V.T | Village Theme |
| SL | Sri Lanka |

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Appendix A: Questioner, Customer’s Perception of Batik Textiles

Appendix B: Interview Sample

# CHAPTER 1: INTRODUCTION

## 1.1 Introduction to Batik

The art and craft of batik painting represents a unique form of traditional art, which is becoming very popular in the international fashion scene and more designers are adopting the prints in their collections.

Batik is an ancient traditional craft of "wax-resist" dying on fabric, to create colorful designs. The batik method uses natural fabrics for dyeing such as cotton, viscose, silk, linen, etc. Synthetic fabrics such as rayon, nylon, etc., are not recommended as they prevent the dye from seeping into the fabric.

The design is sketched on paper first and then transferred to fabric. The fabric is pinned onto a frame to help evenly apply wax. The traditional way is by using the tjanting tool and artist brush, which is most commonly used in the West. The dye bath is prepared in according with the color choice and type of dye pigments. The effects are achieved by over dying the fabric in layers of colors. Apart from that, crackles are created in fabric to give individuality to each design[1] (Belfer, 2012).

The batik motifs and patterns are traditional and vastly influenced by the religion and culture of the country. The color palette is usually of bright, vivid colors.

## 1.2 Background of Study

The Sri Lanka's handicraft batik is one of the countries important industries. The batik motifs and patterns are traditional and vastly influenced by the religion and culture of the country maintaining a vivid color palette.

In the ancient times Sri Lanka is known to have used natural ways of dying the cloth with plants, fruits and roots, achieving colors such as red, blue, yellow and black. The most common mentioned in the history are the Aralu tree, Indigo plant, Chaya root and Kos root. The most predominant colors were red, blue, yellow and black.

Written articles show that Sri Lanka batik industry has been established in the last century (Wimalaratne & Gomes, 2001). discuss in the book "Costumes of Sri Lanka" that batik saw the resurgence of locally manufactured textiles in the 50's. Batik as a material was formally used to decorate temple cloths and royal apparel, which later disappeared in Sri Lanka with the colonialism.

The batik saw the revival through a local independent artist Ena De Silva after the independence. Her work was mostly inspired by the "work on ancient garment forms indigenous to Sri Lanka" and her first collection of batik printing was showcased in 1963.
Ena De Silva established many village centers of batik production in the island concentrated on producing innovative designs and novel colors.

[1]The batik method and process of making designs on fabric referring to the traditional way as learned in the batik school workshop. The method appears as well in the "Batik and Tie Dye Techniques" book where the author Nancy Belfer explains in detail the techniques.

The vibrant culture of batik clothing has experienced a sudden growth due to the rise of tourism in the late 70s and it is now spread across the island of Sri Lanka. The printing patterns display mostly traditional designs, used to produce sarongs, shirts, dresses, pants and beachwear.

Colorful batik shops can be found in Sri Lanka with few factories that allow tourists and visitors to see the entire process of making the designs on fabric.

The study looks into batik history, origins and methods of creating the patterns to decorate the cloths. The research aims to comprehend the Sri Lankan textile heritage and to find new ways of interpreting the traditional art of batik to adapt it to a contemporary fashion industry.

The project focuses on working closely with a local batik designer to pioneer new batik printing patterns that can be transferred into a clothing outfit inspired by traditional and modern elements of designing. And, it aims to demonstrate in the future the potential to revive the Sri Lankan batik industry to propel to the international fashion scene.

The methodology of carrying out the research includes primary and secondary sources such as visits to local batik workshops, galleries, designer showrooms & ateliers; and books, academic journals, magazines, online sources (websites, etc.) to study and analyze the entire process of making batik and shed light upon the importance of batik designs in the local market.

The transcription and organization of data will be the first stage of analysis, which will take a qualitative (interviews, experiments, etc.) and quantitative (questionnaire) approach depending on the needs of the research.

### 1.3 Research Questions

A research framework was developed to analyze the problems which lines up with the research process of:

1. Conducting a study that explores the Sri Lankan heritage of traditional batik handicraft and its motifs of philosophical symbolism and historical connotations.

2. Introducing new batik samples by testing different traditional methods and modern techniques, in a local batik workshop.

3. Creating a clothing outfit (crop top and flared skirt) to incorporate the new developed batik prints.

4. Looking into the potential of introducing batik to the international fashion scene. Survey to assess the customer behavior and expectations of batik industry in Sri Lanka.

<u>The following research questions were developed to challenge and reach the objectives of the study:</u>

R.Q1 Can we develop new batik samples by incorporating traditional and contemporary influences of current trends?

R.Q2 Can we create a batik outfit inspired by traditional & modern clothing elements to preserve the authenticity of Sri Lankan heritage?

R.Q3 Can we revive the Sri Lankan batik industry by introducing modern approaches in design and technology so as to propel the art to international fashion scene?

**1.4 Objectives**

The objectives of the research are to:

1. Study the traditional art of batik, its history and evolution in Sri Lanka.

2. Analyze the work of local traditional batik craftworkers sand artists who experiment and create new batik printing patterns.

3. Learn how to create batik printing patterns and identify the techniques used, colors & styles, by attending a local batik workshop.

4. Develop a new line of batik samples on cotton to incorporate traditional and contemporary methods & techniques that follow current trends, by working closely with a local batik craftworker.

5. Create a clothing outfit (skirt and top) to include traditional & modern clothing elements, based on the new developed batik samples.

6. Demonstrate the potential to revive the Sri Lankan batik industry to propel it to the international scene.

# CHAPTER 2: LITERATURE REVIEW

## 2.1 The History of Batik: Origin and Culture

### 2.1.1 The History of Batik

The early pieces of batik cloth were first known to be discovered in the Egyptian tombs. Also, other archeological findings show evidences of batik in Central Asia, India, Africa and Middle East. The batik is distinctive to each country own culture and history. Therefore, batik in Africa reflects the ethnic tribal patterns; in India the traditional designs are a stylization of plants such as trees, flowers, fruits or geometrical shapes; in China and Japan reflects more oriental design patterns[2] (Elliot, 2003).

The art of batik is known common to be practiced widely in Java, Indonesia. The word is derived from the Javanese word "ambatik" which means "a cloth with little dots"[3] (Keller, 2012). According to history, the "ruins of a temple on Java dating back to about the 13th century show fragments of stone figures wearing garments decorated with motifs strongly resembling the sarong of the 20th century in style and decoration." It is believed that the batik reached the island around 12th century and became highly developed in the island around 19th century, after the textiles were imported from India (1800) and Europe (1815).

The traditional patterns were first developed at the Sultan's palace by the court craftsman and worn only by royalty. The patterns would reflect the family social status and position in the island. The inspiration for the Javanese batik patterns came from nature such as plants, insects, animals and sea life[4] (Keller, 2012).

The batik reached Europe in the 16th century, during the Dutch sovereignty. The Europeans improved the technique and methods through the use of new utensils, aniline dye and dry cleaning. And, it was implemented in the school curriculum to be studied as an art, craft.

The traditional batik has evolved along the years through the use of a variety of fabrics and new design methods of production. Today there are many methods of creating designs on fabric such as textile printing, tie & dye and batik. Back in the days, the batik was originally used as a traditional decorated cloth worn by royalties. Nowadays, there are a variety of styles designed for every occasion and can be worn by anyone regardless of social class.

Batik has become very popular in the contemporary fashion industry. And, more designers are incorporating the traditional art in their collections.

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[2]The roots of batik in ancient times explained in chapter "Tales of a trade route island, Batik: Fabled cloth of Java", written by the author Inger McCabe Elliott.

[3] The etymology of batik word described by the author Ila Keller in her book "Batik Art & Craft", as being of Javanese origin.

[4] The chapter includes a short brief history of the batik origin practiced first in Java, Indonesia and its evolution through the other cultures, developed without cultural exchanges. The text refers to Illa Keller's book "Arts & Craft" as explained in "History of Batik".

### 2.1.2 The History of Dyeing and Printing Textiles in Sri Lanka

Back in the past, ancient Sri Lanka has used natural ways of dying the cloth derived from plants, fruits and roots. The following plants are mentioned in the history such as the Aralu tree, Indigo plant, Chaya root and Kos root. The most significant ones are the Chaya plant and Aralu tree[5] (Vangeyzel, 2008).



**Fig. 2.1: Indigo Plant**



**Fig. 2.2: Aralu Tree Seeds**



**Fig.2.3: Chaya Plant**

**Source: Vangeyzel. G.E. (2008). Traditional Textiles in the Colombo National Museum. Sri Lanka: National Museum**

#### Red from Chaya plant

The Chaya plant known botanically as "Oldenlandia Umbellata", is a small low growing plant with bell shaped pinkish flowers. It grows in the wild and it is native to countries such as Sri Lanka and India. It is often cultivated as an ayurvedic and dye plant. The Chaya roots, well known even today to be cultivated as a dye plant used in the ancient time to produce the red color.

The plant had an important significance due to its bright rich red hue, which was believed to be obtained from growing in rich calcium soil. It was cultivated in India (Kistna delta) and Sri Lanka (Jaffna, Trincomalee and in between Negombo and Kalutara).

In the 17th century, the chaya plant was beginning to get recognition from the textile foreign exporters and manufacturers, working in the south along the Indian east coast. The supplies were traded from "northern Ceylon, the whole Madura region of south India, and the islands between Ceylon and the Indian coasts".

In the early 18th century, under the Dutch occupation, the red dye industry flourished in Sri Lanka, due to its fines quality.

#### Black from Aralu tree

Aralu tree known botanically as "Terminalia Chebula" is a medium-large tree with small white-yellow flowers and oval shaped green leaves. The tree bears fruits that look like nuts of yellow-orange-brown color. The Aralu tree grows in Asia and it is native to countries such as India, Nepal, Sri Lanka, China, Malaysia and Vietnam. It is cultivated for its fruits as an Ayurvedic and dye plant. The Aralu dried fruits were used in Sri Lanka ancient time to obtain a natural color of black.

[5] The art of traditional dyeing using fruits and roots to achieve colors is traced back to ancient Sri Lanka and explained by the author Greeta E Van Geyzel in her book "Traditional Textiles," found at the Colombo National Museum.

The entire process of dyeing is described below by Robert Knox as found in Greeta E Van Geyzel book “Traditional Textiles”.

“They take the fruit and beat it to pieces in Mortars, and put it thus beaten into water; and after it has been soaking a day or two, it changes the water, that it looks like Beer. Then they dip their cloth in it, or what they mean to dye and dry it in the Sun. And they dip it in black mud, and let it lye about an hour, then take it and wash it in water and now it will appear off a pale black. Then being dry, they dip it again into the aforesaid dye and it becomes a very good black” (Vangeyzel, 2008, p.70).

Other methods of achieving black color dye:

The black color dye was obtained as well through other processes such as mixing in a bucket or vessel alum (a chemical compound), iron powder and water. The composition was left for three days to turn black. The fabric was then immersed in the iron dye bath for coloring.

**Blue from Indigo plant**

Indigo known botanically as “Indigofera tinctoria” is a flowery plant native to tropical regions such as Asia and subtropical regions such as Africa.

The plant grows up to one-two meters high and spreads in branches that bloom in flowers of pink, purple color. Indigo plant produces a natural blue color dye. The fresh leaves have a strong concentration of dye, which were most commonly used in the Sri Lanka ancient time to produce the color blue.

**Yellow from Kos, (Jack) tree**

The Jack Tree is known in Sri Lanka under the name of Kos. It is native to Southeast Asia, Central and Eastern Africa and can be found as well in Brazil and Surinam. It is the largest fruit tree in the world, it has a strong trunk and long branches with rounded dark green leaves. The Jack tree blooms into male and female flowers, which are borne in separate flower heads. The fruits have and ellipsoidal shape of yellow-brownish color that grow on the long stem of the trunk.

The yellow dye was extracted from the roots of the indigenous Jack-fruit tree, which were cut and boiled in water. The natural, rich yellow dye obtained was very important in Sri Lanka as it was needed for dyeing the robes of the Buddhist monks. Even so there was a variety of colors obtain from the natural resources the most predominant ones used in the Sri Lanka clothing was red, maroon and blue.

The preparation of woven cotton clothes from field to fabric, dyeing and finishing off fabric was entirely done at the request of kings, and it was usually performed to prepare for the “Katina” offering ceremony at the close of “Vas”.

The ancient dying process of fabric was known to follow these steps:

1. The fabric was prepared for dyeing by immersing the cloth in a myrobalan bath, which gave an ocher color. After, the design contours were drawn in charcoal. The black color was applied using an iron mordant and the red color using an alum mordant.

2. The fabric was then boiled in a bath of chat root to fixate the colors.

3. The fabric was immersed in a bleaching bath for couple of nights to remove the myrobalan and mordant from the texture.

4. Other design areas were covered in wax to add more color such as blue (indigo) and green.

5. The wax was removed through boiling the fabric in hot water. Followed by a bleaching bath.

6. More design details were added to fabric by using additional mordant and dyes to create colors.

7. The fabric was then immersed in a boiled bath of chat root solution for more than four hours. Red, purple, yellow and blue now became visible.

8. The textile was bleached in a dung bath and washed to lighten the background.

9. Particular blue areas were painted with yellow to yield green. Because the yellow is fugitive it is eventually rubbed off, leaving the blue underlay as the color of leaves and stems[6] (Vangeyzel, 2008, p.75).



**Fig. 2.4: Textile sample of ancient dying**

**Source: Vangeyzel. G.E. (2008). Traditional Textiles in the Colombo National Museum. Sri Lanka: National Museum**

Printing methods using wood blocks and stamps:

The printing process is a method developed from hand painting of fabrics. The technique consists of decorating the fabric using dye pigments and wooden block patterns that are carved in relief.

[6] The textile analysis of the ancient method of printing the cotton sample is explained in detail by the author Greeta E Van Geyzel in the chapter “Dying and Printing" of her book “Traditional Textiles”. The physical sample of coloring, obtained through the multilayer dying process, can be seen and studied in the Colombo National Museum.

The designs are repeatedly stamped on fabric in different colors till the desired effect is achieved. The fabric printing was introduced to Sri Lanka by trade through the good relations the island developed with India, Malaysia and China.[7]

In the Kandyan period, the Sri Lankan artists and craftsmen practiced wood block printing and painting on textiles. The craft was mainly spread in the Kandyan territory and maritime province. However, it is known to be practiced as well in Jaffna and Batticaloa such as Kathankudi township.

### 2.1.3 The History of Batik in Sri Lanka

The batik art craft is known to originate many centuries ago in Indonesia and Malaysia and introduced to Sri Lanka in the 19th century by the Dutch. During the Kandyan kingdom, the aristocratic ladies at the court picked up on the batik craft as a hobby and developed it further to be introduced to the skilled craftworkers. Ultimately, the batik fabric was used in the production of flags, tapestry, temple clothes and royal apparel.

In the 50s, the textile industry in Sri Lanka saw the revival of locally manufactured batik. Soma Udabage is known to be the first Sri Lankan batik pioneer to revived the method of wax dying techniques[8] (Wimalaratne & Gomes, 2001).

In the 60s, Ena de Silva, a passionate artist, begun working on developing batik samples at her own residency. "Her patterns were inspired by the work on ancient garment forms indigenous to Sri Lanka, and she first worked her designs on a small scale on wall-hangings."

She organized her first handicraft stall in 1963, which was set up outside her home, and sold her very first collection. Ena de Silva established several batik villages centers across the island, where she shared her knowledge by teaching the local women from rural areas the art of batik making. The most important to mention is the "Matale Heritage Centre" opened in 1964 as a batik factory.

Inspired by her travels to India (Rajasthan), China and Japan, Ena de Silva brought in cultural influences, which contributed through colors and motifs to innovate her work as an artist. The artist progressed in her work by learning new techniques and experimented by using different work mediums such as paper, wood, textile, bras, etc.

During this period other two artists gained recognition for their work such as, Siva Obeysekara and Barbare Sansoni. Both artists were known for creating traditional hand-woven fabric. However, Siva Obeysekara was weaving saris in Attanagalle and Barbara Sansoni was weaving very colorful handloom fabrics[9] (Wimalaratne & Gomes, 2001).

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[7] The record of ancient textile printing shows that the methodology was practiced and introduced later in Sri Lanka by the neighbor countries. Samples of printed silk material are mentioned in the "Printing" chapter as well, "Traditional Textiles" by the author Greeta E Van Geyzel.

[8] The process of dying traditional textiles by using wax and pigment dye to create a variety of colorful different designs on fabric, mentioned in the book "Costumes of Sri Lanka," written by K.D.G Wimalaratne and Dian Gomes.

[9] The production of national textiles and the revival of locally manufactured textiles such as batik are discussed in the chapter "National Identity, Clothing and Textiles," highlighting the work of the popular Sri Lankan artist Ena De Silva, Siva Obeysekara and Barbara Sansoni. An image of "craftswoman applying intricate patterns of wax on fabric before dye bath" from Ena De Silva worksop in Matale, is revealed as well in "Costume of Sri Lanka" by K. D.G Wimalaratne and Dian Gomes.

In the late 70s the Sri Lankan batik and handicrafts experienced a sudden growth due to the rise of tourism. And, the foreign tourists were beginning to show a keen interest in the local culture and art of batik making.

Today the batik-making industry is well established catering foreign tourists as well as locals. The batik stalls can be found in many tourist's areas such as Galle, Unawatuna, Hikkaduwa, etc.

The contemporary local artists have embraced the art of batik developing beautiful, unique designs in cotton or silk, which are showcased at leading Sri Lankan fashion shows such as Colombo Fashion Week. And, are now getting more international recognition on the global market.

### 2.1.4 The Batik Sari

The batik sari is a popular traditional cloth worn in Sri Lanka, which gain popularity during the nationalist, anti-colonial times. Anagarika Dharmapala a nationalist campaigner supported and promoted the sari to put an end to wearing of European clothes such as skirts, hats and gloves by the Sinhalese women (Wimalaratne & Gomes, 2001).

The sari started to be advertised in the local newspapers and worn at public events to regain back and define the identity of Sinhalese women. Under the publicity created "the European fashions among Sinhala women vanished almost overnight".

The style drapes varied among the ethnic groups and the most popular known are Indian sari, Kandyan sari and Gujarati sari.

The Indian sari known in Sri Lanka as the "Moratuwa sari" was introduced by the women of Moratuwa in the 20$^{th}$ Century. Embraced by different castes such as Karawe, Durawe, Navandanna and Salagama, the sari adopted slightly design variations along the years, and could be easily identified by the drape of each community (Wimalaratne & Gomes, 2001).

The Indian sari nowadays is a long cloth (6 to 8 meter in length and 1.5 meter in width) which is draped around the female body with pleats at the front covering the upper half of the body and shoulder.

The Kandyan sari "Osariya", was originally worn by woman from the uphill country and is known to be the popular national costume of Sri Lanka. The sari is a long cloth of 6 meters having as key features a sari blouse with puffed sleeves and waist frill draped over the shoulder, with an underskirt of cotton. The Kandyan batik sari is worn by the young women today due to its stylish designs.



**Fig. 2.5: The modern Kandyan batik sari**

The sari as seen in the fig. 2.5 has a very modern drape with geometric patterns of different textures. The blouse has changed along the years having a short or long sleeve that stops midriff.

The Gujarati style is adopted by Muslim women on the island. The sari is draped and worn with the fall over the right shoulder, tucked in at the front waist. The style has changed nowadays into a stylish, flamboyant drape that include more pleats.

The different regional styles can be seen in Eastern Sri Lanka. The sari is draped from a 7 meters thick weave in brown shades that includes a frill with the fall over the right shoulder, tucked in at the waist. The blouse is loose and has a draw-string neckline.

Today the modern sari is a fusion of all the traditional ethnic elements which are worn with variations in style of new drapes. The fashion designers are introducing new creative ways of pairing the sari with apparel items that are becoming more popular. However, the sari remains the formal wear for a multitude of different occasions among the Sri Lankan community[10] (Wimalaratne & Gomes, 2001).

[10] "The Sari" as a popular cloth with many drape styles among ethnic and regional groups in Sri Lanka, is discussed in pages 91 to 101, "Costumes of Sri Lanka" book, by K. D.G Wimalaratne and Dian Gomes.

## 2.2 Batik Workshop: Materials and Tools

### 2.2.1 Batik Tools and Supplies

**Fabric, Tailor Scissor and Wooden Ruler**

The fabric of choice for batik dyeing is a natural lightweight 100% woven cotton. The fabric has great dye absorption properties and maintains a good color of wash fastness, which makes it an ideal choice for dying.
Apart from dyeing, it provides comfort to wearer by being a breathable, hypoallergenic fabric that has the ability to control moisture as well.

Tailor scissor is made out of stainless steel and it is designed to cut out fabric of different weights (lightweight, medium weight, heavyweight). The scissor has a long sharp blade which gives precision to cutting.

Wooden ruler is made out of wood and it is very durable in time. It is easy to use when drawing fine lines on fabric and provides accurate measurements when cutting the fabric to size for batik printing.



**Fig. 2.6: Muslin**



**Fig. 2.7: Metal Scissor**



**Fig. 2.8: Wooden Ruler**

**Tjanting Pen and Artist Paintbrush**

Traditional Tjanting pen is a batik tool designed to apply hot wax to fabric. It is hand made out of wood and copper. The copper retains hot wax that flows through a thin needle tip which, allows the designer to draw fine lines on fabric.
It comes in a variety of sizes such as small, medium and large.

Artist paintbrush is a natural hairbrush which consists of a bristle, ferrule and a wood handle that allows the designer to apply paint or wax to fabric. It comes in a variety of sizes and shapes.  The thinner ones are used for intricate details while the thicker ones are used for covering the larger sections.



Fig. 2.9: Artist Paintbrush



Fig. 2.10: Tjanting Pens



Fig. 2.11: Wax Brush

### Wood Frame and Metal Clip Binders

A picture wood frame custom sized for batik projects is a good choice when it comes to stretching the fabric to achieve a smooth finish. Also, it provides a better application of waxing and color paint dye.

The binder clips are made out of metal and they provide a strong hold without damaging the fabric. Medium sized clips are used for the project.



Fig. 2.12: Wood Frame

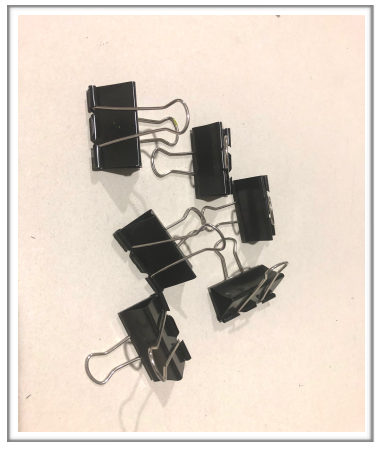

Fig. 2.13: Metal Binder Clips



Fig. 2.14: Wood Frame

### Wax, Paraffin and Bee Wax

Paraffin wax is a non-toxic white translucent mixture that melts rapidly at 46-68 C. It is obtained from petroleum and its chemical composition contains a mix of hydrocarbon molecules known as alkanes. Among the many uses, paraffin is used in combination with bee wax for batik printing.

Bee wax is a natural substance made out of honeybees and it is found in the form of honeycombs. The bees secrete wax in the hive at a 33 - 36 C. The color varies from yellow to brown depending on the region and flowers. Bee wax has a soft composition, and it is mainly used in batik printing in combination with paraffin.



Fig. 2.15: Wax Paraffin



Fig. 2.16: Bee Wax

### Pot Gasoline Burner

A mini outdoor gasoline burner has been used for melting the wax in a pot. It is made out of copper alloy and stainless steel, complimented by an aluminum pot. It has an oil filler on the side, as seen in the picture below.



Fig. 2.17: Gasoline Burner

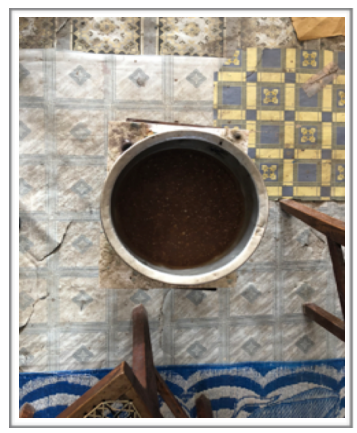

Fig. 2.18: Pot Burner with Wax

### Metal Bucket

The iron bucket is a cylinder open container. It is made out of metal and used for boiling the wax out of fabric in the batik process.



Fig. 2.19: Metal Bucket

**Soap**

A gentle soap that doesn't react with the dye colorants is used to eliminate the remaining dye and impurities. The fabric is hand washed in cold water to prevent discoloration.





**Fig. 2.20: Soap**

**Plastic Tub, Bucket and Rubber Glove**

The fabric is traditionally hand dyed and washed using a plastic tub or bucket that comes in a variety of sizes (medium to large). In the dying process, the bucket method allows sufficient water to cover the fabric for a good coloration.





**Fig. 2.21: Rubber Glove** **Fig. 2.22: Plastic Bucket**

A multipurpose rubber glove is used for the dyeing process of batik printing. The rubber gloves are dye resistant and offer protection by keeping the hand clean and safe from the harmful chemicals.

### 2.2.2 Batik Fabric Dyes and Chemicals

**Reactive dyes**

The reactive dyes are named after the term reactive which, means that the dye can fast color a textile fiber such as cotton, rayon, flax, polyamide, wool, silk and acetate fibers; through a chemical reaction that creates a covalent bond between the molecule of dye and fiber.
The process can be described as Reactive dyes + Fiber = Reactive Dye-Fiber (Co-valent bonding).

A variety of colors can be achieved with reactive dyes under good alkaline conditions. The dyes are water-soluble and anionic in nature. And, have very good color fastness properties. Therefore, the color is permanently attached to fiber and can't be removed by washing or boiling.

The reactive dyes are mostly applied on cellulose fibers like cotton, which is the most common fabric used. However, the reactive dyes work well for protein and polyamide fibers as well, with less acidic conditions.
When dyeing, few factors should be taken in consideration such as: ph., temperature, concentration of electrolyte, time and liquor ratio.

The brand found in Sri Lanka on the local market is Devi Chemicals. The colors used in batik making are T Blue Turquoise, Red 6B, Pink, Orange, Black K, Brown, T Blue.

**Vat dyes**

The term vat dyes come from the process itself of dying the fabric in a wooden vat, which is solubilized, by the "vatting" fermentation process. The process converts the insoluble dyes into soluble forms and achieves the final color through the oxidation process. The method of applying the color is similar to that of the Sulphur dyes.

A wide variety of colors can be achieved under proper alkaline conditions, which give very good color stability. Therefore, the dyes have very good fastness properties but poor rubbing properties. To avoid discoloration, it is recommended immersing the fabric in color dye more than once.
Vat dyes are natural coloring dyes mainly used for coloring cellulosic fibers such as cotton yarns, which, is than later used to produce the denim-clothing items.

The colors used in batik making are RSN Blue, Navy Blue, Emerald Green, Grey 2G, Orange RD, Apple Green, Lemon Yellow, Orange RD, Pink, Green, Violet, Brown BR, Brown R, Yellow RD, Dark Brown, Purple, Red.

**Naphthol dyes**

Naphthol dyes are recommended for batik printing. They dissolve in cold water (21 - 35 - 40 C) which keeps the wax safe from melting. The colors obtained are strong and vibrant (red, orange, black etc) but come in a limited range. They have good fastness properties.

The colors used in batik making are Scarlet Red and Black K. Naphthol is carcinogenic.

**Acrylic fabric dyes**

The acrylic fabric dyes are water based which makes the consistency fluid and easy to use on textile fabric such as cotton, silk, etc. The effect achieved is of a semi opaque transparency. However, for a more see thru transparent effect the dyes can be diluted in water.

The acrylic fabric dyes come in a variety of different colors from basic primary colors to more vibrant, intense hues such as fluorescent colors. The dyes dry fast and remain permanent on fabric without peeling or cracking. Have good color fastness after washing. It doesn't contain any toxic solvent.

The following acrylic color brands such as Weerodara and Kokuyo Camlin have been used to paint the batik samples in florescent shades of lime green, orange, green and fuchsia.
The acrylic fabric dye can be found on the Sri Lankan market, and purchase from stationaries shops in a 15 ml package bottles of different colors.



**Fig. 2.23: Devi Pigment Dyes**




**Fig. 2.24: Acrylic Fabric Dyes**

**Naphhthol, Soda Ash, Wine Spirit and Salt**

Naphthol ($C_{10}H_7OH$) is a colorless organic compound widely used in the chemical industry. It is obtained from naphthalene and it is part of the phenol family. It comes in the form of two compounds (1-naphthol and 2-naphthol).

1-Naphthol is used in making several dyes or incorporated into other dyes. It is manufactured by heating 1-naphthalene sulfonic acid with caustic alkali or 1-naphthylamine with water under pressure.
2-Naphthol is converted into a variety of dyes and its intermediates, antioxidants, tanning agents, and antiseptics. It is manufactured by fusing 2-naphthalenesulfonic acid with caustic soda.

Methanol ($CH_3OH$) is a colorless chemical liquid that has toxic properties used mainly for industrial purposes. It is made from the destructive distillation of wood and is synthesized from carbon monoxide and hydrogen. It is used as an industrial solvent for dyes.

Soda Ash ($Na_2CO_3$) is an alkali chemical. It comes in an odourless white powder or granular form as water soluble salt. It is suitable used in the dyeing process as a fixative that increases water PH. Soda ash activates the fiber molecule which permanently locks the dye in the fiber.

Salt (NaCl) is a mineral found in the sea and underground. It is suitable for use in the dying process, in a sodium chloride form, as it helps to set the dye into the fabric. Small amounts are indicated only.




**Fig. 2.25: Naphthol**



**Fig. 2.26: Wine Spirit**




**Fig. 2.27: Soda Ash**

## 2.3 Batik Methods and Techniques

### 2.3.1 Method 1, Three Colors Batik

Cut the fabric and draw the design on top. The cotton fabric is cut to size using the available workshop table. Next, the design is lightly sketched directly onto the cotton fabric with a soft pencil (B-B2).

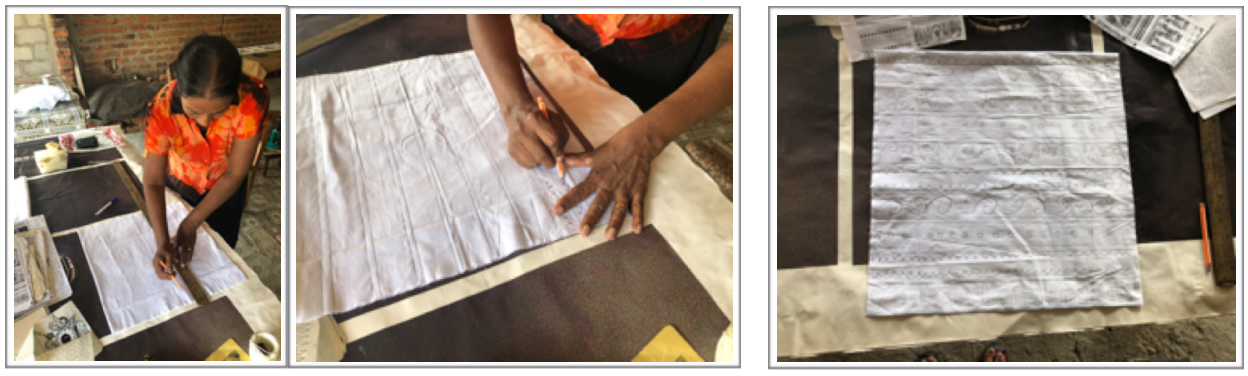

**Fig. 2.28: Cutting the fabric and drawing the design on top**

Melt the batik wax. The traditional batik wax uses bee-wax and paraffin in its composition, which is melted in a gas pot. The wax is heated with caution at a very slow rate to avoid the emission of gas and fumes.
The optimum temperature is 215°F-275°F which, permits the wax to penetrate through the fabric.



**Fig. 2.29: Melting the batik wax using a gasoline burner**

Apply the first wax using the traditional tjanting batik tool. Three different tjanting tools (small, medium and large) are used to cover the thin and thick lines of design, in the traditional style. Once the wax melts, the tjanting tool is dipped in to fill the pot and allow to create the batik design.



**Fig. 2.30: Applying wax using the Tjanting tool**

Dye the fabric sample, yellow (naphthol ASG + RED B). The process requires the dyeing of the lightest color (yellow) first, following the preparation of two baths. First, the fabric is immersed in a warm bath of Naphthol, caustic soda, wine spirit and salt. Second, the fabric is immersed in a cold bath of dye and water.

The fabric dye is dissolved in water by stirring gently for few minutes. After the coloring, the fabric is being washed using a non-toxic fabric detergent to remove out excess dye. The fabric is hung to dry.



**Fig. 2.31: Dying the fabric sample in yellow color dye**

Re-applying wax on the yellow fabric sample to add more color and design. The process continues with the application of a second layer of wax, to retain the current color (yellow) and include more design elements.



**Fig. 2.32: Re-applying wax on yellow fabric sample**

Re-applying a second layer of color, red (naphthol TR/AS + RED B*)*. The dying process is repeated in the primary color red. The process follows the application of first dye with the change in color. The fabric is left to dry.



**Fig. 2.33: Dying the fabric sample in red color dye**

Applying wax on the red fabric sample to finalize the design. Thin lines of melted wax are drawn on top of the red color dye using the traditional tjanting tool to finalize the design.



**Fig. 2.34: Applying wax on red fabric sample**

Re-applying a third layer of color, black (naphthol BO + BLACK A). The fabric is dyed last in the darkest color, black. After the fabric is immersed in the first bath (Naphthol, caustic soda, wine spirit and salt), the preparation of color begins. First, the color dye is mixed with water separately in a small recipient and dispersed in a bucket filled with water. Next, the fabric is deep sunk in the second bath and left to stir for 10 to 15 minutes.



**Fig. 2.35: Dying the fabric sample in black color dye**

Remove the wax by boiling the fabric sample. To remove the wax and excess dye away from the fabric, the batik sample is immersed in boiling water. An iron bucket is filled with water and left to simmer, boil at a 185 F.

Once the wax appears to be out of fabric, it will float on the surface without sinking to the bottom of the bucket. Remove the fabric.



**Fig. 2.36: Remove wax by boiling the fabric sample**

Hand wash and dry the batik sample. The batik sample is lastly rinsed in cool water and gently hand washed with mild detergent to remove excess dye.

The fabric is left to dry without spinning to avoid damaging the batik sample.



**Fig. 2.37: Hand washing the batik sample**

### 2.3.2 Method 2, Multicolored Batik

Preparing the fabric sample. The muslin piece is cut to size and the design is drawn onto the fabric using a soft pencil (B, B2).



**Fig. 2.38: Cutting to size and drawing the design onto fabric**

Melt the batik wax. Melt wax by using the method 1 instructions. A proper temperature needs to be maintained to allow the wax to penetrate smoothly the fabric.

Once the wax falls below the optimum temperature, it will change its consistency turning opaque.



**Fig. 2.39: Melting wax using the boiling process**

Covering the design with molten wax using the traditional tjanting tool. The process consists of dipping the tjanting tool in heated wax and drawing on the fabric surface by re-tracing the fine lines of design. An artist paintbrush is used as well to cover the remaining large areas of design (background).

During the process, an optimum wax temperature of 215°F- 275°F is required to avoid overheating.



**Fig. 2.40: Covering the design in wax using the Tjanting tool**

Stretching the fabric sample using a wood frame. After waxing the fabric sample is stretched on to a wood frame to keep the fabric flat and allow an easier application of color painting.



**Fig. 2.41: Wax fabric sample on wood frame**

Brush painting the fabric sample using different color dyes. First, the design areas are moistened in Naphthol to prepare the fabric for paint dyeing. The color dyes (blue, orange, yellow, violet, green) are dissolved directly in water using separate plastic pots for all the different colors.

Different sizes of paintbrushes are used as well to apply the colors selected. The dye is applied gently letting the fabric to properly absorb the right color intensity into fabric.



**Fig. 2.42: Brush painting the fabric sample**

Applying a second layer of waxing and creating the crackle effect. After the brush coloring is completed, the design is covered in wax to protect the color during the dye bath process.

The crinkled effect is achieved afterwards, by breaking the wax on the fabric surface which, gives an irregular line effect upon dyeing.



**Fig. 2.43: Applying wax and creating the crackle effect**

First dye bath coloring (orange). After the first warm bath (Naphthol, caustic soda, wine spirit and salt) the fabric sample is dipped in a second bath of dye (orange) and cold water to protect the wax from damaging.



**Fig. 2.44: First dye bath of orange color dye**

Second dye bath coloring (orange). After the first dye bath, the crinkle effect is emphasized a second time for a more pronounced effect. The fabric sample is dipped again in the cold dye (orange) bath to obtain the desired color shade.





**Fig. 2.45: Second dye bath of orange color dye** **Fig. 2.46: Creating the crackle effect**

Removing wax by boiling. The wax is removed in a hot bath of boiling water. The floating wax will be collected and re-used again for future batik designs.





**Fig.2.47: Removing wax by boiling the fabric sample**

Washing the fabric sample with soap. The batik sample is washed in several cold rinses to remove the remaining dirt and excess dye from fabric.

After the washing is completed, the sample is hung up to dry without wringing to avoid damaging the cloth.





**Fig. 2.48: Washing the batik sample with soap**

**Design 2**

Cut fabric, draw on paper and transfer to fabric. The sample is cut in 100% cotton fabric to the desired size for the project. Once the design is sketched down onto paper, the pattern is lightly transferred to fabric.

Hard pencil marks are avoided to keep a clean finish appearance of the sample fabric. Using a soft art gum eraser is recommended to remove any unwanted pencil marks.



**Fig. 2.49: F. T Drawing D1**



**Fig. 2.50: F.T Illustration D1**



**Fig. 2.51: Muslin sample D1**

Melt the batik wax. Bee wax and paraffin are melted together at 215 F-275 F, following the instructions used in method 1 of previous batik design.



**Fig. 2.52: Melting wax by boiling**

Applying wax to fabric sample. The wax is applied by using the tjanting tool to outline the design pattern. Artist paintbrushes are used as well to fill in the remaining areas. The wax should have a clear appearance and kept at the right temperature, in order to penetrate the fabric to the other side.



**Fig. 2.53: Applying wax to fabric sample using the brush**

Paint brush dyeing. The color dye is directly applied to fabric by using different sized brushes to cover detailed areas as well as larger areas, without leaving gaps in between. The color choice (yellow, green, blue, red) follows the drawing color palette. The color is applied to remain solid allowing the dye to bleed into one another in certain areas. The fabric is allowed to dry.



**Fig. 2.54: Paint brush dying**

Repeat wax application process to retain the colored patterns. Once the colored areas are dry, another layer of wax is applied to prevent the dye bath from penetrating the fabric. Therefore, the dyed areas are protected from color interfering.



**Fig. 2.55: Repeating the wax application process**

First Dye Bath. The fabric sample is immersed first in a warm bath (Naphthol, caustic soda, wine spirit and salt) followed by a cold bath of dye (black), to color the remaining design patterns.



**Fig. 2.56: Dyeing with black color dye**

Applying the crackle effect. The cracking is applied to achieve the desired final result of batik printing. The technique allows a blue color layer (warm bath + cold bath), which creates an overlapping color design effect.



**Fig. 2.57: Creating crackle effect**

Boiling the fabric sample. The wax is removed through the boiling process. An iron bucket is filled with water and left to simmer. The process follows method 1.



**Fig. 2.58: Removing wax by boiling the fabric sample in the metal bucket**

Washing and drying the batik sample. The washing is done by hand to remove any remaining impurities. The fabric is hung to dry. The process follows method 1.



**Fig. 2.59: Washing and drying the batik sample**

### 2.3.3 Method 3, Water-Based Textile Hand Painting Batik

Cut fabric and draw. A 100% lightweight cotton sample that allows the wax to penetrate well the fabric is required for the project. The fabric sample is cut to a desired size A3 (29.7 x 42.0 cm). The outline of design is lightly pencil on fabric and stretched on a wood frame to get better results.

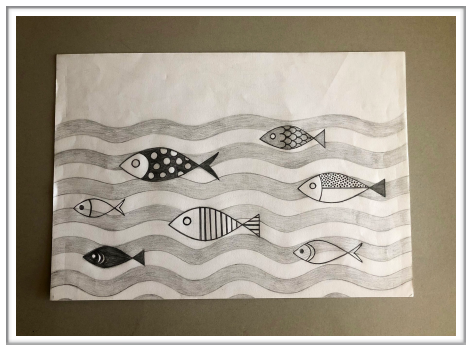

**Fig. 2.60: Fish Theme Drawing D2**



**Fig. 2.61: Fish Theme Colored Illustration D2**



**Fig. 2.62: Batik Sample D2**

Test the acrylic color dye. Nontoxic, water-based textile paint is used for testing. A sample is colored, left to dry, boiled and washed. As seen in the picture, the color remains vivid during the boiling process. And, can be used as a base color in making the batik sample.



**Fig. 2.63: Testing acrylic color dye on fabric**

Hand paint the fabric sample in neon base colors. The neon colors (lime green, orange) are ready made and can't be obtain from the standard primary colors. The color paint is applied in light layers directly from the glass recipients by using a suitable brush and it will ultimately show under the wax resist.

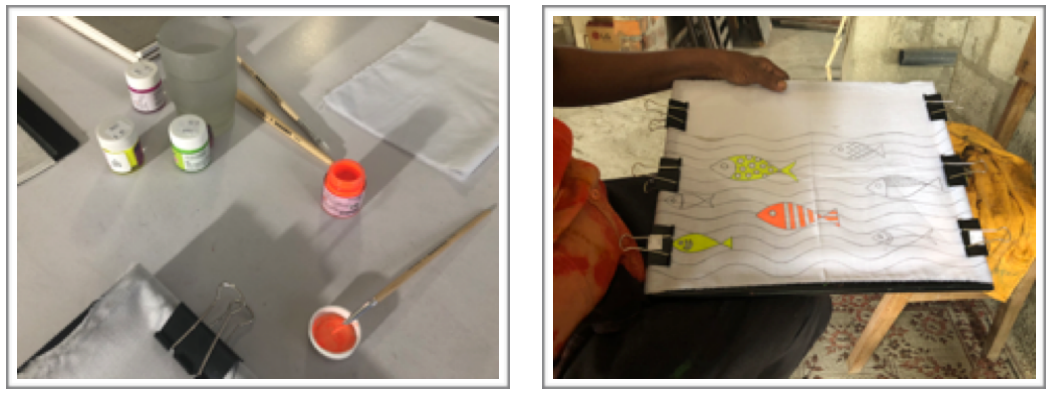

**Fig. 2.64: Neon acrylic paint on fabric**

Applying wax on fabric sample. The tjanting tool is dipped in hot wax and applied to fabric. An artist paint brush is used as well to apply wax on the larger sections, by going over the surface lightly in one direction to achieve a smooth application.



**Fig. 2.65: Applying wax on fabric sample**

Creating the crackle effect. The crackle effect is achieved by crushing the wax on the fabric surface. The method is done by hand and it needs practice.



**Fig. 2.66: Creating the crackle effect**

Dye bath the fabric sample. Place the sample fabric into the first bath (Naphthol, caustic soda, wine spirit and salt) agitate and leave in for 3 minutes. Next, dissolve dye powder (blue) into cold water and immerse the fabric sample into the bath. Leave in 5 minutes to ensure a deep penetration of dye. Rinse in cold water.



**Fig. 2.67: Dye bath the fabric sample in blue color**

Apply a second layer of wax. The second application of wax covers the remaining design details and prepares the fabric sample for the next coloring.



**Fig. 2.68: Applying wax on blue fabric sample**

Repeat another application of color. The remaining areas of design are hand painted in a darker bold tone (black) using a brush. The color (black) is let to bleed which will contrast with the background color (blue). Allow the paint to dry.



**Fig. 2.69: Brush painting the fabric sample in black color dye**

Remove the wax by boiling. Boiling is the cleaning stage of removing wax out of the fabric sample. The process is done using an iron bucket which, is filled with water and left to boil. The fabric sample is submerged to soak till wax is visible floating on the water surface.



**Fig. 2.70: Removing wax by boiling the fabric sample**

Wash and dry the fabric sample. The remaining impurities are removed by gently washing with mild detergent or soap. The batik sample is hung to dry. The color changes in the process becoming a tone lighter after drying.



**Fig. 2.71: Washing and drying the batik sample**

# CHAPTER 3: RESEARCH FRAMEWORK

## 3.1 Schematic Representation of Research Framework

The purpose of the study is to analyze the local tradition of batik making in Sri Lanka, and its design elements which are drawn from the countries culture and nature. And, maintain the continuity of traditional batik techniques to incorporate contemporary influences as well to create new innovative designs unique to Sri Lanka.

During the investigation of batik making carried out in a local batik craftsman workshop, a review of the relevant literature, batik drawings and illustrations, as well as field visits to batik showrooms and the national museum; it was noted that there is a need to improve the design of batik patterns to reveal its development in the modern context.

A questionnaire was carried out to find out the awareness of traditional Sri Lankan batik value on the market and the need to revive the industry.

To further elaborate the study and gain more insights into the industry, interviews were conducted with fashion designer Yathra Jayawardene, “Swanee Batiks” and a batik handicraft worker Kavindu, “Varna Deshathi Batik”.

The next stage of the study was to develop new authentic batik samples that carries the Sri Lankan identity, produced using traditional techniques and materials, by incorporating contemporary motifs and techniques of fabric coloring such as acrylic color dyes. One sample is incorporated on a later stage in a clothing coordinates of a top and skirt.

Focusing on upgrading the Sri Lankan batik industry, a research framework was created as well that looks into the following aspects:

1. To explore the traditional art of Sri Lankan batik looking into its history and techniques used in the development of batik samples that are currently available on the market.

2. To develop new batik samples that reflect traditional & modern techniques of a contemporary perspective. Ten samples were created inspired from the botanic theme, marine theme and village theme.

3. To produce an authentic batik outfit (skirt and top) of traditional & contemporary fashion, to increase the awareness and interest of batik on the market.

4. To identify the market potential of upgrading the batik through modern techniques, colors and designs, to be included in our daily fashion life. A survey was carried out in a form of a questionnaire to reveal the customers behavior and expectations from the Sri Lanka batik industry.

Few questions were developed further to help with the investigation:

1. How can we revive the Sri Lankan batik industry so as to adapt to the contemporary times?

2. How can we include batik as a product in our fashion daily life?

3. Is there an international market potential for the new batik?

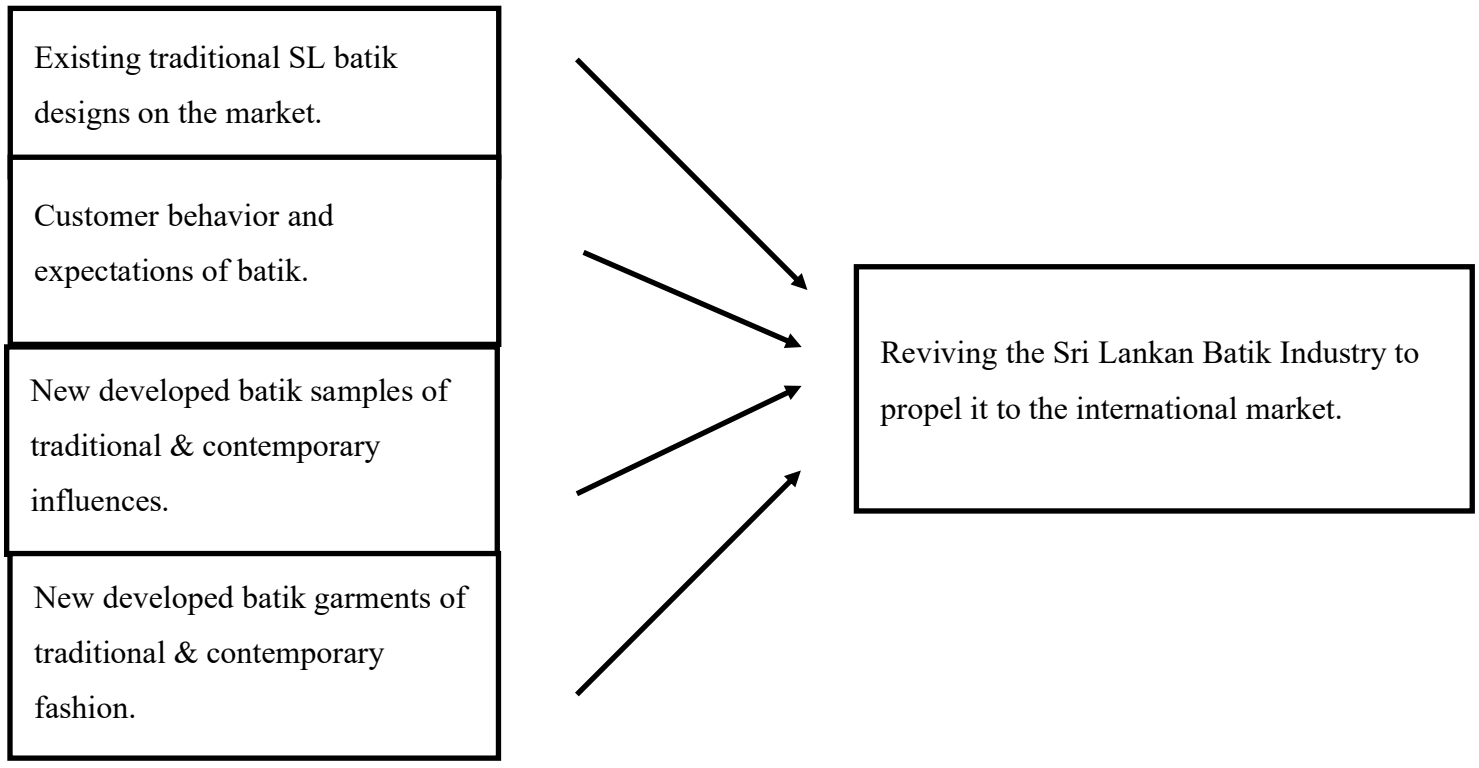


**Fig. 3.1: Schematic Representation of Research Framework**

## 3.2 Methodology

### 3.2.1 Data Collection: Current Trends and Colors

The color palette for batik color drawings include shades of green, grey, blue, pink, red and earth tones such as hues of brown and darker color black. The colors originate from nature such as green leaf, sky, red sun, etc. And, the earth tones as a mixture of browns, are taken from the rural aspect the color of ground [11] (Parramon, 2000).

Therefore, the color palette is warm and nature friendly. In addition, a mix of electric neon colors are used to highlight the design details on batik. And, the neon color pallet consists of four bright and vivid fluorescent colors such as green, lime green, orange and fuchsia.

The Pantone Color Institute experts have put together a vibrant color pallet to create this year fashion color trend report. The report has been made accessible to the fashion world and contains the most important color trends. The fashion color trend for 2019 highlights 12 colors that contains vibrant hues of red (spicy red and bikini), orange (orange tiger), blue

[11] The following chapter discusses the use of specific colors and their characteristics to create the batik samples. The International Color Index is used to explain how colors are formed as well as the Derwent Color Index, to identify the different color shades by code. As a result, the relationship between different colors is emphasized and can be seen through a comparative analysis of the drawing illustrations. The color ranges appear described in the “All About Techniques in Color” book which was written as “an indispensable manual for artist," Parramon.

(galaxy blue, bluestone), yellow (dark cedar), green (eden), pink ( fruit dove, peach pink, crème de peche), brown (rocky road, sugar almond) and four classic neutrals such as white (vanilla custard), blue (evening blue), gray (paloma), green (guacamole).

The fashion designers have been seen introducing a lot of bold colors in their collections on the catwalk, which reflect neon colors as well. Fluorescent shades of neon colors like bold fuchsia, lime green, orange, blinding yellow, hot pink, are still maintaining in fashion trends from last year adding brightness and glamour.

**Derwent colorsoft pencils palette**

The Derwent Academy 36 Coloursoft Pencils have been used to illustrate the batik drawings. The pencils are soft and intense which help to evenly color the patterns in bold vibrant colors. A variety of different tones and shades have been used and the colour palette range includes the followings:



**Fig. 3.2: Derwent Colorsoft Pencils Palette**

**Blues**

Blue is an essential color on the pallet and in addition to the basic primary Blue C330, different various Derwent hues of blue have been used such as Indigo C300, Cloud Blue C360 and Pale Blue C370. The difference among the various hues are given by the level of gloss, consistency (transparency and opacity) and texture.

**Greens**

The greens are determined by the proportion of blue pigment, green pigment and yellow pigment. Therefore, the various hues of green can be separated into two main categories such as bluish greens and yellowish greens. Similarly, pigments of orange, ochres, red, violet and brown tones can be found as well in greens.
The green color is related in general to subjects that include types of different plants, trees and vegetation. Apart from the basic Green C420, hues of Lime Green C460, Light Green C440, Mint C470 and Grey Green C390 have been used. The chromatic qualities of Lime Green C460 and Light Green C440 are more apparent in all color drawings.

**Red**

The red color has the strongest pigment in the color palette and there are a variety of hues and tones available. The characteristics differ due to its pigment's properties. And, the chromatic qualities are given by the difference of hues such as rose red, carmine red, bluish red, orange red and yellow red. However, the basic primary Derwent Red C120 has been used only due to its high intensity.

**Oranges**

Orange color is derived from mixing red and yellow together, obtaining varieties of shades as well. It is related to subjects that represents flowers, fruits and mostly the season autumn. The Derwent colors used are the primary Orange C070 and a more reddish hue Orange C080.

**Yellows**

Yellow is one of the brightest colors in the palette. Their characteristics depend largely on the pigments used. And, can be categorized as warm, cool and earth yellows. The two yellows used are the Derwent Deep Cadmium C040 and Acid Yellow C020. They are mostly used as highlighters to put emphasis on design details.

**Purple and violets**

Purple and Violets offer many varieties of hues and both create a different effect when mixed with other colors. They are recently produced colors of the twentieth century. They are separated into reddish violet and blueish violet hues.
Two colors are used such as Derwent Pink Lavender C210 and Deep Fuchsia C140.

**Earth colors**

The earth tones are derived from the natural color of soil. The common colors are ochre, sienna and umber. The yellowish tones are included in the yellow group whereas the reddish tones in the red group. The colors are manufactured containing the following pigments such as: brown, yellow, red and black.

Varying hues of brown have been used from the Derwent color palette Brown Earth C630, Pale Brown C530, Dark Brown C520, Dark Terracotta C610 and Loganberry C160 which, all produce a different effect.

**Neon color palette**

The batik samples contain vivid colors that reflect the 2019 neon trends in textiles, fashion. The fluorescent shades of lime green and acid green, fuchsia, hot pink, blinding yellow and flame orange are predominantly seen on the catwalks of the main capitals (New York, Paris, London, Milan, etc.).
The following neon colors such as: green, lime green, orange and Fuchsia were subtracted from nature as the highlighters of the batik detailing, to bring the current new contemporary note.

The below four neon colors were selected as representatives of current trends and included in the batik coloring:



**Fig. 3.3: Neon Color Palette**

**Neon fuchsia**

Fuchsia is a color that is named after the fuchsia plant, which is a plant native to tropical and subtropical area.
On the color wheel, appears to be halfway between red and purple, and it is seen as a vivid pink purple. In the RGB color model fuchsia is created equally by mixing 50% red and 50% blue. As neon color its intensity is associated with the electric lights of the city by night. The acrylic color used in batik coloring is Fevicryl Fuchsia 45.

**Neon green**

Neon green is a very intense vibrant color, and it is situated in close proximity to lime green on the color wheel. It is part of the fluorescent family and it has the attribute of being highly visible on clothing, which is making it ideal for safety protective equipment. Due to its high intensity it is mostly used as accent in the fashion, textile scene. In the RGB color model, neon green is created of 22.4% red, 100% green and 7.8% blue. The acrylic color used in batik coloring is Weerodara Leaf Green 62.

**Neon lime green**

Lime green is a fluorescent bright shade of green color, named after the lime citrus fruit. On the color wheel it is situated in between yellow green and yellow. It is composed of mixing the two colors, which gives it a yellow-green tone similar to the skin of lime citrus. It is part of the fluorescent family. The acrylic color used in batik coloring is Weerodara Neon Lime Green 809C.

**Neon orange**

Neon Orange is a secondary color, which is obtained by mixing two primary colors such as red, and yellow. A lighter, brighter intense hue can be achieved by mixing in the composition more yellow.
The acrylic color used in batik coloring is Weerodara Neon Orange 811C.

### 3.2.2 Developing New Batik Samples

**Botanic Theme**

Nature is the source of inspiration for the botanic theme and incorporates the anatomy of plants, the ephemeral beauty of fresh flowers and leaves. The theme features the Sri Lanka's flora of tropical plants, flowers and fruits. A wide range of tropical plants are found in the main botanical gardens of the country such as Peradeniya Royal Botanical Garden, Hakgala Botanical Garden, Henarathgoda Botanical Garden, Gampaha and Mirijjawila Botanical Garden, Hambantota.

The inspiration is drawn in particular from the Peradeniya "Royal Botanical Garden" known as Sri Lanka's most popular and largest garden in the country (Ekanayake, 1985). The garden is situated in the central province of Sri Lanka at about 5 km from Kandy. It spreads on 147 acres and has over 4,000 different species of plants. The history of "Royal Botanical Garden" goes back to 1371, known originally as a place of entertainment for the Queen and royal visitors. The garden was developed in 1747-1778 by King Kirti Sri Rajasinhe and founded only later in 1821, by the British during the deputy governorship of General Sir Edward Barnes.[12]

[12] D. T. Ekanayake, former director of the Botanic Garden Peradeniya and author of "The botanic Gardens of Sri Lanka", traces the history of the botanical garden providing insights into the different sections such as spice garden, flower garden, trees, etc. The book provides detailed information and works as a guide, looking into the garden evolution in time as well.

The Peradeniya “Royal Botanical Garden” has a tropical vegetation and a Kandyan Mediterranean climate which, helped expand gradually into a larger garden known now as one of the most beautiful gardens in Asia. The plants and flowers found in Peradeniya garden that serve as inspiration are highlighted below.



**Fig 3.4: Key lime leaf**



**Fig 3.5: Pomegranate**



**Fig 3.6: Betel leaf**



**Fig 3.7: Pandan leaf**

**Source: Peradeniya Botanical Garden**



**Fig. 3.8: Curry leaf**



**Fig. 3.9: Canna Lily flower**



**Fig. 3.10: White Lily flower**

**Source: Peradeniya Botanical Garden**

## Curry leaf

The curry leaf herb is a culinary plant native to Sri Lanka and very popular for seasoning in cooking such as sauces, soups, stews, etc. The leaves are small in size approximately between 2 and 4 centimeters with a long oval shape of 1 to 2 centimeters, narrowing towards the end. They grow on a branch of many clustered leaves.

The curry leaves have a strong aroma flavor and have Ayurveda medicinal properties such as antimicrobial and anti-inflammatory.

## Key lime leaf

The key lime citrus is popular to Southeast Asia region and Sri Lanka. The trees are small in size with rounded shape leaves of yellow green color. The fruits are available year-round having the peak season in May to October.

When compared with other limes the Key limes are smaller, contain less seeds, have higher acidity and a unique strong flavor. They have a green skin color and turn yellow only when they are ripe. It has healing properties being a great source of vitamin C.

**Betel leaf**

The betel originates in South and South East Asia and it is mostly consumed in Asia. It is a plant that belongs to the Piperaceae family. The leaves are heart shaped and have a glossy green look. In Sri Lanka it is grown for multiple purposes. The leaves are used for Ayurveda medicinal properties due to its rich content of vitamins such as calcium, riboflavin, vitamin C, carotene, thiamine and niacin. In the religious ceremonies it is used during the auspicious time to bring blessings and as a sign of respect. Being a popular plant in the tropical climate that can be cultivated in a pot can have as well ornamental, decorative house uses.

**Pandan leaf**

The Pandan plant is native to South Asia and Southeast Asia. The leaves have a bright green color and are longer in length of about 10 cm and very thin.
The plant is known under the name of Rampe in the Singhalese culture and it is very popular in the Sri Lankan kitchen, being used culinary due to their sweet strong almond-vanilla flavor and rose like perfume. They are usually boiled to release flavor.

**Pomegranate**

The pomegranate is a small tree with many branches and fruits of 5 m to 10 m that belongs to Lythraceae family. In Asia it is found in the Central, South and South East part.
The fruit has a red purple color that contains seeds and pulp covered by a thick husk. It has a round shape of approximately 5cm-12cm diameters. The leaves are long and narrow in shape of approximately 3cm-7cm in length and 2cm-3cm in width. The flowers grow on the tip of the branches, they are bright red in color and grow single or in clusters.
The fruit, flowers and leaves have a variety of health benefits and help treat many diseases.

**Lilies**

Lilies belong to the genus Lilium of the family Liliaceae. There are approximately 90 species of lilies, which are native to Asia, Europe and North America. In Sri Lanka a wide range of lilies are found in a variety of bright colors. The flowers are naturally grown from bulbs or using modern hybridization.

The Asian lilies are shorter in height and have six shaped petals that come in pink, gold, orange and white. Each stem has a number of 2 to 7 buds or flowers and only one harvest from a lily bulb.

The lilies have a short vase life, are hard to keep and vulnerable to environmental changes. Each flower once bloomed will last four to five days. The fragrance is not as strong as the Oriental lilies. Lilies are known globally as very popular flowers rich in symbolism such as love, purity, femininity, honesty, etc.

**Technical Drawings and Color Sketches**

The drawing Illustrate the different Sri Lankan garden plants found in the Peradeniya garden such as lilies, pomegranate, key lime, curry leaves, betel leaf, pandan leaf, etc. The inspiration is drawn from the vibrant greenery of these different shapes, structures and sizes of plants highlighted above.

The study of botanical garden looks into the plant morphology and anatomy, which helps to capture in drawing the shape of the plants as well as the internal structure of the plant such as the tissue, which is visible without a hand lens. The plant characteristics are highlighted using three design elements such as shape, texture and color. Vertical plant compositions are put together to elevate the shapes and sizes of plants in an overlapping and balanced arrangement on paper.

The colors are drawn from nature such as shades of grey, blue, pink, green, orange, red, etc., complemented by neon shades which highlight the design details.



**Fig. 3.11: B.T Drawing D1**



**Fig. 3.12: B.T Drawing D2**



**Fig. 3.13: B.T Drawing D3**

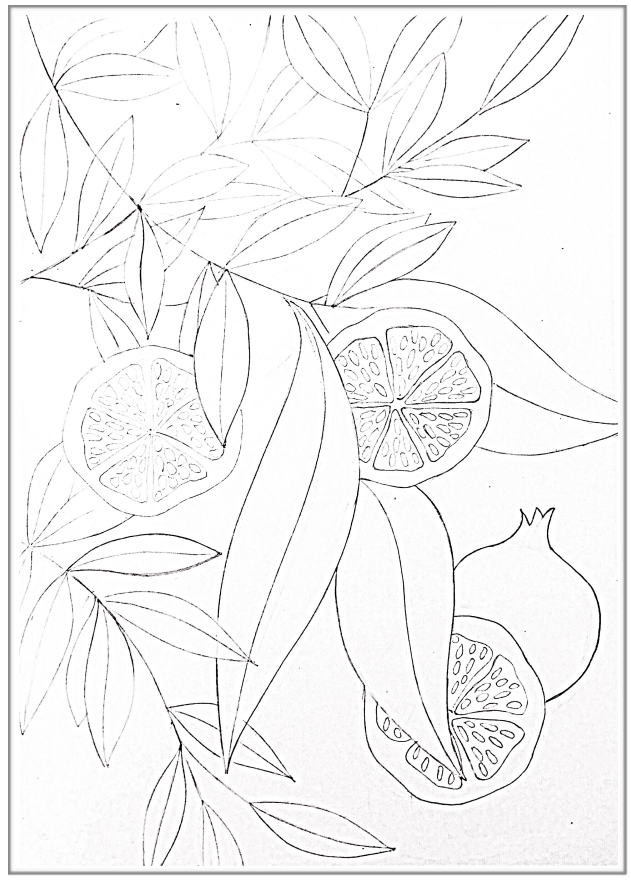

**Fig. 3.14: B.T Drawing D4**



Fig. 3.15: B.T Illustration D1



Fig. 3.16: B.T Illustration D2



Fig. 3.17: B.T Illustration D3



Fig. 3.18: B.T Illustration D4

**Batik Samples**

The batik is inspired from the garden theme and follows the above technical and colored sketches. It represents the plant and fruit elements drawn from nature such as the curry leaf, key lime leaf, betle leaf, pandan leaf, pomegranate and lily flowers.

The process of creating the batik follows the multicolored technique explained in the previous chapter, which was discussed in detail together with the tools and materials. The color dye is vibrant and includes shades of blue, green, pink, red and neon colors such as fuchsia and lime green. The batik samples incorporate the modern and traditional art to achieve the unique designs and coloring using Naphthol, Vat and Reactive dyes and accents of neon fabric paint.

The crackle effect achieved is of darker shade of blue and black and creates strong patterns on the fabric. The patterns are recognizable on the surface as fine lines that run on certain areas of the design. The effect is achieved through a slight break in the wax.



Fig. 3.19: B.T Batik sample D1



Fig. 3.20: B.T Batik sample D2



Fig. 3.21: B.T Batik sample D3



Fig. 3.22: B.T Batik sample D4

**Marine Theme**

The marine theme draws its inspiration from the Unawatuna ocean life, and it looks into plants and fish species. Unawatuna beach is located in the southern part of Sri Lanka and is a popular tourist destination. The beach has a banana shape that stretches on one kilometer of yellow sand and coconut palm trees.

Most local people along the coastline are into the fishing industry. The traditional stilt fisherman's can be seen as well from time to time on the water. The catch includes a variety of fish such as Linna, Sudaya, Kumbalawa, Sudha and Ginnati Paraw.[1311]



**Fig. 3.23: Indian Ocean**



**Fig. 3.24: Algae Waters**



**Fig. 3.25: Linna fish**

**Source: Galle, City in Sri Lanka**



**Fig. 3.26: Sudha fish**



**Fig. 3.27: Kumbalawa fish**



**Fig. 3.28: Ginnati Paraw fish**

**Source: Galle, City in Sri Lanka**

### 3.3.3 Marine algae

The marine algae mean seaweed in Latin and they are a natural resource of marine ecosystem. They are aquatic nonflowering plants. Therefore, they grow in water but lacking in stem and root having no leaves attached.
Algae use light to grow in the form of energy source producing oxygen through photosynthesis just like plants. The oxygen is then released into the water. They are light and dark green in color and feel slick and slimy to touch.

[13] The diversity of species of common commercial fish of Sri Lanka found in Unawatuna are studied in terms of general features, shape and color using the actual fish sample and the Encyclopaedia Britannica www.britannica.com for a detailed accurate description.

**Linna fish**

Linna is a tropical oceanic fish found in Sri Lanka. It is a silvery fish relatively long of approximately 25 - 30 cm. The upper part of the body has thin vertical dark lines that end in a forked tail. It is a highly nutritious fish, oily and high in omega 3 fatty acids.
It is recommended to be consumed fresh.

**Sudha fish**

It is a small sized oceanic fish of approximately 21.5 cm. The body is slightly oval in shape with belly. It is silvery in color and grey shaded on the upper part of the body. It is found in the Sri Lankan fish market fresh or frozen.

**Kumbalawa fish**

The Kumbalawa fish is an average oceanic fish. It has a body length of a 25-35cm and a long head. It is silverfish-golden in color having the caudal, pectoral and dorsal fin yellowish. Long darker lines highlight the upper part of the body.

**Ginnati Paraw fish**

Paraw fish distinguishes itself from other fish species by its anatomical features of a silverfish color. It is a compressed fish that has a dorsal and anal fin to balance itself while swimming, ending in a forked tail.
The Paraw fish gets to a mature stage in males at 55 cm and in females at 66 cm. The species is a predatory fish that preys upon a variety of other small fish. It is a commercial fish that is sold fresh and frozen in Sri Lanka.

**Technical Drawings and Color Sketches**

The drawings Illustrates the marine theme highlighting the fish species such as Linna, Kumbalawa, Sudaya, and the algae plants found at Unawatuna beach.
The fish are drawn using a single line for head and tail. The design features like spots and lines are added in gradually. Curved lines are used to draw elongated shapes of algae and ocean waves. The colors are intensive, and they are added at the end, using soft colored pencils.

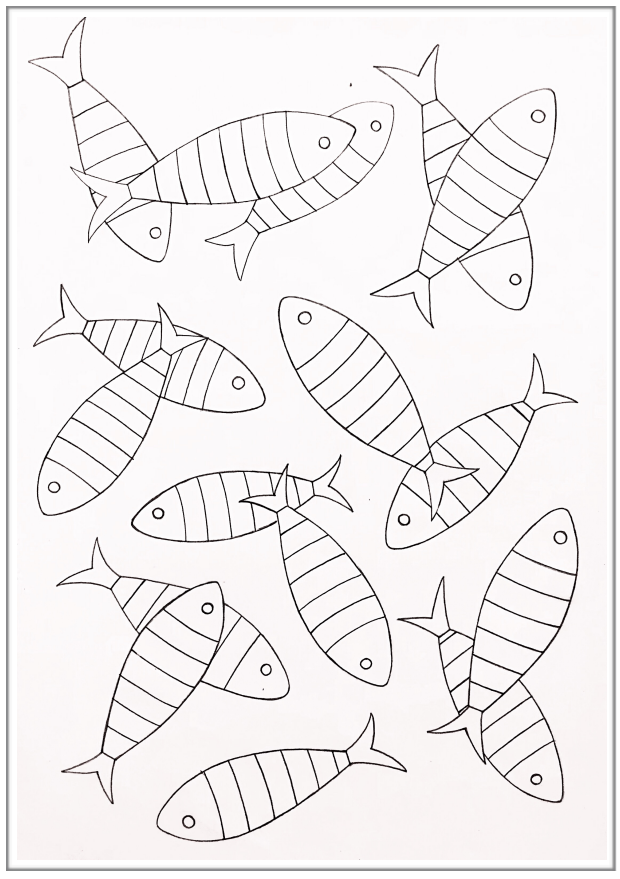

**Fig. 3.29: M.T Drawing D1**

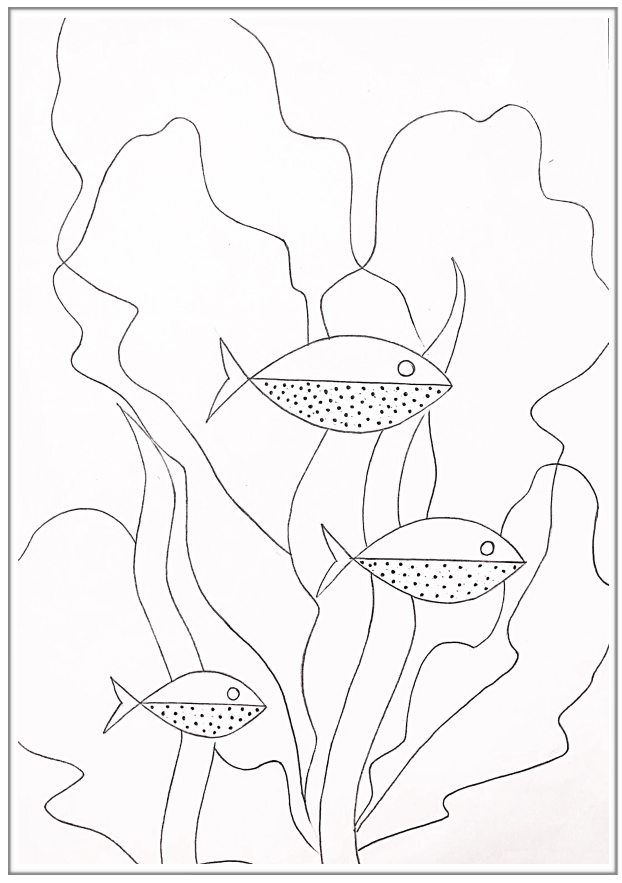

**Fig. 3.30: M.T Drawing D2**

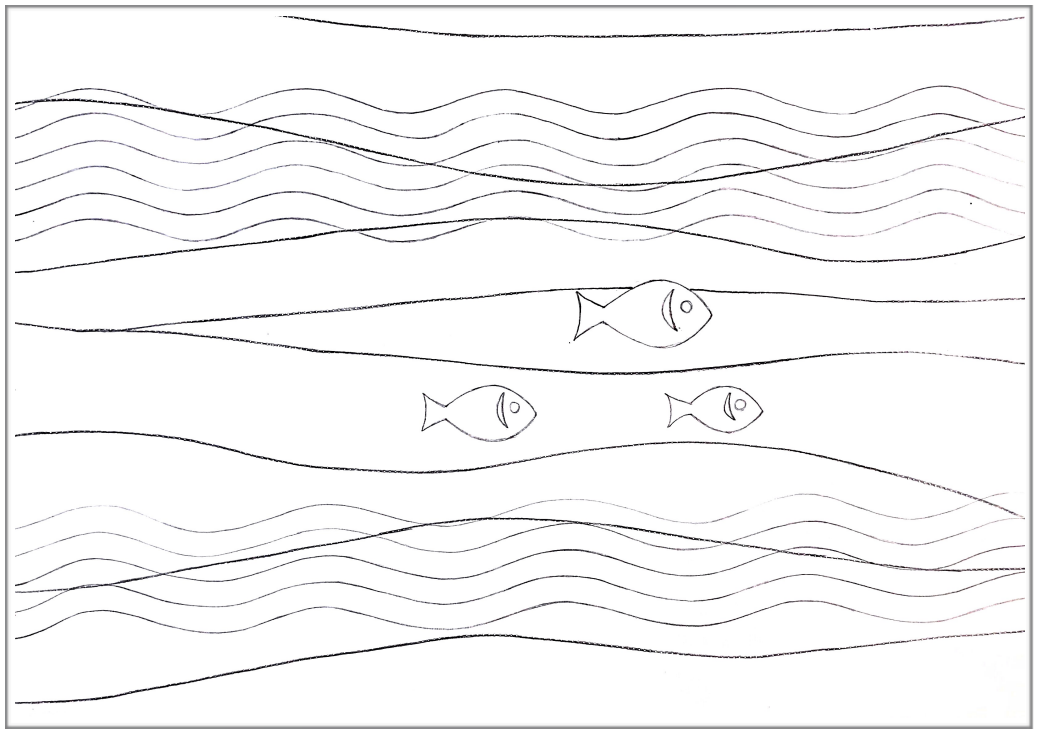

**Fig. 3.31: M.T Drawing D3**



**Fig. 3.32: M.T Illustration D1**

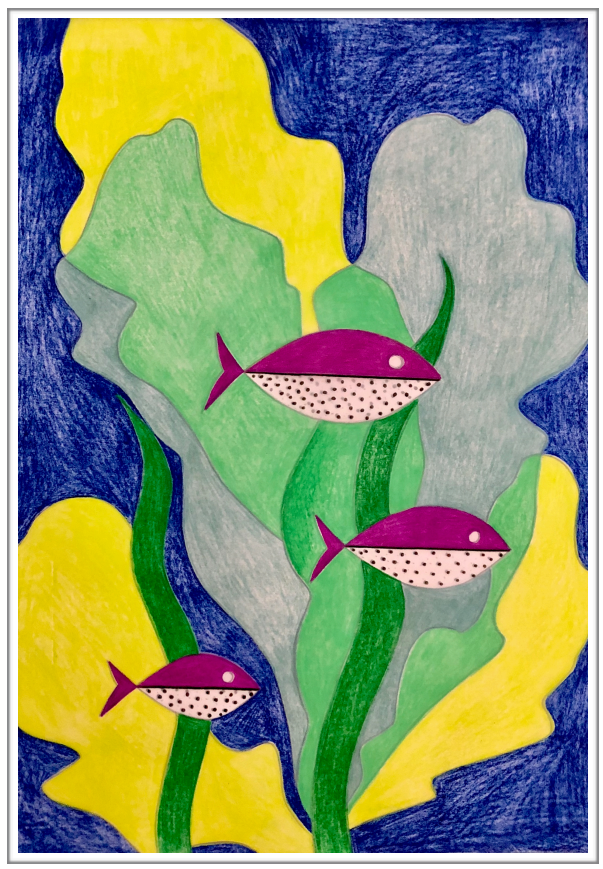

**Fig. 3.33: M.T Illustration D2**

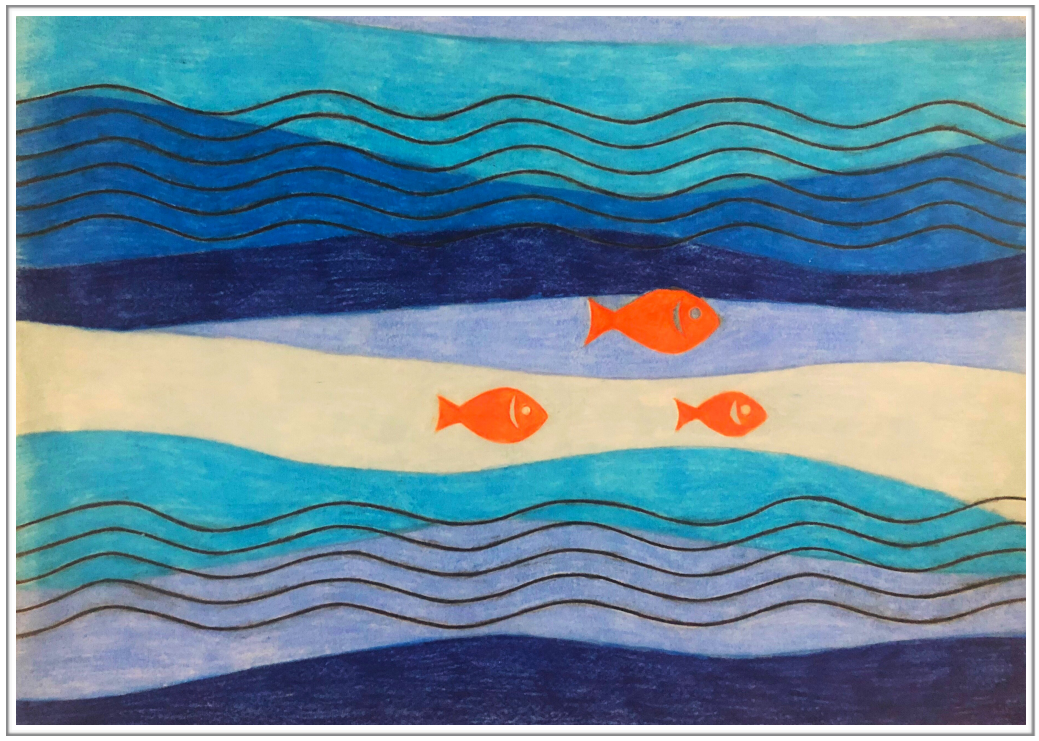

**Fig. 3.34: M.T Illustration D3**

**Batik Samples**

The batik samples feature the marine theme and include ocean elements such as algae and the different species of fish such as Linna, Sudaya and Kumbalawa. The samples are individually dyed following the multicolored techniques on 100% cotton to achieve a sophisticated effect. The lightly traced images are shown above together with the colored sketch.

The color pallet in terms of fabric dye is predominately blue and highlights different shades including dark blue and light blue colors. The variations add in tones of green, pink, red and neon colors such as lime green, orange, and fuchsia.

The design coloring on fabric is achieved through the multiple dye baths and the repeated fabric paint brushing of neon highlights to create the multicolored effect. The crackle effects allow lines of black color to blend in certain areas.



Fig. 3.35: M.T Batik sample D1



Fig. 3.36: M.T Batik sample D2

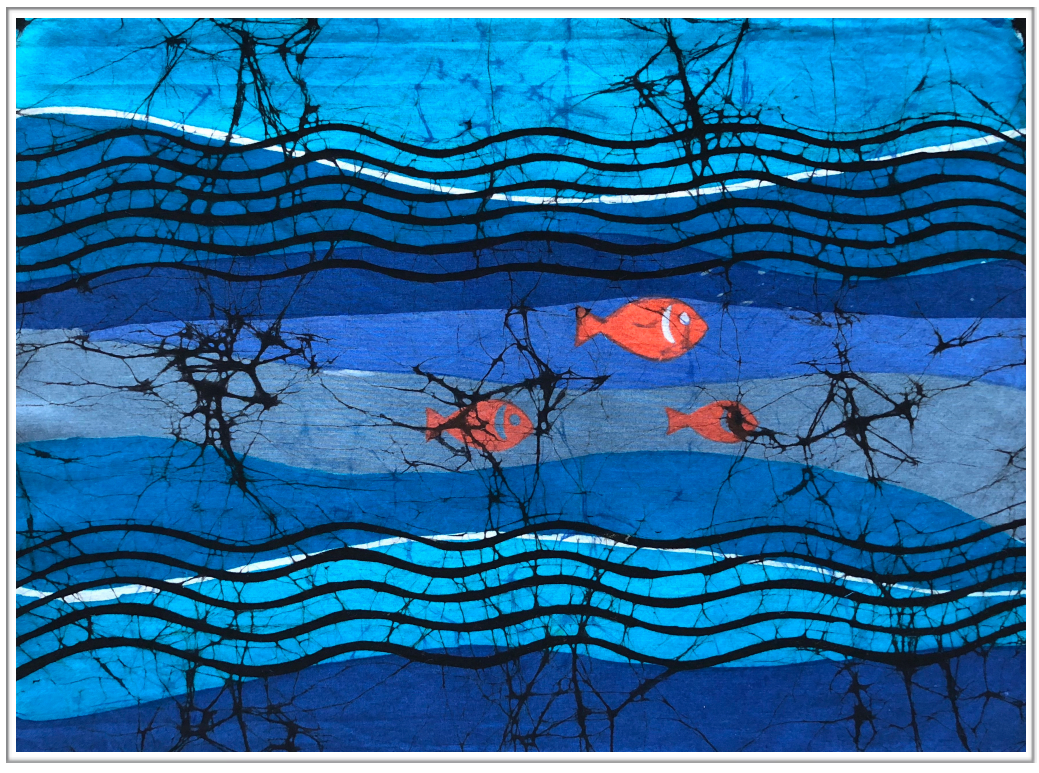

Fig. 3.37: M.T Batik sample D3

**Village Theme**

The Sri Lankan heritage and village theme are represented through the figure of a women and her jewelry, as the traditional ancient craft. The traditional Sri Lanka jewelry has been handcrafted down for generations and it is known for its intricacy designs and the use of precious gems. The nature element comes into play and is further enhanced through the repetitive sun motif, which varies in shades of yellow, orange and red. The compositions explore a blend of modern and traditional aspects, having at the epicenter the women and sun as a symbol of life and fertility. The Mother Nature is rich in natural resources and reveals a very strong spiritual connection between human and the environment. The inspirational elements are found at the National Museum of Colombo as highlighted below.[14]



**Fig. 3.38: Village women at work**

**Source: National Museum of Colombo**

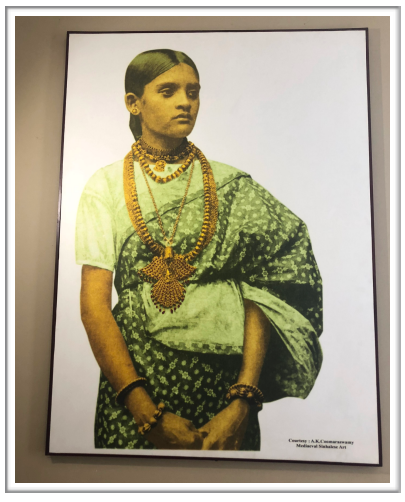

**Fig. 3.39: M.T Batik sample D1**

**Source: National Museum of Colombo**



**Fig. 3.40: Earring Jewelry**

[14] The research is conducted at the Colombo National Museum, Ethnology Division of Textile, Jewelry and Silverware and Anthropology Division that focuses the attention on social and cultural issues of Sri Lanka community. The village exhibition collection is highlighted in the pictures above and used as well in the research and study. The Museum library collection on history, folklore, astrology and jewelry has been accessed for short reading and the information included in the text.

**Earring jewelry**

The earring is an element of jewelry, which is considered to be a universal adornment, common among women. It is the oldest cultural form of body modifications dating back to early history. The traditional jewelry of Sri Lanka is an ancient craft passed down for generations. The jewelry was known for its richness and it was originally handmade and designed for the privileged royal families. The material used range from metal, silver, copper, gold, etc.

The earring jewelry designs ($17^{th}$ and $18^{th}$ century) as displayed at the National Museum, under the ethnology division, have Indian influences mainly because of the last Kandyan ruler, which was of Indian origins. It is a symbol of grandeur, strength, prosperity, wealth, etc.

The colonial period introduced a variety of different jewelry designs and influenced its traditional elements adding diversity. Nowadays, the jewelry industry plays a significant role that contributes to the economy of Sri Lanka.

**The Sun**

The Sun is the Earth source of light found in the center of the planetary system. All the planets orbit around the sun. It is the largest object in size of a round circle shape and the closest star to Earth. It appears in full spectrum under the colors of yellow, orange and red as the universal solar symbol representing life and growth.

**Sri Lanka female figure**

The figure of the Sri Lankan woman features dark skin shades of brown straight or wavy hair and dark eyes. As a motif she appears as well in art and literature as a pure form symbolizing innocence and rebirth. The village woman appears closely to nature, earth and it is perceived as the creation of life.[1]

**Technical Drawings and Color Sketches**

The compositions are sketched in an attempt to capture the gentle movement of the female face figure. A simple line drawing technique is used to portray the variety of angles in positioning the face. The expression is peaceful and calm. The shape of the hairstyle uses long curved pencil lines to highlight the hair strands.

The colors are drawn from nature and includes earth tones in shades of brown, green leaf, sunset sky in multiple colors.

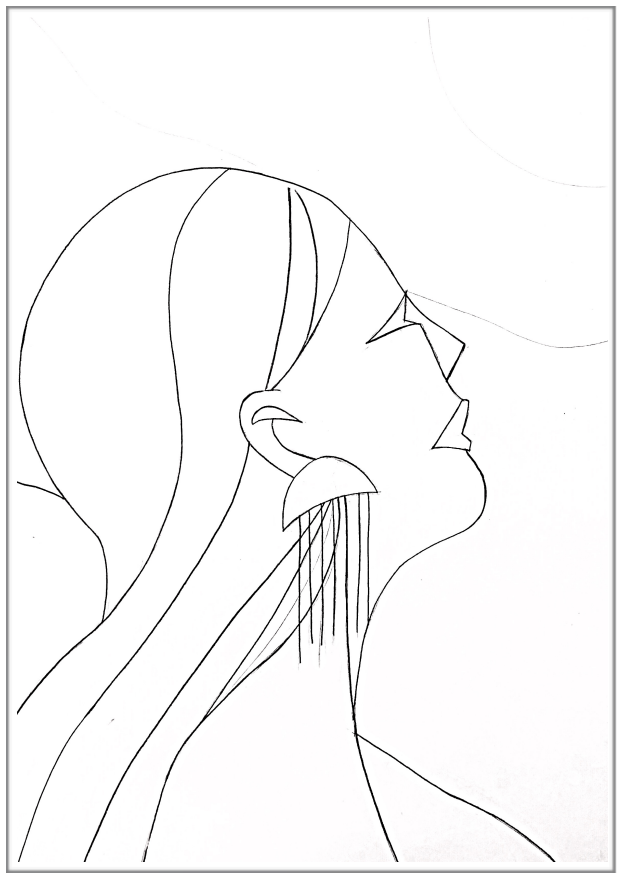

Fig. 3.41: V.T Drawing D1



Fig. 3.42: V.T Drawing D2

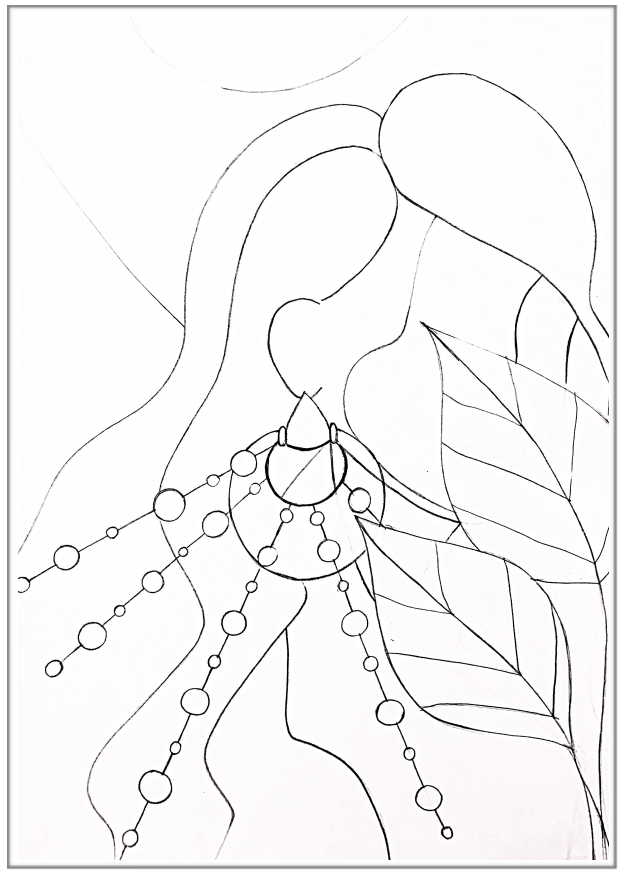

Fig. 3.43: V.T Drawing D3

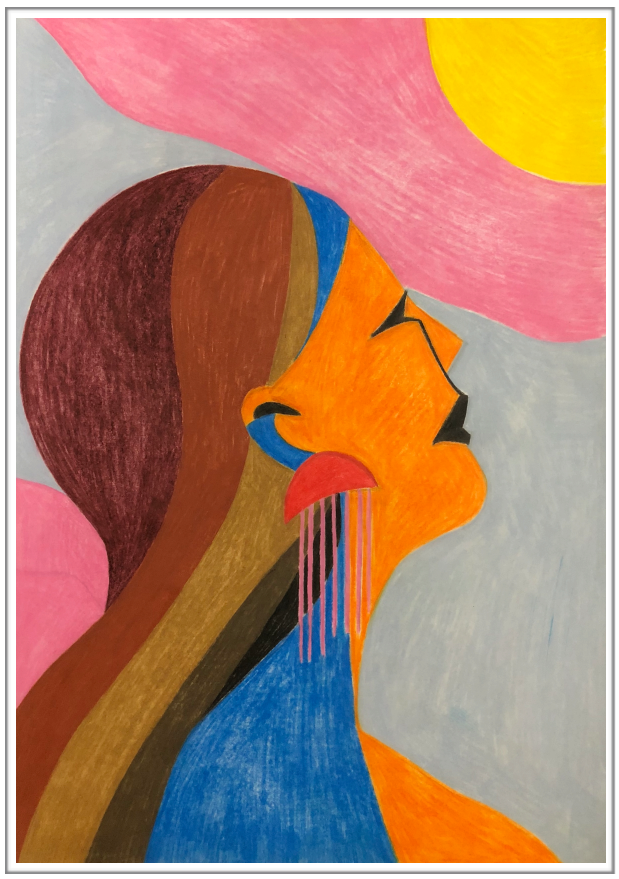

Fig. 3.44: V.T Illustration D1



Fig. 3.45: V.T Illustration D2

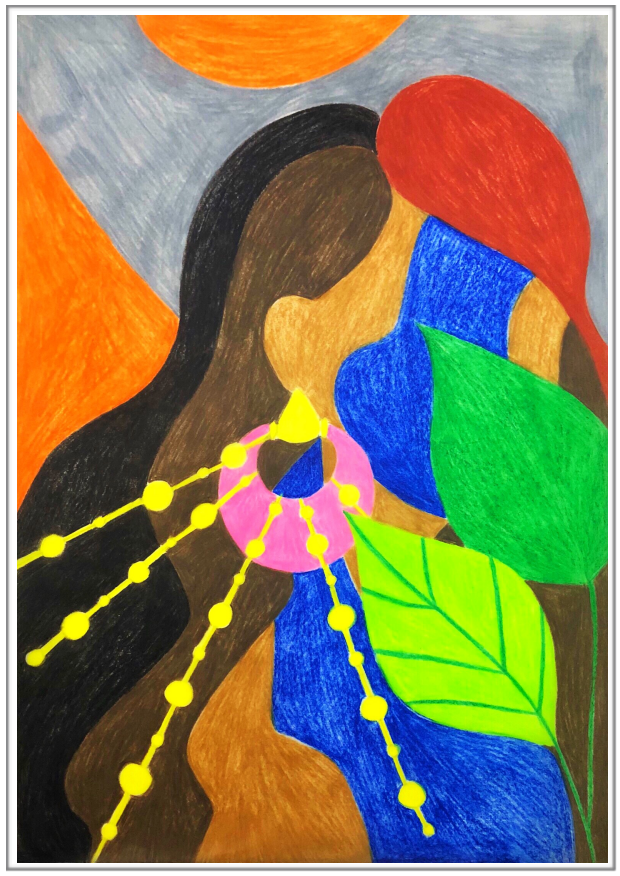

Fig. 3.46: V.T Illustration D3

**Batik Samples**

The batik samples depict the village theme as represented in the drawings, which include the following elements: leaves, sun and the female figure with earring jewelry.
The samples are achieved through a repeated process of waxing, dye bath and fabric paint brushing coloring to achieve the final result. The fabric of choice is cotton, natural fabric.

The multicolored technique used requires a careful method of waxing and dyeing as each layer of dye is applied separately to obtain the required effect.

The color dye pallet is predominately of earth tones in shades of brown and colors such as pink, green, blue, grey and orange neon. The sample is submerged in black dye to achieve the crackle effect.



Fig. 3.47: V.T Batik sample D1

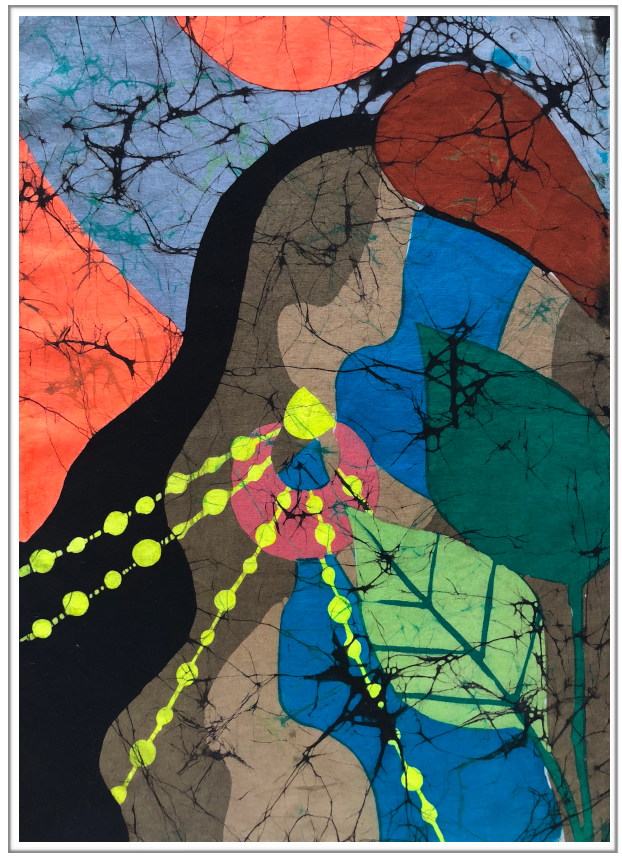

Fig. 3.48: V.T Batik sample D2

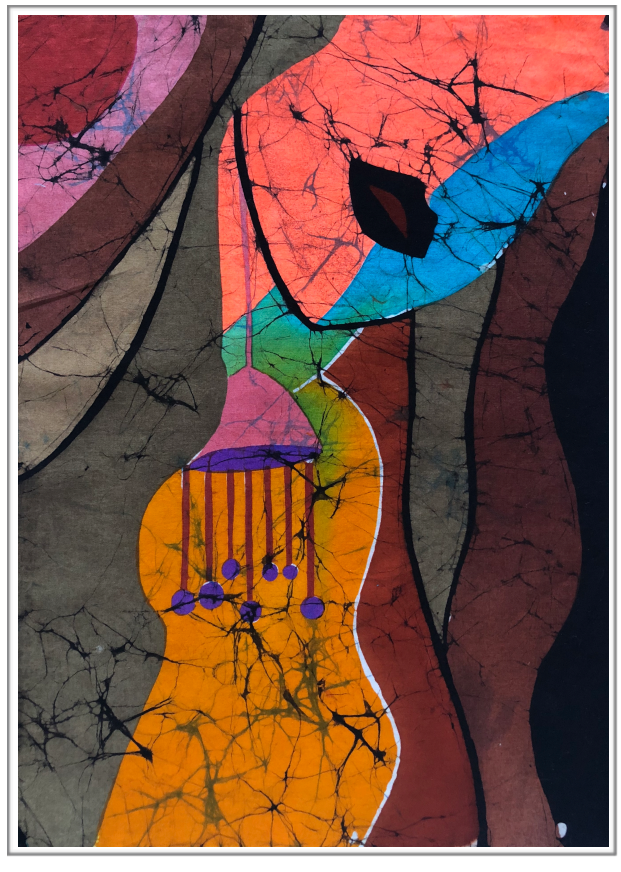

Fig. 3.49: V.T Batik sample D3

### 3.2.3 Batik Dye Color Formulas

**Botanic Theme**

**Design 1, Color Formulas**

T Blue Turquoise, Reactive Dye

- 50 g of Dye
- 100 g Soda Ash
- 10 g Salt
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 6 hrs.

RSN Blue, Vat Dye

- 20 g Dye
- 30 g Hydro Powder
- 10 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Emerald Green, Vat Dye

- 20 g Dye
- 30 g Hydro Powder
- 10 g Caustic Soda
- 1 l Hot Water at 70˚ C
- The fabric sample is immersed in the dye bath for 3 min.

Grey 2G, Vat Dye

- 20 g Dye
- 30 g Hydro Powder
- 10 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Black K, Naphthol Dye

First Bath

- 10 g ASBO Chemical Powder

- 10 ml Wine Spirit
- 10 g Caustic Soda
- 500 ml Hot Water at 70˚ C

The mix is diluted again in 1 L of cold water at 5˚ C.

And the fabric sample is immersed in the dye bath for 1min.

Second Bath

- 15 g Dye
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 3 min.

**Design 2, Color Formulas**

T Blue Turquoise, Reactive Dye

- 50 g of Dye
- 100 g Soda Ash
- 10 g Salt
- 1 l Cold Water at 5˚ C
- The fabric sample is immersed in the dye bath for 6 hrs.

Red 6B, Reactive Dye

- 50 g of Dye
- 100 g Soda Ash
- 10 g Salt
- 1 L Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 6 hrs.

Orange RD, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 10 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Emerald Green, Vat Dye

- 10 g Dye
- 10 g Hydro Powder

- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Apple Green, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Lemon Yellow, Vat Dye

- 20 g Dye
- 15 g Hydro Powder
- 10 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Orange RD, Vat Dye

- 5 g Dye
- 5 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Black K, Naphthol Dye

First Bath

- 10 g ASBO Chemical Powder
- 10 ml Wine Spirit
- 10 g Caustic Soda
- 500 ml, 70˚ C Hot Water

The mix is diluted again in 1 l of cold water at 5˚ C.

The fabric sample is immersed in the dye bath for 1 min.

Second Bath

- 15 g Dye
- 1 L Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 3 min.

**Design 3, Color Formulas**

Pink, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 10 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Grey 2G, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 10 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

RSN Blue, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 10 g Caustic Soda
- 1l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Navy Blue, Vat Dye

- 20 g Dye
- 15 g Hydro Powder
- 10 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Green, Vat Dye

- 5 g Dye
- 5 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Black K, Naphthol Dye

First Bath

- 10 g ASBO Chemical Powder
- 10 ml Wine Spirit
- 10 g Caustic Soda
- 500 ml, 70˚ C Hot Water

The mix is diluted again in 1 l of cold water at 5˚ C.

The fabric sample is immersed in the dye bath for 1min.

Second Bath

- 15 g Dye
- 1 L Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 3 min.

**Design 4, Color Formulas**

Lemon Yellow, Vat Dye

- 20 g Dye
- 15 g Hydro Powder
- 10 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Apple Green, Vat Dye

- 5 g Dye
- 5 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Emerald Green, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 5 g Caustic Soda
- 70˚ C Hot Water

The fabric sample is immersed in the dye bath for 3min.

Pink, Reactive Dye

- 5 g of Dye
- 5 g Soda Ash
- 2 g Salt
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 6 hrs.

Orange, Reactive Dye

- 5 g of Dye
- 5 g Soda Ash
- 2 g Salt
- 1 L Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 6 hrs.

T Blue Turquoise, Reactive Dye

- 15 g of Dye
- 10 g Soda Ash
- 10 g Salt
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 6 hrs.

RSN Blue, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

T Blue Turquoise Intense, Reactive Dye

- 15 g of Dye
- 10 g Soda Ash
- 10 g Salt
- 500 ml Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 6 hrs.

**Marine Theme**

**Design 1, Color Formulas**

Apple Green, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Emerald Green, Vat Dye

- 5 g Dye
- 5 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Grey 2G, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Navy Blue, Vat Dye

- 20 g Dye
- 10 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Black K, Naphthol Dye

First Bath

- 10 g ASBO Chemical Powder
- 10 ml Wine Spirit
- 10 g Caustic Soda
- 500 ml, 70˚ C Hot Water

The mix is diluted again in 1 l of cold water at 5˚ C.
And the fabric sample is immersed in the dye bath for 1min.

Second Bath

- 15 g Dye
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 3 min.

**Design 2, Color Formulas**

Pink, Vat Dye

- 20 g Dye
- 10 g Dye
- 10 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Red, Vat Dye

- 20 g Dye
- 10 g Dye
- 10 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

T Blue Turquoise, Reactive Dye

- 20 g of Dye
- 10 g Soda Ash
- 5 g Salt
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 6 hrs.
Black K, Naphthol Dye

First Bath

- 10 g ASBO Chemical Powder
- 10 ml Wine Spirit
- 10 g Caustic Soda

- 500 ml, 70˚ C Hot Water

The mix is diluted again in 1 l of cold water at 5˚ C.

The fabric sample is immersed in the dye bath for 1 min.

Second Bath

- 15 g Dye
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 3 min.

**Design 3, Color Formulas**

Grey 2G, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 10 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

RSN Blue, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 10 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

T Blue Turquoise, Reactive Dye

- 10 g of Dye
- 10 g Soda Ash
- 5 g Salt
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 6 hrs.

T Blue Intense Turquoise, Reactive Dye

- 20 g of Dye
- 10 g Soda Ash
- 5 g Salt
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 6 hrs.

Navy Blue, Vat Dye

- 5 g Dye
- 5 g Hydro Powder
- 5 g Caustic Soda
- 1 L Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Black K, Naphthol Dye

First Bath

- 10 g ASBO Chemical Powder
- 10 ml Wine Spirit
- 10 g Caustic Soda
- 500 ml, 70˚ C Hot Water

The mix is diluted again in 1 L of cold water at 5˚ C.

The fabric sample is immersed in the dye bath for 1 min.

Second Bath

- 15 g Dye
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 3 min.

**Village Theme**

**Design 1, Color Formulas**

Yellow 3RD, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Brown BR, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Brown R, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Brown, Reactive Dye

- 10 g of Dye
- 10 g Soda Ash
- 5 g Salt
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 6 hrs.

Pink, Vat Dye

- 5 g Dye
- 5 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Scarlet Red, Naphthol Dye

First Bath

- 10 g ASSW Chemical Powder
- 10 ml Wine Spirit
- 10 g Caustic Soda
- 500 ml, 70˚ C Hot Water

The mix is diluted again in 1 l of cold water at 5˚ C.

The fabric sample is immersed in the dye bath for 1min.

Second Bath

- 5 g Dye
- 500 ml Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 1 min.

T Blue Turquoise, Reactive Dye

- 5 g of Dye
- 5 g Soda Ash

- 5 g Salt
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 4 hrs.

Purple, Vat Dye

- 5 g Dye
- 5 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Black K, Naphthol Dye

First Bath

- 10 g ASBO Chemical Powder
- 10 ml Wine Spirit
- 10 g Caustic Soda
- 500 ml, 70˚ C Hot Water

The mix is diluted again in 1 l of cold water at 5˚ C.

The fabric sample is immersed in the dye bath for 1min.

Second Bath

- 15 g Dye
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 3 min.

**Design 2, Color Formulas**

Pink, Vat Dye

- 5 g Dye
- 5 g Hydro Powder
- 5 g Caustic Soda
- 500 ml Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Grey 2G, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 5 g Caustic Soda

- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Brown BR, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Dark Brown, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Apple Green, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3min.

Emerald Green, Vat Dye

- 5 g Dye
- 5 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

T Blue, Reactive Dye

- 10 g of Dye
- 10 g Soda Ash
- 5 g Salt
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 6 hrs.

Brown, Reactive Dye

- 5 g of Dye
- 5 g Soda Ash
- 5 g Salt
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 6 hrs.

Black K, Naphthol Dye

First Bath

- 10 g ASBO Chemical Powder
- 10 ml Wine Spirit
- 10 g Caustic Soda
- 500 ml, 70˚ C Hot Water

The mix is diluted again in 1 l of cold water at 5˚ C.

And the fabric sample is immersed in the dye bath for 1min.

Second Bath

- 15 g Dye
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 3 min.

**Design 3, Color Formulas**

Pink, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Yellow 3 RD, Vat Dye

- 5 g Dye
- 5 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Grey 2 G, Vat Dye

- 10 g Dye

- 10 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Brown BR, Vat Dye

- 10 g Dye
- 10 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Violet, Vat Dye

- 5 g Dye
- 5 g Hydro Powder
- 5 g Caustic Soda
- 1 l Hot Water at 70˚ C

The fabric sample is immersed in the dye bath for 3 min.

Brown, Reactive Dye

- 5 g of Dye
- 5 g Soda Ash
- 5 g Salt
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 6 hrs.

T Blue, Reactive Dye

- 5 g of Dye
- 5 g Soda Ash
- 5 g Salt
- 1 l Cold Water at 5° C

The fabric sample is immersed in the dye bath for 6 hrs.

Black K, Naphthol Dye

First Bath

- 10 g ASBO Chemical Powder
- 10 ml Wine Spirit

- 10 g Caustic Soda
- 500 ml, 70˚ C Hot Water

The mix is diluted again in 1 l of cold water at 5˚ C.

The fabric sample is immersed in the dye bath for 1 min.

Second Bath

- 15 g Dye
- 1 l Cold Water at 5˚ C

The fabric sample is immersed in the dye bath for 3 min.

### 3.2.4 Developing New Clothing Batik Samples

A new clothing batik sample has been developed in order to create a modern look that follows current trends but preserves the authenticity of traditional Sri Lankan batik in the same time. The design is inspired by the Kandyan batik sari represented in fig. 2.5 and the current trends of modern cut clothing such as a crop top and flared skirt.

In terms of fabric print, the new developed batik sample D1, Botanic Theme is selected to be scaled according to the design pattern dimensions





**Fig. 3.50: Batik Fabric Print**

The batik print is done on medium weight cotton and follows the design motifs (D1, Botanic Theme) consisting of different leaves shapes and long branches such as: curry leaves, betel leaf and lime leaves. The design details are highlighted using the paint brush, acrylic method (explained in previous chapter). The color palette resembles the selected batik sample.

In terms of design, the patterns are developed according to (Armstrong, 2010) in size 8, following a long-flared skirt and a blouson crop top pattern development.

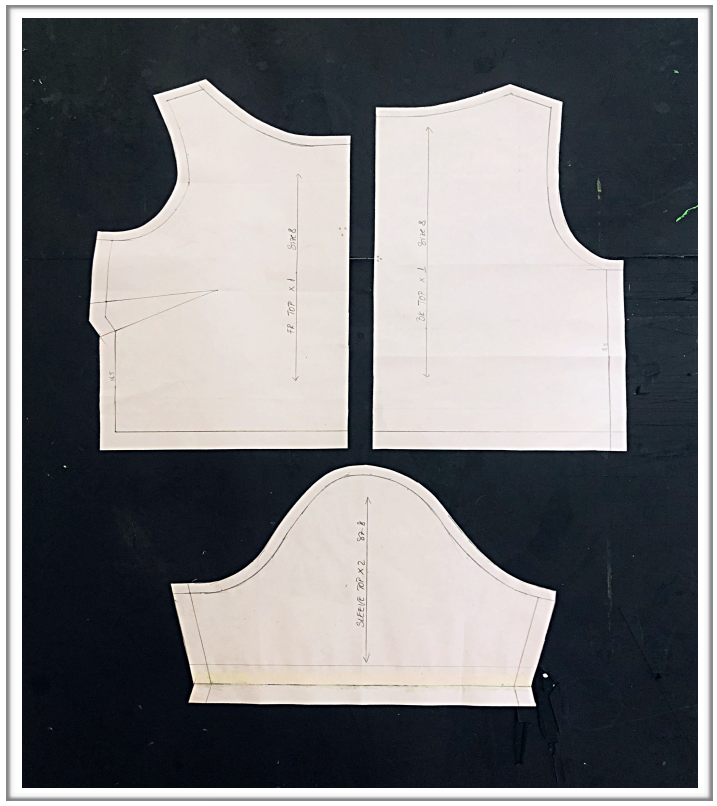


**Fig. 3.51: Top Patterns**



**Fig. 3.52: Flared Skirt Patterns**

The final look is assembled together (Knight, 2008), by cutting and stitching the batik fabric according to the patterns (flared skirt and top) shape and size. A model form size 8 is used for the final fitting as seen in the fig. 3.53 below.



**Fig. 3.53: Final Look, Skirt and Top**

### 3.3 Customer Satisfaction Survey

The consumer behavior and expectations of the Sri Lanka batik industry have been identified through market research, interviews and analysis of questionnaire survey. It was noted that the customer expectations are favorable for the new developed batik samples. The customer has recognized the need to be more creative than before in terms of batik patterns, selection of colors and development possibilities in design.

The questionnaire used as the main tool to collect data from 30 respondents, highlights that the batik consumer is taking in consideration the following factors:

- To produce designs that add value and bring appreciation to the art and culture of Sri Lanka, as a mean to preserve the textile heritage
- Incorporate innovative methods & techniques in designing by using the creative fusion concept of traditional and modern
- Upgrade the authentic form of wax application by introducing new technology such as electric tools
- The craftworkers should not be constrained by the traditional way of making batik and should be able to find efficient ways for design application as well

<u>The key descriptive facts about the existing customers includes:</u>

**Customer Demographics**

The survey looks into the customer demographics in terms of nationality, gender differences, age and education levels to assess whether there are any differences of behavior in the perception of batik design and expectations.

<u>Gender: Male/ Female</u>
Age: 22-35, 36-45
Location: Sri Lanka
Nationality: Sri Lankan, Foreigners

<u>Geographic</u>
Location: Colombo, Sri Lanka
Population size: 21.2 million
Type of area (rural, suburban, or urban): Urban

**Psychographic and Interests**

The batik consumer has a growing commitment to society, engaging in the world of art and culture.
He is being active in the cultural development of the country and involved in the process of transmitting the values and tradition to next generation. Moreover, the batik consumer has the education and intellectual orientation to appreciate handmade products and support the local artisans.

**Communication, Media and Influencers**

The batik consumer is highly influenced by the society cultural and social norms as well as fashion designers who run and sustain businesses that focuses on preserving the rich traditional textile heritage of the country such as Yathra Jayawardene, Darshi Keerthisena, Sonali Dharmawardena, etc.

Advertisements & publicity and events & workshops play a big role in influencing people decisions when it comes to buying batik apparel.

**Factors that Influence Consumer Perception of Batik Apparel**

The survey-questionnaire found, that the decision of purchasing batik products is highly influenced by traditional values and contemporary designs as well, such as pattern motifs, colors and uniqness. The consumers are interested to purchase clothing that transcends the culture of country to mark its own unique identity.

**3.4 Statistical Tools used for Data Analysis**

Mixed methods of research such as quantitative and qualitative have been used to carry out the study in the form of a questionnaire and interview.
The questionnaire was developed as the primary method to collect data to analyze the respondent's answers on the current and future Sri Lankan batik industry.
Furthermore, an interview was carried out as a follow-up to provide direct knowledge, from the craftworkers and designers perspective on the Sri Lankan batik industry.

**Questionnaire**

A questionnaire was put in place to find out the importance of batik as a cultural heritage of preserving Sri Lankan traditional values and the influences of contemporary modern motifs. The questionnaire consists of 17 questions that touches on current and future cultural and socio-economic values.

The quantitative research was conducted to statistically analyze the respondent's answers. The questionnaires were distributed to Sri Lankan citizens aged between 22 and 45 to understand the customers perception when buying batik cloths. And, to achieve a deeper understanding of batik as an art and craft on the market.

The batik was introduced to the respondents to analyze whether there is a need to upgrade the traditional batik to introduce contemporary design subjects and analyze its potential on the local and international market.

**Interview: batik craftworkers and fashion designer**

An interview was conducted to work directly with the respondents to gather more information about the batik industry in Sri Lanka from a craftworker and a designer point of view. A set of questions were created to shed light upon the importance of batik that is embedded in the country's everyday life, being passed down from generations and carried out mostly as a family business with home-based workshops.
Also, it looks into gathering direct information about the local market in terms of batik production methods, designs and colors. And, analyzes contemporary fashion influences on batik production to move the industry forward.

<u>The interviewers were asked to answer the following questions:</u>

IQ1. What is batik as an art form?

IQ2. What is batik in the Sri Lankan cultural context?

IQ3. Which are the representative Sri Lankan batik motifs?

IQ4. What is the importance of preserving the Sri Lankan traditional cultural heritage of batik?

IQ5. How can we preserve the tradition of batik in the modern context?

IQ6. Can we incorporate traditional batik into contemporary fashion?

IQ7. Can we create a new market through innovation in technique, design, color and manufacturing processes?

IQ8. Which is the batik industry challenges?

IQ9. How can we revolutionize the batik local industry?

IQ10. Is there potential in upgrading the Sri Lankan batik industry?

**SWOT and TOWS Matrix**

A SWOT analysis was conducted to identify the internal strengths, weaknesses, opportunities and threats of the batik handicraft industry. The objective of the TOWS analysis is to help overcome any challenges of batik characteristics and explore new initiatives in reviving the traditional craft, looking at its opportunities on the market.

The study was conducted in Sri Lanka with consideration to the local batik producers where the creative design process was analyzed as well in terms of strengths and weaknesses. It also highlights the traditional batik designs and indicates the diversity of themes inspired from nature, history, religion that reflects the culture of the country. Based on the results few strategies have been recommended together with the development of new creative and innovative batik samples, produced in the local workshop.

# CHAPTER 4: KEY FINDINGS AND DATA ANALYSIS

## 4.1 Key Findings

### Key Findings: Traditional Batik Motifs of Sri Lanka

The findings show that the significant decorative elements used in the Sri Lankan traditional batik are as follows: animals (elephant, peacock, fish, etc), flowers (lotus, lilies, frangipani, etc.), religious (buddha) and village life (woman, pottery, etc.).
The elements are subtracted from the culture of the country. And, can be found in the work of the Sri Lankan batik pioneer artists such as Soma Udabage, Ena De Silva, Eric Suriyasens and Vipula Dharmawardena.

As seen in the images below, the aesthetic design quality involves the skills and the creativity of each artist.

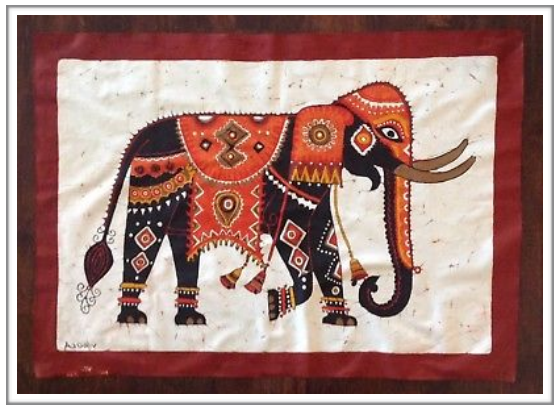

**Fig. 4.1: Elephant, Vipula Dharmawardena**



**Fig. 4.2: Peacock, Ena De Silva**




**Fig. 4.3: Peacock, Eric Suriyasena**



**Fig. 4.4: Buddha, Eric Suriyasena**



**Fig. 4.5: V. W, Eric Suriyasena**



**Fig. 4.6: V. W, Vipula Dharmawardena**

<u>The following design elements are found to be included in the process of designing the decorative print patterns:</u>

### Line

The line element is used in many different variations of widths and lengths. Is it seen placed horizontal, vertical, diagonal, etc. And, as a contour to outline the shape of an object element such as flower, animal, etc.

**Point**

The point element is used single or in a multiple form to decorate the fabric surface. They come under different sizes such as small, medium and big. And decorate the backdrop or the inside of a shape.

**Shape**

The shape element is used in a geometrical form (circle, triangle, squares, diamond, etc) and as a free form such as irregular (not resembling a particular shape) and inspired from nature (flowers, leaves, tress, etc.).

**Color**

The most predominant colors in the Sri Lankan traditional batik are primary colors (red, blue, yellow), secondary colors (orange, green), neutral color (black) and earth tones such as umber, sienna and ochre.

**Texture**

The texture element is achieved through the crackle effect to compliment the design composition. The crackle characteristics differ in accordance with size (long or short crackles) and number (more or less crackles) on the surface area. Both crackle effects are used when adding texture to fabric.

**Balance**

The elements are seen in a symmetrical order when mirrored in a repetitive arrangement such as designs featuring elephants to border the edge of the fabric. The asymmetrical designs are found in nature compositions of trees, leaves, flowers which are unequal in shape and not orderly dispersed on the fabric surface.



**Fig. 4.7: Composition, Ena De Silva**





**Fig. 4.8: Composition, Shreedevi Batik**

**Key Findings:  Contemporary Batik Motifs of Sri Lanka**

A store research was conducted to analyze the existing batik on the market that follow a contemporary take on the craft. The study was conducted at the following showrooms in Colombo such as Buddhi batik, Sonali, Salt, Swanee and Designer Collective Store. Upon the study, the findings show that the most influential contemporary designers embracing the modern batik art, are classified as Darshi Keerthisena, Sonali Dharmawardena, Yathra Jayawardene and Salt.

The contemporary batik designs are predominantly abstract focusing mainly on color, texture and balance. The designs break away from the traditional batik. It doesn't follow anymore a clear representation of shape such as plants, animals, human, etc. The artists are seen to employ a new style of designing by embracing freedom and creativity in working with wax and dyes on fabric. The results resemble an acrylic painting of vibrant colors and textures.



**Fig. 4.9: Abstract Print, Sonali Dharmawardena**

**Source:Sonali Store, NO. 50/1/AStore, Park Street**

Simple geometric shapes in a repetitive pattern can be seen as well on fabric in modern batik printing. The patterns are minimalistic and usually follow a restrictive color palette of one or two colors.



**Fig. 4.10: Geometric Print, SALT**



**Fig. 4.11: Geometric Print, Darshi Keerthisena**



**Fig. 4.12: Geometric Print, Sonali Dharmawarden**

**Source:Store Visit (SALT, Sonali, Darshi), Colombo**

Other elements of geometry such as stripes and dots replicate on the fabric surface. The patterns repeat in different thicknesses of vertical stripes with interlocking dots of bold colors that go well together.



**Fig. 4.13: Line and Dots Print, SALT**

**Source: SALT Store,3,1 Horton Terrace, Colombo**

The contemporary batik printing is markedly different from the traditional batik and the designers are no longer constrain by a straightforward application in design. The modern batik designers are exploring a few creative processes experimenting with vibrant colors and minimal shapes such as lines, dots and geometrical shapes (rectangles, diamonds, squares, etc.).

The development of batik follows a nontraditional trajectory. However, the process of batik making remains the same using the traditional tools, wax resist recipes and materials.

**Key Findings: Batik Methods of Application in Sri Lanka**

**Tjantig Tool Method**

The Tjanting method is one of the oldest traditional technique of batik making. The designer uses the tjanting tool (hot wax is poured into the needle) to draw fine lines on fabric, which usually follows a very detailed pattern. The technique is very complex and requires skillful people to create batik. It is used in traditional and nontraditional batik.

The characteristics of the tjanting method are as follows:

- The technique is very meticulous in application and follows intrinsic design details
- The patterns are very clear drawn on fabric
- It requires mastery in using the tjanting tool
- It is a slow and long process in batik making
- Small, limited production of few pieces
- Each piece of batiks is unique in its application, no two patterns are found similar

**Brush Painting Method**

The brush painting techniques is a method similar to painting. The designer applies color on the fabric surface with the help of a brush. Various types of brushes in terms of size and shape are used to achieve the desired batik effects. The thicker brushes are mostly used to fill in larger spaces such as backgrounds whereas thinner ones are used to add in design

details. The technique can be applied to create abstract compositions as well.  It is used in traditional and non-traditional batik.

The characteristics of the brush method technique are as follows:

- It is a very creative method
- Useful to create color shades for adding texture on fabric
- A quicker method than using the tjanting tool
- The design work can be done in a larger scale
- It can be mass produced

**Dripping Method**

The dripping method is done spreading out the color on the fabric by using a tjanting tool or a brush. The paint is dripped in gestural lines or in splash marks.
The technique creates abstract compositions of different effects in its applications. It is used in non-traditional batik.

The characteristics of the dripping method technique are as follows:

- It is a creative method that follows a creative process
- It is a quick method that requires less time to create a pattern, design
- The design work can be done in a larger scale
- It can be mass produce

The batik designs can be done using all the techniques highlighted above. In order to achieve more complex designs, a fusion of techniques can be used as well in the creative process of batik making. Creative and detailed batik methods add value to design and increase the price.

**Key Finding: Fabric Dyes Used in Sri Lanka**

Batik color is one of the most important factors as it determines the quality of batik printing.
The findings of research show that in the past, natural dyes from various plants were used in the process of dying the fabric in Sri Lanka. The natural dyes sources were subtracted from the Aralu tree, Indigo plant, Chaya root and Kos root. And, the most common colors produced were red, black, blue and yellow.
The use of natural dyes is in demand nowadays as they are environmentally friendly. However, there are limited colors found on the market and the coloring results are not as strong as synthetic dyes and fade easily.

The most common dyes used in the Sri Lankan batik industry are synthetic dyes such as Naphthol dye, Vat dye, Acid dye, Reactive dye.

The dyes are made out from coal tar and petroleum and require cold water in the dying process. They are permanent dyes and are used only on natural fabrics such as cotton, silk, viscose, etc. The dyes are available in a wide range of colors on the market.

The process of dyeing requires high skills and experience in color mixing as multiple layers of dye are applied on top of each other separately to obtain the final colors. The other type of dyes available are avoided for batik use due to the fact that they require hot water in the dying process, which causes the wax to melt. Another issue is that the color is running out in the washing process.

The use of synthetic dyes can cause health issues such as cancer and environmental problems. The dyes are considered to be toxic due to the high contain of heavy metal pollutants.

The brand available on the Sri Lankan market is Devi Trading. The company covers a wide range of dyes and solvents which are used by the local handicraft workers and fashion designers in the batik industry. The dyes are purchased from the Pettah Market in the suburbs of Colombo.

### 4.2 Data Base of Batik Manufacturers, Shop Locators

A data base was put in place to analyze the market scale of batik industry in Sri Lanka by the number of shops spread across the island. There are 88 batik shop locators as shown in fig. 4.14 and table 4.2 of verified legitimate businesses that appear on google map.

The batik shops are concentrated in the West, South West and Central part of the country. The shops sell batik clothes including homeware (wall decorations, table clothes, bed sheets, etc.) which are done on cotton and silk.

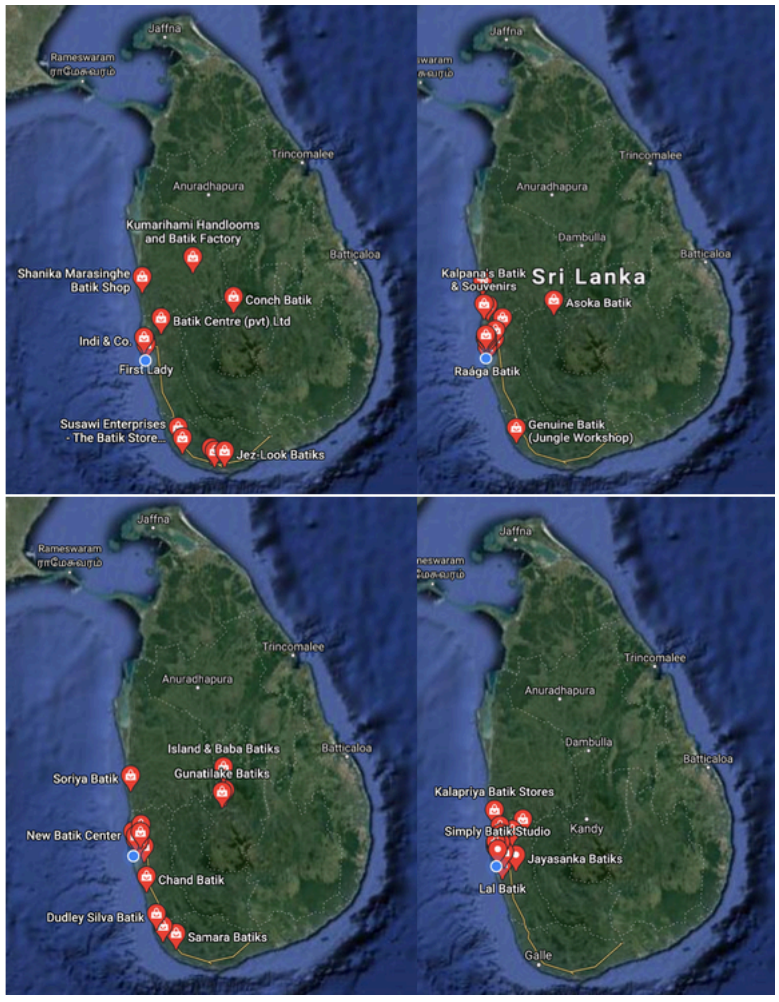


**Fig. 4.14 Batik Shops in Sri Lanka**

**Source: Google Map, Satellite View**

The highest number of 29 shops as seen in table 4.1 and table 4.2 are found in Colombo such as Sunshine Batiks, Ko Lanka, Batiks of Lanka, Seela Saree, East New Batik Center, Amaranta Fashion Studio, The Roma Batik, Selections Batiks & Handicrafts, East Star Handlooms, Saman Batik, Prasanna Batiks, Batik Center, Nool Batiks, Vinoma Handlooms, Batik and Salon, Batik Palace Toy Mart, Joe Batik, Simply Batik Studio, Wax Craqqs, The Design Collective Store, Buddhi Batiks, Swanee Handcrafted Batik & Tie-Dye, SALT, Shreedevi Batik and Dilly & Carlo.

Moreover, 7 popular shops are well known to showcase a selection of a very good batik quality but higher in price than the regular shops. The shops to mention are The Design Collective Store, Buddhi Batiks, Swanee Handcrafted Batik & Tie-Dye, SALT, Shreedevi Batik and Dilly & Carlo and The Roma batik.

The batik shops are popular as well in the towns of Galle (2), Hikkaduwa (5), Negombo (3) and up to Mahawewa. In addition, few shops can be found as well in Kandy (5), Matale (3) and Nuwara Eliya (2).

Few batik factories found are organizing tours for visitors to allow tourists to see the entire process from sketch to dyeing of fabric, such as Prasanna Batik Showroom & Factory, Alponso Batiks Factory & Showroom, Genuine Batik (Jungle Workshop), Eric Suriyasena Batiks Showroom & factory, The Kandy Batik Factory, Matale Heritage Center of Ena De Silva Batik, Gunatilake Batik Workshop Tour, etc.

| **Agoda** | **Battaramula** | **Colombo** | |
|---|---|---|---|
| 1 Individual (Batik & Designer Wear) | 1 Moon Light Batik Koswatta<br>1 Jayaseli Batik 1 | 1 Sunshine Batiks<br>1 Ko Lanka<br>1 Batiks of Lanka<br>1 Seela Saree<br>1 East New Batik Center<br>1 Amaranta Fashion Studio<br>2 Shreedevi Batik<br>3 The Roma Batik<br>1 Swanee - Handcrafted Batik & Tie-Dye<br>1 Selections Batiks & Handicrafts<br>1 East Star Handlooms<br>1 Saman Batik<br>1 Prasanna Batiks<br>1 SALT<br>1 Batik Center<br>1 Nool Batiks<br>1 Vinoma Handlooms, Batik and Salon<br>1 Batik Palace Toy Mart<br>1 Joe Batik<br>2 Simply Batik Studio<br>1 Wax Craqqs<br>1 The Design Collective Store<br>2 Buddhi Batiks<br>1 Dilly & Carlo | |
| **Buthgamuwa** | **Dahampura** | **Dehiwala-Mount Lavinia** | **Gampaha** |
| 1 Megha Batik | 1 Prasanna Batik Showroom & Factory | 1 Swaani Batik<br>1 Raága Batik | 1 Batik Centre |
| **Galle** | **Horana** | **Hikkaduwa** | **Ihala Imbulgoda** |
| 1 Samara Batiks<br>1 Chand Batik | 1 Ratna Batiks | 1 Alponso Batiks<br>1 Genuine Batik (Jungle Workshop)<br>1 Laksiri Batiks<br>1 Sakura Batiks<br>1 Susawi Enterprises - The Batik Store | 1 Saliya Batiks |

| Ja-Ela | Kandy | Katukurunda | Kiribathgoda |
|---|---|---|---|
| 1 Kalapriya Batik | 1Jayamali Batiks Studio<br>1 Art Lanka Batiks<br>1 Gunatilake Batiks<br>1 Conch Batik<br>1 Pearl Handloom Store | 1 Chaminda Batik | 1 Batik of Ceylon<br>1 Unik Wear Batik |
| **Kadawatha** | **Matale** | **Marawila** | **Molagoda** |
| 1 HB Gallery Handloom Shop & Batik Shop | 1 Island & Baba Batiks<br>1 Oak Ray Creations Batik Gallery<br>1 Heritage Center | 1 Stanley Batik and Handicrafts<br>1 Eric Suriyasena Batiks Showroom & Factory<br>Soriya Batik | 1 Asoka Batik |
| **Maharagama** | **Mahawewa** | **Mawathagama** | **Negombo** |
| 1 Star Handlooms<br>1 Moonlight Batiks | 1 Shanika Marasinghe Batik Shop | 1 Athugala Ransilu Batik | 1 Isuru Bathik<br>1 Kalpana's Batik & Souvenirs<br>2 Kalapriya Batik |
| **Nittambuwa** | **Nugegoda** | **Nuwara Eliya** | **Panadura** |
| 1 Ravindra Batiks | 1 The Loom<br>1 Raveen Batik<br>1 AKIRA | 1 Perera Batik Shop<br>1 Akira Batiks | 1 Bandula Fernando Bathiks<br>1 Lal Batik |
| **Piliyandala** | **Pilessa North** | **Pitipana** | **Sri Jayawardenepura Kotte** |
| Kanchana Bathiks 1 | Magama Batik 1 | 1 Jayasanka Batik | 1 New Moon Light Batik 1 Koswatta 1<br>1 Colombo Batik |
| **Waskaduwa** | **Wariyapola** | **Wattala** | |
| 1 Handmade Batik & Traditional Wood Carvings | 1 Kumarihami Handlooms and Batik Factory | 1 Sarath Batik<br>1 Senu Batik | |

**Table 4.1 Batik Shops in Sri Lanka**

**Source: Google Map**

| Locality | Batik Shops |
|---|---|
| Angoda | 1 |
| Battaramula | 2 |
| Buthgamuwa | 1 |
| Colombo | 29 |
| Dahampura | 1 |
| Dehiwala-Mount Lavinia | 2 |
| Gampaha | 1 |
| Galle | 2 |
| Horana | 1 |
| Hikkaduwa | 5 |
| Ihala Imbulgoda | 1 |
| Ja-Ela | 1 |
| Kandy | 5 |
| Katukurunda | 1 |
| Katunayake | 1 |
| Kiribathgoda | 2 |
| Kadawatha | 1 |
| Matale | 3 |
| Marawila | 2 |
| Molagoda | 2 |
| Maharagama | 1 |
| Mahawewa | 1 |
| Mawathagama | 1 |
| Negombo | 4 |
| Nittambuwa | 1 |
| Nugegoda | 3 |
| Nuwara Eliya | 2 |
| Panadura | 2 |
| Piliyandala | 1 |
| Pilessa North | 1 |
| Pitipana | 1 |
| Sri Jayawardenepura Kotte | 2 |
| Waskaduwa | 1 |
| Wariyapola | 1 |
| Wattala | 2 |
| **Total Number of Batik Shops** | **88** |

**Table 4.2 Total Number of Batik Shops in Sri Lanka**

**Source: Google Map**

**4.3 SWOT Analysis**

| STRENGTHS | WEAKNESSES |
|---|---|
| A textile art that preserves the cultural heritage of the country | Low production capacity as it depends heavily on the people's labor skills |
| The batik industry is firmly established in Sri Lanka | The traditional batik designs have not evolved much along the years resulting in poor variety of patterns |
| Skilled handicraft workers with experience tracing back to generations of craftworkers | The synthetic dyes widely used in the batik industry are reported to be carcinogenic |
| Has a long-lasting history that has a meaningful value representing the cultural identity of the country | Water pollution as the dye wastewater is being discharged into the environment |
| A craft that can be practiced with minimum inexpensive resources | No educational or training facilities to learn batik |
| Can be developed as a home-based industry as it requires minimum facilities and favorable weather conditions | No explorations of new technique or using improved high-tech tools such as electric tjanting, etc. for batik development |
| Products are of a high value being one of the most developed handicraft arts | Paying low wages for batik craftworkers |
| | Limited designs with small output values on the market |
| | Unawareness of international trends requirements and market |
| | Not following international trends as well as the pantone color to be accepted in the international market |
| | Practiced more in the rural areas and small cities having a small market |
| | Lack of promotional activities to bring more awareness of batik products |

| OPPORTUNITIES | THREATS |
| --- | --- |
| Incorporating the batik craft into fashion due to the rise and popularity of printing fabric in the global fashion trends | Revolutionary digital printing as an efficient substitute to batik traditional methods |
| Rising demands for handicraft products in the developed countries such as USA, Europe, etc. could provide international recognition | New digital creative printing designs and patterns in vibrant colors |
| Bring more awareness on the local market due to the development and rise of the tourism sector | Increased competition on the market from external producers |
| New distribution channels such as e-Commerce and Internet help to expand marketing and selling of batik products | Less expensive products produced by competing countries such as China, Indonesia, Malaysia, etc.<br>Increased and better technology support in batik manufacturing |
| More jobs available for the old generation craftsmen which are still required on the market for batik making | Health risk factors due to carcinogenic fabric dyes<br>International designers picking up the craft to global platforms without preserving the cultural connotations |
| Providing education in textile by teaching the importance of preserving the cultural identity of the country and transmitting the art to the younger generation | |

### 4.4 TOWS Matrix

| Internal Factors / External Factors | STRENGHTS (S) | WEAKNESSES (W) |
|---|---|---|
| | A textile art that preserves the cultural heritage of the country | Low production capacity as it depends heavily on the people's labor skills |
| | The batik industry is firmly established in Sri Lanka | The traditional batik designs have not evolved much along the years resulting in poor variety of patterns |
| | Skilled handicraft workers with experience tracing back to generations of craftworkers | The synthetic dyes widely used in the batik industry are reported to be carcinogenic |
| | Long lasting history that has a meaningful value representing the cultural identity of the country | Water pollution as the dye wastewater is being discharged into the environment |
| | A craft that can be practiced with minimum inexpensive resources | No educational or training facilities to learn batik |
| | Can be developed as a home-based industry as it requires minimum facilities and favorable weather conditions | No explorations of new technique or using improved high-tech tools such as electric tjanting, etc. for batik development |
| | Products are of a high value being one of the most developed handicraft arts | Paying low wages for batik craftworkers |
| | | Limited designs with small output values on the market |
| | | Not following international trends as well as the pantone color to be accepted in the international market |
| | | Practiced more in the rural areas and small cities having a small market |
| | | Lack of promotional activities to bring more awareness of batik products |

| OPORTUNITIES (O) | SO STRATEGIES | WO STRATEGIES |
|---|---|---|
| Increased popularity of printing fabric in the global fashion trends | Create new fashionable clothing items by incorporating batik printing | Pioneer new printing patterns techniques to create modern batik |
| Rising demands for handicraft products in the developed countries such as USA, Europe, etc. could provide international recognition | Upgrade the work of local batik craftworkers through including unique intrinsic batik patterns to reach international customers | Revive the traditional patterns which are influences by the religion and culture of the country |
| High development and rise of the tourism sector | Adopt contemporary fashion trends and colors | Generate new techniques of interpreting the traditional art of batik to adapt it to a contemporary fashion industry |
| New distribution channels such as e-Commerce and Internet help to expand marketing and selling of batik products | Cater to tourists by finding new ways of application that reflect modern printing patterns and clothing design techniques | Use improved high tech tools such as electric tjanting, etc. for batik development |
| More jobs available for the old generation craftsmen which are still required on the market for batik making | Increase the production capacity through incorporating more batik into clothing | Increase the wages so that the workers feel motivated to continue the craft |
| The younger generations of designers are looking into adopting batik as a printing technique into fashion designing | Introducing batik into design art schools as part of the curriculum | Follow international trends in terms of prints, colors and designing |
| | Providing education in textile by teaching the importance of preserving the cultural identity of the country and transmitting the art to the younger generation | Use new fabric dyes that are not harmful and toxic |
| | | Expand batik making to city areas as well |

| THREATS (T) | ST STRATEGIES | WT STRATEGIES |
|---|---|---|
| Revolutionary digital printing as an efficient substitute to batik traditional methods | Revive the traditional patterns which are influences by the religion and culture of the country | Create batik samples by incorporating traditional and external influences that follow current trends in fashion design from the international arena |
| New digital creative printing designs and patterns in vibrant colors | Contribute a sense of awareness and understanding of the textile and handicrafts of Sri Lanka by creating authentic printing patterns | Upgrade to different new batik instruments including tjanting tools, specialist dyes, wax heaters and thermometers for better and more efficient results |
| Increased competition on the market from external producers | Deliver the craftsmanship knowledge of including batik into creative design | |
| Less expensive products produced by competing countries such as China, Indonesia, Malaysia, etc<br>Increased and better technology support in batik manufacturing | Innovate design methods related so as to connect traditional craftsmanship with modern technology | Workshop for young students to learn the skills of traditional batik making to represent the Sri Lankan cultural identity |
| Health risk factors due to carcinogenic fabric dyes<br>International designers picking up the craft to global platforms without preserving the cultural connotations | Make batik an integral part in designing clothing, specifically addressed to the new generation of Sri Lankan fashion designers | Workshops for old generations to learn using new tools and techniques to eliminate consuming a lot of time |
| | Bring awareness by participating to fashion shows local and international and distributing batik to fashion stores opposed to only gift and souvenirs boutiques | Alternatives to replace the synthetic dyes such as acrylic dyes, natural dyes, etc. that are not harmful to human and the environment |

### 4.5 Qualitative and Quantitative Data Analysis of Local Market for New Developed Batik Samples

#### 4.5.1 Benchmarking, Ena De silva “Matale Heritage Center”

The Matale Heritage Center founded in 1964 by the artist Ena De Silva, is situated on the hills of Aluwihare. The place, inherited from her father, provided space for a small factory which, started at the beginning with six young village girls producing batik and embroidery. Soon after, the artist started bronze work and carpentry manufacturing furniture, creating a multi craft center which, helped the rural boys as well.[15]

The center is still alive today running its daily activities of batik making, producing Ena De Silva’s creations, only on order.

Ena De Silva reinvented the batik craftwork by creating her own vision of color and form on fabric, inspired by Sri Lanka. She adopted contemporary designs following traditional techniques of batik making becoming an artist, a mentor and a teacher. Ena De Silva. (2002)




**Fig. 4.14: Matale Heritage Center**



**Fig. 4.15: Matale Heritage Center, Workshop**

#### Batik Designs, Geometric Forms

The simple geometric forms are used as minimalistic designs and include triangle, square & circle shapes. It shows different approaches in a composition, of a restrictive color palette, composed of beige, ochre, blue and green tones.



**Fig. 4.16: Ena De Silva Batik, Geometric Forms**

[15] Matale Heritage Center described by Chandra Aluwihare in the chapter “Working at the Matale Heritage Center” of “Glinding the Lily” book. Ena De Silva’s book was written as a celebration for her 80’s birthday to bring homage to the artist life and her work. And, contains a collection of essays that represent various aspect of s her life and work, written by people close to the artist, to bring awareness and inspiration for the future generations.

The minimalistic interpretation of elements resembles the simple shapes of the new developed samples where, the elements are presented in a repetitive pattern (fish) or singular pattern (woman figure, leaf). Forming the linkage of minimal approach in a composition.

**Batik Designs, Marine Life**

The marine life is represented in a fantasy world of sea creatures such as jelly fish, star fish and other elements. The shapes are simple highlighted in vibrant tones of red, pink and yellow (as seen in the first two images below).



**Fig. 4.17: Ena De Silva Batik, Marine Life**

The color palette of the new developed samples has adopted intense hues as well of red, pink and lime yellow to highlight the design elements in the composition, maintaining a contemporary approach to design.

**Batik Designs, Flora and Fauna**

Feature designs such as elephants, peacock, leaves, flowers, etc., of simple clear line shapes filled in with solid color. There is no transition color between elements. Each element has its own solid paint border. The color pallet is diverse, from bright, vivid tones (blue, red) to more mild earth tones (black, brown, ochre, beige).



**Fig. 4.18: Ena De Silva Batik, Flora & Fauna**

The vivid colors resemble partially the new developed samples which, are stronger in color intensity and include neon detail accents. The crackle effects vary as they are denser, forming irregular long line effects on the fabric surface.

**Tools, Materials and Technique**

The range of traditional tools are basic and include tjanting pens, brushes, batik wax, gasoline burner. The batik is done on 100% cotton (muslin and poplin) using the chemical dyes available in the local market such as: naphthol dye, reactive dye and vat dyes.

The technique employed consists of dipping the tjanting tool in heated wax and drawing on the fabric surface by re-tracing the fine lines of design. An artist paintbrush is used as well to cover the large areas of design (background). The color is applied by paint brushes and repeated dye bath in accordance with design.



**Fig. 4.19: Ena De Silva Batik, Tools & Techniques**

It was observed that similar traditional tools and techniques are used in the process of developing the new samples for research, with the exception of fabric, where a lighter 100% cotton sample (as opposed to muslin) is used.

**4.5.2 Qualitative Analysis, Interviews**

**Yathra Jayawardena, Fashion Designer**

Yathra Jayawardena is a fashion designer rooted in the batik business. She is the granddaughter of late Swanee Jayawardena, a painter and batik elite artist of the 60's. The brand Swanee was created in 1968 as a family business. A diversity of batik products can be found at the brand's store such as garments, homeware and textile accessories.

Yathra stressed on the importance of batik, which she feels is a very unique form of printing the fabric. It allows freedom in designing and gives endless possibilities in experimenting with colors, making each design special. She went further to add that she often draws inspiration from traditional forms and tries to embody the cultural heritage of the country in her designs.

"Batik is a very long process. You need passion and perseverance to master the skills. People are influenced by current trends nowadays. We need to embrace change in designing but also to maintain in the same time the uniqueness of Sri Lankan batik"

Yathra's collection focuses on playing with color on fabric. She loves experimenting and creating visually exciting color combinations. In terms of innovation, Yathra reiterates that there are development possibilities in the selection of colors

and patterns. The batik can be developed further to modify the traditional motifs into new compositions. And, that the designers need to be more creative than before.



**Fig. 4.20: Yathra Jayawardena**



**Fig. 4.21: Yathra Jayawardena Batik**

**Source: CFW Catwalk 2018 & Design Collective Shoot**

Speaking about the textile industry in Sri Lanka, Yathra added that it is growing and there is potential. In the last years few fashion platforms emerged as annual runway events. The platforms support young designers and offers exposure to establish themselves.

“The runway events connect the consumer with designer. Therefore, we need more cutting-edge collections.”

The challenge is that very fewer young designers are interested in batik and that is mainly because of the long process. Batik requires a lot of time, as there are several stages in designing, such as: drawing, waxing, dying, boiling, washing and drying the fabric. There is a necessity to introduce innovative working methods and rely more on technology, which could simplify the work.

**Kavindu, Batik Craftworker**

Kavindu is a handicraft worker from the rural area, who runs a small domestic batik business “Varna Deshathi Batik”, Homagama. His daily activity is the traditional printing of the fabric. He is seasonal employed as well by other batik places, depending on the demand.

Kavindu inherited the skill, which he practiced from a very young age. When interviewed, he added that batik is learnt from the people and that mastering of the craft is a very long process that requires many years of practice.

“The fabric is purchased from the local market and washed several times before dying to remove the starch. The wax is poured with much attention to details and dye bath several times, depending on the coloring. After the dyeing, the cloth is dried in the sun.”




**Fig. 4.22: Varna Deshathi Batik**

**Source:Varna Deshathi Online Catalog**

Kavindu says that the craft is very important in his life. But he is facing many difficulties in his home-based business. The demands are high, and he is unable to finish all the work. He doesn’t have the resources and the capital to hire more people and expand the business. The weather conditions are sometimes affecting his work as well. Since, most of the work is done in the garden, he needs to wait for the rain to stop. And, that doesn’t bring enough income.

Also, he added that the prices are determined by the complexity of the designs and the overlay of the colors. However, the designs are done using rudimentary tools and it takes a long time for a complicated design, that could bring him more money.

In terms of designs he went on to add that the patterns are traditional and usually inspired by nature and people’s life. There is no much of diversity. And, the newer designs have very little modifications as well. The colors are predominantly red, orange, yellow, black, etc.

When asked about other issues faced. He said that practicing the craft brings health risks and environmental issues. “It is a labour intensive work that causes body pains in the back, when working full day. The wax, chemicals used, and the dyes

have a very strong smell and they are dangerous for health and environment.” And, that he usually needs to wear gloves and protect himself from direct inhaling.

### 4.5.3 Quantitative Analysiss, Questionnaire

The purpose of conducting the research is to analyze the consumers’ perception of batik as an art and craft in the contemporary world. The questionnaire survey consists of 17 questions, which were formulated to gather data of current and future potential of batik on the market, through evaluating the aesthetics, cultural, social and economic values of the Sri Lankan batik. The questionnaires were distributed among the consumers of fashion apparel and 30 responses were successfully collected for data analyzes.

The survey questionnaire includes a series of questions in a combination of demographic questions, multiple-choice questions, numerical rating scale & likert scale questions.

The questionnaire begins with a set of demographic questions in order to segment the respondent’s based on nationality, education and age group.

It goes forward with multiple-choice questions to allow respondents to narrow their answers to 3 options out of a list of answers, using a circle button format to check off the answers.

In addition, numerical rating scale questions are included that display a scale of answer options from 1 to 5 of most important to least important. The respondents select the number that represents best the result.

And, finally it ends with a Likert scales question of strongly agree or disagree to share the opinion and attitude on the topic.

The results of the questionnaire survey of analyzing the consumers’ perception are in line with the previous research and very less differences were observed. However, it was noted that there is a lack of in-depth knowledge of what batik apparel and fashion actually means.
The data is discussed further in detail with the help of graphical analyses, and the responses have been concluded below.

**Nationality**

The fig. 4.23 bar chart shows the graphical number representation of Sri Lankans and foreign nationals to complete the questionnaire.

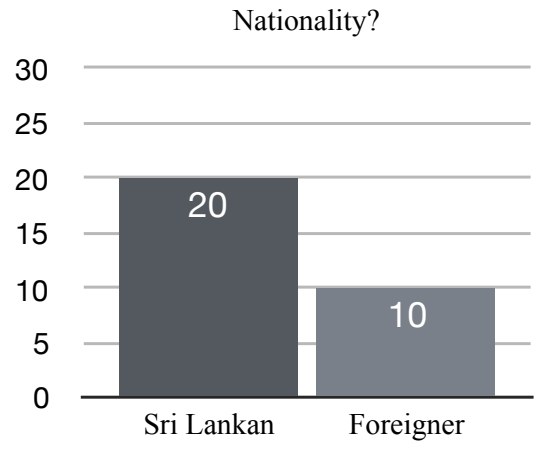


**Fig. 4.23: Responses by nationality**

It can be seen that the number of Sri Lankans respondents as of 28 is higher than the number of foreigners of 10 only. It can be concluded that the questionnaire answers are based mostly on the perception of local customers on the topic, influenced by ethnicity.

**Highest Level of Education**

The fig. 4.24 chart data highlights the respondent's level of education to gather more information of the customer perception in the process of decision making.

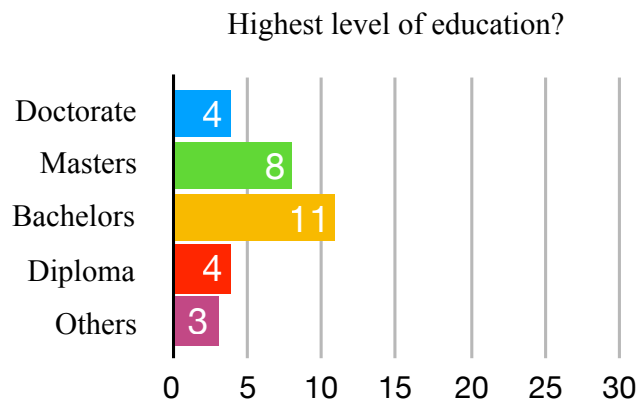


**Fig. 4.24: Highest Level of education**

It can be observed that the majority of 11 batik respondents have a bachelor's degree qualification, followed by 8 holding a master's degree and 4 respondents a diploma and doctorate respectively. The remaining of 3 respondents are at an entry level completing a lower level qualification.

The overall customer perception of batik is based on respondents with a high level of education and it can be concluded that the respondents who completed a higher degree may answer questions differently than those with lower level qualification.

**Gender**

The fig. 4.25 highlights the majority of gender perception and buying behavior of batik.

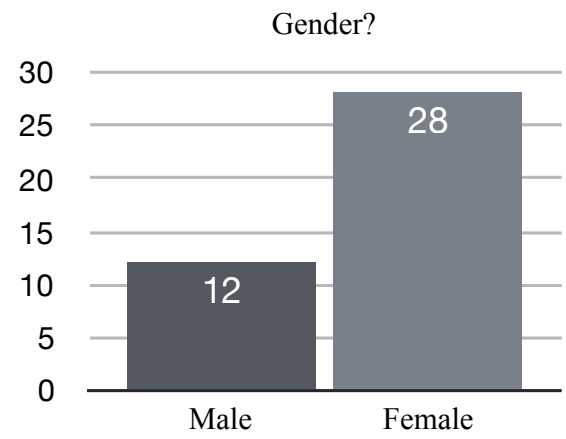


**Fig. 4.25: Responses by gender**

In terms of gender it can be observed that a majority of 28 respondents are women in comparison to 12 men only. Therefore, a highest number of answers in the survey topic are influenced by the women, consumer experiences.

**Age bracket**

The fig 4.26 represents the age bracket of sample population.

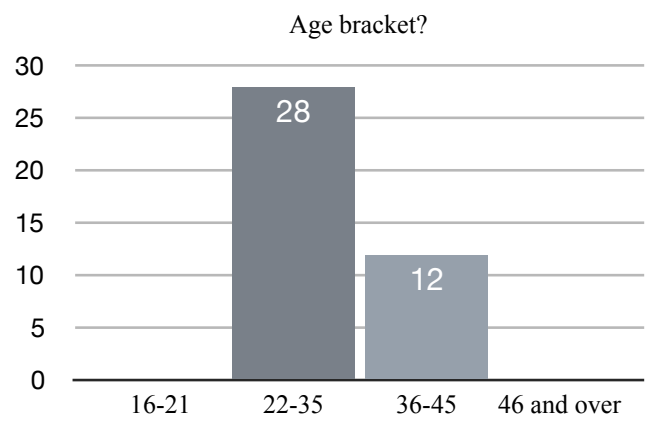


**Fig. 4.26: Responses by age bracket**

The summary of survey results shows that the majority of data, 28 in number, is provided from the younger age group of 22 to 35 years old. Whereas, a lower of 12 respondents from the 36 to 45 years old, age group.

**Consumer behavior of buying batik clothes**

In the fig.4.27 chart data, the respondents were asked the 3 main important criteria when buying batik clothes, to analyze the consumer behavior in the decision-making process.

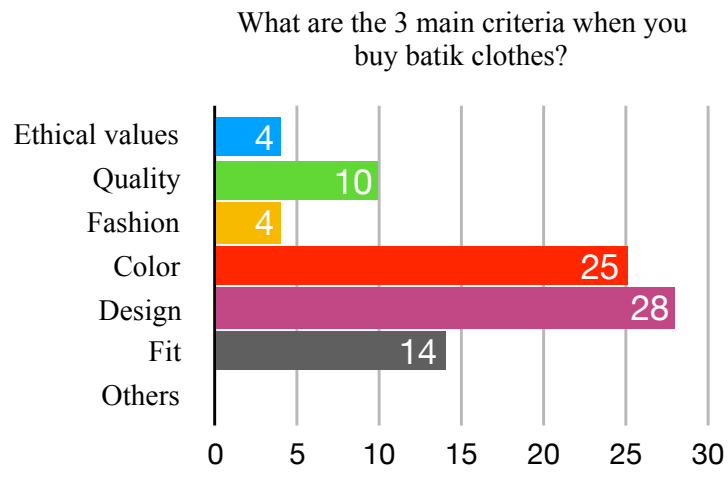


**Fig. 4.27: Purchase criteria for batik clothes**

Out of 30 respondents 28 selected “design” whereas, 25 respondents chose “color” and 14 “fit” respectively. Apart from that, a lower number of 10 respondents were more comfortable in choosing the “quality” of product, and 4 respondents equally selected the “ethnical” and “fashion” criteria.

Based on the customer evaluation of choice, the product attributes rely mostly on design, color and fit when buying batik.

**Awareness of batik garments in the local market**

The fig. 4.28 bar chart looks into the awareness element to understand whether the customer knows about the existing batik on the local market.

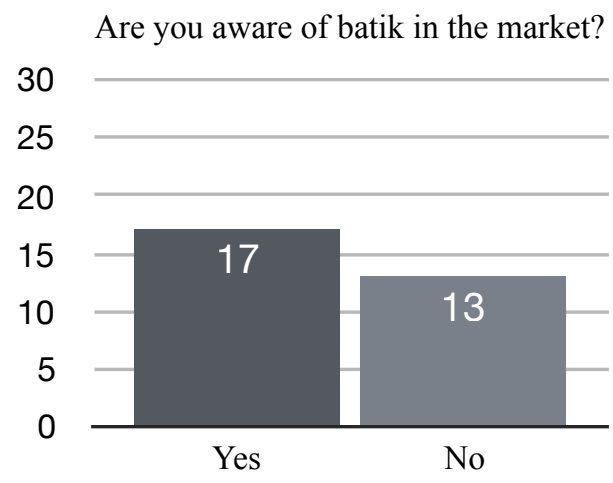


**Fig. 4.28: Awareness of batik in the local market**

Out of 30 consumers, 17 are aware of the local batik garments in the local market shops whereas, 13 consumers are not aware. This indicates that batik is not a very large industry to dominate the domestic market and that limited batik shops can be seen across the island. Moreover, it can be said that there is not a high increased public awareness of batik and that the handicraft workers need to introduce batik to the younger generation in order to expand and cover a larger market.

**Purchase of batik garments**

In the fig. 4.23 the sample population was asked whether they have bought any batik garment or own a batik item.

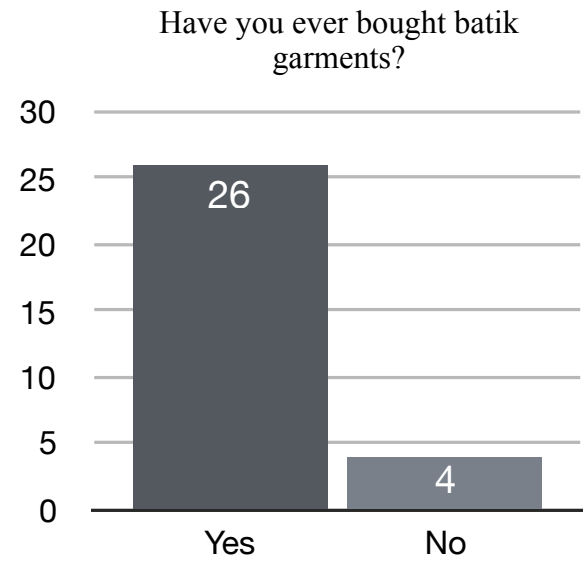


**Fig. 4.29: Purchase of batik garments**

The answers analyzed show that out of 30 people 26 have bought batik in the past or own a batik item with only 4 “no” remaining.

**Purchase of batik products (clothes, scarves, bedsheets etc.)**

The fig. 4.30 analyzes how often a person buys batik products.

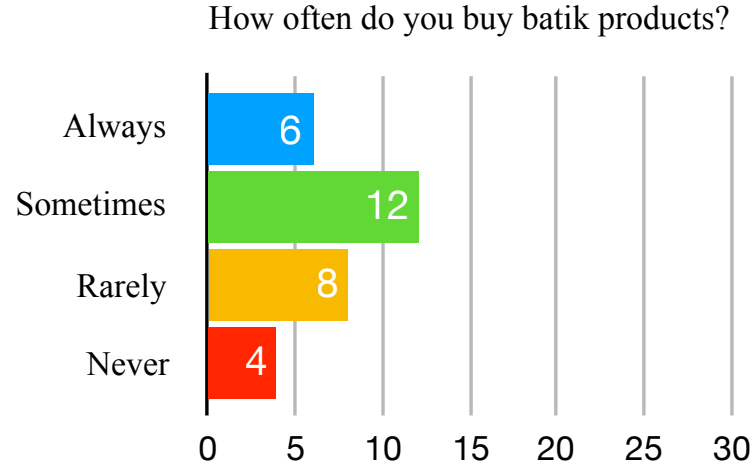


**Fig. 4.30: Purchase of batik products**

The figure shows the buying patterns vary between customers. It appears that 12 customers purchase batik products “sometimes” whereas 8 “rarely” and 6 “always”. A very low number of 4 customers only can be seen to “never” buy batik at all.

Although the buying patterns of purchasing habits vary, the highest increase is found at the people who buy batik “sometimes”. This reflects that there is a potential market who has an occasionally purchasing power within the differences observed in culture and society of local and foreign customers.

**Factors of buying batik garments**

In the fig.4.31 chart data, the respondents were asked the 3 most important factors to encourage the customers to purchase batik garments.

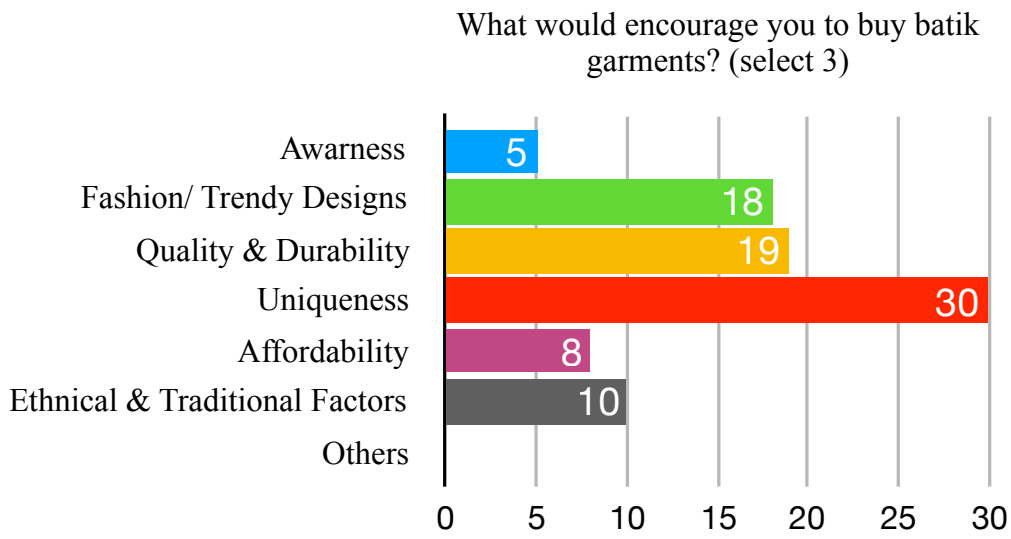


**Fig. 4.31: Factors of buying batik garments**

It is evident from the results that factors such as "uniqueness "of batik (in terms of design and color), "quality & durability" (execution in the manufacturing process) and the aesthetics of "trendy designs" would help the most to benefit in the purchasing decision and increase interest among batik consumers.

The data gathered highlights 30 respondents out of 30 (total sample) agree on "uniqueness" with 19 on "quality & durability" and 18 on "trendy designs". Moreover, a slightly lower number of 10 respondents agreed with "ethnical & traditional" factors, whereas 8 on "affordability" and 5 only on bringing more "awareness" on the local market.

**Sri Lankan textile heritage importance on purchase**

The fig. 4.32 chart data looks into the customer attitude defined by the belief of purchasing batik to preserve the Sri Lankan textile heritage. The importance is to analyze whether the consumer takes leadership to become conscious responsible and commit to make a positive change to introduce batik further in society.

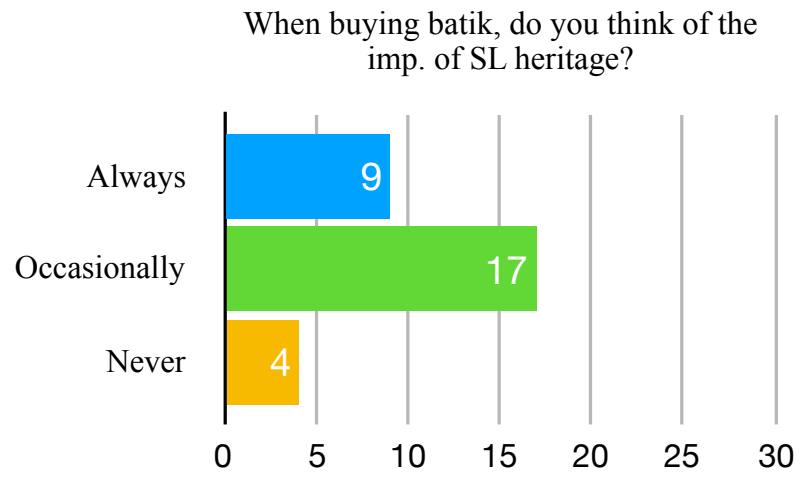


**Fig. 4.32: SL textile heritage importance on purchase**

The data shows that there is an “occasionally” consumerism of 17 respondents out of 30, followed by 9 conscious respondents who “always” buy batik in an attempt to support the local manufacturers and promote the traditional values. Only 4 respondents revealed not to take in consideration the heritage factors.

It can be concluded that it is important that customers habits grow into becoming conscious consumers to “always” purchase batik in an attempt to support preserve the culture of batik making and give back to community.

**Factors of not buying batik garments**

The fig. 4.33 looks at the three most important factors that influence the purchasing decision of not buying batik.

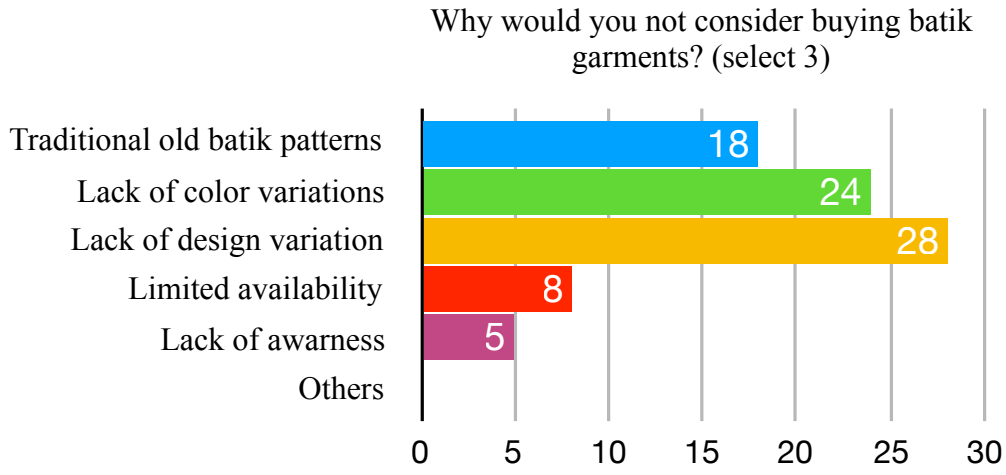


**Fig. 4.33: Factors of not buying batik garments**

It is noted from the bar chart data that 28 respondents opted out “lack of design variation”, 24 “lack of color” and 18 respondents “traditional old patterns”.

It can be said that there is a preference in buying batik that incorporates variety in design and color and the consumers tend to prefer newer patterns as opposed to the old traditional ones.

**Customer major expectations of Sri Lankan batik industry**

The charts show information about customer major expectations from the Sri Lankan batik industry in terms of design & motifs, manufacturing process, preserving the textile heritage, adapting traditional to contemporary fashion of modern influences in design, color and production methods.

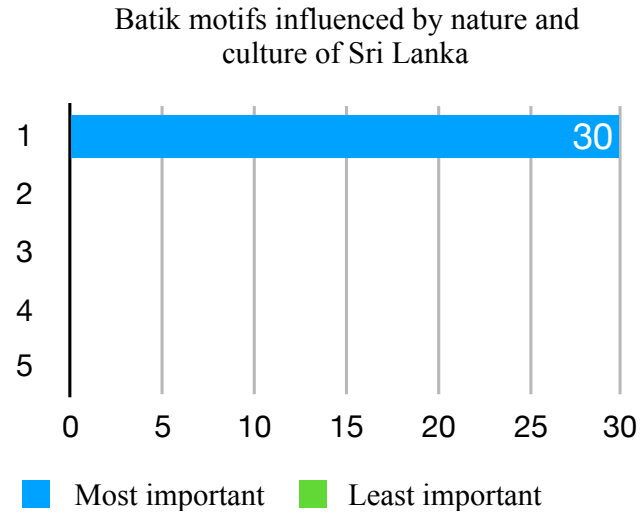


**Fig. 4.34: SL batik motifs**

Looking at the first chart fig.4.34, we can see that all 30 respondents rated 1 as most important factor the use of motifs influenced by the countries nature and culture, to encourage preserving the authenticity of Sri Lankan batik making.

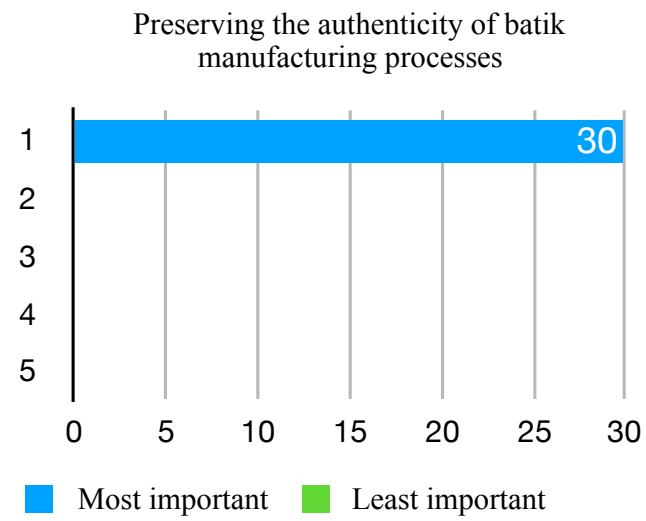


**Fig. 4.35: Authenticity of SL batik manufacturing process**

In the second chart fig. 4.35, all 30 respondents rated 1 in favor of most important factor to preserve the authenticity of batik manufacturing process, that includes the wax-resist dyeing technique on natural fabric. It can be deducted that the respondents appreciate the workmanship of traditional batik.




**Fig. 4.36: Conserving SL textile handicrafts**

The third chart fig. 4.36 shows that the respondents recognized the need to conserve the textile and handicrafts of Sri Lanka with all 30 respondents rating 1 the most important factor. In addition, it can be concluded that the batik art and craft is deep in the local culture to be pass on as the cultural heritage of the country.

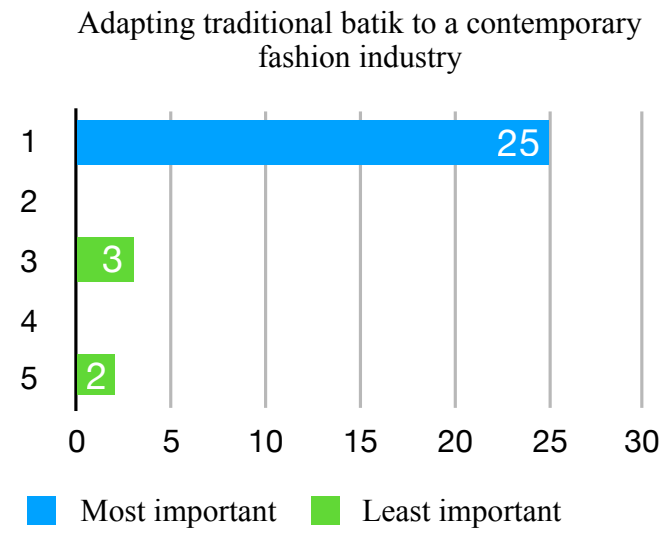


**Fig. 4.37: Traditional to contemporary fashion industry**

From the fourth chart fig. 4.37 we can see the results reflected from an industry perspective on the importance to adapt to a contemporary fashion. The highest number of 25 respondents have rated 1 as being the most important factor whereas, 3 respondents rated 3 and 2 respondents rated 5 as least important to accommodate the needs of contemporary fashion. With a number relatively high it can be concluded that there is a demand to develop batik to suit fashion needs, as a tool to increase the market.

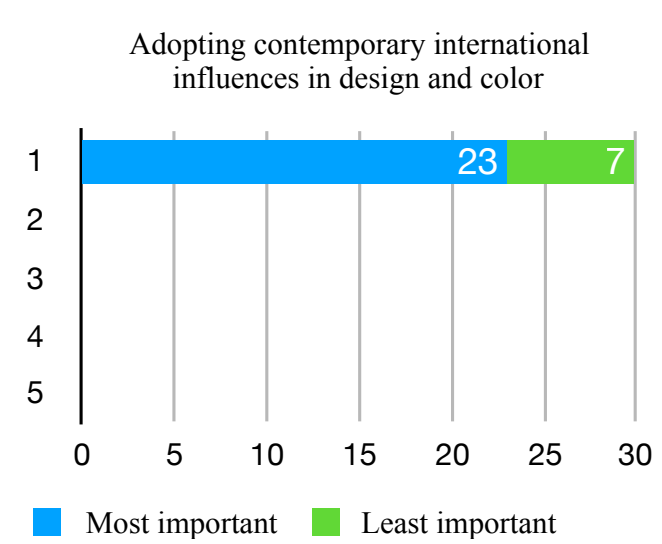


**Fig. 4.38: International influences, design & color**

In the fifth chart fig 4.38 the study shows that there is a wider market demand for batik to become more modern. The majority of 23 respondents have rated 1 as most important to adopt international trends in design and color with only 7 respondents rating 1 as least important to change the traditional batik motifs & colors. The changes in style, design and color could influence the development of batik to reach its creative peak in an effort to bring more exposure on the market.

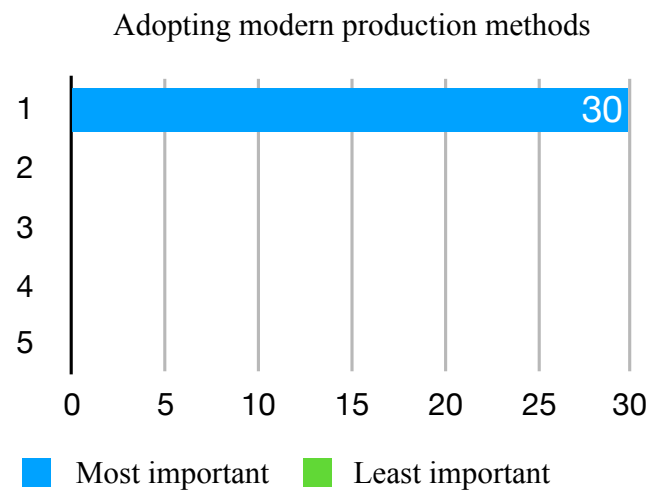


**Fig. 4.39: Modern production methods**

The sixth chart, fig.4.39 show the market demand of implementing a better production technology which could benefit the continuous development of batik. The results show 30 respondents out of 30 in favor of encouraging the change to production which could pioneer techniques in creating new batik for an international stage. The advancements could influence the designers to include more often batik in their collections and get more exposure to be internationally appreciated.

**Purchasing of ethnical cultural garments**

The fig. 4.40 chart data analyzes the consumer behavior over the purchasing habits of ethnical, cultural clothes.

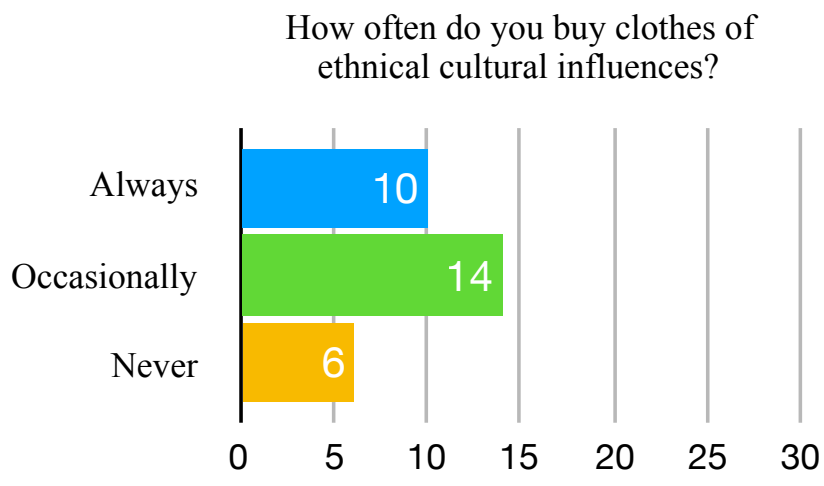


**Fig. 4.40: Purchase of ethnical cultural garments**

The data shows that there is an “occasionally” majority of 14 respondents who buy ethnical clothes in an attempt to support the preservation of cultural identity and countries national values. The remaining of 10 respondents “always” buy clothes that include the tradition into fashion. Whereas, the last 6 respondents “never” buy ethnic clothes to wear on a daily basis, ritual events, holidays, etc.

**The characteristics of batik consumer**

The fig. 4.41 data chart looks into the three characteristics of batik modern consumer in the future. The consumer appears to be ethical, responsible and educated.

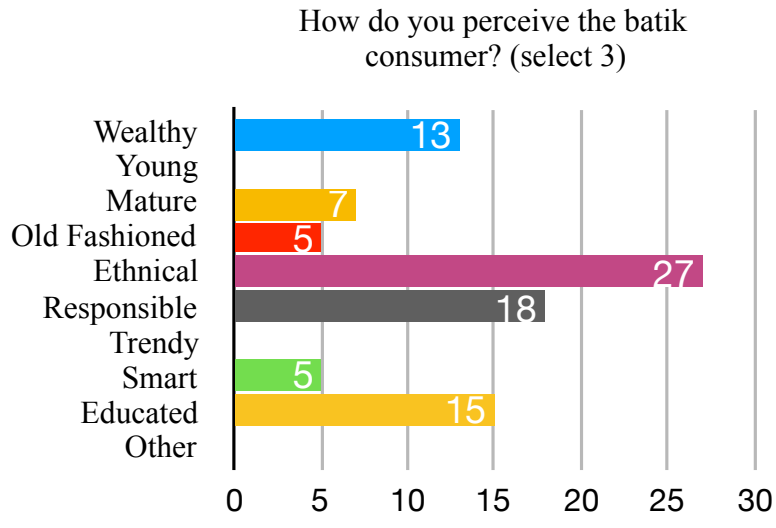


**Fig. 4.41: Characteristics of batik consumer**

The chart highlights 27 respondents in favor of ethnical fashion consumerism of embracing the heritage & origin of country to support the small-scale batik manufacturers and local artisans. The next18 respondents consider that the consumer should be responsible in practices and choices he makes when buying batik. Whilst, on the same concept 15 respondents think that an educated batik consumer takes conscious decisions that help batik community grow.

**Accessibility of batik clothes in the local market**

Fig 4.42 data chart analyzes the accessibility of batik developed in the island of Sri Lanka, whether the products are readily available and if the people are aware of local shops.

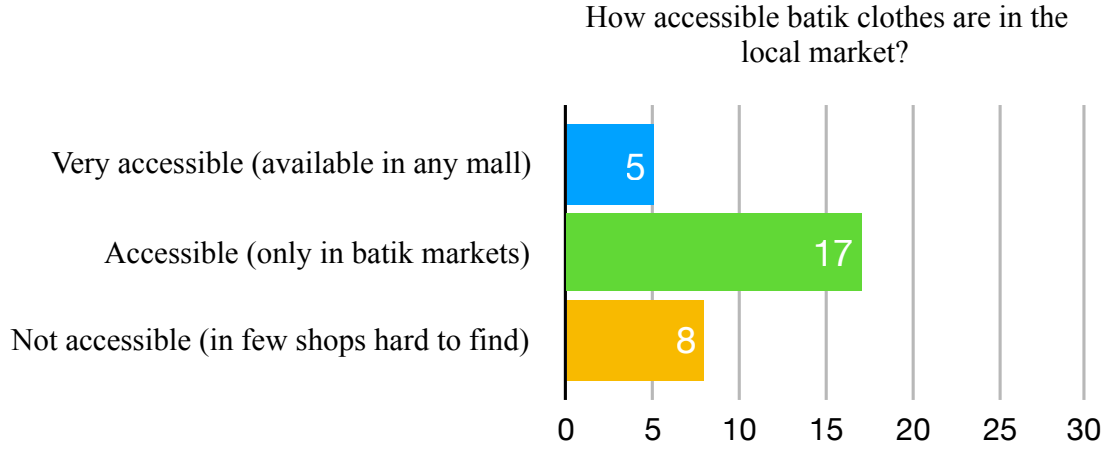


**Fig. 4.42: Accessibility of batik in the local market**

In terms of accessibility, the highest number of 17 respondents have answered that batik can be found as “accessible” only in batik markets. The next 8 respondents consider that is not “accessible” lastly, the remining 5 respondents that is “very accessible”, in any mall.

In closing, the industry needs a better competitive marketing strategy to upscale batik, so it becomes very accessible to local and foreign market.

**Awareness of batik textiles**

The fig. 4.43 data chart highlights 3 market strategies that could bring more awareness of batik on the local market.

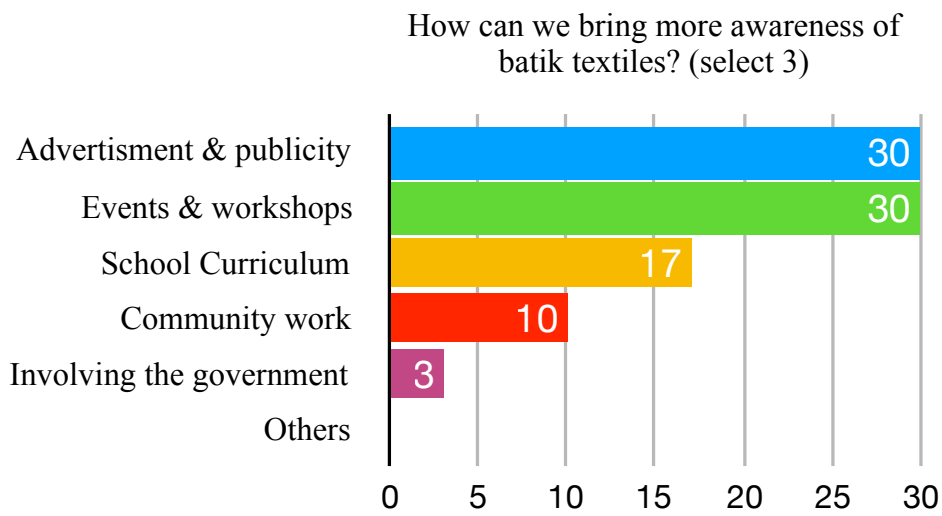


**Fig. 4.43: Bringing awareness of batik textiles**

The 30 respondents' highlight the use of advertisements & publicity and events & workshops as a marketing strategy that can be utilized to bring more awareness and influence consumer's purchase in the decision-making process. And, 17 respondents are in favor of implementing batik in the school curriculum to educate the younger generation of modern consumers.

**Batik textiles appealing to younger generation**

The fig. 4.44 chart data looks into whether the batik is appealing to new younger generation.

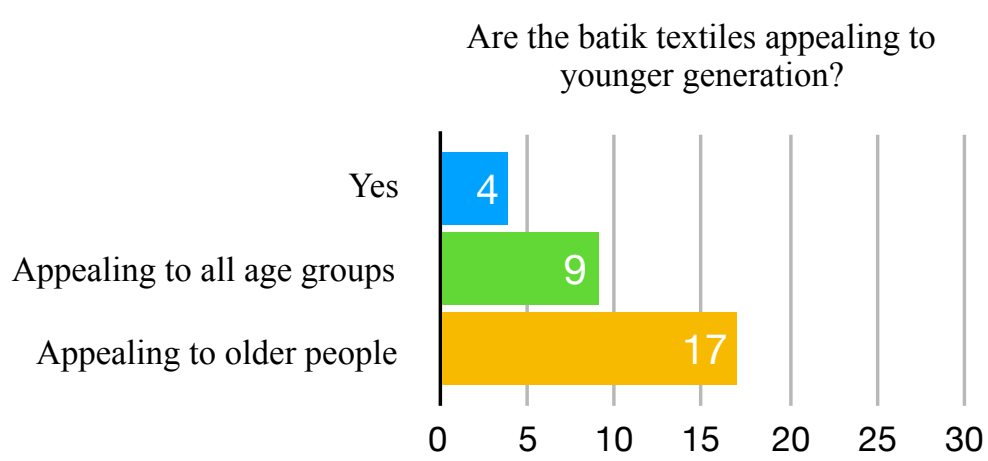


**Fig. 4.44: Batik appealing to younger generation**

The majority of 17 respondents recognize the batik as appealing to the older generation as opposed to the younger one with only 4 respondents in favor.

There is a need to introduce batik of a more youthful and friendly colorful and trendy designs to reach the expectations of a younger consumer so that they become interested in batik. We also need to ensure that batik has an increased demand and the techniques maintain with the future generation.

**Positive influence of current fashion trends on consumer's perception of batik**

The fig. 4.45 examines on a scale from 1 to 5, to what extend the consumer agrees that fashion trends can influence positively the purchase of batik garments.

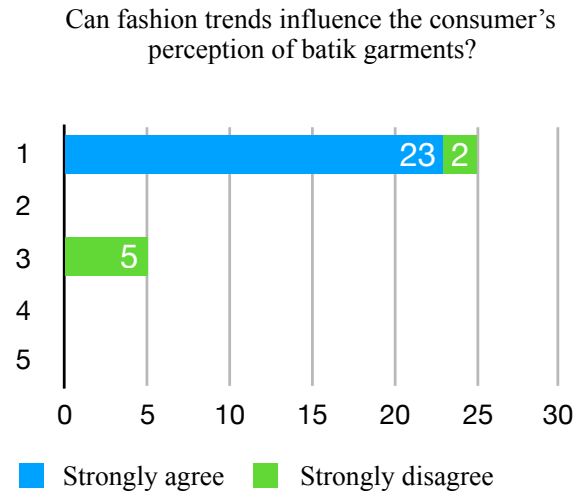


**Fig. 4.45: Fashion trends influencing consumer's perception**

It can be observed that consumer perception is highly influenced by fashion trends with 23 respondents rating 1 in favor of "strongly agree" and 2 respondents only, "strongly disagree". Lastly the remaining of 5 disagreed by rating 3 on the scale. It can be said that the consumer prefers to follow fashion trends and that it is important to be reflected into clothing. In this regard is an advantage for the batik artists to understand the fashion trends so that they can adapt to the continuous changes of modern times.

# CHAPTER 5: DISCUSSION

## 5.1 Batik Industry in Sri Lanka

The batik textile handicrafts in Sri Lanka as seen in fig. 4.14 and table 4.2 are spread in shops across the island, at a small scale, which becoming more popular nowadays among the locals and tourists. And, plays a significant role in the country's economy providing jobs to rural people. The batik is produced entirely by hand with the help of few basic tools in the finishing process. It has a very low capital investment as it mainly relies on the workers skills, knowledge and experience. The process of batik manufacturing is very slow and requires a lot of time to produce high quality prints. The design patterns are traced manually on the fabric surfaced. And, it requires multiple applications of wax and dye, depending on the design complexity. The texture is achieved last, given by the crackle effect of scraping the wax on the surface.

The coloring process nrelies mostly on chemical dyes (Devi chemicals) as opposed to the traditional way of naturally dyeing the fabric. In the past the fabric was dyed using natural pigments extracted from plant sources such as roots, leaves, etc., which gave a very limited color palette of red, yellow, blue and black. Nowadays, the color palette is endless and provides a larger variety of possibilities in color dying.

The batik handicrafts of Sri Lanka represent the countries culture and tradition through the unique use of materials, motifs and colors. The craft was transmitted through generations from an early stage in history. As the research proves, it was practiced first as a hobby by the nobles at the court of the Kandyan kingdom. The artisans picked up the craft and soon it became popular among common people.

With the rise of the pioneer artist Ena De Silva, the batik emerged as a home-based industry. The batik artists such as Soma Udabage, Swanee Jayawardene, Eric Suriyasena, etc. were well known for their dexterity in completing the entire process of developing prints.

The knowledge of batik is passed down over in the family to carry out business. And, new generations of designers such as Yathra Jayawardena (Swanee) and Darshi Keerthisena (Buddhi Batik) are seen to take up upon the craft so as to continue their family endeavor and carry out the ethnic tradition.

Few fashion designers are seen as well to adopt batik into their own designs because of its artistic freedom and creativity, blending traditional and modern in the new processes.

### 5.1.1 An appreciation for Traditional Handicraft, Batik

The batik handicrafts of Sri Lanka are essentials to preserve the countries cultural identity. The motifs are depicted from the surrounding environment of the country's beautiful flora and fauna, religion and village life. The decorative elements embodied in flowers, animals, people, etc. represent significant symbols of Sri Lanka and highlights the community values. The most predominant motifs are the peacock, elephant, fish, lotus, lilies, frangipani, buddha and village life.

The leading batik artists of the country played a significant role in the development of the craft. Pioneer artists such as Soma Udabage, Ena De Silva, Swanee Jayawardena, Eric Suriyasens and Vipula Dharmawardena have recognized and cultivated the uniqueness of batik. And, promoted the country through the use of craft and materials.

As records show, Ena de Silva have dedicated her life to help set up batik village centers. She shared her knowledge by teaching the local women from rural areas the craft. And, worked towards ensuring that the knowledge and skills of batik are transmitted from generation to generation.

The batik became an art embedded in the countries everyday life and reached its full potential in 1980 when the "open economic policy" was introduced in Sri Lanka, which facilitated the trade between the domestic and international communities.

However, in 1983 the civil war erupted and led to a decline in the tourism industry, which brought substantial challenges to the local handicraft workers preventing the growth of the industry.

The batik has survived over time as a small- scale industry with minimum basic facilities and rudimentary tools.

Nowadays, the batik artisans are struggling to compete in the global market as the consumer is strongly influenced by trends and purchasing patterns. The consumer is not educated to purchase handicrafts products. They are unaware of the importance of SL textile heritage. And, that becomes a challenge and a threat for the local artisans to sell their products on the local market and export internationally.

The batik cultural heritage of the country is valuable for Sri Lanka as it reflects the beautiful tradition of the country. And it is important to promote the art to help preserve and protect the skills and knowledge of the craft.

### 5.1.2 Facing Challenges: Batik Manufacturers

The batik handicraft workers are facing several challenges such as lack of new modernized tools, limited production, lack of interest in the young generation to continue the craft, lack of training facilities, lack of financial resources and health issues caused by synthetic dyes.

The handicraft workers are using traditional tools in the production of batik. According to studies the workers are faced with the challenge of upgrading to new modernized equipment such as electric tjanting tool, temperature regulator, electric heater, etc. Therefore, due to lack of innovation and proper technology the craftwork is unable to meet the customer demands of introducing new modern designs on the market.

The manufacture of batik is done on a small scale at a workshop capacity. The qualities are limited and not mass-produced. The batik handicraft workers cannot compete with the big scale manufacturers and have to lower their selling price; therefore, the batik products are slowly losing the market. This forces them to abandon the business and get a job in the city area to earn a monthly income.

When talking with the younger generation of designers the study shows that they mostly prefer to work in a factory other than specialize in batik. They find the process to be lengthy and time consuming. Also, there is a very small number of

educational training workshops, which can facilitate learning and transmitting the craft to the next generation. Therefore, the knowledge and skills of the batik craftsmanship can't be pass further and sustained longer on the market, which will eventually lead to a decline in time.

The handicraft workers face problems due to lack of financial resources. Mostly are coming from poor families and have a low level of education which makes it very difficult to manage expand the business and bring more awareness of products on the market.

The use of synthetic dyes can cause health issues due to the heavy metals found in the dyes. The chemicals are considered to be very toxic to people's health and environment. The wastewater is discharged into environment which affect the plants as well making the dyeing process a huge pollutant to the world.

### 5.2 Reviving SL Batik Industry to Bring International Recognition

The batik industry needs to adopt innovative approaches in design to create new modern compositions while maintaining the traditional character. The handicraft designers need to break away from the traditional batik and incorporate modern batik motifs that follow current trends to match the need of the customers.

Nowadays, few modern styles of batik are seen in the work of contemporary fashion designers such as Darshi Keerthisena, Sonali Dharmawardena, Yathra Jayawardene, Salt, etc. The batik designs are predominantly abstract and geometric, focusing mainly on color and texture that cater to a new generation of consumers.

Moreover, as part of the research, a study was conducted to develop new batik samples that include modern interpretations of traditional elements while maintaining the values of the country. The experiment was carried out using the traditional hand drawn and waxing method, to retain its exquisite value, while introducing different work mediums such as acrylic fluorescent paint and artist paintbrushes.

The result of the experiment has proven a more diverse range of prints that brings new ideas. Therefore, the designers can experiment with new mediums to develop new ideas while maintaining the traditional values as well.

Nowadays, customers have rapidly changing demands for new designs. The batik designers should understand the changing needs of customers and adapt batik to contemporary times by blending traditional and innovative techniques to modernize the art.

#### 5.2.1 An Innovative Technological Approach to Batik Production

New modernized tools and supplies are available on the market that help to accelerate the process of batik making and increase productivity. The following variety of different tools are available in shops, such as: electric tjanting tool, electric batik pen, temperature regulator, wax melter palette, squeeze pen, dipper pen, etc.

The handicraft workers can produce batik of a very high quality to meet the customers' demands within a limited time frame.

For example, the electric batik pen allows the handicraft worker to accurately trace fine lines on the fabric surface. It acts as a heating tool to melt the wax and control the dripping in the same time. It helps as well to ease the hand movement when adding in design details.
The accidental drippings of old traditional tools can be avoided. The tjanting head is no longer submerged in hot wax to refill when drawing.

The electric batik pot has a temperature regulator, which thermostatically controls the heat of wax. It is more stable than the traditional pot which often overheats the wax. If the temperature in not well maintained, the wax can burn up in flames or produce smoke, which is very dangerous to inhale.

Additional tools such as squeeze pen and dipper pen are very useful when creating elaborate designs. The tools have the ability of producing thin and thick lines (continuous or interrupted) that are very useful for abstract designs.

The study indicates that the new modernized tools help to enhance production capacity and speed up the production process which can also save the time to meet the customer demands within the shortest time frame.
Moreover, it employs modern approaches in design which can simplify the process. All this help to pass the knowledge and skills to the younger generation.

### 5.2.2 Innovation of Batik Design: Motifs, Colors and Texture

#### Motifs

The batik design motifs are an important characteristic of batik quality. And, it carries a strong relation to the culture of the country. The traditional batik motifs of Sri Lanka are inspired by flora and fauna, religious themes and village life. Whereas, the contemporary designs available on the market are more minimalistic, following an abstract or geometric theme.

Although the traditional batik elements such as: elephant, peacock, fish, lilies, lotus, frangipani, buddha, etc. play a significant role in the design composition, there is a need and a demand to produce new fresher motifs. Adopting international design trends such as minimal concept or open composition, help to create a different perspective in designing (referring to the new developed samples as part of the research). The minimalistic concept simplifies the shapes and highlights the elements to achieve beautiful results, keeping the composition in frame. Whereas, the open composition is a maximalist approach to design, where the composition continues out of the frame.

The customer study (questionnaire) indicates that the purchasing decision is affected by design and colors. Also, it showed that the designs available on the local market are not so attractive. Therefore, a change in the form of design elements, adopting Western influences, will help to integrate in the modern contemporary world, local and internationally as well.

**Texture**

The Batik effect is given by the wax cracks. The traditional effects are achieved by crushing the crackles on the fabric surface and immersing the cloth in the dye bath. The dye penetrates the fabric creating uneven lines of different widths and lengths.

However, a multitude of crackle effects could be achieved through using different techniques of cracking the fabric. The innovative ways are spider web effect, wavy lines, interrupted lines, long lines, short lines, lines that crosses each other, lines that meet each other and lines that break off.

The designers play an important role to preserve the culture of the country through finding innovative ways as well that can be applied to the finishing part of batik.

**Colors**

Color is an essential component of batik, that can enhance the design characteristics to achieve very strong visuals. Using a variety of different colors, can change the way we perceive a design.

To capture the essence of Sri Lankan culture, the artists relied on a traditional color palette of red, yellow, orange, blue, brown and black. Back in the past, the colors were subtracted naturally from plants, fruits and roots, which gave a very restrictive palette.

The synthetic dyes, brought in a wider variety of colors, giving more possibilities to artists in designing batik. However, the artists have not experimented much with color innovations. And didn’t break away from traditional, keeping the color palette free from outside influences of more lively colors.

A new interest emerged when few young local designers such as Darshi Keerthisena, Yathra Jayawardene, etc. started to use more intense hues, on a very small scale, to color batik.

The existing color trends sets apart from traditional colors and follow lively shades of yellow, bright orange, burnt orange, mint green, lime green, bold green, turmeric, pink peacock, etc. It includes as well, fluorescent shades of neon colors such as: lime green, fuchsia, blinding yellow and acid orange.

Few samples of batik were developed as part of the research to innovate and introduce a multicolored story concept that includes fluorescent neon colors. It was proven (questionnaire) that customer prefer to keep up with the trends and latest developments in the field. And, was noted that it is important to be creative and stay informed to keep up with the industry challenges, which will add more value to the work.

# CHAPTER 6: CONCLUSION AND SUGGESTIONS

## 6.1 Conclusion

The research paper thesis analyzes the traditional batik of Sri Lanka as cultural heritage and discusses forward methods to overcome the industry challenges. The study focuses on the important factors, which contribute to help preserve the handmade batik craft and revive the old practices so as to adapt to a contemporary world.

The traditional Sri Lankan batik has a long history, which is rich in culture, beautifully reflected in the uniqueness of the patterns. The batik is produced in the rural areas, following a modest technique of “wax resist” that is transmitted from generations to generations.

Due to poor infrastructure and lack of education the batik craftworkers are facing many challenges day to day to preserve the batik tradition. The following issues such as: heavy rains, power outages, lack of facilities of new technology, lack of educational training workshops, lack of innovations constitutes a major impediment in progressing forward to sustain the craft on the market.

Moreover, based on the research data and the interviews conducted it was noted that a small percentage of the young contemporary fashion designers are interested in experimenting in finding new approaches to design. And, this is mainly due to the long and slow process of manufacturing.

Also, the competition brought in by industrialization is very high and rapidly changing the market. New modern, cheap products that follow international trends are now available and more accessible on the market.

All these issues are significant threats and indicate that there is a need to upgrade the industry by exploring creative ways in design and adopting new technology as well. The batik handicraft has an important significance in the cultural and socio-economic context of the country. Therefore, in an attempt to support the research, the study goes forward to develop new batik samples that blend traditional and modern techniques befitting contemporary lifestyle. The samples are evidence of innovation in design of patterns and colors. And, contribute in developing new design methods and techniques to help preserve the cultural heritage and the transmission of the craft skills. Moreover, a sample is translated into an outfit consisting of a skirt and a top. The look maintains the authenticity of the craft in an adaptation for a contemporary design.

Ultimately, the study demonstrates that the only way to growth is by innovation, technology, education and an appreciation for the craft tradition. And, it can be concluded that there is tremendous potential to revive the batik on the market and propel the traditional craft on the international fashion scene. This all together will help contribute to continue preserve the batik textile heritage of Sri LANKA.

## 6.2 Suggestions

The detailed analysis of the study evaluates and reveals ways to improve the batik handicraft industry to survive in the competitive market. The study focuses on creative solutions by looking into design, technology and skill development as well.

It is noted that there is potential to upgrade, revive the batik industry and the following suggestions are made:

- Building training center for artisans, handicraft workers or designers to learn the skills and develop their sense for aesthetic.

- Incorporating new technology such as modernized tools to increase quality of the product and productivity. The following tools available on the market could be considered: electric tjanting tool, electric batik pen, temperature regulator, wax melter palette, squeeze pen, dipper pen, etc.

- Adopting innovation in design (contemporary creativity) to create a bond between past and present so as to preserve the handicraft tradition and pass the knowledge to the new generation of young designers, artists.

- Enhance branding to bring awareness of the uniqueness of the batik handicraft that represents the culture and tradition of Sri Lanka

- International exposure by participating to fashion shows, cultural exhibitions, trade fairs, etc.

The batik industry is facing significant challenges to adapt to the new industry of technological developments and increasing competition on the market. The handicraft workers could upgrade the work to produce batik of a very high quality that meets the customer taste of modernized products through innovation, new technology, educational handicraft workshops and new marketing tools for promotion.

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**Appendix A**

## Questionnaire, Customer's Perception of Batik Textiles

### BATIK Questionnaire Sample

### Consumers Perception of Batik Textiles

1. Please tell us about your nationality:

O Sri Lankan

O Foreigner

Highest Level of Education:

O Doctorate O Masters O Bachelors O High School O Other:

2. Gender?

O Male

O Female

3. Age bracket?

O 16 - 21

O 22 - 35

O 36 – 45

O 46 and over

4. What are the 3 main criteria when you buy batik clothes?

O Ethnical values

O Quality

O Fashion

O Colors

O Design

O Fit

O Other:

5. Are you aware of batik garments currently available in the market?

O Yes

O No

6. Have you ever bought batik garments?

O Yes

O No

7. How often do you buy batik products (clothes, scarves, bedsheets etc.)?

O Always

O Sometimes

O Rarely

O Never

8. What would encourage you to buy batik garments? (choose any 3)

O Awareness of products on the market

O Fashion / Trendy Designs

O Quality & Durability of product

O Uniqueness

O Affordability

O Ethnical & Traditional Factors

Other:

9. When buying batik, how often do you think of the importance of the Sri Lankan textile heritage?

O Always

O Occasionally

O Never

10. Why would you not consider buying batik garments? (select any 3)

O Traditional old-fashioned patterns

O Lack of color variations

O Lack of design variations

O Limited availability/ local stores

O Lack of awareness

O Others:

11. Rate your major expectations of the Sri Lankan batik industry?

a) Batik motifs influenced by nature and culture of Sri Lanka

Most Important 1 2 3 4 5 Least Important

b) Preserving the authenticity of batik manufacturing processes

Most Important 1 2 3 4 5 Least Important

c) Conserving the textile and handicrafts of Sri Lanka

Most Important 1 2 3 4 5 Least Important

d) Adapting traditional batik to a contemporary fashion industry

Most Important 1 2 3 4 5 Least Important

e) Adopting contemporary international influences in design and color

Most Important 1 2 3 4 5 Least Important

f) Adopting modern production methods

Most Important 1 2 3 4 5 Least Important

12. How often do you buy clothes of ethnical cultural influences?

O Always

O Occasionally

O Never

13. How do you perceive the batik consumer? (select any 3)

O Wealthy

O Young

O Mature

O Old Fashioned

O Ethnical

O Responsible

O Trendy

O Smart / Intelligent

O Educated

Other:

14. How accessible do you think batik clothes are in the local market?

O Very accessible (available in any malls)

O Accessible (only in batik markets)

O Not accessible (in few shops hard to find)

15. In your opinion, how can we bring more awareness of batik textiles (Select any 3)?

O Advertisement & publicity

O Events & Workshops

O School curriculum

O Community work

O Involving the government

Other:

16. Are the batik textiles appealing to the younger generation?

O Yes

O They are appealing to all age groups alike

O No, they are more appealing to older people

17. To what extent do you agree that the current fashion trends can influence the consumer's perception of batik garments in a positive way?

Strongly Agree 1 2 3 4 5 Strongly Disagree

## Appendix B

## Interview Sample

### BATIK Interview Sheet Template

**PART 1 - Personal Description**

Describe yourself briefly:

**PART 2 - Personal Data**

Name:

City:

Ocupation:

**PART 3 - Interview Questions**

1. What is batik as an art form?

1. What is batik in the Sri Lankan cultural context?

2. Which are the representative Sri Lankan batik motifs?

3. What is the importance of preserving the Sri Lankan traditional cultural heritage of batik?

4. How can we preserve the tradition of batik in the modern context?

5. Can we incorporate traditional batik into contemporary fashion?

6. Can we create a new market through innovation in technique, design, color and manufacturing processes?

7. Which is the batik industry challenges?

8. How can we revolutionize the batik local industry?

9. Is there potential in upgrading the Sri Lankan batik industry?