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Evaluation of Fabric Offcut Production and Recycling of Textile Industries in Sri Lanka

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Abstract: Sri Lanka's textile sector is crucial to the nation's economy because it considerably boosts export revenue and jobs. However, the industry's expansion is accompanied by a significant increase in the generation of fabric offcuts, raising issues with resource efficiency and the environment. The purpose of this article is to assess the creation of fabric offcuts within Sri Lanka's textile sector as well as the efficacy of recycling techniques used to lessen their impact. This article offers a thorough analysis of the current situation, identifies problems and opportunities, and makes suggestions for promoting a more sustainable and circular textile ecosystem by looking at the production and recycling processes for fabric offcuts in Sri Lanka's textile industry. The results of this study add to the larger conversation about waste reduction, resource efficiency, and sustainable practices within the global textile industry.

Index Terms: Textile industry, Fabric offcuts, Recycling, Sustainability, Sri Lanka Waste management, Circular economy, Textile waste Economic implications, Raw material wastage, Export earnings Regulatory landscape

1 INTRODUCTION

The global population growth and rise in the living standards are increasing the use of apparel. Natural resource consumption as well as the disposal of textile and fabric scraps are rising. Approximately 90 million metric tons of clothing were consumed in 2014, based on the global fiber production for the clothing business. Cotton is the most widely used fiber among textiles, accounting for 30% of all the fiber produced globally, and is consequently given more consideration when recycling cotton-based products. One study indicated that 85% of abandoned textiles wind up in landfills despite the fact that 95% of them may be reused and recycled, demonstrating the need to reverse this trend. This tendency can be reversed by implementing a recycling system. The generation rate will rise in the future because the MSW is increasing at an increasing rate.

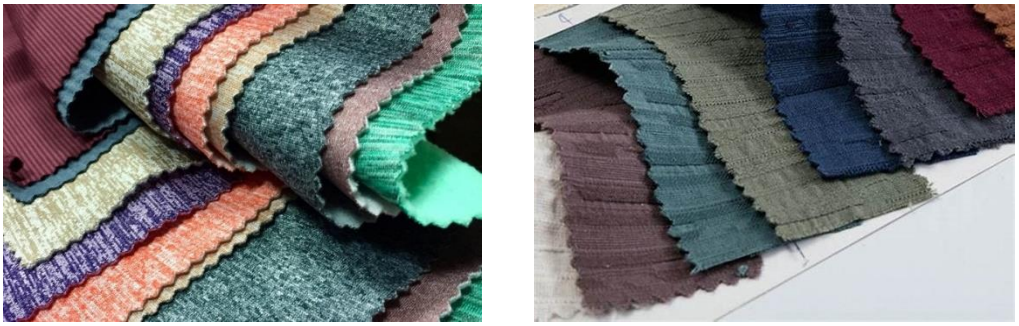

Figure 1 Sample of Fabric Offcut

The goal of this study is to suggest improvements to the recycling of fabric offcuts so that used and discarded clothing can be recovered or reused. In order to illustrate various possibilities for the textile recycling process based on the input parameters given to the model, a simulation-based model is developed. Use and post-use phases are the two distinct components of the model. The post-use phase typically includes four sub-models (recycling, remanufacturing, upcycling and reusing). This study's primary emphasis will be on a number of steps, such as modeling and the recycling process.

2 LOCAL FABRIC OFFCUT GENERATION

2.1 Fabric Offcut Categories

Recycling of clothing is a component of recycling of fabric scraps. In order to produce clothing that can be reused, fabric scraps, rags, or other repurposed fibrous materials, it entails recovering used clothing and shoes for sorting and processing. Textiles need to be gathered and sorted before being processed for reuse in order to be recycled successfully.

The following steps can be used to outline the entire process of recycling garments and textiles:
1. Before being transferred to separate locations, collected clothing is divided into synthetic polymers, cotton, or other biodegradable materials.
2. Before being cleaned and spun, the biodegradable cloth is split into fibers and mixed with other fibers.
3. Before the garment is cut into smaller parts when it is made of synthetic plastics, the zippers and buttons are taken off.

The shredded textiles are ground into granules and formed into pellets. Fabric waste from the fashion industry can be categorized into
1. Industrial Waste,
2. Pre-consumer Waste
3. Post-consumer Waste

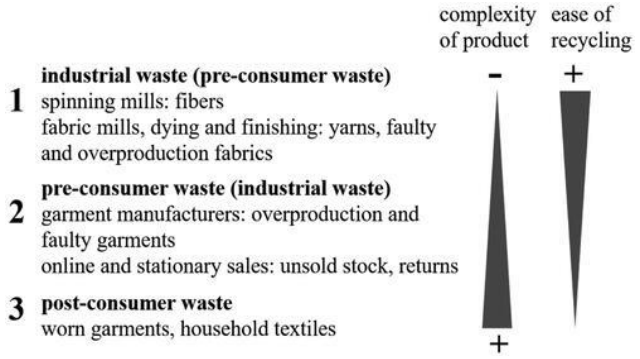

Figure 2 Fabric Offcut Categories

First, production of fibers, yarns, textiles, and apparel results in industrial waste. This includes fibers that are too long or too coarse to be used as yarns, leftovers, trims, and cutoffs from the production of fabrics and apparel, as well as scraps whose quality standards weren't satisfied. Industrial trash is typically known for its fiber composition, processing chemicals, dyes, and finishes, which makes it more suitable for recycling. Second, pre-consumer unsold inventory and refunds from stationary and online sales are included in waste. Unsold inventory and returns are also viewed by some industry experts as industrial waste because the fashion sector is in charge of proper disposal.

Table 1 Countries of Exports and Imports and Earnings in Textile Industry of 2022

Country	Export USD$	Country	Import USD$
China	$351,485,099,131	United States	$168,645,298,390
Italy	$67,414,001,552	Germany	$73,419,135,922
Vietnam	$63,150,631,765	Japan	$50,468,797,371
Germany	$55,528,481,758	France	$48,750,787,927
India	$41,664,619,949	China	$46,472,381,700
United States	$35,093,472,719	United Kingdom	$45,394,774,254
France	$33,316,509,397	Italy	$40,272,444,885
Turkey	$30,508,894,017	Spain	$32,189,281,907
Hong Kong	$28,040,213,519	Netherlands	$27,943,946,072
Spain	$25,330,989,234	Hong Kong	$26,835,906,578

Numerous fiber combinations, prints, buttons, zippers, trims, waterproof membranes, coatings, and water repellents are frequently found in the clothing. In some nations, flame-retardant coatings are necessary for things like curtains and children's clothing. Last but not least, post-consumer textile waste includes used clothing and domestic textiles. These things are donated or wind up in domestic trash bins. Used clothing is often not collected by municipalities, but rather by private companies and nonprofit organizations because it is not considered hazardous garbage and does not require special waste treatment. Most of these materials are either burned or dumped in landfills. A lesser portion is sent to other nations and sold on Figure Fabric Offcut Categories 61 secondhand markets there, or it is resold as secondhand clothing in Europe. In 2018, the EU exported over 1.5 million tons of used clothing to nations in Asia and Africa.

2.2 Famous Recycle Clothing Companies

USAgain - USAgain generates its profits by selling its collected items to wholesalers, resale shops, and companies that break down the materials to make other items such as car fibers and mattress padding. USAgain sells approximately 80 percent of its collections to resale stores and wholesalers, while about 20 percent is recycled into new materials.

Ecosmith Recyclers, Inc. - People place their unwanted clothing and textiles in Echosmith bins and their team members drive around and collect the recycled clothing. They then work with various groups to coordinate the sale and transport of the recycled clothing and shoes.

Chicago Textile Recycling - It provides textile recycling outlets and fundraising opportunities for area organizations, businesses, and municipalities. It is a family-run business in Hillside that sells items for reuse or to be recycled into new productsy.

2.3 Fabric Offcut Generation in Sri Lanka

Every year, each person discards roughly 36.741 kg of textiles. In general, 95% of worn textiles and clothes have the potential to be recycled and repurposed, but only 15% of the total is actually recycled. According to the United States Environmental Protection Agency, just 2,450 thousand tons out of 16,030 thousand tons were recycled in 2013. Additionally, there is a need to develop replacement techniques due to the decreased buying of second-hand clothing in third world nations like our own Sri Lanka, which were the end destination of these products in the past. The pie chart shows the percentages of textile industry sub-sectors where woven material (including clothes and fabric) is more prevalent than in other segments. Consequently, by recycling product materials.

Table 2 Fabric Offcut Generation of 2016

Location	Units	100% Cotton	Cotton Mix	100% Polyester	Polyester Mix	Others
Northern						
Karachchi	667	154	42	348	8	112
Vadamarachchi	554	128	35	289	7	93
Jaffna	7668	1778	490	4002	99	1295
North-Central						
Hingurakgoda	1123	260	71	586	14	189
Thamankaduwa	878	203	56	458	11	148
Anuradhapura	2779	644	177	1450	36	469
Uva						
Kataragama	878	203	56	458	11	148
Badulla	3117	723	199	1627	40	526
Southern						
Hambantota	869	201	55	453	11	146

Eastern						
Kinniya	675	156	43	352	8	114
Trincomalee	2869	665	183	1497	37	484
Batticaloa	6712	1557	429	3503	87	1134
North-Western						
Chilaw	2012	466	128	1050	26	340
Kurunegala	5325	1235	340	2779	69	899
Central						
Nuwara Eliya	2345	544	150	1224	30	396
Kandy	14450	3352	924	7542	187	2442
Sabragamuwa						
Kegalle	1668	386	106	870	21	281
Rathnapura	3545	822	226	1850	46	599
Western						
Gampaha	1878	435	120	980	24	317
Negombo	7549	1751	483	3940	98	1275
Seeduwa	3876	899	248	2023	50	655
Mulleriyawa	4218	978	269	2201	54	712
Moratuwa	9435	2188	603	4925	122	1594
Kesbewa	6043	1401	386	3154	78	1021
Kolonnawa	3328	772	212	1737	43	562
Maharagama	9105	2112	582	4752	118	1538
Kaduwela	9439	2189	604	4927	122	1595
Kalutara	2198	509	140	1147	28	371
Beruwela	1549	359	99	808	20	261
Colombo	86109	19977	5510	44948	1119	14552
Dehiwela	18798	4361	1203	9812	244	3176
Sri Jayawardenapura	11096	2574	710	5792	144	1875

- 100% Cotton – 23.2% Cotton Mix – 6.4% 100% Polyester – 52.2% Polyester Mix – 1.3%

2.4 Textile Import and Export of Sri Lanka

One of the most important industries for economic growth is the textile and apparel (T&A) sector, especially in countries where the industry is highly dependent. The import and export of clothing accounts for a significant portion of Sri Lanka's economy, representing 44% of total exports and 32% of GDP in 2018. (Fibre2fashion.com 2021). 2019 saw an increase in exports of 5.2%. (Russell 2020). One of the largest industrial sectors, the T&A sector supports approximately 300,000 jobs (Embuldeniya 2018).

Sri Lanka's growth as a percentage of exports is more effective than its growth as a percentage of

imports. Additionally, exporting nations are generally wealthier nations, and their import of textiles is always influenced by our growth as a producer

Table 3 Exporting Percentage for Countries

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019
USA	39.5	39.9	42.9	42.5	46.3	45.7	45.2	45.8	44.9
Germany	5.2	5.0	4.4	3.9	4.3	4.2	4.3	5.3	6.0
UK	23.1	23.4	21.1	19.3	17.9	18.0	16.9	14.9	14.4
France	2.0	2.4	2.7	3.5	2.5	1.6	1.4	1.3	1.3
Netherland	1.8	1.1	1.4	1.9	2.1	1.9	2.1	2.6	3.4
Canada	1.8	2.0	1.8	1.6	1.8	2.1	2.2	2.1	2.6
Italy	12.1	10.9	9.6	10.7	7.8	7.6	9.1	9.3	8.0

Table 4 Textile Exporting Details in Tons

Textiles	Kg & Rs	2011	2012	2013	2014	2015	2016	2017	2018	2019
Yarn	Kg. Mn.	17	18	19	22	21	21	22	25	24
	Rs. Mn.	6,272	7,461	7,543	8,844	8,555	10,121	10,516	13,513	16,356
Fabric	Kg. Mn.	17	13	15	16	17	19	19	20	21
	Rs. Mn.	9,363	11,807	15,917	11,791	13,813	15,607	18,185	24,175	29,026
Fibre	Kg. Mn.	12	7	6	12	11	10	7	12	13
	Rs. Mn.	504	392	564	3,231	3,609	3,437	2,612	4,720	5,456
Textile	Kg. Mn.	19	40	11	12	15	14	15	17	20
Articles	Rs. Mn.	6,579	6,735	7,363	8,472	10,013	11,807	13,317	15,780	19,071
Garment	Kg. Mn.	1272	2864	824	865	926	794	813	870	944
Textiles	Rs. Mn.	440,791	482,212	551,659	611,350	618,803	669,796	722,624	807,787	930,804
Total	Kg. Mn.	1337	2942	875	927	990	858	876	944	1022
	Rs. Mn.	463,509	508,607	583,046	643,688	654,794	710,768	767,254	865,975	1,000,713

Table 5 Textile Importing Details in Tons

Textiles	Kg & Rs	2011	2012	2013	2014	2015	2016	2017	2018	2019
Yarn	Kg. Mn.	62	66	61	71	82	82	80	89	92
	Rs. Mn.	38,358	40,631	37,782	44,484	48,064	53,560	55,655	68,385	75,179
Fabric	Kg. Mn.	224	217	205	216	232	265	263	267	274
	Rs. Mn.	203,883	234,192	210,863	240,882	242,395	317,396	338,519	373,182	413,992
Fibre	Kg. Mn.	7	7	11	22	37	27	17	17	34
	Rs. Mn.	2,650	2,486	3,452	6,702	10,912	8,665	6,079	6,797	13,942
Cloth	Kg. Mn.	4	6	3	3	3	4	4	4	4
	Rs. Mn.	7,036	7,502	6,424	5,968	5,304	8,031	8,106	8,819	9,494
Silk, Wool	Kg. Mn.	6	7	7	8	9	8	11	10	9
& Cotton	Rs. Mn.	2,159	2,317	2,420	2,825	2,785	2,977	3,666	4,026	3,643

Textile Articles	Kg. Mn.	2	5	2	2	2	2	2	2	2
	Rs. Mn.	2,507	2,418	3,360	3,047	2,505	3,267	3,361	4,126	4,084
Total	Kg. Mn.	305	308	289	322	365	388	377	389	415
	Rs. Mn.	256,592	289,546	264,302	303,907	311,965	393,896	415,386	465,334	520,335

3 TEXTILE WASTE IMPORT AND EXPORT OF SRI LANKA

According to the **2015** results, China was the world's largest textile waste. Its factories started operating generating more than **225 kilo tons** of waste. Following China, Japan, India, and the United States began to produce the most textile waste in the world.

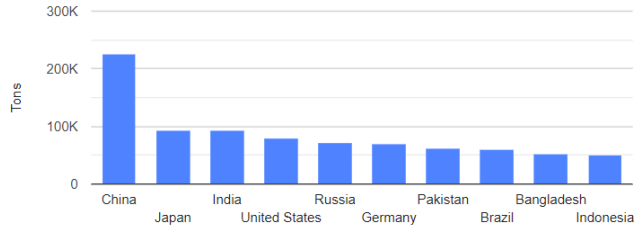

Figure 3 Textile Waste Generation Countries

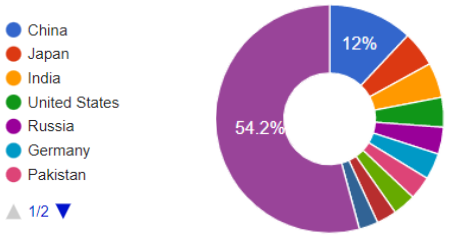

Figure 4 Textile Waste Generation

In the case of Sri Lanka, 2007 to 2015 was a period of boom in textile production, which resulted in the release of a large amount of textile waste. At the **end of 2015, 7.4 thousand tons** of waste was released. During the same period there was a rise in production and a corresponding decline in exports abroad.

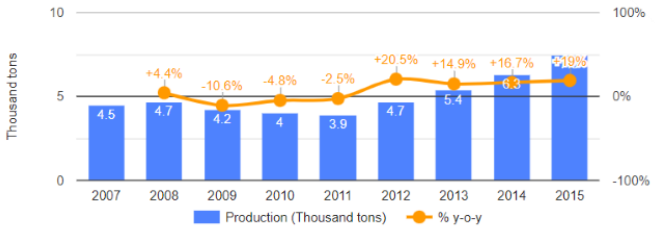

Figure 6 Offcut Production

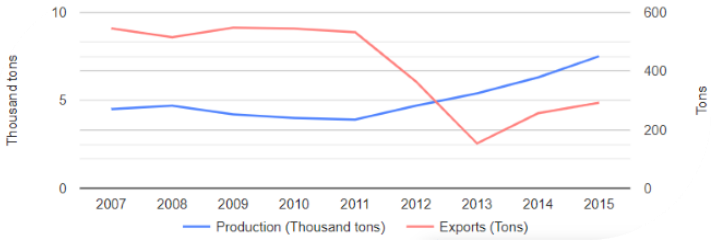

Figure 5 Offcut Production and Exports

During the period from 2007 to 2015, more waste was imported to Sri Lanka from abroad and the **demand for it increased in Sri Lanka**. It was during this period that the small scale industrial system was introduced. The products became more prominent in Sri Lanka's economy. Although a small amount of waste is exported to Sri Lanka, **the price and demand for it has increased** in Sri Lanka.

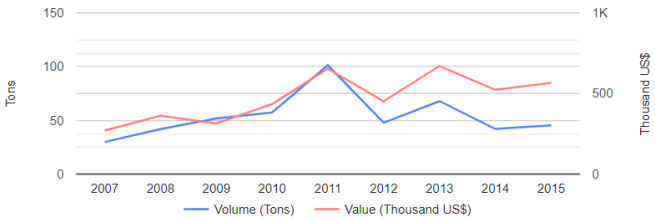

Figure 8 Offcut Production Volume and Value

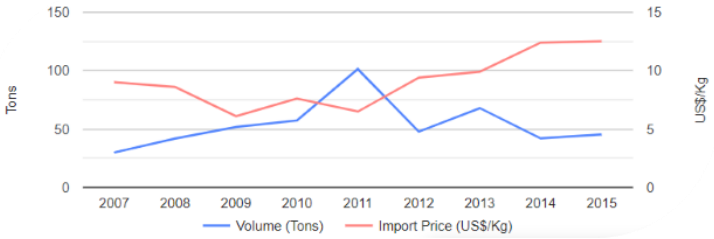

Figure 7 Offcut Production Volume and Imports

Spain brought the most imports to Sri Lanka mainly in the import of garment and textile waste. Subsequently, countries like India, Turkey, and Germany imported other garment and textile waste produced in their country to Sri Lanka.

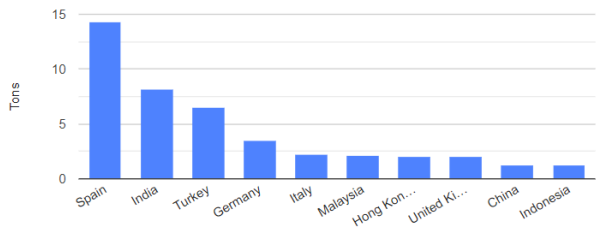

Figure 10 Offcut Imports

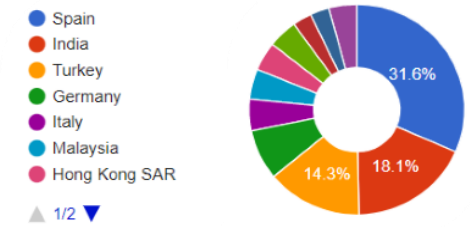

Figure 9 Offcut Imports Countries

As far as Sri Lanka's exports are concerned, during the period from 2007 to 2015, the exports of other **textile waste were marginally related**. The reason is that at that time, small industrial and system were introduced and operational along with other clothing and recycling lines. Likewise, the level of **exports abroad decreased and the prices for them increased** domestically in the period of 20007 – 2015

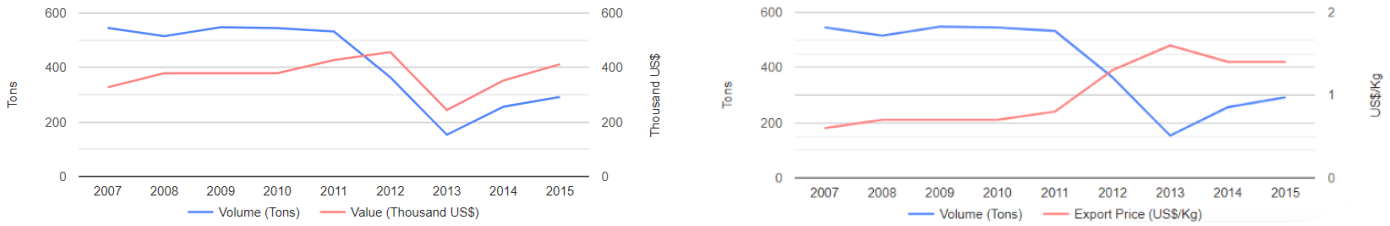

Figure 11 Offcut Export Volume and Value

Garment and Textile waste of Sri Lanka were exported to **Australia** in large quantities followed by **Thailand, Iran, Malaysia and India**

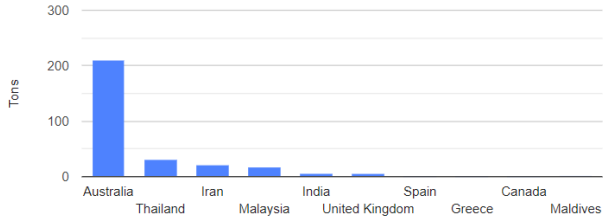

Figure 12 Offcut Exports

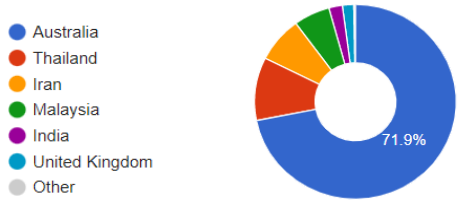

Figure 13 Offcut Exports Countries

Table 6 Textile Waste Management in Sri Lanka (Counts in Tons)

Management Pathway	**1960**	**1970**	**1980**	**1990**	**2000**	**2005**	**2010**	**2015**	**2017**	**2018**
Consumption	1,760	2,040	2,530	5,810	9,480	11,510	13,220	16,060	16,890	17,030
Recycled	50	60	160	660	1,320	1,830	2,050	2,460	2,570	2,510
Combustion with Energy Recovery	-	10	50	880	1,880	2,110	2,270	3,060	3,170	3,220
Landfilled	1,710	1,970	2,320	4,270	6,280	7,570	8,900	10,540	11,150	11,300

4 Fabric Offcut Recycling Companies in Sri Lanka

Since 2010, more and more factories have been introduced and boomed in Sri Lanka, thus the growth rate of such fabric resysling industries and companies has been high.

1. Benham International Pvt Ltd
2. Brandix Apparel Ltd
3. Canberg Lanka Ltd
4. Cliftex Industries Pvt Ltd
5. Di Moda Creations Pvt Ltd
6. Esquel Sri Lanka Ltd
7. Evergreen Exports
8. Hidaramani Mercury Apparel Pvt Ltd
9. I C Collection Pvt Ltd
10. Kandygs Handlooms Exports Pvt Ltd
11. Ko Lanka Pure Silk Pvt Ltd
12. Norwood Fashions Pvt Ltd
13. Premier Tech Lanka Pvt Ltd
14. Stretchline Pvt Ltd
15. Teejay Lanka Plc
16. Teejay Lanka Prints Pvt Ltd

Table 7 Recycling Companies and the Material

Company Name	**Recycling Fabric Material**
Benham International	Cotton, Polyester
Brandix Apparel	Cotton, Cotton Mix, Polyester
Evergreen Exports	Cotton
Hidaramani Mercury Apparel	Cotton
Teejay Lanka Plc	Polyester
Ko Lanka Pure Silk Pvt Ltd	Cotton, Cotton Mix
Premier Tech Lanka Pvt Ltd	Polyester, Nylon
Kandygs Handlooms	Cotton

5 FABRIC OFFCUT RECYCLING AND UPCYCLING PROCESSES IN SRI LANKA

When textile materials are reused or transformed into new materials after they have served their intended purpose for customers, this process is known as textile recycling. It is merely a technique for recovering materials in the textile sector. Clothing, shoes, and numerous other products with fabric pieces are all accepted for processing by textile recyclers. The recycling of textiles sector is expanding. The sector has a market value of $5.3 billion in 2018 and is anticipated to increase at a CAGR of 5.2% by 2016. By 2062, it would then be worth $8 billion.

5.1 Textile Recycling Process

All kinds of unwanted clothing and fabrics are recycled in three basic steps. However, the system may operate uniquely in different areas due to available resources. The steps involved are listed and explained below.

1. Collection of fabric waste
2. Sorting
3. Processing

The importance of the textile recycling industry cannot be overemphasized. They have made it possible for people to deal with the trail of fabric waste they accumulate daily in a way that benefits the environment. This is important because other methods of fabric disposal like incineration and landfilling are not sustainable.

1. Sustainable resource consumption
2. Environmental health
3. Conserve valuable landfill space

In many places, curbside recycling for textiles is not available. People who want to recycle textiles have to put in some extra effort to get it done. So how do you recycle fabric in all its different forms? Take a look at the options listed below to find one that suits you.

- Reuse
- Donations
- Resale
- Specialist recycling centers
- Textile recycling programs

The textile waste that gets recycled is usually industrial waste and to a smaller extent post-consumer, domestic waste. Recycling methods are usually distinguished according to the type of process:

A. Mechanical Recycling
B. Thermal-mechanical Recycling
C. Chemical Recycling
D. Biological Recycling

A. Mechanical Recycling

The most popular technique for recycling textiles is mechanical recycling processing. Without using any chemicals, it is the process of turning the textile fabric back into fibers. To separate the fibers from the cloth, this procedure also involves shredding and carding. After being spun, this fiber can be used to create yarn for fabrics that are knitted or woven. Due to the fiber structure and increased fiber output of viscose, mechanical recycling is best suited for cotton mono-fiber materials.

Figure 14 Mechanical Recycling

B. Chemical Recycling

Chemical recycling is far superior to mechanical recycling since it can handle a wider range of fabrics than mechanical recycling because it uses chemicals, enzymes, a controlled environment, and other tools. This procedure for recycling textiles involves a number of chemical steps that depolymerize or dissolve fabric fibers into monomers or solvents that can be used to create newer fiber compounds. Different types of textile waste recycling technologies are used to recycle

- Cotton Recycling
- Wool Recycling
- Polyester & Polyester Fiber Recycling
- Nylon & Nylon Fiber Recycling, etc

to produce a wide range of products such as,

- Apparel
- Industrial
- Home Furnishings
- Non-woven, etc

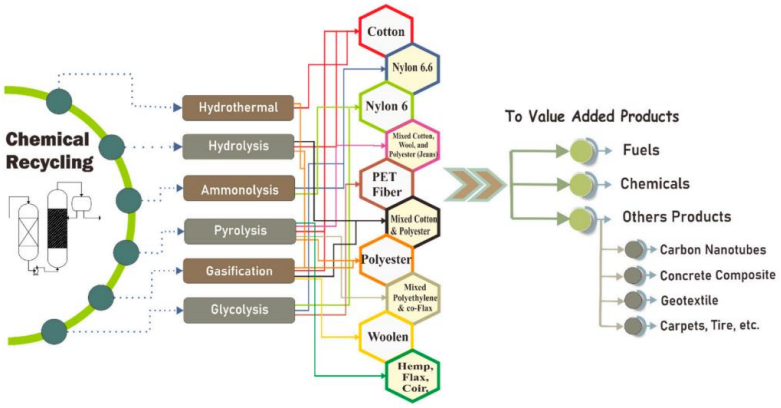

Figure 15 Chemical Recycling

C. Thermal-Mechanical Recycling

Thermal-mechanical processing fibers into granule for melt spinning is referred to as recycling. Only synthetic fibers that can be extruded using this method are able to do this. In order to produce recycled polyester industrially, polyester bottles used in food packaging are mostly used as the raw material because fibers from the apparel industry are frequently contaminated with additives like colors, UV stabilizers, and flame retardants. Over the next few years, many companies, including Adidas and H&M, plan to completely replace virgin polyester with recycled polyester.

D. Biological Recycling

Finally, biological recycling is a cutting-edge technique for managing some fabrics. The fibers are disassembled into short polymers, oligomers, and monomers, much like chemical recycling. Cellulose enzymes are used to process cellulosic fibers, whereas enzymes that can hydrolyze synthetic fibers are used to process cellulosic fibers. Industrial applications for biological recycling have yet to be developed, and it is currently only operationalized on a lab scale.

6 TEXTILE RECYCLING PERCENTAGE

The majority of businesses employ mechanical recycling, which is followed by chemical recycling, biological recycling, and thermal recycling as the top recycling techniques. Cotton is primarily recycled more often, then polyester, nylon, etc. Companies in Sri Lanka are making progress toward their objective of recycling 50% of cotton in particular locations. Following recycling, the majority of the output is used as raw material for construction equipment, the remainder is shipped to the apparel industry, and the remaining equipment is used for renewable energy sources

Table 8 Recycling Methods and Quantities of Sri Lankan Companies in 2016

Fabric Offcut	Common Disposal Method	Recycling / Upcycling Method	Quantity	Comments/Remarks
100% cotton	Incineration (3Rs) Recycling	Mechanical Recycling Biological Recycling	116.5	Rarely used for viscose due to the fiber structure & fiber yield
Cotton mix (Elastin & Polyester)	Incineration (3Rs) Recycling	Chemical Recycling Biological Recycling	43.1	Recycling Accessories Chemicals, Enzymes.
Polyester mix	Energy Recovering Recycling	Mechanical Recycling Thermo-mechanical Recycling	8.6	Usually for Plastic Bottles
100% polyester	Recycling Landfilling	Thermo-mechanical Recycling Chemical Recycling	35.2	Countries such as Norway, Sweden, Japan, and India
Nylon	Energy Recovering Landfilling	Chemical Recycling	29.5	Common Recycling method of Most Industries

- 100% Cotton – 50%, Cotton Mix – 18.5%, Polyester Mix – 3.7%, 100% Polyester – 15.13%, Nylon – 12.67%

7 FABRIC OFFCUT BUYERS AND EXPORTERS IN SRI LANKA

There are many companies ready to import fabric waste in Sri Lanka. These are following companies which buys the fabric waste.

Table 9 Fabric Offcut Buyers in Sri Lanka

Name	Location	Website Link	Targeted Material
Hayleys Fibre	Colombo	Https://Www.Hayleysfibre.Com/	Fabric Waste
Celonika	Colombo	Https://Www.Srilanka-places.Com/Places/Celonika	Textile Waste
Dpl Universal Gloves Ltd	Kandawatha	Https://Www.Dplgroup.Com/	Textile Waste Used Clothes
Nawra Enterprises	Walgama,	Https://Www.Srilanka-places.Com/Places/Nawra-enterprises-walgama	Cotton Waste Waste Polythene
KRK Cotton Tex	Katunayake	Http://Krkcottontex.Blogspot.Com/	Cotton Waste
Calisto	Kegalle	Https://Www.Srilanka-places.Com/Places/Calisto	Textile Waste
Surfsony	Colombo	Https://Www.Srilanka-places.Com/Places/Surfsony	Nylon Clips Waste (Swim Suite)
Sithew Textile	Bandaragama	Https://Www.Srilanka-places.Com/Places/Sithew	Textile And Garment Waste

There are many companies ready to export fabric waste in Sri Lanka. These are following companies which exports the fabric waste.

Table 10 Fabric Offcut Exporters in Sri Lanka

Name	Location	Website Link	Targeted Material
Rivonka Fabric	Colombo	Https://Www.Recycleinme.Com/Rim-rivonka/Home	Fabric Waste
New Wattala Enterprises	Wattala	Https://Www.Srilanka-places.Com/Places/Wattala-textile-wattala	Cotton Fabric Waste
Fiber Lanka	Colombo	Http://Www.Lankafiberfabrica.Com/	Cotton Fabric Clips
Jazz Lanka Company	Wattala	Https://Www.Srilanka-places.Com/Places/Jazz-lanka-company	Cotton Waste.
Mm Trading	Colombo	Https://Mclloydbis.Com/Profile/301154/M-m-textiles.Html	Cotton Waste
Cool Max Fashion Pvt Ltd	Negombo	Https://Coolmaxfashion.Com/	Lycra-fabric-cutting-waste.
Mas	Colombo	Https://Www.Masholdings.Com/	Lycra Fabric Cutting Waste.
Rivonka Fabric	Colombo	Https://Www.Recycleinme.Com/Rim	Fabric Waste

8 EXPORTING FABRIC OFFCUTS

How Fabric Offcuts Are Exported

The various approaches to exporting relate to your company's level of involvement in the export process. Four general approaches may be used alone or in combination

- Passively filling orders from domestic buyers, who then export the product.
- Seeking out domestic buyers who represent foreign end-users or customers.
- Exporting indirectly through intermediaries.
- Exporting directly

Packing Garment into Poly Bags

Traditionally garments are packed into poly bags before placing them into cartons box. Garments may be packed individually in the poly bags and the ratio will be specified

- Single piece packing – a single garment is packed into the polybag or cardboard
- Blister Packing: In blister packing, more than one garments are packed into a polybag in a size and color ratio. Later those poly bags are packed into a carton box

Packing garment without polybag

- Solid Packing: In this method of packing, the carton box will include garments of a single color and same size. For example, 20 shirts of a similar color say navy blue and the size say S will be put in one carton box

The other method is that the garments are just folded and arranged in the carton boxes without putting them in the polybag. When it comes packing multiple of garments into carton boxes color and sizes are considered as main criteria for packing method

Assorted Packing or Ratio Packing

Ratio Packing: In this method, the carton box includes garments of the same color but of different sizes according to the ratio. For example, S : M : L : XL = 5 : 7 : 7 : 5.

Mixed Packing: In this method the carton box includes garments of different colors but of same size or garments with different colors and different sizes in a particular ratio for

9 CONCLUSION

A large amount of post-industrial fabric waste is being disposed of in landfill every year. This poses not only environmental and social challenges but also the concern of wasting resources that could otherwise be recovered. Fabric waste recovery is not yet in the priority lists of the apparel manufacturers in Sri Lanka, mainly due to financial and technological barriers, coupled with the absence of waste management policies. However, this study shows an urgent need of introducing appropriate waste policies and regulations by the government.

Apparel manufacturers must take initiatives in solving waste crisis created by post-industrial wastes, and the collaboration and support from the retailer networks are very much needed in this regard. International retailers must take a shared responsibility of waste generated in their manufacturing hubs in developing countries as the environmental responsibility of the retailer must not only lie within the retailing function, but also within the entire supply chain of the product, especially when they rely on manufacturers located in least developed countries where there is neither management facilities in place nor capabilities to implement such programs in the near future. J. Res. Technol. Eng. 2 (3) , 2021, pp-pp JRTE©2021 Page xx

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