The Myanmar Textile Industry: A Value Chain Analysis 2018-2019
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ABBREVIATIONS

BSCI  
Business Social Compliance Initiative

CMP  
Cut-Make and Pack

EU  
European Union

FOB  
Freight on Board

GDP  
Gross Domestic Product

ha  
Hectare

ILO  
International Labour Organisation

kg  
Kilogram

MGMA  
Myanmar Garment Manufactures Association

MMK  
Myanmar Kyat

MoALI  
Ministry of Agriculture, Livestock and Irrigation

MoC  
Ministry of Commerce

MoI  
Ministry of Industry

MTMA  
Myanmar Textile Manufacturers’ Association

NES  
National Export Strategy

SME  
Small and Medium-Sized Enterprises

SMART  
SMEs for Environmental Accountability, Responsibility and Transparency

UMFCCI  
Union of Myanmar Federation of Chambers of Commerce and Industry

Equivalencies:

All dollar references in the text refer to US dollars.
One dollar equals 1,506 MMK (as of July 8, 2019).
One hectare equals 2.27 acres.
One kilogram equals 2.2 pounds.
One viss equals 1.63 kilograms or 3.6 pounds.
EXECUTIVE SUMMARY

Myanmar is a country with a rich textile history. However, in the past few decades, a mix of structural, infrastructure and policy challenges have limited growth across the textile value chain. Overcoming these challenges presents an opportunity to produce a viable and internally competitive industry and increase economic growth.

Myanmar’s economy has seen significant growth over the past decade and garment manufacturing has been part of that growth. Garments exports are now the country’s second largest export behind oil and gas. The textile industry, leveraging success in the garment sector, has the capacity to make an important contribution to Myanmar’s economic development through job creation and income generation. Though first, issues such as cotton production, machinery, infrastructure, technical expertise, capital and investment, government policies, and border trade issues are some of the constraints that must be resolved.

The Ministry of Agriculture, Livestock and Irrigation (MoALI) could increase production and improve the quality of Myanmar cotton by supporting cotton seed development and building capacity of cotton farmers. A centralised seed development facility to facilitate research, and the creation of more model farms in cotton producing regions would be important steps towards improving quality.

Ginning, which is the source of cotton lint, should come under the purview of the MoALI, given that the farm-gate price of cotton is based on the market price of cotton lint. The China border trade for cotton lint is a major source of supply shortages.

Spinning and weaving capabilities would benefit from machinery upgrades and technical improvements. The fragmented nature of the weaving industry is a challenge but can be a strength if policies can promote domestic and global demand of traditional textiles. The knitting subsector also has potential for growth given the country’s production of shorter-staple cotton.

The formation of the Myanmar Textile Manufacturers’ Association (MTMA) is a welcome move to give the sector a voice but needs support to improve capacity. As well, greater cooperation is needed between the Myanmar Garment Manufacturers Association (MGMA) and the MTMA and both might consider whether the industry would be better served by a single trade association, as is the case in India.

The national textile policy should focus on promoting an environment favourable to the sector and its sustainable growth. The policy should be informed by input from all sectors of the industry. Once the policy has been adopted, it could work with stakeholders to introduce sustainability standards. They provide assurances for brands and retailers who want verification that their products are being produced in ethical and sustainable ways. Commercial support from brands and the strong private sector firms could provide a much-needed boost to help bring the industry in line with international standards.

Further government intervention such as an investment plan with machinery and infrastructure upgrades, skills and expertise development, cluster development, chemicals management, and regulatory compliance would support longer-term growth.

The government could also consider increasing the basic tariff on certain textile products, as India has done. This would not affect the Cut-Make and Pack (CMP) model, which is tariff-free. Hiking tariffs would promote local textile production and reduce lead times for industries.
that rely on them. The government could also provide support for vertical integration and establish special economic zones for textile production in the Yangon and Mandalay areas.

Foreign textile ministries and trade associations could be engaged to support mutually beneficial trade models that would help build local capacities, attract investment, and provide cheaper raw materials and fabrics. This type of engagement would also have the potential to increase market linkages and promote export growth.
1. INTRODUCTION

Myanmar is a country with a rich textile history, similar to neighbouring India and China. The production of diverse and traditional textiles, including various textile designs and longys, a traditional garment that continues to enjoy widespread favour, has strengthened Myanmar’s textile culture. However, in the past few decades, a mix of infrastructure challenges and policies less conducive to producing local textiles has limited growth across the sector. Overcoming these challenges presents an opportunity to increase economic growth, leveraging the textile value chain as China and India have done, while creating new jobs.

The Myanmar economy has seen tremendous growth over the past decade. Manufacturing in particular has witnessed significant expansion and by 2017 accounted for 24% of gross domestic product (GDP), up from 15% in 2007. Garment manufacturing has also seen tremendous growth with exports estimated at over $3 billion (MMK 4.55 trillion) in 2018, up from less than $1 billion in 2015. (Lee & Huang, 2018). Myanmar’s garment exports are now the second largest export behind oil and gas and increased in value by 40% in the first three quarters of 2017–18 compared to the same period in 2016–17.

The textile sector, leveraging successes in the garment sector, has the capability to be an important contributor to economic development through job creation and income generation. That potential, however, is adversely affected by the outsourced production model, which sees CMP orders coming from countries such as China, Taiwan, Korea and Japan.

While this model carries low capital and inventory risk and has contributed to the growth experienced by the garment sector, it generates lower profits and revenues for the industry and for the economy when compared with a traditional Freight-On-Board (FOB) model. In the CMP model, the fabric to be converted into garments is imported into Myanmar and enters without import duties and at lower cost than locally produced fabric of similar quality – often due to higher production efficiencies in the origin countries. This situation adversely impacts the traditional textile industry. While the CMP model is an excellent immediate means of increasing jobs and GDP (primarily due to the sheer volume of production), addressing the underlying challenges can result in more sustainable growth.

One specific challenge is the fragmented nature of textile production across the country where households operate as independent factories with weaving and dyeing usually conducted in the backyard. This presents a challenge for infrastructure development.

From a policy and regulatory perspective, there is room for greater cooperation among ministries. MoALI, the Ministry of Industry (MoI), and the Ministry of Commerce (MoC) all have overlapping responsibilities. The complex nature of the cotton supply chain further compounds this issue. In most parts of the world, cotton production falls under the jurisdiction of the agriculture ministry, while most other aspects are the responsibility of an industry ministry or a dedicated textile ministry. Such arrangements can blur the lines of responsibility and accountability. In Myanmar, cotton production, extension services and cotton seed production are managed by MoALI which, until 2005, set demand and managed supply links such as ginners and spinners. ¹

Managing the cotton textile supply chain is now the responsibility of the MoI, with support from the MoC for import and export-related policies. It is the MoC that is drafting the National Export Strategy (NES), which also includes areas of jurisdiction for the MoI.

¹ Interview with a Ministry of Agriculture official from Mandalay
There are also challenges with cotton production. There have been improvements in seed research and agricultural extension under MoALI, however many farmers use seed varieties that are many generations old and are no longer commercially viable in terms of yield and quality. From a quantity perspective, cotton acreage seems large enough to support local textile production requirements, even with volume growth factored into the calculations. Yet there is an opportunity to improve cotton production as the climate, soil and market are all favourable.

Skills development, energy access, infrastructure, capital and supply chain linkages, and proper market channels are challenges that can be addressed by revising current policies. The government has already recognised many of these challenges. A textile policy now being developed will enable a better definition of responsibilities across the spectrum and present a roadmap for various subsectors to develop and grow.

The local textile industry has the potential to make a significant contribution to the economy. In addition to the strong supply base of longyi production, various regions across the country also produce blankets and other apparel and there are opportunities to increase indigenous textile production. This can be done, among other measures, through foreign investment in dedicated special economic zones, cluster development, vertically integrated and managed supply chains, developing textile training courses and schools, and creating dedicated textile departments and state ministries.

**RESEARCH METHODOLOGY**

The report describes and analyses the textile value chain in Myanmar with a special focus on local textiles. It includes a detailed analysis of the value chain, as well as the various challenges and opportunities affecting textiles, and it concludes with recommendations for improvement.

The study involved in-depth research to understand the value chain in its entirety, surveying the country’s textile hubs, mapping the supply chain from origin to market, and understanding the core transactions and value additions at each node to improve efficiency. It examines the entire chain with respect to production processes, outputs, markets, growth potential, and constraints.

The analysis serves as the basis for recommendations on how government ministries, the private sector and trade associations can work together to develop market-driven approaches to promote quality textiles in local markets and compete successfully in export markets.

The analysis was conducted in three phases. The first phase involved secondary research, starting with a mapping of all the relevant information. Data was collected online from published reports, previous studies, and recent articles. We then identified the gaps and questions that remained unanswered. The gap analysis served as the basis for carrying out primary field research to address the gaps to complete the analysis.

The second phase involved field research including interviews and meetings to fill in gaps. Interviews took place with garment manufacturers, spinners, textile manufacturers, ginners, and other major stakeholders in the supply chain to identify and verify major constraints and how they can be addressed. Meetings with local small-scale manufacturers, cotton farmers,
and weavers were held to understand the supply chain, conduct a root-cause analysis, and propose a roadmap for future growth.

The final phase involved analysing the information and presenting it along with meaningful insights and recommendations for the future growth of the sector.
2. VALUE CHAIN OVERVIEW

In Myanmar, textile production is insufficient to fulfil domestic demand. Technology and knowledge are important for cotton cultivation and quality textile production, however due to insufficient quality production, most of the end-product manufacturers import textiles from abroad. To supply domestic textile demand, raw materials are being imported from China and India.

In Myanmar, local businesses use both CMP and FOB production systems. CMP, also known as Cut-Make and Trim, means that all the raw materials, down to the fabric and buttons, are imported for local assembly. Fabric comes duty-free and often at a lower cost and higher quality than might be available in-country because of industry efficiencies in the exporting country. In FOB production, a factory gets a garment order and is responsible for the entire production (Eurocham Myanmar, 2019).

There is no capacity to produce quality fabric locally and that is one of the difficulties entrepreneurs face when using CMP. If the textile industry can produce quality fabric, that will reduce expenditures in the supply chain (Kyi, 2016).

There are few influential associations in the textile industry that can promote local textiles for the domestic apparel or international export markets. Establishing and promoting independent associations with similar objectives will surely provide an impetus to develop the industry (Kyi, 2016).

The industry subsectors are essentially the government sector, private industry, and the traditional weaving sector. In the government subsector, most of the state-owned enterprises require investment in new machinery and have retained many government workers, which discourages many private investors that might have an interest in taking over a factory. The private sector produces traditional wear and longyis while the traditional weaving sector has many regional variations in products and techniques.

The input and processing for the garment industry – including cotton production, ginning, spinning, weaving, dyeing and finishing – all need to be strengthened to make sure that all the links can support garment production and export. These enhancements are needed to support the creation of sizeable textile production for domestic and export markets that are vertically integrated. The value chain needs to become better organised, use the latest technology, become aware of best practices, invest in facilities and equipment, and develop skills. If these constraints are addressed, improvements in the value chain can come from Myanmar itself rather than depending on raw materials and fabrics from other countries. Foreign investments from Chinese, Korean and Japanese textile manufacturers can boost the production and export of textiles, as happened in the garment sector. Yet for that to happen, issues of border clearances, land acquisition, machinery imports, technology transfer, and policy support have to be resolved.

Longyis, the traditional dress of Myanmar, are produced on a large scale and are the biggest consumer of local textiles. There is significant local demand since most of the population wear longyis regularly and most consumers are not as concerned about quality. There is a significant market opportunity for locally produced cotton and yarn rather than the imported yarn that is used in most weaving locations.
Figure 1: Myanmar's Textile Supply Chain

Source: (The DaNa Facility)
3. Value Chain Structure

3.1. Cotton Cultivation

PRODUCTION ACREAGE
Cotton is a traditional crop grown in Myanmar and is the country’s principal fibre crop. It is also one of Myanmar’s strategic export crops and is grown in two seasons: February and June–July. There were about 260,115 hectares (ha) of cotton grown in 2016–2017, primarily in the central zone, which receives 600 millimetres to 1,000 millimetres of rainfall per year. About half a million farmers cultivate on average 0.7 ha of cotton per farm in the regions of western Bago, Mandalay, Magwe and Sagaing (International Cotton Advisory Committee, 2008).²

The main production cotton-production areas are Mandalay–Magwe (Meiktila, Myin Chan, Yamethine, Pakoku, Kyaukse, Ku Me, Tat Kone, Sa Ku, Sa Lin, Maline, Taungthar); all the lower part of Sagaing; and Bago (Paukkhaung, Pyay).

The amount of land dedicated to cotton production in Myanmar decreased from nearly 384,000 ha in 2008 to about 275,000 ha in 2015 as other crops such as pulses became more widespread over the last decade.

![Figure 2: Myanmar Cotton Acreage (000s of hectares)](image)

Source: (Myanmar Statistical Yearbook 2018)

As can be seen in Figure 2, some 325,000 ha of cotton were grown in 2011–12, however production then began a gradual decline. Until 2011, cotton production and prices were under government control. During that time, farmers were required to sell their cotton to the government at a fixed price of 1,000 MMK per viss and the government then supplied it to state-owned textile mills.

² MoALI estimated about 1 hectare of cotton for each farmer. Wagyi and Mahlaing are varieties with shorter staple length.
When government controls were eventually lifted, the market price was less than 1,000 MMK per viss\(^3\) because demand was lower—without an assured supply by the government, most state-owned mills ceased production. With less demand and lower prices, farmers started switching to pulses. Production did pick up by the end of 2013 as Chinese demand pushed prices up, however since 2014–15, production has steadily fallen and the market price remains below 1,000 MMK per viss.

**Productivity**

As shown in the Figure 3, yields in Myanmar are 25% lower than in India and less than half of the global average yield. The major reasons include smallholder production, lack of quality seeds, a lack of finance to invest in fertilisers and pesticides, and a lack of technology know-how on post-harvest processes that could improve final quality.

![Figure 3: Comparative Cotton Yields](image)

Note: Yields are in kilograms (kg) per ha

Low yields have a negative effect on profits that farmers earn from growing cotton. Table 1 provides a comparison of MoALI estimates of expected cotton yields, costs and profitability versus estimates provided directly by farmers for this research. Low yields and quality have a significant effect on farmers income.

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\(^3\) A viss is a traditional unit of Myanmar measurement; one viss is equal to 1.63 kilograms
Table 1: Yields and Profitability Estimates for Myanmar Cotton Farmers

<table>
<thead>
<tr>
<th></th>
<th>MoALI Estimates</th>
<th>Farmer Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated yield</td>
<td>1,000 viss/acre</td>
<td>500-800 viss/acre</td>
</tr>
<tr>
<td>Seeds</td>
<td>4,000 MMK</td>
<td>5,200 MMK</td>
</tr>
<tr>
<td>Production Inputs</td>
<td>141,000 MMK/acre</td>
<td>19,750 MMK/acre</td>
</tr>
<tr>
<td>Labour charges</td>
<td>250,000 MMK/acre</td>
<td>78,250 MMK/acre</td>
</tr>
<tr>
<td>Total</td>
<td>350,000 MMK/acre</td>
<td>103,200 MMK/acre</td>
</tr>
</tbody>
</table>

Source: Discussions with farmers and an interview with an MoALI official.

SEED VARIETY

Farmers now buy much of their seed from private companies due to insufficient government supplies. An estimate suggests that about 50% of local seed demand is supplied by ginning factories, 30% from suppliers of Raka-666 – an Indian hybrid variety – and only 20% from MoALI seed farms. It is evident from interviews that farmers have been using third or fourth generation Raka seeds, although some farmers claimed to be using an improved Raka variety.

Seed quality is a major concern of many stakeholders since different varieties of seeds are mixed and sometimes damaged during the ginning process. During discussions with farmers, some noted the importance of using high-quality seeds but said higher costs make it difficult to make a profit. As a result, farmers are often unwilling to invest in improved seed and are using old seeds from their own farms. In addition, the distribution of quality cotton seed from the government has fallen from 574,000 viss in 2010–11 to 72,000 viss in 2016–17 (Myanmar Statistical Yearbook 2018, Undated). The following table shows different seed varieties and yields of long staple cotton.

Table 2: Cotton Seed Costs

<table>
<thead>
<tr>
<th>Seed Variety</th>
<th>Cost per Viss (MMK)</th>
<th>Quality / Yield (viss per acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shwe Taung 8 *</td>
<td>1,250</td>
<td>500-800</td>
</tr>
<tr>
<td>Ngwe Chi-6*</td>
<td>1,300</td>
<td>500-800</td>
</tr>
<tr>
<td>Ngwe Chi-9*</td>
<td>1,300</td>
<td>500-800</td>
</tr>
<tr>
<td>Raka (India)</td>
<td>35,000 (1 kg) (1.2 acre)</td>
<td>1,000</td>
</tr>
</tbody>
</table>

Note: These varieties are available from MoALI seed farms through regional traders and regional MoALI offices. For local seed varieties, seed requirements are 4 viss per acre. For Raka, 1 kg of seed is required to sow 1.2 acres.

As noted in Table 2, the locally developed seed varieties are more economical than Raka, although Raka does offer better yields and so is still preferred by some farmers.

Although Myanmar cultivated about 260,115 hectares of cotton in 2016–17 based on data from MoALI, the yield per acre is generally quite low (Myanmar Statistical Yearbook 2018, Undated). Lower-quality cotton with a short staple, coupled with problems posed by old

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4 Interviews with Aung Myit and Lwin Tun
spinning machines, hampers the ability of Myanmar to make high-grade yarns from local cotton.

Production problems could be easily solved with access to good quality seeds, as there is an abundance of fertile land and farmers could be given incentives to improve the quality of seeds they use and therefore achieve better quality and higher yields. Good distribution and an initial subsidy on seeds being developed by MoALI will help farmers access longer-staple seeds. As cotton is an essential raw material in textile manufacturing, the quality of cotton is a key determining factor in the production of yarn and the subsequent quality of fabrics.

<table>
<thead>
<tr>
<th>Table 3: Area Breakdown of Cotton Production In Myanmar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cotton cultivation (ha)</td>
</tr>
<tr>
<td>Long staple cotton (ha)</td>
</tr>
<tr>
<td>Short-staple cotton (ha)</td>
</tr>
</tbody>
</table>

Source: (Myanmar Statistical Yearbook 2018, Undated)

COTTON QUALITY

As can be seen from Table 3, the relatively longer-staple variety grown in Myanmar covers a much greater area. The staple length of the longer varieties of Ngwe Chi (about 28mm) is considered medium staple in the other countries. Wagyi and Mahlaing varieties are much shorter (about 21–24mm) and can only be used for surgical cotton or rugs. The staple length and micronaire\(^5\) of the newer BT varieties\(^6\) in the form of Shwe Taung and Ngwe Chi are good for producing all kinds of local textiles and apparel (longyis and shirts). Most export-quality mass market products can also be produced from this type of cotton. The cotton grown using the Raka seed variety is of a finer nature and can be used for producing finer yarn varieties like 80s and 100s.

\(^5\) Micronaire is a measure used to describe how fine cotton fibres are
\(^6\) BT cotton is genetically modified with genes from bacillus thuringiensis, a soil bacteria that provides protection against bollworm
**Box 1: Problem or Perception?**

Shorter-staple cotton and its lower micronaire might be seen as a challenge. It may also, however, be a problem of perception and lack of awareness. As discussed earlier, most of the cotton grown in Myanmar is high enough quality to produce local textiles and export garments. Shorter-staple cotton too has many textile usages including rugs, blankets and even denims (about 26mm). The supply of short-staple cotton could be addressed in innovative ways to produce textiles with high demand locally and internationally. With the right blending at the spinning stage, even short-staple fibres and those of lower quality can be put to good use in textiles. While there needs to be interventions at the seed level, mostly for improving yields and quality, the right mix of machinery and technical expertise at spinning plants could ensure that the yarns produced from local cotton are of sufficient quality for diverse textile usage.

Open-end spinning, which can produce good denim yarns from shorter-staple cotton is one option. Open-end spinning produces yarn without using spindles. The fibres are processed to separate out individual fibres, which in turn are collected onto the open end of the yarn. Because technology is used to produce a coarser count, relatively shorter-staple fibres are good for this kind of spinning.

For example, Pakistan has made good use of short-staple cotton as the foundation of a substantial denim industry. Pakistani producers have been able to convert a perceived low-quality product into one of their biggest textile advantages.

### 3.2. Ginning

Ginning is the mechanical process of separating cotton into its constituents – lint or cotton fibre, and cotton seed. A ginning machine separates cotton fibre from the seed bolls and dust particles. Most ginning machines in Myanmar are saw or cutting-claw types to extract cotton from the seeds; in countries like India and China, double-roller gins are commonly used. After seed extraction, cotton fibres are pressed into bales using hydraulic pressing machines. Each bale weighs 64 kg and is packed and ready to transport for spinning. Bales in India are 160–175 kg in weight while those in China are about 225 kg.

After extraction, some seeds are sold back to farmers for planting in the next season while some are used for extracting oil which is used as a cooking fuel. The seed cake left after the oil is extracted is used as fodder for animals.

Regardless of the seed varieties grown by farmers, ginning is the first stage to check the quality of raw cotton before any value-added processes. Traditionally the quality of raw cotton is distinguished by its staple length, micronaire, moisture level, trash content and maturity. Generally, the gin owner or an experienced staff member determines the quality of raw cotton before it is ginned. No equipment or tools are available to test quality. Most experts use their eyes and their hand to judge the quality.7

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7 Interview with Aung Myint, a ginning factory owner in Kume Township in Mandalay Region
Box 2: ALL ABOUT GRADES

One gin owner described how he grades: Grade A is white in colour, strong, and has a longer-staple length of 24mm (which is comparatively short by international standards). Grade B would be of lesser quality, slightly yellow in colour, with a shorter length. Anything less would be Grade C. This is the standard practice in most of the gins in other countries as well.

The quality of seed cotton is also determined by the level of moisture in the raw cotton. Since the farm-gate price of raw cotton is directly proportional to the total weight, farmers tend to harvest early to produce more weight (with a high level of stalk, leaves and trash). But doing so means that the maturity level is not high enough. The high moisture in cotton that is harvested this early is also a major challenge. The farmers who dry their cotton need to hire labour and incur additional costs, while causing some damage in quality through the process of drying and storage. If farmers were made more aware of sustainable picking and storage methods, they would be able to improve efficiency and help ginners achieve higher-quality fibre.

Locally, ginning facilities have ginning warehouses, also known as trading houses, that collect raw cotton, and also hold the ginned cotton bales to facilitate the sale to local traders and local textile mills. Most farmers go to the gins to purchase seeds, get price information and sell raw cotton. The gin is also the credit provider for many farmers at the beginning of the season. Farmers then sell their products to the ginning house at the end of the season as repayment. This is a good strategy for ginners worldwide to secure most of the cotton at their desired price from the farmers they deal with.

Figure 4: The Ginning Process
Ginners in the textile value chain tend to have a direct relationship with area farmers and thus exercise control over the cotton-production link in the chain. No policy concerning cotton production could ignore the ginners and their interests. Most gins are located near cotton farms, generally about a 30–60 minute drive from farming areas. Most gins are family-run businesses with various other ventures such as rice mills and shops selling farm inputs.

An estimated 50 ginning factories and warehouses are located in the Mandalay Region and other regions in Yenethin, Pyawbwe, Kyaukse, Ku Me, Meiktila, Tat Kone, Sa Ku, Sa Lin, Pakokku, Myingyan, Maline, and Taungtha. The government ran 16 ginning factories that are no longer in operation. The majority of the private ginning factories have little capacity and gin the cotton without extracting any oil. Bigger factories gin the cotton and extract cotton seed oil.

Table 4 below looks at the ginning process from one of the biggest factories in Kume Township, Mandalay Region. As shown, only 33% of seed cotton is processed for lint cotton, and the remaining 67% is used for various other products including seed, food-grade oil, oil for making soap, and seed cakes for animal feed.

<table>
<thead>
<tr>
<th>Products</th>
<th>Proportion (% estimate)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>33%</td>
<td>Grade A lint-cotton bales are sent to Mandalay Textile, CYT Textile, Sein Gabar, Mahn 1 and Mahn 2 for spinning and yarn production for local markets. Grades B and C make up an estimated 50% of production and are exported to China.</td>
</tr>
<tr>
<td>Dust and seeds</td>
<td>65%</td>
<td>Good cotton seeds are kept for planting. Oil is sold as cooking fuel. After extracting food-grade cotton oil, the remaining thick oil (not suitable for consumption) is sold for making soap. The leftovers from oil extraction (cotton seed oil cakes) is sold for fish feed and animal fodder.</td>
</tr>
<tr>
<td>Waste</td>
<td>2%</td>
<td>The remainder – dust particles and trash – are discarded.</td>
</tr>
</tbody>
</table>

Source: Interview with Aung Myint

Small factories or in-house factories generally have 2 to 3 machines with no drying facilities. Big factories will have about 10–20 machines with facilities for drying, packaging and other purposes such as oil extraction.
BOX 3: INSIDE A GIN FACTORY

One of the large ginning factories in Kume Township runs at half capacity because there is not enough cotton. The factory has been in operation since 1990 and has two units, one with 6 machines, and one with 14. Manual records are kept for operations, though maintained on computers.

The factory employs 80 workers with about 10% being full time while the rest are daily-wage workers. A third of the workers are women. Operators are given masks and gloves when working the machines but do not use them, presenting a risk to health and safety.

There are four quality control officers with testing machines checking moisture, colour and length. Drying seed cotton is difficult as it usually contains a lot of moisture. Production averages 15 metric tonnes per day.

The capacity of ginning factories varies. Small factories or in-house factories have about 2 or 3 machines with no drying facilities. Large factories will have about 10-20 machines with facilities for drying, packaging and other purposes including oil extraction.

Myanmar, like other countries, has much greater ginning capacity than production capacity. Because of this, and because ginning is a seasonal trade, most of the gins run dry most of the year and employ daily-wage staff on an ad-hoc basis. Technology interventions are limited with no access to high-volume instrument systems or other specialised testing machinery.

BOX 4: CHALLENGE OR OPPORTUNITY

The lack of quality cotton is not as big a problem as has been assumed. Existing quality levels are sufficient for most local textile usage. With a targeted, multipronged approach to curb illegal border trade as well as a focus on investing in producing textiles made from the shorter-staple cotton varieties, Myanmar has an excellent opportunity to make the most of the textile supply chain in the country.

3.3. Spinning

The spinning process turns cotton lint into more workable yarn or thread. Individual spinning machines called spindles twist the fibres to convert them into yarn. The fineness of the yarn is denoted by yarn count. The higher the count, the finer the yarn.

Most of the cotton produced in Myanmar is used by the local spinning industry, which has an estimated 300,000 spindles to meet the growing demand for quality yarn and fabric in the country.\(^8\) The majority of state-owned enterprises that used to spin yarns are in the process of being privatised and some are now longer in operation.

There are also privately owned spinning mills, some of which were state-owned before being privatised. There are now five mills with spinning capacity estimated at about 64,000

\(^8\) Website of the Myanmar Ministry of Industry at http://www.industry.gov.mm/en
spindles for local demand only. Most mills produce yarn counts of 32s and 40s, mostly targeted for local consumption.\(^8\)

Among the privately run mills, Panda Textile\(^10\) and Sein Gabar have the highest number of spindles with 24,000 and 50,000 respectively. Most of the spindles are used machines imported from China, although the quality is still good. The following table shows the capacity of spinning mills run by the biggest textile mills in Myanmar. Privately owned mills will have the largest number of spindles, ranging from 24,000 to 50,000.

**Table 5: Spinning Units at Large Factories**

<table>
<thead>
<tr>
<th>Textile Mill</th>
<th>Spindles</th>
<th>Yarn Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sein Gabar</td>
<td>50,000</td>
<td>32s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40s</td>
</tr>
<tr>
<td>Panda Textile Company</td>
<td>24,000</td>
<td>32s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40s</td>
</tr>
<tr>
<td>CYT</td>
<td>20,000</td>
<td>32s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40s</td>
</tr>
<tr>
<td>Man-1</td>
<td>10,000</td>
<td>20s</td>
</tr>
<tr>
<td>Man-2</td>
<td>10,000</td>
<td>20s</td>
</tr>
</tbody>
</table>

Source: Panda Textile factory visit and interviews with other factory representatives

### 3.4. Weaving

The Myanmar weaving industry is one of the oldest industries in the country with diverse handwoven fabrics being produced for traditional dresses, machine-woven fabrics for longyis, and bigger machine setups producing fabrics for the local garment industry. There are also some knitting units producing fabrics used for T-shirts and hosiery. The Myanmar textile industry is predominately cotton-based with 70% of the fabric produced from cotton and the remaining 30% from acrylic and other fibres including wool and silk.\(^12\) The weaving sector can be categorised by scale: industrial, small-business, and household.

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\(^10\) Annual use ranges from 800,000 to 1.2 million viss of lint cotton

\(^11\) The team was unable to visit factories other than Panda Textile Company and therefore most of the information about other factories is based on interviews

\(^12\) Interview with Archan at the Taunggyi Textile Shop and Nay Min Chit at the Acrylic Dyeing Factory
looms manufactured in the 1960s. Most used in longyi weaving are motor-operated manual shuttle looms manufactured locally in Wundwin. Productivity is low since broken thread is still mended manually and there is a heavy cost for repairs and replacement of worn-out parts. On average, these looms can produce about 10–12 longyis a day during an eight hour shift. Advanced modern looms can produce about 30-40 longyis a day with greater precision and more complex patterns or designs. Most of the machines run by these small businesses have the capacity to produce simple designs such as stripes or plain fabric sheets. The cost of locally manufactured machine looms is about 1.5–2 million MMK, while refurbished Chinese-made modern looms cost about 6–8 million MMK. Wundwin and Amarapura in Mandalay Region are major longyi production areas with an estimated 72,000 machine looms, although only 75% are operational.  

In household-scale operations, traditional hand-weaving clusters produce traditional textiles tailored for special dresses. Fabrics, based on textile designs made by Myanmar ethnic groups, are usually made of densely woven cotton, cotton-silk, or cotton-acrylic embroidered with contrasting colours. The traditional weaving process includes picking cotton, ginning cotton, carding and fluffing cotton, spinning cotton into thread, dyeing, starching, winding threads into skeins, preparing the wrap for weaving, and finally weaving the cloth. This process was widely practiced by Myanmar women in the past. Most hand-weaving is still practiced in Kachin, Kayin, Chin, Shan and Rakhine.

There seems to be a good case for the weaving industry to grow and flourish given the huge local demand for longyis and a strong supply base with relatively cheap labour, lower taxes and traditional weaving communities. These strengths offer opportunities to expand internationally as well. With the right kind of efforts to replace old machinery with new and more productive looms, and with an advanced quality assurance system, local fabrics can offer stiff resistance to the surplus fabrics being imported from China mainly for CMP production.

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13 Interview with Zin Ko, textile engineer
14 Interview with representatives from the Leader of Textiles Co., Ltd., and the Amarapura Textile Association
3.5. Dyeing and Finishing

DYEING
At small-scale operations, the dyeing process is similar across the country. During the first step, the yarns are soaked in a bath overnight, which increases water absorbency. Then, the wet yarn is taken out for further processing, followed by bleaching and removal of impurities to achieve a clear white in preparation for dyeing. In the final stage, the cotton is dyed and packed for delivery.

Most of the chemicals used for dyeing are purchased from China and are of a lower grade than used elsewhere. An estimated 70% of factories outsource the dyeing process to others. The owner provides the chemicals and yarn, and service providers complete the dyeing and charge for the labour cost.

Figure 5: Dyeing Facilities at Wundwin

The cost of dyeing using normal processes is about MMK 8,000 for every 10 pounds of yarn using low-quality chemicals and MMK 10,000 for better quality dyes, though costs have been increasing.

FINISHING
In textile manufacturing, finishing refers to the process that converts woven or knitted fabrics into final market-ready materials or a commodity that can be used to make final-end consumer products. Raw fabrics are treated by printing, dyeing, singeing, mercerising, heat setting and other finishing processes to meet the demands of the end product and consumer use.

Dyeing and printing are processes to enhance the aesthetics of the fabric, while other finishing processes enhance not only its sheen, appearance and lustre, but also make it functionally stable so there is no excessive shrinkage. In Myanmar, there are two kinds of finishing operations: small-scale longyi finishing, and industrial-scale finishing.

The finishing process for most longyi manufacturing is not very elaborate. Since most of the washing, bleaching and dyeing of yarn is done before the weaving process, cleaning is the main finishing process, along with some mercerising and shrinkage control.

In industrial-scale finishing, mills under state and corporate ownership have elaborate and large-scale operations. The Panda and privately owned textile mills in Yangon have the capacity for elaborate processes including dyeing, printing, mercerising, washing, drying and shrinkage control.

<table>
<thead>
<tr>
<th>Facility</th>
<th>Products</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panda</td>
<td>Spinning, weaving, finishing</td>
<td>Fabric sheets for women’s longysis and others under the Panda name</td>
</tr>
<tr>
<td>PMP</td>
<td>Finishing</td>
<td>Fabric sheets for women’s longysis and other products under the JJ brand. Also produces batik and Spandex</td>
</tr>
</tbody>
</table>

Some corporately owned mills that were once government owned can become models for the growth and operation of newer factories. Panda and Kyaukse are good examples and have teams with strong technical expertise. The fact that a global brand like H&M is interested in using locally made fabrics highlights the potential for the industry to grow.

3.6. Manufacturing and Marketing

Textile manufacturing is a major industry based on the conversion of fibre to yarn, yarn to fabric, and fabric that is then dyed, printed and transformed into apparel and other finished products. Different types of fibres are used to produce yarn, yet cotton remains the most important natural fibre. In Myanmar, textile manufacturing can be differentiated by production of yarn, fabrics, longysis, and traditional dress, among others. The following table shows locally produced products and where they are produced.
Table 7: Textile Products by Township

<table>
<thead>
<tr>
<th>Township (State/Regions)</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amarapura (Mandalay)</td>
<td>Longyis, silk and cotton fabrics</td>
</tr>
<tr>
<td>Mudon (Mon)</td>
<td>Mudon blankets, Kayin traditional dress</td>
</tr>
<tr>
<td>Wundwin, Inma (Mandalay)</td>
<td>Longyis, cotton fabric, coarse and perforated cloth for mosquito nets</td>
</tr>
<tr>
<td>Shedaung (Sagaing)</td>
<td></td>
</tr>
<tr>
<td>Pakhoku (Magwe)</td>
<td>Warm blankets</td>
</tr>
<tr>
<td>Monywa (Sagaing)</td>
<td>Locally famous blankets, longyis, Kachin traditional longyis, recycled products</td>
</tr>
<tr>
<td>Inle (Shan)</td>
<td>Handwoven sling bags, longyis with traditional designs</td>
</tr>
<tr>
<td>States: Shan, Kachin, Chin, Rakhine</td>
<td></td>
</tr>
<tr>
<td>Yangon, Paleik (Mandalay)</td>
<td>Fabric production for local markets</td>
</tr>
<tr>
<td>Yangon</td>
<td>Garment production for export markets</td>
</tr>
<tr>
<td>Pathein (Ayeyarwady)</td>
<td></td>
</tr>
<tr>
<td>Bago (Bago)</td>
<td></td>
</tr>
<tr>
<td>Hpa-An (Kayin)</td>
<td></td>
</tr>
</tbody>
</table>

YARN MANUFACTURING

Yarn manufacturing is the first process that converts raw cotton fibres to yarn suitable for use in end products. A number of processes are required to obtain the clean, strong, uniform yarns required in modern textiles. A total of 480,840 spindles are installed in factories across the country. Based on the Pyoe Pin report (Weaving the Future, 2017), 50% of the installed capacity is less than 12 years old while about 50% is more than 32 years old. The following chart shows the percentage of installed spindles per sector.

Figure 6: Total Installed Spindles

In Myanmar, most yarn is made from cotton. Depending on requirements and demand, imported and local cotton are mixed to produce the desired quality. Most of the yarn produced in the country is of the coarser and medium count (20s to 40s), which is ideal for denim, shirts, longyis, and T-shirts. Spinning capacity is limited and if there is a plan to expand the textile industry to meet international standards, there will have to be a sizeable
investment in spinning infrastructure. There is no official data on how much yarn is produced, though from our field research, it is estimated that yearly yarn production from 5 factories alone is about 7,000 to 10,000 tonnes and is produced mainly for local consumption. The following table shows the types of yarn produced by privately owned companies.

### Table 8: Yarn Production in Myanmar

<table>
<thead>
<tr>
<th>Mill</th>
<th>Number of Spindles</th>
<th>Yarn Type</th>
<th>End Product</th>
<th>Production (metric tonnes / year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panda</td>
<td>24,000</td>
<td>32s, 40s, 20s</td>
<td>Women’s longyis, yarn for longyi production, yarn for tablecloths and the like</td>
<td>1,400</td>
</tr>
<tr>
<td>CYT</td>
<td>20,000</td>
<td>40s</td>
<td>Longyi production</td>
<td>1,400-1,500</td>
</tr>
<tr>
<td>Man-1</td>
<td>10,000</td>
<td>20s</td>
<td>Used for traditional fabrics such as Inthar</td>
<td>700-800</td>
</tr>
<tr>
<td>Man-2</td>
<td>10,000</td>
<td>20s</td>
<td></td>
<td>700-800</td>
</tr>
<tr>
<td>Sein Gabar</td>
<td>50,000</td>
<td>40s</td>
<td>Longyi production</td>
<td>2,000-2,500</td>
</tr>
</tbody>
</table>

Source: Estimate based on interviews with Panda Textiles and Nay Lin, a yarn trader from Shoppin, Wundwin Township.

Major mills such as Panda, CYT, and Sein Gabar mainly produce 40s yarn for local longyi production, while the rest generally produce 20s yarn for the production of ethnic fabric such as Inthar or fabric that is thicker and used mainly for men’s traditional coats or tops. Based on estimates from yarn traders, the average minimum monthly yarn production for a factory is about 4,000 pounds, equivalent to 30-40 bales of cotton yarn.\(^{15}\)

### Figure 7: Baled Cotton Yarn from Local Mills

High-quality raw materials are essential for the continuous production of high-quality textiles. The selection of yarns or fabric is based on whether the producer has a composite mill or uses other suppliers for spinning, weaving or dyeing and finishing. In Myanmar, depending on requirements, raw cotton for spinning has

\(^{15}\) Each bale weighs 120 pounds made up of 12 packages weighing 10 pounds each
been imported from India, Australia and Egypt with the manufacturer providing detailed specifications to the suppliers. The materials are shipped in bale sizes of 162 pounds (40 viss).

Today, the majority of imported yarns come from India since the quality is acceptable and is offered at a reasonable price. However, some traders and processors say the quality of Indian product is not consistent across suppliers and traders, and that importers never know the origin of the yarns.

Transaction costs for imported materials are obviously higher as transportation costs, taxes and other charges are built into the price. Therefore, for the past two years, some manufacturers such as Panda have started sourcing cotton lint from local ginning factories. According to Panda, the quality of local cotton is reasonable enough to be spun with impurities of about 35%, which requires additional cleaning and sorting before spinning.

For the past two years, there has been high demand from China but insufficient raw cotton available for local spinning mills. Since most Chinese buyers do not check quality and pay similar prices for all grades, most traders prefer to sell to China, forcing some local producers to use acrylic yarn instead of cotton.

As a result, there is a major trend towards using acrylic yarn in local longyi production. Since the unit cost of acrylic yarn is half the price of cotton yarn and the market price of longysis has not changed, producers often mix cotton and acrylic yarns.

Raw acrylic yarns are imported from China and are then dyed at mills in Mandalay and Yangon according to customer requirements. One trader said acrylic yarns are not only cheaper but more colourful, and that ordering and delivery times are more flexible.

The demand for acrylic yarn has increased over the past 5 years. In 2005, Myanmar workshops employing about 40–50 staff turned out 2–4 metric tonnes of acrylic fabric. Today, that has jumped to an average of 15 metric tonnes a day and a workforce of about 300.\textsuperscript{16}

\textsuperscript{16} Interview with the manager of an acrylic yarn finishing factory. The company imports raw acrylic yarns from China and India, dyes them at its factory in Yangon, and distributes them to local markets in Yangon and Mandalay.
Figure 8 below shows the supply chain for the production of cotton yarn and imported acrylic yarn. Only 20s, 32s, and 40s yarn are produced for local longyi production in Wundwin. The majority of 40s, 80s, and 100s cotton yarn are imported from India. Acrylic 2/80s and 2/100s yarns are imported from China and dyed at Yangon and Mandalay factories.

Figure 8: Yarn Manufacturing Supply Chain

Fabric Manufacturing
Fabric manufacturing is one of the most important processes in textile production. It converts yarn into fabric with the desired structure needed for garments and textiles. Yarns pass through a series of operations on different machines that warp, size, draw, loom, fold, weave, dye, print, and finish. A fabric-manufacturing facility of a minimum viable size would have about 96 high-speed looms and require a capital investment of about $14 million.

Figure 9: Total Installed Looms
Based on the Pyoe Pin report (Weaving the Future, 2017), 188 million metres of fabric were produced in 2012 with 57% of production coming from state-owned firms and the remainder from private firms (Weaving the Future, 2017). However, only a few privately run mills are now producing fabric solely for local consumption. No factory is currently engaged in the production of shirting, dress material, or bottom-weight fabrics, the major fabrics demanded by garment manufacturers. In most cases, however, the factories have the facilities to produce such fabrics. An estimated 1 pound of yarn is required to produce 3 yards of fabric sheeting 54 inches wide.\(^{17}\)

Since fabric manufacturing is capital intensive, the technology level of the machines plays a vital role in in terms of quality and cost effectiveness. Industrial-scale mills are typically vertically integrated operations that do everything from spinning to finishing. More advanced auto-shuttle looms are used in these mills, including those that are government run. However, most machines are old and have been in use for over 20 years.\(^{18}\) Most government-owned factories are using regular shuttle looms to produce 32s yarn with the maximum width of fabric limited to 54 inches. Some factories in Pwint Phyu, Thamine and Meiktila, among others, have been upgraded to such auto-shuttle looms as Water Jet and Rapier.

There are now no Myanmar factories equipped with high-speed rapier and air-jet looms. Only one factory has low-speed rapier looms. The present technological level of fabric-manufacturing machines is below the global average with the majority of looms being shuttle looms in poor condition. Only in very few factories, can machines be used for production of fabrics of competitive quality.

In fact, none of the fabric mills produce fabric for export purposes or for use by the garment segment but produce for domestic use only. As a result, quality standards and fabric production are not driven by international standards. Again, at this end of the chain, the effect of poor quality cotton is felt. Poor quality cotton results in poor quality yarn that results in poor quality fabric. Thus, manufacturers are caught in a cycle of poor production. They cannot compete in external markets as their products are not of sufficiently high quality. The inability to engage in foreign markets means that the industry is not forced to improve standards. Financially, they are trapped. They make little money from the local market, most running at a loss, and so are unable to make the investments needed to upgrade to attract outside investors and become competitive in international markets.

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\(^{17}\) Equivalent to 0.45 kgs to produce 2.74 metres of fabric with a width of 1.37 metres. Information based on an interview with Panda textile official

\(^{18}\) Interview with Zin Ko, textile engineer
Figure 10 shows the value chain map of fabric and longyi production beginning from lint cotton to end-product fabric sheets and longis.

**Figure 10: Fabric and Longyi Production Value Chain**

**Longyi Manufacturing**

Some 80% of textiles in Mandalay are used to produce longis. Figure 10 above illustrates the longyi supply chain and shows the distribution of yarn produced in Mandalay using Myanmar cotton as well as imported cotton from China and India, which has a higher cost than locally grown cotton.

The price of longis varies according to the quality of yarn and the finishing and design. Processes such as dyeing, finishing, embroidery and designing that add value are done mostly in Mandalay itself, where the most monetary value is added. Longis for men and women produced in Wundwin are generally of lower quality but Acheik longis from Mandalay with their intricate wavy patterns interwoven with silk are high-quality garments. Better-quality longis can generate higher profits, even with local cotton.

**Table 9: Types of Yarn and Price Differences**
(Prices in MMK for 10 pounds of yarn)

<table>
<thead>
<tr>
<th>Yarn</th>
<th>20s</th>
<th>32s</th>
<th>40s</th>
<th>80s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source/Type</td>
<td>Local Cotton</td>
<td>Local Cotton</td>
<td>Local Cotton</td>
<td>Imported Cotton</td>
</tr>
<tr>
<td>Factory price</td>
<td>19,200</td>
<td>19,800</td>
<td>24,200</td>
<td>26,200</td>
</tr>
<tr>
<td>Wholesale price</td>
<td>19,400</td>
<td>20,000</td>
<td>24,500</td>
<td>26,500</td>
</tr>
<tr>
<td>Retail price</td>
<td>19,700</td>
<td>20,300</td>
<td>24,800</td>
<td>26,800</td>
</tr>
</tbody>
</table>

---

19 It takes an average of 10 pounds of cotton yarn to produce 17 longis
The profit margin at the factory level is small – about 100–300 MMK for low-quality longis, and 500–1,000 MMK for better-grade longis. The profit margins at the wholesale level are much higher, averaging 500–1,000 MMK per piece. Marketing costs include packing, branding, display and commissions. The average marketing cost is about 50–100 MMK per piece.

**Wundwin Longyi Industry**

By official count, Wundwin in Mandalay has more than 560 factories running about 30,000 registered weaving machines, mostly manufactured in the 1960s. However, by some estimates, there are some 60,000 weaving machines. One machine can produce 10–12 longis a day compared to more expensive Chinese machines that produce 15 longis a day. Wundwin supplies 80% of the textile industry in Myanmar with men’s and women’s longis from 20s and 40s yarns. It produces about 450,000 longis a week for the Yangon market and about 150,000 for Mandalay and most factories only produce longis.

Warp and weft are the two basics components used in weaving to turn thread or yarn into fabric. In Myanmar language, the warp is called ‘ah tine,’ meaning ‘base,’ and the weft is called ‘a paut,’ which means the penetration of the moving part. In Wundwin, thread for the warp comes from imported yarn from India, and thread for the weft uses local yarns.

Wundwin has its own shops providing inputs and does not depend on markets in Mandalay. Producers normally buy directly from Yangon middlemen and import cotton bales directly from India. They make buying decisions on volume, types and qualities of yarn.

The industry in Wundwin uses dyeing techniques that go back almost 50 years and involve dangerous chemicals that are mostly banned in other countries. The dyeing process is cheap, harmful to workers and causes environmental pollution. With support from the Japan International Cooperation Agency (JICA), the Mol has installed a dyeing machine that is the only machine dyeing facility in Wundwin. Although it produces better quality fabric, it takes longer than manual dyeing so locals generally avoid using it because costs are higher.

The Wundwin weaving industry also supplies local factories with cotton sheets used for the production of pockets and other accessories in shirts and pants that are imported from other countries by local manufacturers like TR, Escort, Imax and others. They also have the potential to produce sheets for raincoats, military uniforms, towels, medical gauze, cotton pads and other products.

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20 Interview with the head of the General Administration Department, Wundwin Township
21 In other countries, weft is also called filling yarn
Table 10 below shows the cost margins for Wundwin longyis. The average profit for a producer is about 100–200 MMK per piece, with higher margins of 200–500 MMK per piece for wholesalers and retailers. Wholesalers and retailers are responsible for branding, marketing and distribution.

**Table 10: Prices and Profits for Wundwin Longyis**

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Functions</th>
<th>Selling Price per Unit (MMK)</th>
<th>Profit margin per Unit (MMK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weaving Factory</td>
<td>Production</td>
<td>2,750</td>
<td>100-200</td>
</tr>
<tr>
<td>Wholesalers</td>
<td>Distribution, packaging</td>
<td>3,000</td>
<td>250</td>
</tr>
<tr>
<td>Retailers</td>
<td>Packaging, branding, marketing, distribution</td>
<td>3,250</td>
<td>500</td>
</tr>
<tr>
<td>End Customers</td>
<td></td>
<td>3,700</td>
<td></td>
</tr>
</tbody>
</table>

Table 11 below shows the production cost of one Wundwin longyi. The average cost for raw materials represents about 56% of the final price with labour and production costs 22%, and dyeing costs 15%. The average profit margin is about 100–500 MMK per piece, which is 7% of the total cost. The higher the input costs, the lower the profit.

**Table 11: Wundwin Production Costs for 1 Longyi**

<table>
<thead>
<tr>
<th>Process</th>
<th>Total (MMK)</th>
<th>Percentage of Final Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton Yarn</td>
<td>1,550</td>
<td>56</td>
</tr>
<tr>
<td>Weaving, Machines, Electricity, Labour</td>
<td>600</td>
<td>22</td>
</tr>
<tr>
<td>Dyeing</td>
<td>400</td>
<td>15</td>
</tr>
<tr>
<td>Total Production Cost per Unit</td>
<td>2,550</td>
<td></td>
</tr>
<tr>
<td>Profit</td>
<td>200</td>
<td>7</td>
</tr>
<tr>
<td>Selling Price at the Factory</td>
<td>2,750</td>
<td>100</td>
</tr>
</tbody>
</table>

**Mandalay Overview**

Mandalay Region has the most skilled labour in the textile sector. Most textile industry infrastructure including production, ginning, and garment manufacturing was built near Mandalay, Sagaing, and Magway Regions because of proximity to the cotton supply.

Longyis produced in Mandalay are mainly sent to markets in Mandalay for distribution to Upper Myanmar and to Yangon for distribution to Lower Myanmar. Some factories produce their own longyis, add a brand name, and sell to the market directly through their outlets. Most factories sell their products through distributors, especially in Yangon and Mandalay. More demand for low-quality longyis comes from Upper Myanmar, while better quality is demanded from Lower Myanmar.

According to MTMA, Mandalay Township has about 25,000 weaving stations, mostly in villages in Amarapura. Men's and women's longyis, handmade textiles, traditional weaves and products including embroidery and dresses are the area's major products. Some
business owners complain that small and medium-sized weaving businesses have trouble staying afloat because of rising raw material prices and a decline in sales of their products.

Amarapura Township has a weaving industry perhaps 1/100th the size of the industry in Wundwin. The Amarapura market focuses on high-end longyi/s that are more expensive than Wundwin longyi/s.

### 3.7. Traditional Textiles

Myanmar has hundreds of ethnic groups. The main groups include the Kachin, Kayah, Kayin or Kayin, Chin, Bamar, Mon, Rakhine and Shan. Each group generally has its own traditional attire, styles and designs, often made on what is called a ‘gyapkhout’ hand loom or backstrap loom.

Textiles made by ethnic groups are in high demand in Myanmar in line with the trend on transforming fabrics into dresses, hats, bags, and other accessories. Traditional textiles are usually made of densely woven cotton or cotton-acrylic or cotton-silk fabrics with different blends of embroidered material with contrasting colours and patterns. Handmade textiles are more expensive since it takes more time and investment to produce them, and the designs and patterns are unique.

Power-loom weaving was introduced in the 1960s, using a cloned copy of a Japanese weaving machine called ‘HIRANO.’ At about the same time, chemical dyeing and screen printing for vibrant designs and colour was also introduced. For the majority of weaving factories, that remains the technology used for dyeing and weaving. Even though traditional dyeing processes are cheaper and more efficient than machine dyeing, the dyes are harmful to operators and the wastewater is a serious pollution issue. Only a few operators such as U Gyan Longyi use machine-dye processing.

The quality of machine-made fabric has been improving as business owners invest in weaving machines from China and India, improving product quality and raising productivity by 20–30%. Imported weaving machines are 2–3 times more costly than traditional machines, and at some factories, only a few machines have been replaced.

On the other hand, traditional textiles are handmade fabrics, with quality highly dependent on the skill of the operator and on the quality of the cotton used. With support from the DaNa Facility and funding from the UK Department for International Development (DFID), Myanmar Artisans is working to support Myanmar’s traditional textile sector, especially handmade products. The aim is to preserve and improve the local textile market and increase the global market share of Myanmar-made products. The immediate challenges in accessing the international markets include a lack of quality raw materials, a lack of advanced facilities for dyeing, and a lack of environmentally friendly dyeing facilities in Myanmar.

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22 Interview with the president of the regional MTMA office in Wundwin
Figure 11 shows the value chain map of traditional textile production.

**Figure 11: Traditional Textile Production Value Chain**

**KAYIN TEXTILES**

With difficult patterns, designs, and colour, Kayin dresses are primarily handmade. Major production takes place in Eindu Township in Kayin State, and Mudon Township in Mon State. There are a few weaving stations in Bago providing contracting services. Eindu village hosts about 300 hand looms and by some reports that could increase to 500.

The weaving stations keep production costs for a dress between 3,000–4,000 MMK to be competitive in the market. Profit margins range from about 100 MMK to 300 MMK per piece. Major markets beyond Kayin State include Yangon, Thandaungyi, Thai border areas, and Kayin living outside the country.

There is now less interest in communities in the state for traditional weaving, so young second-generation weavers from Bago are migrating to Kayin. The Bago weavers are skilled and experienced. Daily wages in Bago are much less than in Kayin or in neighbouring Thailand, which many see as their ultimate destination given that wages there are about 12,000 MMK per day. Many weavers end up staying in Kayin because a skilled weaver there can earn about 10,000 MMK per day compared to 3,000 MMK per day in Bago.

**KACHIN TEXTILES**

Kachin longyi is among the best-known in Myanmar. Kachin has its own designs, patterns and colours depending on ethnic origin. Most of the weaving industry in Kachin produces men’s and women’s longyi. Other products such as blouses, shirts, jackets,
and bags are produced by small-scale businesses and sold in local markets.

Near the capital of Myitkyina are two villages, Shwe Nyaung Pin and Ram Pu, where some 90% of households weave. The price of a hand loom is about 150,000 MMK. In Kachin, the biggest factories have a maximum of 50 looms. Most of the other ventures are small home-based operations with 4 or 5 looms.

Kachin men’s longyis are higher quality than Wundwin longyis, are produced mainly by machine-loom, and cost from 8,000–12,000 MMK. Kachin women’s longyis are sold for about 30,000–100,000 MMK depending on the complexity of the design and colours. Some women’s longyis can cost upwards of 500,000 MMK per piece.

Major markets are Myitkyina, Yangon, Mandalay and the Chinese border. About half the product is sold in local markets with the other half going to the Chinese border, given that a number of ethnic Kachin now live in China. Demand from the Chinese border is strong, while local demand has been affected by higher prices due to higher input costs. As a result, quality has been reduced to meet the market price.

Figure 12: Kachin Traditional Products

SHAN TEXTILES
Hand-weaving is a major industry in Shan State’s Inle Lake, which is one of the country’s major tourist sites. Some 10 villages produce weaving or textiles or are dependent on earnings from the sector. Major products include Inle fabric, Inthar fabric, handwoven lotus fabric, and handwoven silk.

Inthar fabric is used for men’s and women’s tops in Shan and other locations. It is thicker than normal fabric and suitable for colder weather or for coats and jackets. It is

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23 An estimate by the Ma Khin Sein Longyi and Textile Shop
made from 3/40s cotton yarn. Hand-weaving can produce about 20 yards a day against 40–50 yards per day for machine weaving. Fabric is sold for about 1,500 MMK a yard and is distributed mainly in Shan State. At Inle Lake, Magyi Kone Village is the main production area and most households have a loom.

Silk fabrics are one of the best-known products of Inle Lake. The fabric is also known as Zinme fabric and is similar to Thai designs. It requires a highly skilled operator to weave the silk fabric and a silk longyi can cost about 40,000–60,000 MMK. The village of Nan Pon is a major production centre. The silk is brought from Mandalay and imported from China, and is then dyed, woven and sold in local markets in Inle, Taunggyi and other parts of the country.

As silk is expensive, individual households do not have the financial capacity to buy, produce and sell. As a result, traders such as Khin Sunn Yin act as contractors providing raw materials, designs, and machine support to individual households in Nan Pon. The weavers are paid for their labour and can earn about 3,000–4,000 MMK a day.

![Figure 13: Lotus Fibre Cloth](image)

Fabrics woven from fibres of the lotus plant is a high-end product available in the Inle Lake region. Lotus plants grow naturally in the lake. People harvest and produce fibre at home and sell it. It takes on average about 5 months to produce 1 viss of lotus fibre, which costs about 500,000 MMK. Dyes are all natural.

Tourists account for significant sales, though the product can also be found in Europe and the United States. Lotus fibre is in high demand in international markets due to its texture and the fact that it is handmade. Some international markets demand higher quality and detailing that is not possible in hand-weaving, but lotus fibre is so fragile that it breaks if put on a machine. Meeting colour specifications and achieving the exact same colours every time is difficult as the dyes are all natural. For these reasons, shops in the Inle region are not always able to cater to International demand.

Although the local price is relatively low, lotus-fabric products can sell in luxury foreign markets for $3,500 compared to a $500 selling price in Myanmar. Popular items include scarfs and robes.

**Chin Textiles**

Textiles in Chin State are woven using traditional back-strap or foot looms and the designs reflect the culture. Making a simple woven pattern usually takes 2 to 3 weeks while more detailed work may take a month or even longer. (Makers Travelers) As Chin traditional handwoven fabrics are produced as well by non-Chin, traditional handwoven textiles of Chin design are now being sold outside the state. (Global New Light, 2017).
In Chin, people from the communities of Haka, Falam and Tiddim weave traditional textiles manually throughout the year to meet rising local and international demand. Previously, Chin traditional clothes were woven by hand in villages in the hills. Today, Chin traditional textiles are being woven by machine in Kale and Monywa in Sagaing, Gangaw in Magway, and Amarapura in Mandalay.

It normally takes about a month to weave a garment for women. Traditional garments sell for 100,000 to 1,000,000 MMK depending on the design, pattern, colour and texture (Global New Light, 2017).

**MON TEXTILES**

Most of the Mon men's and women's longyis are produced at Amarapura, where fabric is woven designed, dyed, and distributed. The communities around Mudon, south of the Mon capital of Mawlamyine, used to make Mon longyis, however with the transition to machine weaving, most production has moved to Mandalay and Amarapura.

### 3.8. Local Garment Manufacturing and Embroidery

Local garment manufacturing is important for the textile sector since it has potential to be integrated into the overall textile supply chain. It is estimated that there are about 20–30 large brands selling men's shirts, women's and children's clothing and other accessories. Brands include Imax, Gorenzo, Step, and Indigo as well as less popular brands.

There is no estimate on the number of garment factories. The study team met with officials from one of the country's largest garment factories, which employs about 1,000 workers with estimated production of 5,000–6,000 men's shirts per day. Men's shirts make up almost 98% of production, with women's and baby clothing making up the remainder. For smaller factories with a workforce of about 300 workers, average production is 1,000–2,000 shirts per day. Companies produce not only under their own brand but also provide CMP services to smaller brands with an average CMP cost of 1,000 MMK per shirt for higher-quality items and 200–300 MMK per piece for lower-quality goods. Almost 99% of the inputs, including fabrics, accessories, and logos are imported from China; only cartons and plastic bags are made locally.

Product variety is limited when it comes to men's shirts. Most consumers prefer shirts with one pocket, long or short sleeves, and a relatively limited palette of colours and patterns. In the international market, manufactures normally produce shirts in 12 colours and 4 sizes. In Myanmar, based on market demand, manufactures produce only 4 colours – red, white, black, and blue – in only one size depending on the location.
Computerised machine embroidery is an essential step in the industry. Computerised machines produce patterns, logos, and designs on textiles used commercially in product branding, cooperate advertising, and uniform adornment. It is also used in the longyi industry, especially women’s longysis, to decorate garments. It is estimated that there are about 3,000 computerised machines, mainly in Yangon and Mandalay. Based on the design or pattern, each process costs about 100-3,000 MMK. One of the largest factories has over 100 machines operating daily. Most garment producers depend on China as a source of raw materials so costs associated with tariffs and taxes, transportation, and brokerage fees are rising.

### 3.9. Fabric Recycling

Waste is an important factor in the ready-made garment sector. Textile wastes also arise during garment making. Fabric and cutting waste are considered damaged textiles and are discarded as trash. However, 80% of the waste has the potential to be recycled and reused. In international markets, fabric and garment wastes are shredded for filler in car insulation, roofing felts, loudspeaker cones, furniture padding, and panel linings among other uses.

Monywa is famous for producing the Monywa blanket and about 20 metric tonnes of fibre and textile waste is recycled daily. There are about 100 recycling plants in the Monywa Industrial Zone but less than 20 are running at even minimum capacity. To recycle 1 viss of garment waste costs about 230 MMK.

Figure 15 below shows the types of items recycled, and the end products. White sheets larger than 12 inches make up an estimated 5% of waste and are manually separated from other waste and sold to local traders for making pillow covers and gloves. White sheets of
smaller size account for another 5% and are collected and recycled in shredders. The shredded cotton fibre is cleaned and packed to be sold as medical cotton. Other red and black sheets, which make up about 10% of the waste stream, are separated and run through the same recycling process as white sheets. After being shredded, the fibres, similar to cotton lint, are spun to produce yarn sizes of 1/10s or bigger. The yarns are used for making ropes for rural markets. The remaining 80% of the waste stream is sold to local businesses and used as stuffing for mattresses.

**Figure 15: Garment Recycling Supply Chain**

- **Finished Products**
  - Fabric waste (white sheets) with sizes bigger than 12 inches
  - Fabric waste (white sheets) smaller sizes
  - Fabric waste (red or black sheets) smaller sizes
  - Remaining waste

- **Manufacturing**
  - Process: Sorted for different recycled products
  - Location: Moywa, Yangon, Mekhila

- **Input: Raw Materials**
  - 20 metric tonnes of garment wastes per day transported from Yangon to Moywa for recycling.

- **Recycling Process**
  - Cost per viss: 50 MMK - garment waste
  - 190 MMK - shipping

- **RAW MATERIAL**
### 3.10. Stakeholders

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Role and Involvement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Industry Associations</strong></td>
<td></td>
</tr>
<tr>
<td>Myanmar Textile Manufacturers'</td>
<td>The association is the main body representing the textile sector and is involved in the strategic direction and future development of the sector. It works directly with relevant government ministries on the NES and represents textile manufacturers in the Union of Myanmar Federation of Chambers of Commerce and Industry.</td>
</tr>
<tr>
<td>Association</td>
<td></td>
</tr>
<tr>
<td>Leader of Textiles</td>
<td>The association is active mainly in Wundwin and is registered as a private company. Its members share similar objectives and are invited to join. It represents operations involved in ginning, weaving, trading and processing. It is installing dyeing facilities outside Wundwin and is exploring opportunities to collaborate with Indian companies to produce yarn in Wundwin.</td>
</tr>
<tr>
<td><strong>International Brands</strong></td>
<td></td>
</tr>
<tr>
<td>H&amp;M</td>
<td>H&amp;M is the only international brand to source textiles in Myanmar. It has partnered with GIZ, the German development agency, to conduct environmental impact assessments across the country.</td>
</tr>
<tr>
<td><strong>Development Partners</strong></td>
<td></td>
</tr>
<tr>
<td>DaNa Facility</td>
<td>The DaNa Facility is the leading development partner active in the Myanmar textile sector. The facility identified textiles as a strategic sector in 2016 and signed a memorandum of understanding with the MTMA in 2016. Its activities focus on advocacy and capacity development, value chain issues, and investment. Through its Innovation window, the facility’s grant fund invests in companies, social businesses, and non-governmental organisations active in the sector.</td>
</tr>
<tr>
<td>GIZ</td>
<td>GIZ is active in promoting social and environmental standards in the garment and textile sectors. It is conducting environmental impact assessments across the textile and garment sectors to identify standards that could potentially be implemented.</td>
</tr>
<tr>
<td>SMART Myanmar</td>
<td>EU-funded SMART Myanmar (SMEs for Environmental Accountability, Responsibility and Transparency) offers assessments, training and advisory services not only to garment factories but also to a small number of textile manufacturers. Its training workshops focus on operational efficiencies and show factory managers and owners how they can invest to improve productivity, quality and environmental sustainability.</td>
</tr>
<tr>
<td><strong>Government</strong></td>
<td></td>
</tr>
<tr>
<td>MoALI</td>
<td>The ministry provides seeds and technical extension services to farmers. It previously had oversight responsibilities for cotton seeds, production, collection and ginning but there are now no coordinated efforts by government to handle these responsibilities.</td>
</tr>
<tr>
<td>Weaving Schools</td>
<td>Vocational training is offered at the Saunders Weaving and Vocational Institute in Amarapura and at 13 campuses across the country. Short-term textile training courses related to</td>
</tr>
</tbody>
</table>
weaving are conducted in local communities for people who
cannot attend regular training courses. The courses offer a 1-
year diploma in textile technology, a 6-month course in traditional
hundreds-shuttle weaving, a 3-month course in tapestries, a 6-
month course in hand-weaving, and a 1-year skilled weaver
course.

Mol
The ministry has a leading role in drafting the National Textile
Policy, which will play an important role in the development of
the textile and garment sector. The sector is one of the eleven
priority sectors under the NES.

4. SOCIAL AND ENVIRONMENTAL ISSUES

There are significant gaps in the social and environmental practices followed by the textile
and garment industries in Myanmar. Few of the national bodies and industry-specific
programmes are trying to improve practices and bring them to international standards. Some
of the standards and programmes in Myanmar that promote social issues include the
International Labour Organisation (ILO), the Business Social Compliance Initiative (BSCI),
EU-funded SMART Myanmar and the Ethical Trading Initiative.

Labour standards in the industry all stem from ILO conventions, although they may be
articulated in other ways such as through the Ethical Trade Initiative or the BSCI. While the
ILO provides the basic standards, some buyers also enforce additional regulations and
policies around such issues as living wages or energy efficiency. The country has started to
ratify ILO conventions against the worst forms of child labour and forced labour although
there is still a long way to go to achieve consistent implementation of standards (BIF Burma,
2016).

SMART Myanmar supports and promotes sustainable consumption and production of
garments made in Myanmar. It conducts training for middle management on chemical
management, social compliance, quality management and productivity. It works mainly with
factories and about 20 industrial textile mills. It employs 12 textile engineers with 11 of them
contracted by MGMA, and staff from about 280 factories attend their workshops. As one
example of its activity, it ran a program with Panda Textiles for six months on human
resource management and wastewater treatment. It also helped the MGMA create a
voluntary chain of custody wherein garment manufacturers can report the origin of various
inputs and raw materials. SMART social compliance involves onsite assessments, corrective
action plans, and corrective training. It usually helps a factory that is non-compliant work
towards compliance with BSCI policies.

WOMEN WORKERS
As of 2016, the garment industry employed about 350,000 workers, of which 90% were
women, generally 16 to 26 years old (Oxfam, 2015). Women are often engaged in this sector
at an early age to earn money and once they are married and have children, they generally
return to their hometowns and give up their jobs. The garment sector has an especially high
demand for workers and hence it is usually easy for women from rural areas to obtain jobs.
The high percentage of female workers presents an opportunity to increase women’s
empowerment and skills, though only if women are treated as more than simply a low-paid
and transient workforce.
Most of the women work in garment factories or are part of the home-based weaving sector. Women are mostly engaged in such roles as machine operators or have stitching, sewing, quality inspection and finishing jobs. Very few are in management or supervisory roles, although, perhaps an anomaly, the head of the Amarapura Textile Association is a woman. Of the 15 cotton farmers interviewed for this paper, six were women – a relatively high level of representation of women in the farming sector.

In a majority of the rural areas, many households are involved in weaving, conducted by women and girls. Young girls learn these skills from their mothers and grandmothers. The statistics below regarding the composition of female workers across the value chain were gathered in interviews with various supply chain stakeholders.24

- Export garment factories – 98% are women with 30% in staff positions
- Ginning factories – 30% are women, mostly performing cleaning tasks
- Textile factories – 80% women involved in sewing, cutting, finishing, and other roles
- Local longyi manufacturers – 90% women
- Saunders’s Weaving and Vocational Institute – almost 100% of the trainees are women

Some women also own small operations, mostly in the weaving sector and some in distribution. This could provide a base to increase the number of women in leadership positions with support from the government and other associations.

**ENVIRONMENTAL ISSUES**

Cotton production and textile and garment manufacturing are all water-intensive processes. Producing a T-shirt, for example, uses about 3,000 litres of water and producing denim can use up to 10,000 litres from fibre production to end-product manufacturing. Actual usage depends on the types of wet processes such as dyeing, printing and processing that the garment or end product goes through. These can be highly intensive energy uses as well.

![Figure 16: Water Pollution at Wundwin Township](image)

Environmental issues could pose a challenge to greater growth of the textile industry and even without expansion, many sizeable clusters of traditional textile production present environmental challenges. Inefficient water use, the use of banned chemicals, and a lack of recycling are all major environmental problems. Yet regulation and compliance present substantial costs. Bigger brands and manufacturers will have to lead the way. One international consultant has said neighbouring countries such as India, China and Bangladesh may be able to help Myanmar companies meet environmental standards based on the significant knowledge and expertise that they have already acquired.

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24 Refer to the Appendix for details on interviews.
Some of the stakeholders interviewed in Mandalay mentioned that international buyers offering supply contracts expect local operators to be environmentally compliant. Local governments are trying to ensure that factories involved in dyeing and processing treat their effluent. Most of the facilities visited did not have wastewater systems installed as they are expensive to establish and maintain. Some of the bigger companies with their eyes on the future are, however, in the process of building wastewater treatment plants. The village clusters visited used dyeing baths for dyeing and finishing and the wastewater was either thrown in the fields or dumped in the nearest waterway. As the industry scales up, regulations would have to be strictly enforced to protect water sources.

Figure 17: Polluted Water Enters the Wundwin Dam

Box 5: The Benefits of Being Organic

Cotton production is an extremely water-intensive process. An acre of cotton can take up to 10–15 metric tonnes of water depending on the method of irrigation. Mandalay has a mix of rain-fed and irrigated cotton farms and those using irrigation typically use flood irrigation methods that are very water intensive. Farmers could be taught to use more efficient irrigation methods.

Organic cotton is grown without the use of chemical pesticides or fertilisers. It uses 91% less water and 62% less energy (Textile Exchange, 2017). Organic cotton production helps improve biodiversity and the health and safety of farming communities. It reduces the impact on natural capital, promotes biodiversity and improves and maintains soil health (CottonConnect, 2017).
## 5. SECTOR CHALLENGES

A number of priority challenges must be addressed in order to grow the sector.

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Challenges Identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-quality cotton in Myanmar is limited</td>
<td>The quality of Myanmar’s cotton is not up to international standards because of poor practices adopted by farmers, ginners, and traders. Quality raw cotton with longer-staple length and optimum micronaire is insufficient to meet local demand and limits locally produced textiles. Other issues such as a labour shortage and a lack of financial incentives to improve production also have a major impact on quality.</td>
</tr>
<tr>
<td>Lack of a sector policy and strategy</td>
<td>The textile industry remains dependent on domestic production with no plan or capacity to fully compete in export markets. In addition, policies governing linkages among the relevant institutions within the industry are missing. This includes financial regulations and taxation, agricultural and industrial policies, and trade policies around such issues as tariffs, import and export regulations, and customs practices and rules.</td>
</tr>
<tr>
<td>Lack of standards</td>
<td>Myanmar lacks a compliance framework for basic quality standards covering links in the supply chain. Standards are needed on staple length, micronaire, and trash percentages. Standards are needed for yarn counts, user percentages, twists, and count strength. Fabric standards are needed on width, tensile and bursting strength, chemical use, and construction. Garment standards are needed on fit as well as accessory and strength standard parameters. These quality standards are mainly buyer-driven and in the absence of pressure from international markets, the local market operates on a supply-fed standards model.</td>
</tr>
<tr>
<td>Limited foreign investment</td>
<td>The textile industry is capital intensive and requires working capital to overcome volatility in prices for raw materials and finished goods. The private sector does not receive sufficient investment and currently exists as a cottage industry with SME enterprises. There is good potential to develop a vertically integrated textile and garment sector with support from brands such as H&amp;M, which has an office in Myanmar. That would not only create demand but also encourage foreign suppliers in China, Taiwan and India to establish operations in Myanmar and thus bring in foreign investment and expertise.</td>
</tr>
<tr>
<td>Lack of infrastructure</td>
<td>Most industries, not just garments and textiles, need proper infrastructure to support efficient operations. In Myanmar, this is one of the challenges limiting industry growth and competitiveness. Infrastructure needs cover issues such as electricity, transportation and communications systems.</td>
</tr>
<tr>
<td>Linkages among relevant institutions</td>
<td>The textile and garment sector flourishes when government ministries cooperate on trade policies. In Myanmar, coordination between the ministries of industry, agriculture, commerce, and finance, and universities and training institutions is weak. There is also little coordination with research and development institutions and organisations. Due to the absence of collaboration, efforts to strengthen the sector and see it grow are fragmented.</td>
</tr>
<tr>
<td>Lack of skilled labour and impact on low productivity</td>
<td>Local craftsmen with special skills in the traditional weaving sectors are becoming less numerous as young people have little interest in learning traditional skills and want to move to the cities to work and earn decent incomes. A weaving owner in Mudon said that because of a lack of labour and the increased cost of raw inputs, production has slowed over the last 8 to 10 years. To attract skilled labour, some factories offer signing bonuses of up to 500,000 MMK. This trend has now spread to such areas such as Kachin, Mandalay and Wundwin. In privatised government factories, there is a shortage of skilled labour and experienced managers. State-run firms often have an obligation to absorb legacy staff who are incapable of working in a physically demanding industry.</td>
</tr>
<tr>
<td>Fragmented weaving industry</td>
<td>The sector consists of fragmented, small and often unregistered units that invest little in technology and modern practices, especially those related to power looms, processing, hand looms and knits. The lack of coordination in the weaving sector due to this fragmented nature has a major impact on improving international competitiveness.</td>
</tr>
<tr>
<td>Lack of market linkages</td>
<td>The local textile industry is scattered and disorganised, without the management skills needed to access export markets. Producers generally have no direct connections to buyers and use middlemen or distributors to sell what they produce and so are usually unaware of market pricing and demand. Market access is a major impediment to growth because if producers do not know what is in demand, and what capacity is required, they cannot produce what consumers want, or end up producing goods they cannot sell. In-depth value chain analyses along with market research and product mapping for all the subsectors and traditional textile products can help create these market linkages.</td>
</tr>
<tr>
<td>Lack of supply chain mapping</td>
<td>The local textile industry has a fragmented domestic supply chain that makes it difficult to map. One of the challenges faced by H&amp;M was the lack of documented supply chains. If there was a database mapping the supply chains of various raw materials and products produced locally, this could improve export readiness.</td>
</tr>
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</table>
6. RECOMMENDATIONS AND CONCLUSIONS

The textile industry plays a significant role in the country’s culture. Cotton production is a prerequisite for textile industry growth and the cotton is produced in sufficient quantity, however the right technical support and research is needed to boost production and improve quality. Machinery, infrastructure, technical expertise, capital, policies, border trade issues, and foreign investment are some of the areas that must be addressed at regional and national levels for the industry to grow.

The formation of MTMA is a welcome move in giving the sector a voice and collectively identifying constraints and devising collective solutions. Similarly, the NES has a strong focus on textiles and the textile policy being drafted is a move in the right direction. Strategic and technical support from neighbours like India, Korea and China could go a long way in promoting sector growth. Commercial support from brands and strong private sector firms could provide a much-needed boost to help bring the industry in line with international standards.

Spinning and weaving capabilities would benefit from machinery upgrades and technical improvements. Knitting as a process is somewhat underdeveloped, yet given the country’s production of shorter cotton staple lengths has potential. Traditional textiles could become popular in international markets, though need market support and development guidance along with much-needed machinery upgrades.

Further government intervention, such as an investment plan with machinery and infrastructure upgrades, skills and expertise development, cluster development, chemicals management, and regulatory compliance would support longer-term growth. Working with the MoALI on cotton seed development, together with building capacity of cotton farmers, would improve the quality of Myanmar cotton.

Involving foreign associations and textile ministries to engage in a mutually beneficial trade model would help to build local capacities, attract investment, and provide cheaper raw materials and fabrics. There is also the potential to build a strong export base and increase market linkages. With focused attention and investment, Myanmar’s textile industry is poised for strong growth.

6.1. Recommendations on Best Practices

**IMPROVED COTTON QUALITY**

Increasing the quality and quantity of Myanmar’s cotton is necessary to strengthen the value chain. There is not enough quality raw cotton with longer-staple length and optimum micronaire to meet local demand and hence imposes limits on the production of textiles made from local cotton. In addition, the quality of the cotton grown is poor and farmers are not aware how to improve quality. Providing farmers with the knowledge and skills to follow best practices and increase production and improve quality is required. Farmers also need greater awareness about the textile and garment supply chain.

**SEED DEVELOPMENT AND LINKAGES**

A centralised seed development facility to monitor and facilitate research and development would be one step towards improving quality as would creating more model farms in cotton production regions. The MoALI is developing some cotton varieties to distribute to farmers. A
potential solution which the government is working on is to provide tried and tested seeds to farmers.

An agriculture official in Mandalay mentioned during an interview that the ministry is developing good quality cotton seeds as an alternative to the old seeds that many farmers use. Commercial linkages are also being developed that have allowed seed companies to produce and distribute newer varieties. The ministry has established 5 seed production centres covering 550 acres, which would potentially support 700,000 acres of cotton.

**REGULATIONS FOR GINNING AND LINT EXPORT**

Ginning should come under the purview of the MoALI because that is where cotton lint is processed. Farm-gate prices are based on the market price of lint. As per interviews and discussion with various stakeholders, the legal and illegal border trade with China for cotton lint is a major source of supply shortages. Involving ginning as a hub with cotton farmers and regulating both could increase industry fortunes.

**OPPORTUNITIES IN WEAVING**

The weaving industry has opportunity to grow. Because many factories have very old looms, there are possibilities to bring machinery from India, buying their old looms, which are not as old as those in Myanmar but not as advanced as those in China and hence not as expensive. A short-term strategy would involve improving machine quality and increasing the quality of local yarn. A long-term strategy would diversify products, improve quality, develop a product export strategy and expand local markets. Product costs could be reduced if the government reduced taxes, improved electricity supply, and provided support programmes to buy weaving and spinning machines from countries such as India.

While the fragmented nature of the weaving industry is a challenge, it can also be a great strength if policies can harness the potential in the clusters to produce traditional and intricate designs as part of an organised industry strategy catering to global and domestic demand. Productivity and quality would have to be significantly improved and the cluster model from India could be a good place to start.

**IMPROVED CAPACITY OF THE TEXTILE ASSOCIATION**

The MTMA as a relatively new organisation needs an organisational structure and professionals to manage it. The MGMA and the MTMA have some common board members but greater cooperation between them is needed. A common platform to estimate and share regional production volumes of textiles, cotton and other related materials is necessary.

An official of the MoL recommended that Myanmar follow the example of India where all the sectors of the textile value chain work under one association, sharing information across the sector.

**TEXTILE SECTOR POLICY**

The aim of the national textile policy is to produce quality textile products at a reasonable price to meet national needs and compete in international markets. The policy would focus on such important areas as raw material production, production technology and infrastructure, quality standards and systems, human resource developments, and an overall favourable environment. A well-designed and well-implemented policy could provide a solid foundation for sector growth. Rolling 3 or 5-year plans could incorporate new ideas and
lessons learned. The policy should be informed by input and participation from the various subsectors of the industry.

**SUSTAINABILITY STANDARDS**

Sustainability standards are playing a meaningful role in improving the sustainability of the textile sector around the world. They provide assurances for retailers and brands looking for verification across the supply chain that their product is being ethically and sustainably produced. It is expected that specific cotton standards would be introduced in Myanmar after the textile policy is created.

**INFRASTRUCTURE SUPPORT**

In an interview, one SME representative said the sector needs not only a good policy foundation but infrastructure support. For example, some textile machines such as those involved in finishing are very expensive and require wastewater treatment for dyeing process. If the government could take responsibility for wastewater treatment, businesses would have more capital available to improve their businesses.

**IMPORT-EXPORT POLICIES**

As of August 2018, India increased the basic customs duty to 20% from 10% on certain textile products to promote the Make in India programme and support indigenous production (Press Trust, 2018). This could be an example that Myanmar could follow to boost production of local textiles. Such a move would not affect the CMP industry - a priority sector for the government - as CMP production is tariff-free, but textile imports for domestic use could be curbed. This would not only promote local textile production but significantly reduce lead times for industries that rely on local textiles.

**SUPPORT FOR VERTICAL VALUE CHAINS**

Vertical value chains can provide support for the export industry if they can be developed with adequate government backing. Cotton production can meet CMP requirements if there is support for textile production and local sourcing of raw materials. The MTMA wants to support exports and create a commercial business case for such export entities. Some other associations are also willing to provide help on creating such business cases or assisting with capital.

The Leader of Textiles Co. has considered buying seeds from India for contract farming. It has a 5-year plan to set up a vertically integrated operation in Wundwin from weaving to finishing. The Raymond Group in India is helping by selling spinning and weaving machines on instalment and providing technical training. Land has been purchased and construction has started. There are plans to set up a dyeing unit with an effluent treatment plant. H&M, with assistance from Chinese companies, is also having discussions with The Leader of Textiles to set up fabric-manufacturing units with export-quality dyeing and finishing operations.

**A TEXTILE SPECIAL ECONOMIC ZONE**

The MTMA is requesting support from the government to set up a textile special economic zone in the Yangon area and one in the Mandalay region. The MTMA will seek support from Korea for machinery and from the Myanmar government for land. Companies will be invited to set up operations in the zone.
ANNEX 1: STAKEHOLDERS INTERVIEWED

Names of organisations, agencies, manufacturers, and brands that were interviewed for this study:

- Acrylic importers, dyeing operators and distributors
- Aung Gabar ginning unit, Mandalay
- Control Union, Yangon
- DaNa Facility, Yangon
- Farmers in Mandalay
- Gabba Thit Computer Embroidery and Garment
- H&M, Yangon
- Imax Garment Manufacturer
- Leaders of Textile Public Co. Ltd., Wundwin, Mandalay
- Longyi and textile distributors
- Mandalay Textile Association
- Ministry of Agriculture, Livestock and Irrigation
- Ministry of Industry, Yangon
- MTMA member in Shan State
- MTMA Monywa president
- MTMA, Yangon
- Myitkyina Weaving School
- Nanmadaw Textile Shop
- Panda Textile
- Professors and students in the textile department of Yangon Technological University
- Regional weaving and textile industry representatives
- Saunders’ Weaving and Vocational Institute
- SMART Myanmar
- SME and cottage industry representatives
- SME Training Center
- Taunggyi Textile and General Trading
- Turquoise Mountain Myanmar
- U Aung Myint Ginning
- U Gyan Longyi Brand, Mandalay
- U Sein Than Factory in Kayin State
- Yarn traders, Mandalay
- Zayar Aung Waving and Dyeing factory
## ANNEX 2: TEXTILE FACTORIES UNDER THE MINISTRY OF INDUSTRY

- Sarlingyi Textile Factory
- Pwint Phyu Weaving Factory
- Pakokku Textile Factory
- Sagaing Textile Mill
- Sagaing Textile Factory
- Monywa Textile Factory Branch
- Wundwin Textile Factory
- Myittha Textile Factory
- Pyawbwe Textile Factory
- Yamein Textile Factory Branch
- MyinGyan Textile Factory Branch
- Taungtha Textile Factory

### Factory Name

<table>
<thead>
<tr>
<th>Factory Name</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shwedaung Textile Factory, Bago</td>
<td>Yarn (100% cotton)</td>
</tr>
<tr>
<td></td>
<td>Yarn (100% cotton)</td>
</tr>
<tr>
<td></td>
<td>Grey Fabric</td>
</tr>
<tr>
<td>Sagaing Textile Mill, Mandalay, Monywa</td>
<td>(a) Shirts (Male &amp; Female)</td>
</tr>
<tr>
<td></td>
<td>(b) Trousers</td>
</tr>
<tr>
<td></td>
<td>(c) Mosquito nets</td>
</tr>
<tr>
<td></td>
<td>(d) Robes</td>
</tr>
<tr>
<td>Sagaing Textile Factory, Monywa</td>
<td>Yarn (100% cotton)</td>
</tr>
<tr>
<td></td>
<td>Grey Fabric (100% cotton)</td>
</tr>
<tr>
<td></td>
<td>Cotton and Polyester Blend</td>
</tr>
<tr>
<td>Pwint Phyu Weaving Factory, Magway Region</td>
<td>Grey Yarn</td>
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<tr>
<td></td>
<td>Grey Fabric</td>
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<tr>
<td>Pakokku Textile Factory, Magway Region</td>
<td>Yarn (100% cotton)</td>
</tr>
<tr>
<td></td>
<td>Grey Fabric (100% cotton)</td>
</tr>
<tr>
<td></td>
<td>Polyester Cotton 65/35</td>
</tr>
<tr>
<td>Monywa Textile Factory Branch, Monywa</td>
<td>Yarn (100% cotton)</td>
</tr>
<tr>
<td></td>
<td>Grey Fabric (100% Cotton)</td>
</tr>
<tr>
<td>Sarlingyi Textile Factory, Sagaing Region</td>
<td>Yarn (100% cotton)</td>
</tr>
<tr>
<td></td>
<td>Grey Fabric (100% cotton)</td>
</tr>
<tr>
<td></td>
<td>Mixed Polyester Cotton</td>
</tr>
<tr>
<td>Factory Name</td>
<td>Products</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>----------------------------------------------------</td>
</tr>
</tbody>
</table>
| Wundwin Textile Factory Branch, Mandalay | Yam (100% cotton)  
Women's Wear (Longyis)  
Men's Wear (Longyis)  
Grey Fabric |
| Myittha Textile Factory, Mandalay Region | Yarn                                               |
| Yamethin Textile Factory Branch, Yamethin | Grey Fabric (100% cotton)  
Polyester Cotton (65/35)  
Bleaching and Dyeing  
Printing |
| Pyawbwe Textile Factory, Mandalay   | Yarns (100% cotton)                                |
| Taungtha Textile Factory, Mandalay  | Vest, T-shirts, Sports shirts, Women's and Children's Wear |
| MyinGyan Textile Factory Branch, Mandalay | Grey Fabric (100% cotton) |
BIBLIOGRAPHY


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