

## **COTTON TEXTILE INDUSTRY**

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### **1. INTRODUCTION**

Clothing comes next only to food in importance in the daily life of people. Naturally, textile industry which produces various textiles including household fabrics and accessories apart from its main product, clothing occupies a pivotal place in the economy and society of Myanmar. It represents one of the largest groups of manufacturing industries in terms of the value of production as well as source of direct and indirect employment to the people. Out of 13 manufacturing industries which are currently functioning in Myanmar, textile industry ranks fourth by value of production after food and beverage, mineral and industrial raw material manufacturing industries. While it may not compete with food and beverage industry both in size and value of production due to the latter's undisputed dominant position by accounting for nearly 85% of the entire sector, the share of textile industry standing at 1.47% is more or less comparable with the second and the third ranking mineral and industrial raw material manufacturing industries with each contributing 5.42 and 4.34% respectively to the sector. The share of the remaining 9 industries makes up the rest and accounts for nearly 5%.

The different segments of the textile industry both in public and private sectors provide employment to over 200,000 people. In addition, hundreds of thousands of farmers are working on cotton farms and thousand of others earning their living through cotton trade, cotton ginning and by-product processing.

### **2. HISTORICAL PERSPECTIVE OF MYANMAR TEXTILE INDUSTRY**

The textile industry as such which produces textiles using modern techniques of spinning, weaving and processing is a relatively recent event in Myanmar. A fly shuttle loom which is considered a modern weaving tech-

nology for that time was introduced in Myanmar only in 1914, nearly 200 years after its invention in 1732 and widespread use in Europe and in some Asian countries.

In prewar times, some enterprising Myanmar nationals attempted to develop a modern national textile industry by inventing cotton fluffing, reeling and winding machines or imitating spinning and weaving machines of Japanese models. Yet, these pioneering endeavours were not materialized primarily due to lack of enthusiasm and support from the part of the then colonial government.

Myanma fledgling textile industry suffered a setback during the early years of British rule due to importations of cotton and silk fabrics from England, India and Japan. However, the growing patriotism at the dawn of last century last century as agitated by Myanmar Wonthanu patriotic movement helped revive the struggling domestic textile industry. The movement's encouragement to use the domestic products contribute to rebounding popularity of domestic cotton fabrics.

Textile industry with a strong emphasis on production of synthetic fabrics using imported synthetic fibres became one of the most boomed economic sectors of Myanmar during the years following independence in 1948 until its nationalization in 1962, marking entering of the socialist era. Locally produced fabrics had brought fame throughout the South East Asia, and the textile industry was even regarded as the most advanced in the region at that time.

However, much of the skills and entrepreneurs that developed an emerging industry left for other countries during the socialist regime, leaving the industry which caters for the local market static even till today (Moe Kyaw, 2000).

While current Myanmar textile industry may not be regarded as a fully modern one by the international standard, it on the other hand provided fabrics meeting to a certain extent the needs of people. It is particularly true with the traditional weaving cottage industry, which produces traditional clothings, such as *longyis* for men and *htameins* for women.

Myanmar people are unique to preserve national traditional costumes, despite increasing exposure to foreign culture and inroads of western style outfits. These traditional dresses, many have been changed in design and pattern, but they essentially remain the most popular formal costumes till today.

It is not known exactly when and where the traditional hand weaving was first employed in Myanmar. Yet, it is widely believed that ancient Myanmar people learned the art of cotton reeling and weaving from royal Indian immigrants who fled India after a failed uprising and settled in Tagaung region in Upper Myanmar in 600 B.C. Another version relating to the origin of traditional weaving in Myanmar supposes that the art of cotton cultivation and hand weaving were brought to Myanmar by Buddhist monks in 300 B.C. who were dispatched to all countries in the region by King Asoka of India on religious missions to propagate Buddha's teachings.

Myanmar has long been recognized as having a high cultural standard since ancient times. Historical records noted that the clothing woven by ancient Myanmar as far as a thousand years ago dating back to Pyu era were so fine and smooth that they could not be found anywhere else. The art of traditional weaving has continued to thrive in the subsequent epochs of Myanmar kings following Pyu era. The heir apparent to the throne, Prince Kanaung has taken vast strides to develop various industries including textile industry during King Mindon's rule in the mid 1990s during Konbaung dynasty. Cotton ginning, weaving, and garment factories were built near the ammunition factory in northern quarters of Mandalay royal city.

Traditional weaving as well as domestic textile industry passed through difficult years during the colonial period. Colonial government took no interest to develop local textile industry and it even went further to deliberately block modern textile technology from reaching Myanmar. As a consequence, the production as well as the quality of domestic products experienced a downfall during that time.

Successive national governments of Myanmar in the post-independence period took promote efforts to traditional weaving, transforming into a

viable cottage industry while simultaneously embarking on modernization of the textile industry. As part of the modernization scheme a number of state-owned large scale spinning and weaving composite mills were built during 1970s. However, public sector textile industry could not cope with the rising needs of populace in fabrics, thereby the room for the private sector textile industry and cottage industry to step up domestic production to narrow down the gap.

The major turning point for Myanmar textile industry took place with the policy reforms of the government allowing foreign and private participation in business operations including textile industry with the advent of market economy in early 1990s. A series of changes have taken place in the textile industry since. Large scale private own spinning mills are operating now along side with a thriving export-oriented garment industry, built with foreign capital. Now enterprises with various ownerships, such as state-owned ones, private ones, foreign capital ones and joint-venture ones are co-existing and complementary to each other.

### **3. COTTON TEXTILE INDUSTRY**

Myanmar textile industry predominantly uses cotton for textile production. It can be differentiated into various segments in terms of ownership, function and use of handloom or powerloom technology. As a whole current Myanmar textile industry appears to possess sufficient capacity to cope with domestically produced cotton.

On the other hand, current domestic production of cotton can provide only a fraction of the fabric needs of people. Thus textile industry of Myanmar is poised for future expansion, given current efforts of the government to step up cotton production, to make cotton more available to the industry.

#### **3.1. State-owned Sector**

Myanma Textile Industries (MTI) under the Ministry of Industry (1) is responsible for operating state-owned textile mills which comprise four spinning and weaving composite mills, six weaving factories, three gar-

ment factories one blanket mill, one towel factory, one medicinal textile factory and one sewing thread mill. With over 125,800 spindles, about 3,880 powerlooms and three complete range of dyeing and printing units, MTI constitutes the single largest modern component of the textile industry in Myanmar. Yet, its share in the fabric production relative to the needs of population which stood at 50 million in 2000-2001 just exceeds 3.2 percent. Textile mills of MTI according to the structure and product lines are provided in Table 1.

**Table 1 : Structure of Textile Mills under Myanmar Textile Industries in the State-Owned Sector**

| Type of mills         | No.       | Employment    | Main machinery               |         | Product                |
|-----------------------|-----------|---------------|------------------------------|---------|------------------------|
|                       |           |               | Type                         | No.     |                        |
| 1. Spinning & weaving | 4         | 10,700        | Spindles                     | 124,800 | Yarn, Gray fabrics     |
|                       |           |               | Looms                        | 2,100   |                        |
|                       |           |               | Dyeing                       | 28      |                        |
|                       |           |               | Printing<br>(Complete range) | 2       |                        |
| 2. Only weaving       | 6         | 3,537         | Looms                        | 1,316   | Gray fabrics           |
|                       |           |               | Dyeing                       | 51      |                        |
|                       |           |               | Knitting                     | 49      |                        |
| 3. Garment            | 4         | 1,901         | Sewing machines              | 1,358   | Shirts, Mosquito nets  |
| 4. Blanket            | 1         | 1,066         | Spindles                     | 1,000   | Blanket, Vest          |
|                       |           |               | Looms                        | 136     |                        |
|                       |           |               | Knitting                     | 50      |                        |
| 5. Towel              | 1         | 808           | Looms                        | 164     | Towel                  |
| 6. Medicinal textile  | 1         | 432           | Looms                        | 164     | Cotton wool<br>Bandage |
|                       |           |               | Kiers                        | 4       |                        |
| 7. Sewing thread      | 1         | 287           | Twisting machines            | 10      | Thread                 |
| <b>Total</b>          | <b>18</b> | <b>18,731</b> | -                            | -       | -                      |

Source: MTI.

In setting up the state-owned textile industry, government aims at providing people with fabrics at affordable prices with a reasonable quality. Although quality is subject to debate textile products of MTI are widely

popular, particularly among the low and middle income people, primarily due to cheaper prices relative to private sector and imported textiles. However, the production is not large enough to have a real impact on the economics of the consumers. While insufficient installed capacity is a major factor for its low share in fabric production, inadequate supply of cotton on one hand and the decreased efficiency of state textile mills on the other had a toll on their performance leading to the substantial reduced capacity of textile mills. Currently most of the government textile mills are running at about 60-70 percent of the installed capacity. The textile industry of Myanmar including state-owned mills predominately use cotton for textile production. Cotton is supplied to the state-owned textile mills by Myanmar Cotton and Sericulture Enterprise (MCSE), a government agency under the Ministry of Agriculture and Irrigation. Low procurement of cotton by MCSE due to uncompetitive purchase prices had resulted in reduced supply of cotton. Scarcity of foreign exchange did not permit to import cotton to make up for the shortage either.

Except for the two garment factories which were established in early 1990s, all other state-owned textile mills are old and worn out. Even relatively modern spinning and weaving composite mills have been operated since 1970s. Weaving factories, blanket mill and towel mill are as old as 50 years. MTI could hardly carry out proper maintenance works to sustain the efficiency of the mills due to lack of adequate funds to buy or import spare parts. Some of the spare parts are simply not available because original manufactures are no longer producing such an old model machines. So the industry has to rely on locally makeshift spare parts which apparently are not reliable, leading to the frequent breakdown of the machines affecting the efficiency and hence the capacity of the mills. Raw material requirement, supply and the production scenario of the state-owned textile mills in 2000-01 are provided in Tables 2 and 3 respectively.

In the state-owned sector, there are two large spinning and weaving composite mills operated by Defence Services. These mills were transferred from the Ministry of Industry(1) to Defence Services a few years ago to produce fabrics for military personnel. The spindleage of these mills is

**Table 2 : Raw Material Requirement and Supply Scenario of Myanmar Textile Industries in the State-Owned Sector**

| Type of mills      | Type of raw material | Unit    | Requirement | Supply              |        |          | Supplied Percentage |
|--------------------|----------------------|---------|-------------|---------------------|--------|----------|---------------------|
|                    |                      |         |             | Domestic Production | Import | Total    |                     |
| Spinning & Weaving | Lint                 | MT      | 5,922.00    | 3,338.00            | 390.92 | 3,728.42 | 62.96               |
|                    | Yarn                 | '000 lb |             |                     |        |          |                     |
| Weaving            | Polyester            | '000 lb | 424.90      |                     | 548.70 |          | 129.14              |
|                    | Yarn                 | '000 lb | 2,183.00    | 1,896.00            |        | 1,896.00 | 86.87               |
| Garment            | Polyester            | '000 lb | 220.50      |                     | 220.50 | 220.50   | 100.00              |
|                    | Gray cloth           | '000 yd | 76.60       | 88.47               |        | 88.47    | 115.49              |
| Blanket            | Cotton lace          | '000 yd | 17.59       | 17.67               |        | 17.67    | 100.45              |
|                    | Nylon lace           | '000 yd | 2.52        | 4.98                |        | 4.98     | 197.62              |
|                    | Lint                 | MT      | 41.64       | 26.78               |        | 26.78    | 64.31               |
| Towel              | Acrylic              | MT      | 50.00       |                     | 25.13  | 25.13    | 50.26               |
|                    | Yarn                 | '000 lb | 529.20      | 463.10              |        | 463.10   | 87.50               |
| Medicinal textile  | Lint                 | MT      | 186.97      | 26.45               |        | 26.95    | 14.15               |
|                    | Yarn                 | '000 lb | 485.10      | 132.30              |        | 132.30   | 27.27               |
| Sewing thread      | Polyester            | MT      | 0.22        |                     | 0.16   | 0.16     | 72.72               |

Source: MTI.

**Table 3 : Textile Production by Myanmar Textile Industries in the State-Owned Sector**

| Type of mills      | Product        | Unit        | Installed capacity | Production    | Value (million Kyats) |
|--------------------|----------------|-------------|--------------------|---------------|-----------------------|
| Spinning & weaving | Yarn           | '000 lb     | 10,419             | 7,005         | 1,785.90              |
|                    | Gray cloth     | '000 yd     | 30,981             | 11,464        |                       |
|                    | Cotton blended | '000 yd     |                    | 11,464        |                       |
| Weaving            | Gray cloth     | '000 yd     | 16,577             | 6,323         | 590.66                |
|                    | Cotton         |             |                    | 5,933         |                       |
|                    | Blended        |             |                    | 390           |                       |
| Garment            | Shirt          | '000 pieces | 2,023              | 1,683         | 566.15                |
|                    | Robe           | '000 pair   | 296                | 55            |                       |
|                    | Mosquito net   | '000 pieces | 107                | 501           |                       |
| Blanket            | Yarn           | '000 lb     | 1,327              | 752           | 159.94                |
|                    | Blanket        | '000 pieces | 1,410              | 225           |                       |
|                    | Vest           | '000 pieces | 1,479              | 1,083         |                       |
| Towel              | Towel          | '000 pieces | 3,442              | 3,076         | 151.52                |
| Medicinal Textile  | Cotton Wool    | '000 lb     | 360                | 323           | 65.86                 |
| Textile            | Bandage        | Sq. yd      | 6,719              | 3,040         |                       |
| Sewing Thread      | Thread         | '000 pieces | 17,626             | 8,074         | 46.81                 |
| <b>Total</b>       |                |             | <b>92,766</b>      | <b>61,391</b> | <b>3,366.84</b>       |

Source: MTI.

120,000 and number of looms constitute 1,517. All mill units have a combined production capacity of 14,600 thousand lb of yarn and 14,790 thousand yard of gray fabrics. The mills basically use cotton for textile production and it is supplied by MCSE. Hence, the mills are facing the same difficulties as with MTI mills in acquiring adequate supply of cotton. For the past three years, MCSE could supply only 59% of lint cotton requirement. In the absence of information regarding yarn or lint imports to supplement the requirement, it is roughly assumed that the mills are running at 70-75% of installed capacity. The mills might have ageing problems too, because the spinning and weaving mills were established between the 1960s and the 1970s.

To alleviate low cotton supply problem from MCSE, it is learnt that Defense Services have initiated measures to grow 20,000 acres of cotton by opening new lands in Magway Division. It is supposed to be a fully irrigated and mechanized farm. When the scheme is fully materialized, own production from the farm is expected to offset cotton supply deficit to a large extent.

### **3.1.1. New State-owned Spinning and Weaving Mills**

At a time when cotton supply to the existing state-owned textile mills have declined during the past few years due to low government procurement of cotton, the government has started recently building new spinning and weaving mills in areas where cotton production could be boosted in future. Currently there are four state-owned mills under construction: three spinning and weaving composite mills with MTI and one spinning mill with MCSE. Each of the three MTI mills has 29,760 spindles and 2,438 looms whereas MCSE's spinning mill has a spindleage of 27,126. All these mills are expected to be operational within two years time. With the commissioning of new mills, the availability of locally produced fabrics will be definitely increased by about 60 million yard. On the other hand, it will further constrain the supply of domestic cotton to the existing state-owned mills unless the production and government procurement of cotton is significantly improved.

Recently, a vest factory with MTI built under an agreement with China

has commenced trial operations. The machinery valued at US\$ 2.95 million was imported from China, Taiwan and Japan with China supplying about 70 percent of the purchase. When in full operation, the vest factory will have an annual output of almost 2 million vests of various kinds. It will also provide employment to 1,600 people. Moreover, A new dyeing and printing factory located at Yamethin, another major cotton growing area in Mandalay Division has also been earmarked to be opened before 2005-06.

### **3.1.2. Future Thrusts**

The government is committed to upgrade and strengthen MTI factories to enable the state own sector to realize full potential, to achieve excellence in performance and to fulfill its obligations in producing good quality cloth at acceptable prices, besides contributing to the provision of sustainable employment and the economic growth of the nation. It also envisages to increase its share in the domestic production of textiles.

In furtherance of these objectives, MTI has been tasked to carry out major renovation works or upgrading of the worn out textile mills to restore or further enhance the capacity, adding on new machines to the existing facilities and building of new mills for product diversification as well as maximizing employment opportunities.

Accordingly, MTI has drawn a scheme for renovation and replacing of old machinery in the three spinning and weaving composite mills and one weaving mill. The remaining fourteen mills however, are too old and worn out that even major repair works would not help to restore their original capacities. Therefore, only current levels of production could be maintained by providing proper maintenance works with the use of locally manufactured spare parts. It has been projected that yarn production will increase by 18 percent from current production of 6.26 million lb to 7.38 million lb and gray fabric production by nearly 22 percent from 20.31 to 24.72 million yard after full renovation of the existing spinning weaving mills.

An ambitious plan has also been set to build new textile mills in the first

five year plan of the long-range thirty years plan. Apart from five textile mills which are either under construction or under the trial run, new five spinning and weaving composite mills including two mills, using the open end spinning technology, and two weaving factories installed with advance Rapier weaving machines.

### 3.2. Cooperative Sector

The share of cooperative sector in fabric production is rather significant. There are 131,898 handlooms and 235 powerlooms, mainly producing men's longyis, women's htameins, blankets and household fabrics such as home furnishings, bed linens and napkins. It is estimated that 685 thousand yards of fabric are produced by handlooms and 25 thousand yard by powerlooms respectively. An estimated textile production of the cooperative sector is furnished in Table 4.

**Table 4 : Textile Production by the Cooperative Sector**

| Type of firms | No. | Main machinery |                | Estimated production |                 |
|---------------|-----|----------------|----------------|----------------------|-----------------|
|               |     | Type           | No.            | Yarn ('000lb)        | Fabric ('000yd) |
| Spinning      | N.A | Spindles       | 300            | 180                  | -               |
| Weaving       | N.A | Powerloom      | 235            | -                    | 2,500           |
|               |     | Handloom       | 131,898        | -                    | 68,500          |
| <b>Total</b>  |     |                | <b>132,433</b> | <b>180</b>           | <b>71,000</b>   |

Source: TIC, (currently MTI).

### 3.3. Private Sector

Private sector virtually accounts for the largest share of textile production in Myanmar. The sector is however mainly represented by small and medium weaving mills and home hand spinning and traditional weaving units mostly in indigenous short staple cotton growing rural areas. The sector mainly produces men's longyis, hand woven blankets, towels, napkins, ropes and various household items. Updated statistics relating to the number of such units, nor the production volume of various textile items from these units are not available. However, previous surveys have

estimated that there were around 150 spinning wheels in each of 300 villages in these areas. Thus 45,000 spinning wheels which are assumed to be operational to satisfy the local household needs in fabrics will produce around 6,750 thousand lb of yarn, since hand spinning wheel can spin 150 lb of yarn annually (TIC, 1986).

In addition, local imitation of ring spinning frames which are known as revolving cup spinning frames are popular in Monywa (Sagaing Division) and Pakoku (Magway Division) to produce coarse count yarns. These local-made spinning frames may be differentiated according to the use of raw material. While those in Monywa area predominantly use recycled lint which is obtained after machine fluffing of cloth cuttings from garment factories or waste and rejected yarns from spinning mills, those in Pakoku area exclusively use regular hand spun yarns or yarns produced by private-owned large scale spinning mills. An estimated number of all revolving cup spindles representing both types is around 70,000 with a production capacity of 3,660 thousand lb of yarns annually.

With the partial liberalization of cotton trade a number of large spinning mills with a combined spindleage of 48,152 have come up in main cotton areas over the past few years: four of them are in Mandalay and one each in Sagaing and Monywa areas respectively. Annually, newly established mills consume around 4,000 MT of cotton lint producing approximately 7,410 thousand lb of 20s and 40s yarns. The yarns are of better quality relative to hand-spun yarn or yarns produced by revolving cup spinning frames. The price of the yarns is also competitive making them popular in local yarn markets. They are also replacing at least part of the imported yarns, mainly from China and India. However, these yarns may not completely take over the imported quality yarn market in near future because higher quality imported yarns still serve as the core raw material for manufacturing brand name longyis of local fame.

The local hand spinners and owners of revolving cup spinning frames are already suffering from the market penetration of large scale spinners. Weavers of blankets and traditional coarse yarn longyis now prefer these yarns to use as warp since it improves the quality of the product at a comparable cost price but at higher consumer acceptance. However, it

**Table 5 : Textile Production by Private Sector**

| Type of firms      | No.    | Main machinery  |         | Estimated production |                   |
|--------------------|--------|-----------------|---------|----------------------|-------------------|
|                    |        | Type            | No.     | Yarn<br>(000lb)      | Fabric<br>(000yd) |
| Spinning           |        |                 |         |                      |                   |
| - Large mills      | 6      | Spindles        | 48,152  | 7,410                | -                 |
| - Cottage Spinning | N.A    | Revolving cups  | 70,000  | 3,660                | -                 |
| - Hand Spinning    | 45,000 | Spinning wheels | 45,000  | 6,750                | -                 |
| Weaving            | N.A    | Handlooms       | 200,000 | -                    | 136,900           |
|                    |        | Powerlooms      | 1,870   | -                    | 19,800            |
| <b>Total</b>       |        |                 |         | <b>17,820</b>        | <b>156,700</b>    |

Source: Survey.

**Table 6 : Average Retail Prices of Clothing and Apparel at Yangon**

(Kyat per unit)

| Type of Fabrics                  | Specification                | Unit  | 1995   | 1996   | 1997   | 1998   | 1999   | 2000   |
|----------------------------------|------------------------------|-------|--------|--------|--------|--------|--------|--------|
| 01. Long cloth                   | White, inferior 36"          | yd    | 48.46  | 54.49  | 60.84  | 101.66 | 87.64  | 97.06  |
| 02. Tetron                       | Coloured 36" foreign         | yd    | 99.18  | 106.23 | 130.82 | 213.00 | 183.53 | 350.43 |
| 03. Tetron                       | White, inferior 36", foreign | yd    | 94.03  | 94.67  | 114.27 | 201.44 | 171.97 | 206.88 |
| 04. Printed Sheeting             | Local                        | yd    | 60.71  | 85.97  | 104.17 | 211.65 | 232.79 | 270.89 |
| <b>Garments</b>                  |                              |       |        |        |        |        |        |        |
| 01. Cotton Longyi                | Gents 2/80                   | Piece | 279.43 | 284.49 | 335.85 | 524.06 | 600.80 | 750.26 |
| 02. Cotton Longyi                | Gents 2/64                   | Piece | 172.31 | 191.52 | 240.47 | 431.09 | 538.83 | 533.70 |
| 03. Vest                         | 1/40 Cord                    | Piece | 16.15  | 65.80  | 70.98  | 116.12 | 146.42 | 167.71 |
| 04. Vest                         | 1/30 Cord                    | Piece | 48.89  | 55.74  | 68.57  | 108.91 | 142.38 | 155.68 |
| <b>Other Personal Requisites</b> |                              |       |        |        |        |        |        |        |
| 01. Towel                        | Local 24"x52"                | Each  | 112.01 | 126.29 | 159.06 | 240.63 | 233.33 | 257.91 |
| 02. Shan Bag                     | Superior                     | Each  | 333.19 | 282.33 | 343.58 | 450.39 | 500.08 | 525.46 |
| 03. Shan Bag                     | Kawa 12"x14"                 | Each  | 134.67 | 122.33 | 135.46 | 250.11 | 300.43 | 380.63 |

Source: CSO, 2001.

seems that the spinning segment is short of the capacity to provide the quality of yarn which is sufficient for supposed production of fabrics in the private sector. There may still be spinning activities which have yet to be accounted for, or unspecified quantity of imported yarns may have had a role in making up this gap. The production of yarn and fabrics by the private sector catering to domestic market is presented in Table 5.

### **3.3.1. Cost of Production and Financial Returns**

During the past years, the prices of clothing and apparel including locally produced fabrics has gone up substantially (Table 6).

Yet, the local textile manufacturing industry has seen a decline in profits due to increasing costs for raw material which accounts for 75 per cent of the total cost of the longyi and other fabrics. Since most of the firms has to rely on own diesel-driven engines and generators for power supply, increasing cost for fuel and ever increasing labour costs are cutting further the profits. Cost structure for some locally manufactured textile products is provided in Table 7.

Currently profit margins for local spinners and hand weavers range between 6.73 to 8.78 percent. The net profits, however, were reduced more than two times during the past 3 years. Local manufacturers are increasingly concerned with the escalated costs of raw materials.

### **3.3.2. Registered Private Enterprises in Textile Industry**

Private textile manufacturing enterprises produce diversified textile products to cater to the domestic market. However the largest share of the products or the firms are accounted for by the traditional longyi manufacturing enterprises which also provide highest employment. Traditional longyi weaving enterprises are mostly located in Mandalay division (90%), Sagaing division (9%) and the rest elsewhere (Hla and Hla, 2000).

Until mid 1990s, private spinning enterprises are exclusively represented by small units of revolving cup spinning frames. But with the opening of

**Table 7 : Cost Structure of Locally Manufactured Fabrics**

**I. Yarn from revolving cup spinning**

(Two spinning frames with a total of 240 cups)

a. Cost

|  |                     |
|--|---------------------|
| Lint cotton (10 viss)                    | 13,000 Kyats        |
| Labour wages for fluffing of lint        | 10 Kyats            |
| Labour wages for preparing slivers       | 20 Kyats            |
| Labour wages for spinning                | 320 Kyats           |
| Labour wages for winding yarn on bobbins | 72 Kyats            |
| Power                                    | 70 Kyats            |
| <b>Total</b>                             | <b>13,492 Kyats</b> |

b. Income

|               |              |
|---------------|--------------|
| Yarn (9 viss) | 14,400 Kyats |
|---------------|--------------|

c. Profit (6.73%)

908 Kyats

**II. Hand woven blankets (10 pieces)**

a. Cost

|  |                     |
|--|---------------------|
| Cotton (50 viss)                               | 17,500 Kyats        |
| Spinning cost (12.5 viss of clean lint)        | 2,500 Kyats         |
| Dyeing   | 2,500 Kyats         |
| Starching the skeins                           | 500 Kyats           |
| Transferring of yarn from the swift to bobbins | 2,000 Kyats         |
| Preparing the warp                             | 100 Kyats           |
| Winding the thread on bobbins                  | 750 Kyats           |
| Weaving  | 5,000 Kyats         |
| <b>Total</b>                                   | <b>30,850 Kyats</b> |

b. Income (10 blankets)

33,000 Kyats

c. Profit (6.97%)

2,150 Kyats

**III. Hand woven coarse yarn longyi (one piece)**

**987 Kyats**

a. Cost

|               |                    |
|---------------|--------------------|
| Yarn and dyes | 987 Kyats          |
| Labour        | 300 Kyats          |
| <b>Total</b>  | <b>1,287 Kyats</b> |

b. Income

|            |             |
|------------|-------------|
| One Longyi | 1,400 Kyats |
|------------|-------------|

c. Profit (8.78%)

113 Kyats

Source: Survey.

large spinning mills mainly using ring spinning technology in mid 1990s has not only raised the production capacity of spinning segment but also improved the quality of yarns. Registered Private Enterprises in the cotton textile industry in 2000-01 are provided in Table 8.

**Table 8 : Registered Private Enterprises in Textile Industry of Myanmar**

| Sr. No.      | Type of firms       | No.          |
|--------------|---------------------|--------------|
| 1            | Spinning            | 162          |
| 2            | Weaving             | 1,417        |
| 3            | Sewing thread       | 10           |
| 4            | Dyeing and printing | 9            |
| 5            | Blanket             | 8            |
| 6            | Vest                | 11           |
| 7            | Medicinal textile   | 1            |
| 8            | Garment             | 270          |
| <b>Total</b> |                     | <b>1,888</b> |

Source: MTI.

### **3.4. Export Oriented Private Textile and Garment Industry**

#### **3.4.1. Profile**

Performance of export oriented private textile and garment industry of Myanmar was extensively reviewed by Moe Kyaw (2000). The material presented here in this regard is mainly based on that review. The additional information, however, is provided wherever possible.

Myanmar Textile Industry has exported garments for 'Arrow', a leading brand name for men's shirts even during the socialist years. Yet, export oriented garment industry in its full sense has emerged in Myanmar only after it has opened the market to outside world in the early 1990s. It is estimated that currently, there are around 400 garment factories in Myanmar: out of which about 88% of the factories are operated by local entrepreneurs, 8% by joint venture companies and the rest by foreign companies. A survey of 310 exporting garment factories has provided a general profile of the industry (Table 9).

**Table 9 : Export Oriented Garment Production**

| Particular                   | Foreign   | Joint-Venture | Local      | Total      |
|------------------------------|-----------|---------------|------------|------------|
| No. of Firms                 | 12        | 26            | 272        | 310        |
| Production(Pieces per month) | 1,103,000 | 2,540,000     | 12,300,000 | 15,943,000 |
| No. of Sewing Machines       | 8,290     | 11,896        | 56,134     | 76,320     |
| No. of Workers               | 14,231    | 19,083        | 86,758     | 119,892    |
| Export Value(US\$) per Month | 5,515,000 | 7,620,000     | 2,525,000  | 34,660,000 |

Source: MMRD, Excerpted from Moe Kyaw, 2000.

Most of the garment factories in Myanmar operate on a cut, make and pack (CMP) basis, importing nearly 99 percent of the raw material requirement. Export items include shirts, T-shirts, jackets, suits, trousers, knitted wear, sports wear, ladies' wear, and babies wear: with export destinations being the United State of America, sharing 75%, EU (5%) and other developed countries (5%) respectively.

### **3.4.2. Strengths**

The major factors for foreign companies to invest in the export garment industry in Myanmar seem to be first, quotas allotted to Myanmar by USA, EU and Canada. Myanmar is able to fulfill these quotas only at this moment with a possibility of extending quotas exists extend further. Second, Myanmar has privilege of cheap establishment costs for property and factories compared to neighboring countries. Particular attraction is provided by cheap wages of labour which is among the lowest in the world. Per hour cost of labour in export oriented textile and garment industry is US\$ 0.08 compared to US\$ 0.42 in USA, US\$ 0.54 in Thailand, US\$ 0.54 in India, US\$ 0.16 each in China and Indonesia. Labor is not only cheap but also has a good reputation. Thirdly, greater stability for investment in Myanmar compared to some other countries in the region.

Garment factory workers are paid in local currency (Kyat) and the salaries vary from K 6,000 up to about K 20,000(about US\$20) a month. In general, they earn 30 percent more than their counterparts in the indus-

try catering to the domestic market. Still the wages are nearly seven times less than those in India and Thailand and two times less than those in China and Indonesia.

### **3.4.3. Major Issues**

In mid 2000, the garment industry was affected by the United State Senate Bill 926, which blocked imports from Myanmar in response to the ILO's recommendations of sanctions against the country. Foreign contractors stopped placing new orders leading almost half of the factories to stop operations. However, the garment industry again enjoyed an upturn, in the mid 2002, with many factories having to extend operating hours to extend to meet a surge of orders particularly from Europe and Japan.

One of the bottlenecks, impeding the growth of export-oriented garment industry was inadequate supply of electricity and high cost of power. Most of the garment factories has to rely on own diesel generators for 40 percent of power needs as the local electricity supply is not sufficient. Foreign registered firms are required to pay for electricity bills in foreign exchange whereas local firms are allowed to pay in Kyats at an almost the same rate. Diesel oil is purchased in the open market at a rate almost five times higher than the official price.

Currently all raw materials used in the garment industry are imported and operators of Myanmar garment industry are generally paying the price, which is one of the highest in the world. Since high price is largely due to shipping and processing costs of imported raw material, a solution seems to be the development of local textile industry which is capable of supplying the required raw material with a specified quality but at a competitive price.

Even though recruitment of skilled labour and job hopping is posing no serious problems for foreign capital firms, local firms have yet to overcome these problems. It so happens because workers employed by foreign and joint venture firms have more confidence in the security of their jobs due to better financial position and better management of these firms than local enterprises.

Complaints are mounting concerning long and unnecessary delays in getting permits for importing raw materials as well as for exporting the finished products. This is due to rigid and red tape procedures adopted in processing related documents by the departments concerned. These deficiencies should be corrected as necessary to attract potential investors in future export oriented garment industry.

#### **3.4.4. Opportunities**

National Cotton Council of the United States of America has produced the sale prices of men's shirts in the US by places of origin in 1998. In that list the price of "Made in Myanmar" shirts at 7.7 US\$ are at par with those of Vietnam and India but more expensive than those of China (7.6 US\$) and Mexico (6 US\$). Thailand and US shirts which sell at 7.9 and 8.6 US\$ respectively are the most expensive, however. Since Myanmar has highest cost for raw materials and shipping in the cost structure of all reported countries and being among the countries with highest cost for electricity, the price of Myanmar shirts and other garments would become very competitive in the US market and elsewhere provided costs for aforesaid items could be substantially reduced.

Potentially, garment industry could become a cash cow for Myanmar. Even now export oriented garment industry is contributing to increased employment in the country, providing jobs for over 150,000 people and generates foreign exchange. In the year 2000, US\$ 403.7 million worth of garments were exported mainly to the US market. A portion of foreign exchange earning is changed into local currency and used for payments for labour. In 2002, one HongKong based company and a Japanese garment factory came out to produce garments for Japanese market.

### **3.5. Textile Exports and Imports**

Disregarding the exports of garments from export oriented garment industry which is valued at 3,785 million Kyats in 2000-01, Myanmar is essentially a net importer of textiles. Myanmar has begun expansion and modernization of the national textile industry. Yet, it will take a few years more until Myanmar will be able to provide a modest level in cloth suf-

**Table 10 : Imports of Yarn and Fabrics**

| No.          | Item  | 1998-1999     |                 | 1999-2000       |                 | 2000-2001       |                 |
|--------------|---|---------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|              |   | (Mil K)       | ('000lb)        | (Mil K)         | ('000lb)        | (Mil K)         | ('000lb)        |
| 1            | Cotton yarn   | 9.61          | 1,036.20        | 3.93            | 684.20          | 3.98            | 759.00          |
| 2            | Cotton thread   | 532.00        | 651.20          | 5.87            | 827.20          | 1.38            | 272.80          |
| 3            | Yarn of artificial and synthetic fibres including mix | 13.35         | 1,469.60        | 8.84            | 774.40          | 9.61            | 972.40          |
| 4            | Cotton fabric   | 212.36        | -               | 172.63          | -               | 114.86          | -               |
| 5            | Fabric of artificial and synthetic fabric             | 554.42        | -               | 898.46          | -               | 1,554.46        | -               |
| <b>Total</b> |   | <b>795.06</b> | <b>3,157.00</b> | <b>1,089.73</b> | <b>2,285.80</b> | <b>1,684.29</b> | <b>2,004.20</b> |

Source: CSO, 2001.

iciency for its population. Currently, Myanmar has to import even though to a limited extend raw materials such as yarn and threads for weaving mills and cotton or synthetic fabrics for garment factories. Table 10 depicts the imports of raw materials and textiles during 1996-97 to 2000-01 period. The data revealed that while imports of yarns and threads were variable with a general declining trend the imports of fabrics particularly fabrics of artificial and synthetic fibres and textile has drastically gone up during the corresponding period, indicating rising needs of the people for textiles. In 2000-01 textile imports accounted for 40.17 percent of consumer goods and 16.88 percent of all imports respectively.

### 3.6. Domestic Demand and Per Capital Consumption of Fabrics

Fabrics constitute the major portion of domestic demand. It is assumed that even for a modest living a person needs a year two longyis (for men) or two htameins (for women), two shirts (for men ) or two blouses (for women), two vests (for men) or two brassieres (for women), one blanket and one towel. Altogether 25 yards of fabric is required to produce these clothes. The assumption is almost identical with an average per capita fabric consumption of developing countries of Asia. Table 11 provides an overall picture of fabric consumption in the region in comparison with the world average.

**Table 11 : Per Capita Consumption of Fabrics in Selected Countries of Asia**

| Country                                   | Per capita consumption of fabrics (yd) |
|---|--|
| 1. Bangladesh                             | 16.72                                  |
| 2. India                                  | 18.48                                  |
| 3. Philippines                            | 26.40                                  |
| 4. Thailand                               | 27.82                                  |
| 5. Pakistan                               | 49.28                                  |
| 6. South Korea                            | 71.28                                  |
| 7. Developing Countries of Asia (Average) | 24.64                                  |
| 8. World average                          | 58.00                                  |

Source: MTI.

It can be seen from the aforementioned elaborations, state-owned sector contribute 0.65 yd of fabrics whereas cooperative sector and private sector provide 1.42 and 3.13 yd respectively to the current domestic production. For a current population of 50 million people of Myanmar these sectors altogether will provide 5.20 yd of fabric per capita. Besides, if the imported fabrics which approximated 15,000 thousand yd by own estimate, derived from the value of imports in the absence of quantitative data, giving a per capita of 0.27 yd is included in the computation the figure will go up to 5.47.yd. Even then, per capita consumption was still far from the projected level. As an interim objective a modest consumption of 15 yd per capita is set to be achieved in the near future.

Population is expected to continue grow at the current growth rate of 2.02 % during a couple of years to come. Per capita growth in demand for fabrics will be even higher given a growing larger younger population, growing urbanization, projected increased incomes and changing life styles and dress habits of Myanmar people. In 1999, government statistics provided that a 5.8 member household in six border townships spent 11,484 Kyats for clothing and apparel out of 108,809 Kyats for non-food and 356,612 Kyats for total household expenditure with clothing and apparel cost accounting for 10.5 and 3.22% respectively of non-food and total household expenditure. Similar to developed countries as the income rises and people become affluent, households are expected to spend more for clothing and apparels.

## **4. COTTON INDUSTRY**

### **4.1. Historical Perspective and Economic Importance of Cotton**

The importance of cotton in the economy and society of Myanmar has been historically associated with the use of cotton for weaving fabrics since ancient times. The earliest known cotton fabrics in Myanmar belonged to Pyu era during 100-900 A.D. People even preferred cotton fabrics to silk cloth at that time as production of silk involves killing of the silkworm larvae (Pupal form), which is considered the most serious sin for the followers of Buddhism.

Cotton is believed to be introduced into ancient Myanmar even before Pyu era from India along with the weaving craft. Earliest stone inscription of cotton in the current Myanmar language meaning of “Wa” was found during the Pagan era.

As cotton fabrics became popular the cultivation of cotton was also believed to have been continued and expanded during the rule of Myanmar kings who reigned the country until the dethronement of last Myanmar king in the Konbaung dynasty following British annexation in 1885.

Myanmar had trade relations with the European countries including Portuguese, Dutch, French and English as far back as AD 1520. Cotton has been one of the principal commodities in trading those days. Being cotton exports fetched a huge profit, Dutch, British and French merchants fiercely competed to win the favour of Myanmar kings to open the trade offices in Myanmar cities to get involved in this lucrative business.

The history of trade relations between Myanmar and China goes back even further. For centuries, Myanmar traded with China (Yunnan) Myanmar exported to China raw cotton among others while China exported back to Myanmar silk along with velvet, paper and other commodities. Myanmar's raw cotton and China's silk constituted one-half of the value of Myanmar's total trade with China, estimated at 400,000 to 700,000 Sterling pounds in about 1800 AD.

Cotton trade had most thrived during the heydays of King Mindon in the Konbaung dynasty. King Mindon acquired monopoly in cotton trade to make up the declining revenues resulting from the loss of Bago Division to British colonialists with the latter's annexation of lower Myanmar in 1852.

Available statistics showed that cotton production in Upper Myanmar during King Mindon's rule reached 77 lakh viss and the export to Yunnan ranged between 20 to 75 lakh viss. Cotton continued to be a major export commodity during the British colonial rule and during the years following independence in 1948 until 1966-67. Myanmar exported about 12,500 MT of cotton annually during that period. At its peaks, the export volume of cotton surpassed 20,000 MT. First peak at 23,000 MT was achieved in 1936-37 during the colonial era whereas the second peak was attained in the post independence period when it exported 25,000 MT in 1953-54.

At that time modern textile industry was non-existence, population was low, fabric imports were prevalent, leading to a surplus of domestically produced cotton which were exclusively of indigenous Wagyi and Wagale types both being belonged to short staple cotton species of *Gossypium arboreum*.

Despite the economic importance of cotton still largely depends on its fiber for textile industry, let be a cottage or a modern one, cotton has a wide variety of uses in feed, food and paper industries as well.

Cotton with its seed containing about 15 percent of oil and 24 percent of protein is considered as an important food crop. Cotton seed oil is a major source for cooking oil in many cotton producing countries. Cotton seed oil as a cooking is also becoming increasingly popular in Myanmar adding the value of cotton. Cotton seed cake is likewise commanding high price in the feed market due to its high nutritive value. With careful processing cotton seed meal can become a rich protein source for human consumption.

Cotton linters are not yet widely used in Myanmar except for stuffing of mattresses. However this by-product will assume a greater role in future with the increased availability of delinting technology which is so far confined to the state-owned ginning mills. Cotton linters are important raw material in paper, and rayon industries and in manufacturing photographic papers, x-ray films and explosive materials in industrialized countries.

In Myanmar more than 400,000 people derive their income directly or indirectly from cotton farming, ginning, by-product processing and trade. Cotton makes up a significant portion of total gross agricultural product of Myanmar. In 2000-01, its share in total agricultural output was 2.07 percent. It is remarkable in that the share rose from the level of 0.60 percent in 1992-93.

#### **4.2. Cotton Species Grown in Myanmar**

Commercial cotton varieties, currently grown in Myanmar fall under two botanical species viz. *Gossypium arboreum* and *Gossypium hirsutum*. Until the commercial introduction of Upland cotton (*G. hirsutum*) in 1957, which is popularly known in Myanmar as long staple cotton, the entire cotton area was devoted to indigenous short and coarse fiber *Gossypium arboreum* species.

Being first introduced for cultivation in the rice fallows during the premonsoon season with irrigation, long staple cotton received priority irrigation and other preferential government supports which included free or heavily subsidized allocation of inputs and access to tractor ploughing. These privileges when combined with higher inherent yielding capacity and higher purchase prices than what was paid for short staple cotton types were very appealing for farmers to grow long staple cotton. As a result, within ten years after its introduction, long staple cotton already occupied 56 thousand ha, sharing 40 percent of total cotton area.

The area as well as the share of long staple cotton continued to expand gradually thereafter. It gained a momentum again during the mid 1990s with its share hitting 75% which has been sustained since.

Currently, cotton is grown in Myanmar in three largely overlapped cropping seasons. Long staple cotton varieties of *G. hirsutum* are predominantly grown in late monsoon season which extends from July-August (Sowing) to December-January (Picking) mostly as a rainfed crop in various cropping patterns.

Long staple cotton has now only a limited area in premonsoon season even though this domain was initially meant for premonsoon cotton due to a change in the government policy, now favouring summer rice relative to cotton. At its peak, pre-monsoon cotton occupied nearly 94 thousand ha in 1984-85 and accounted for 51 percent of total long staple cotton area. By contrast the area dropped to 13 thousand ha in 2000-01, sharing only 5.6 percent of the total long staple cotton area. However, with the availability of new irrigated areas due to the completion of newly built Thaphanseik dam in Sagaing division, significant increase in the premonsoon cotton area is envisaged.

All short staple cotton varieties and part of the long staple cotton are grown in rainfed monsoon season from May-June (Sowing) to November-December (Picking). The seasonal and species composition of cotton crop for the past five years is presented in Table 12.

**Table 12 : Seasonal and Species Composition of Cotton**

| Species/<br>Season   | Sown Area ('000 ha) |               |               |               |               |               |               |
|----------------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|
|                      | 1995-96             | 1996-97       | 1997-98       | 1998-99       | 1999-00       | 2000-01       | Average       |
| 1. <i>G.hirsutum</i> |                     |               |               |               |               |               |               |
| a. Pre-monsoon       | 17.00               | 22.00         | 17.00         | 23.00         | 12.00         | 13.00         | 17.30         |
| b. Monsoon           | 21.00               | 13.00         | 2.00          | 11.00         | 22.00         | 37.00         | 17.70         |
| c. Late monsoon      | 221.00              | 201.00        | 188.00        | 224.00        | 220.00        | 182.00        | 206.00        |
| <b>Total</b>         | <b>259.00</b>       | <b>236.00</b> | <b>207.00</b> | <b>258.00</b> | <b>254.00</b> | <b>232.00</b> | <b>241.00</b> |
| 2. <i>G.arboreum</i> |                     |               |               |               |               |               |               |
| a. Monsoon           | 121.00              | 97.00         | 60.00         | 68.00         | 87.00         | 92.00         | 87.50         |
| <b>Grand Total</b>   | <b>380.00</b>       | <b>333.00</b> | <b>267.00</b> | <b>326.00</b> | <b>341.00</b> | <b>324.00</b> | <b>328.50</b> |

Source: Myanmar Cotton and Sericulture Enterprise.

## **4.3. Profile of Cotton Area, Yield and Production**

### **4.3.1. Cotton Area**

Myanmar made a significant progress in cotton area, yield and production over a relatively long history of cotton cultivation. Statistics on cotton area are available from 1900 onwards.

The average area under cotton in Myanmar was about 63 thousand ha in 1900-01, which rose steadily to 80 thousand ha in 1909-10, and 182 thousand ha in 1925-26, respectively. This area became stabilized and sustained up to the World War II, but declined to 122 thousand ha in the postwar period. Cotton area steadily rose again during the post independence era attaining a record area of 273 thousand ha in 1963-64 which held on until 1995-96 when a new record was set at 379 thousand ha. The area has been mostly up and down during these two periods, with a largest drop in 1993-94, when it shrank to 144 thousand ha.

Cotton area at around 318 thousand ha was more or less stable during the past five years. Cotton area has increased by about 415% during the last century with higher growth rates in the first half than the second half of the century. However, current area has been regained only after it bounced back from the lowest dip in 1993-94.

### **4.3.2. Cotton Yield**

Cotton yields have also progressed on a long-term average. Current average seed cotton yields of around 500-550 kg/ha are 100 percent larger than those of 40 years ago with an average yearly increase of 2.5 percent. However, in contrast to the cotton area, the growth rates were larger in the second half of the last century than in the first half. Similar to cotton area, cotton yields at 352 kg/ha nose dived to the levels of the late 1970s in 1993-94. The situation has turned around thereafter, however. An all-time high yield of 665 kg/ha was recorded in 1997-98. Yet it was not sustained with the yield during 1998/99-2001/02, falling back to the levels of the mid 1980's.

Despite a long-term increase, current average yields of cotton in Myanmar for the period 1994/95-2000/01 was only 30% of the world average.

### **4.3.3. Cotton Production**

Cotton production in Myanmar increased from about 30,210 MT of seed cotton in 1940 to 15,269 MT in 2000-01. Thus production increased 405 percent, which was attributable to both area expansion and yield increase. However, since the area planted to cotton increased by 195 percent while yield increased only by 83 percent during this period, area expansion undoubtedly accounted for most of the increase in production.

Cotton production hovered at around 45,000 MT, but ranged from 31,933 to 618,118 MT between 1962-63 and 1979-80. However, with the launching of the whole township high yielding programmer cotton production registered a significant progress in early and mid 1980s. Cotton production peaked in 1984-85 attaining an all time high of 125,739 MT of seed cotton until a new record in production hit in 1995-96.

The whole township high yielding programmes were implemented with a package approach in the use of high yielding varieties and location specific production technology in programmed areas which covered 5 townships for premonsoon cotton, 4 townships for latemonsoon cotton, 5 townships for Mahlaing variety of short staple cotton and 3 townships for Wagyi variety of short staple cotton respectively.

Cotton production declined towards the late 1980s and early 1990s with a lowest drop in 1993-94. Several factors could be attributable to this downturn but most importantly, rising costs without a commensurate increase in price discouraged farmers to grow cotton and apply production technology, thereby affecting both area and yield. Farmers were becoming more reluctant to grow cotton due to decreasing incomes and they even diverted fertilizers and pesticides which were made available for cotton to other crops which they thought can maximize their returns.

Non-availability of quality seeds with genetic purity and good germina-

tion capacity had also a repercussion on the yield and production of cotton. Being the price of cotton offered by Textile Industries Corporations (TIC), currently MTI, then the government agency responsible for the procurement of cotton was two and half times less than the prevailing market prices, farmers usually sell inferior quality cotton to TIC which is mostly contaminated and wet with a detrimental effect on the seed quality (Cools, 1990). TIC could not do anything except buying whatever the quality was offered. Sometimes TIC was also forced to distribute gin-run seeds for seed purpose disregarding the seed quality due to low procurement of cotton. Agriculture Corporation (AC), a precursor of current Myanmar Agriculture Service (MAS), tried to fill up this gap by implementing a certified seed program through contract farming with certified seed growers. Registered cotton seeds produced in own cotton research farms were distributed to certified seeds growers which were bought back and ginned at own 40 saw gins provided by UNDP/FAO supported Industrial Crops Development Project (ICDP). But it also encountered difficulties in buying back cotton due to low premium prices set for certified cotton, which in turn resulted in low seed turnout to cope fully with the requirement.

The downward trend of cotton production was arrested and reversed in 1994-95 with the establishment of Myanmar Cotton and Sericulture Enterprise (MCSE). Since MCSE has unified responsibilities for administering cotton production extension, research, marketing and ginning is in the better position to coordinate and implement all these responsibilities than when they are divided and managed by separate agencies. It is in its own interest to distribute quality seeds to stimulate farmers to grow cotton and obtain high yields because achieving targeted area and targeted yields, hence targeted production form major components of its functional responsibilities. Increased production will also facilitate performing its procurement and other related functions such as ginning and supply of lint to the government textile mills. Area, yield and production of cotton in Myanmar is furnished in Table 13.

#### **4.4. Cotton Supply and Use**

With the increase in production, cotton consumption rose more than

**Table 13 : Area, Yield and Production of Cotton In Myanmar**

|                           | 1993-94    | 1994-95    | 1995-96    | 1996-97    | 1997-98    | 1998-99    | 1999-00    | 2000-01    |
|---------------------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Sown Area (ha)            | 144,049.00 | 204,651.00 | 379,414.00 | 333,580.00 | 266,764.00 | 325,509.00 | 341,014.00 | 324,196.00 |
| LSC                       | 30,945.00  | 82,663.00  | 258,493.00 | 236,181.00 | 207,126.00 | 257,810.00 | 253,925.00 | 232,617.00 |
| SSC                       | 113,104.00 | 121,988.00 | 120,921.00 | 97,399.00  | 59,638.00  | 67,698.00  | 87,089.00  | 91,579.00  |
| Mahlaing                  | 74,466.00  | 40,874.00  | 50,085.00  | 41,518.00  | 24,833.00  | 33,500.00  | 44,995.00  | 46,887.00  |
| Wagyi                     | 38,639.00  | 81,113.00  | 70,836.00  | 55,881.00  | 34,805.00  | 34,199.00  | 42,094.00  | 44,692.00  |
| Harvested Area (ha)       | 121,968.00 | 177,782.00 | 324,304.00 | 298,442.00 | 246,125.00 | 302,053.00 | 322,264.00 | 300,581.00 |
| LSC                       | 26,242.00  | 64,381.00  | 219,506.00 | 205,501.00 | 188,025.00 | 238,185.00 | 237,794.00 | 211,409.00 |
| SSC                       | 95,727.00  | 113,401.00 | 104,798.00 | 92,941.00  | 58,100.00  | 63,868.00  | 84,469.00  | 89,172.00  |
| Mahlaing                  | 61,086.00  | 74,282.00  | 56,535.00  | 51,947.00  | 23,697.00  | 30,276.00  | 42,845.00  | 44,581.00  |
| Wagyi                     | 34,640.00  | 39,119.00  | 48,263.00  | 40,994.00  | 34,403.00  | 33,593.00  | 41,625.00  | 44,591.00  |
| Seed Cotton Yield (kg/ha) | 351.67     | 484.20     | 508.91     | 563.16     | 665.26     | 523.28     | 544.73     | 507.99     |
| LSC                       | 706.11     | 776.57     | 596.34     | 671.65     | 764.65     | 576.37     | 624.96     | 591.07     |
| SSC                       | 254.51     | 318.22     | 325.76     | 323.28     | 343.60     | 325.31     | 318.88     | 311.01     |
| Mahlaing                  | 211.33     | 309.97     | 302.64     | 286.14     | 295.85     | 270.68     | 284.22     | 263.34     |
| Wagyi                     | 330.66     | 333.88     | 352.85     | 370.34     | 376.48     | 374.54     | 354.57     | 358.66     |
| Production(MT)            | 42,893.00  | 86,082.00  | 165,040.00 | 168,070.00 | 163,736.00 | 158,060.00 | 175,548.00 | 152,691.00 |
| LSC                       | 18,529.00  | 49,996.00  | 130,901.00 | 138,024.00 | 143,773.00 | 137,283.00 | 148,612.00 | 124,958.00 |
| SSC                       | 24,364.00  | 36,086.00  | 34,139.00  | 30,046.00  | 19,963.00  | 20,777.00  | 26,936.00  | 27,733.00  |
| Mahlaing                  | 12,909.00  | 23,025.00  | 17,110.00  | 14,864.00  | 7,011.00   | 8,195.00   | 12,177.00  | 11,740.00  |
| Wagyi                     | 11,454.00  | 13,061.00  | 17,029.00  | 15,182.00  | 12,952.00  | 12,582.00  | 14,759.00  | 15,993.00  |

Source: MCSE.

LSC - Long Staple Cotton (*G. hirsutum*)

SSC - Short Staple Cotton (*G. arboreum*)

two times during the past decade from about 25 thousand MT in 1990-91 to nearly 50 thousand MT in 2000-01 (Table 14). Since there has been no such large amounts were being imported or exported and being no data is available for the detail use patterns of cotton, so whatever amount the production supplied was assumed to be consumed for mill use and non mill use purposes. In Myanmar, there are altogether 20 textile mills in the state-owned sector: 18 mills with MTI and two mills with Defense Services respectively with a current combined mill use capacity of 12,345 MT of cotton. In addition, 6 private spinning mills which came up with the liberalization of cotton trade appeared to consume an estimated 4,000 MT of cotton annually.

**Table 14 : Total and Per Capita Consumption of Cotton**

('000 mt)

| Year    | Production | Imports | Exports | Total consumption | Per capita consumption (kg) |
|---------|------------|---------|---------|-------------------|-----------------------------|
| 1990-91 | 20.80      | 5.00    | -       | 25.80             | 0.63                        |
| 1991-92 | 21.10      | 1.00    | -       | 22.10             | 0.53                        |
| 1992-93 | 22.80      | 0.50    | -       | 23.30             | 0.55                        |
| 1993-94 | 14.30      | 0.50    | -       | 14.80             | 0.34                        |
| 1994-95 | 28.60      | 1.00    | 0.30    | 29.90             | 0.68                        |
| 1995-96 | 55.00      | 1.00    | -       | 56.00             | 1.25                        |
| 1996-97 | 56.00      | 1.00    | 0.50    | 57.50             | 1.26                        |
| 1997-98 | 54.60      | -       | 3.30    | 51.30             | 1.11                        |
| 1998-99 | 52.70      | -       | 3.70    | 49.00             | 1.04                        |
| 1999-00 | 58.50      | -       | 1.90    | 56.60             | 1.18                        |
| 2000-01 | 50.90      | 0.28    | 2.10    | 49.10             | 0.98                        |

Source: ICAC, 2000 and MCSE.

It is the responsibility of MCSE to supply cotton to the government mills. Hence, their supply condition becomes entirely dependent on the procurement of cotton by MCSE. While total production was much larger than the total mill use capacity with MCSE's procurement was lower than targets set for each year during the past five years due to uncompetitive procurement prices, the requirement of the government mills was met only by about 52 percent during 1998/99-2000/01 period. This implies that more cotton was sold to private traders, private cotton mills and local cottage industries, which are well developed in most cotton production areas.

Myanmar used to export about 12,500 MT of cotton annually between 1948 and 1967 with a maximum of 25,000 MT in 1953-54. But these exports were exclusively of short staple cotton and now with 75 percent of the short staple cotton area has been substituted by long staple cotton or switched to other crops, the production of short staple has been reduced almost 1.8 times compared to the early 1950s and this when combined with increased consumption due to growing population leaves no such surplus of short staple cotton available for export. In addition, long staple cotton accounts for 80 percent of the total consumption by the existing textile industry in the government sector. Therefore, even though there has been the increased availability of long staple cotton due to increased production since the mid 1980s, all the available long staple cotton has to be supplied to domestic textile industry. The export of some amounts of long staple cotton by MCSE in recent years was prompted from the need to earn foreign exchange rather than from the availability of net exportable surplus.

During the late 1970s and early 1980s, government textile industry has operated at near capacity and annually consumed around 13,050 MT of cotton, out of which 56 percent has been met from domestic supply and 44 percent was provided through import respectively (TIC, 1986). Considering, government textile factories are currently operating at just over 50 percent of the capacity, probably at a loss or by artificially raising the product prices to cover such losses, it may be worthwhile and economic to operate at full capacity by acquiring cotton through import during a period of time until MCSE can supply all the requirements. Foreign exchange needed for cotton import will be almost offset by the reduced textile imports. However, such a provisional undertaking will be successful, only when the textile products manufactured by government textile factories are of comparable good quality and able to satisfy consumer taste.

Per capita consumption of cotton has significantly improved during the past five years of the previous decade attaining an average of 1.2 kg (Table 14). However, it is still far below world average consumption of 3.6 kg and 2000-01 per capita consumption of 0.98 kg is enough to produce only about 6 meters of cloth, i.e. just over 40% of the projected per capita consumption of fabric.

## **4.5. Cotton Procurement**

### **4.5.1. Procurement Policies and Government Agencies Involved in Procurement**

Generally, Government agencies have been heavily involved in the procurement of cotton in Myanmar both for domestic supply and export. Immediately after gaining independence in 1948, Government established State Agricultural Marketing Board (SAMB) in 1950, to undertake cotton export as a major function. In 1952, cotton export and cotton marketing was solely handled by the Central Co-operatives Organization (CCO). Under the marketing system functional with CCO, cotton prices were fixed relative to world market prices and ginning outturn. In addition, a "Price Stabilization Fund" was set up so as to stabilize cotton farmers income irrespective of world cotton price fluctuations. In the event CCO generated the additional profit from export due to increased world cotton prices, such a surplus earning was channeled to the Fund. In years of depressed world cotton prices farmers' potential losses were compensated with rebates from the Fund.

In 1964, marketing of all types of cotton has been monopolized by Agriculture and Rural Development Corporation (ARDC). ARDC opened purchasing centers in major cotton growing tracts and procured cotton according to a set of specifications which must be met by different types of cotton or different varieties within a type of cotton. There has not been such a formal grading system to classify cotton into various grades within types nor varieties of cotton.

The newly formed Agriculture Corporation (AC), emerged in 1972, after merging of Agriculture Department (AD) and ARDC continued procurement of cotton following the same system used during the time of ARDC. In 1977, cotton procurement and ginning responsibilities were handed over to TIC from AC. Albeit agencies which handled procurement of cotton were subject to frequent change, procurement systems nor the policies remained almost unchanged. Government issued notification No.(3/78) in April 1978, authorizing TIC to continue monopolized procurement of long staple cotton but allowed private business and

cooperative societies to procure short staple cotton.

In April 1994, cotton procurement and ginning has been taken over by Myanmar Cotton and Sericulture Enterprise (MCSE). The procurement system did not change much except introducing door to door buying system apart from regular purchasing at purchasing centers. MCSE introduced a relatively crude formal grading system for long staple cotton comprising two grades. Procurement of short staple cotton was continued, however, without a formal grading system.

In 1994-95, the government, with a view to accelerate the development of agro-based industries carried out the restructuring of government agencies involved in production and manufacturing of industrial crops including cotton, jute and sugarcane. Three independent government enterprises including MCSE were established for each crop by combining the production administering component of these crops which was handled by Myanmar Agriculture Service (MAS) and procurement and manufacturing component (ginning: in the case of cotton) which has been undertaken by TIC. The establishment of independent enterprises with unified responsibilities of production administering, procurement and manufacturing was partly to mitigate the limitations in procurement of these crops that were encountered when they were handled by separate agencies. It also aims to increase the production of mandated crops through more concentrated and intensive extension activities and increased support services to be provided by each and individual agencies.

As it has been anticipated, with taking up of consolidated functions of cotton production and procurement by MCSE in 1994-95, the production and procurement of cotton rose more than two times, compared with the year before. Raising of procurement price in that year also have had a role in that but it may have more reflected on the planted area and production rather than on procurement because cotton prices were higher in shadow markets. If procurement was done by other agency which was not involved in extension and providing of support services, the outcome may have been otherwise. With the production continued to rise and the price adjustments being made, the procurement of cotton also being continued to improve in the following two years. But the procure-

ment declined in next three years in spite of relatively stable production expect in 1998-99 when cotton yields were low due to unfavourable weather conditions.

A number of factors could claim responsibility to this downward trend of cotton procurement in the past three years. While recognizing the support provided by MCSE, farmers simply could not turn back higher prices offered by private traders, particularly in view of escalating prices of inputs and increased labour costs during that period. Bad weather conditions and increased incidence of Pink Bollworm have resulted in the harvest of poor quality cotton that did not comply with MCSE's first grade specifications. MCSE could not do anything except paying for the second grade. Farmers resisted to that because they could readily sell the same cotton to private traders at prices even higher than that designated for MCSE's first grade.

Procurement of cotton by the government agencies was variable over the years reflecting government policy, government involvement, procurement prices set for the respective period and production fluctuations attributable to weather conditions and technical issues (Table 15).

#### **4.5.2. Procurement Prices**

Historically, cotton procurement prices were fixed by the government, supposedly considering cost of cultivation of cotton and prevailing prices of alternative crops so that cotton farmers can enjoy a competitive income from cultivation of cotton. It was apparent in the mid 1960s when cotton procurement by ARDC set an all time record of 66,330 MT of seed cotton in 1964-65. The price of long staple seed cotton fixed in 1964-65 appeared small (0.95 Kyat/kg) in current value, yet it appeared competitive relative to the prevailing prices of alternative crops for that period. Additionally, ARDC's initiative and active involvement in extending technical service, supply of subsidized inputs, providing tractor plowing, advance procurement payment for certain quantity of cotton had apparently impressed farmers and helped gain their recognition and intimacy which apparently served as a driving force behind selling almost all of cotton (97% of total production) to ARDC in that year. Even so, freez-

**Table 15 : Procurement of Seed Cotton by Government Agencies**

('000 mt)

| Year    | Total production | Total procurement | Percent procured | Remark |
|---------|------------------|-------------------|------------------|--------|
| 1980-81 | 74.00            | 38.70             | 52.20            | TIC    |
| 1981-82 | 95.20            | 37.70             | 39.60            | "      |
| 1982-83 | 97.50            | 40.80             | 41.90            | "      |
| 1983-84 | 103.70           | 35.00             | 33.70            | "      |
| 1984-85 | 125.70           | 43.40             | 34.60            | "      |
| 1985-86 | 99.70            | 36.90             | 37.00            | "      |
| 1986-87 | 79.80            | 23.30             | 29.00            | "      |
| 1987-88 | 73.00            | 16.80             | 23.00            | "      |
| 1988-89 | 60.30            | 11.60             | 19.20            | "      |
| 1989-90 | 62.90            | 10.00             | 15.80            | "      |
| 1990-91 | 62.20            | 12.50             | 20.20            | "      |
| 1991-92 | 63.20            | 22.90             | 36.20            | "      |
| 1992-93 | 68.30            | 8.90              | 13.20            | "      |
| 1993-94 | 42.90            | 8.30              | 19.40            | "      |
| 1994-95 | 86.10            | 21.00             | 24.50            | MCSE   |
| 1995-96 | 165.00           | 34.50             | 20.90            | "      |
| 1996-97 | 168.10           | 31.00             | 18.40            | "      |
| 1997-98 | 163.70           | 26.60             | 16.20            | "      |
| 1998-99 | 158.10           | 24.60             | 15.60            | "      |
| 1999-00 | 175.50           | 24.60             | 14.00            | "      |
| 2000-01 | 152.70           | 22.10             | 14.00            | "      |
| 2001-02 | 139.10           | 20.20             | 14.50            | "      |

Source: MCSE.

ing of cotton procurement prices almost for eight years without adjusting to the rise in cost of production and prevailing prices of competitive prices has brought down the procurement in the following years until the prices were hiked again in 1971.

Reflecting the improvement in price, cotton procurement has increased relative to the production. There have been price adjustments between 1974 and 1976 but it appeared that the adjustments were not sufficiently large to have a significant affect on procurement because it remained just around 50 percent of total production. Government Procurement prices of cotton set between 1962-63 and 2001-02 is provided in Table 16.

**Table 16 : Government Cotton Procurement Prices of Cotton**

| Period   |          | Price according to the type of cotton (Kyat/viss) |           |           |        |
|----------|----------|---|-----------|-----------|--------|
| From     | To       | Long Staple                                       | Mahlaing  | Wagyi     | Wagale |
| 1962-63  | 12-03-71 | 1.55  | 1.20      | 1.00      | 1.00   |
| 13-03-71 | 26-01-74 | 1.80  | 1.60      | 1.60      | 1.50   |
| 27-01-74 | 29-02-76 | 3.50  | 3.00      | 2.75      | 2.25   |
| 01-03-76 | 17-12-76 | 5.50  | 5.00      | 4.50      | 4.00   |
| 18-12-76 | 1987-88  | 7.00  | 6.00      | 4.50      | 4.00   |
| 1988-89  | 18-06-90 | 8.00  | 7.00      | 5.50      | 4.00   |
| 19-06-90 | 25-09-90 | 13.30   | 12.00     | 10.00     | ***    |
| 26-09-90 | 29-08-93 | 28.00   | 26.00     | 22.00     | ***    |
| 30-08-93 | 30-05-94 | 30.00   | 28.00     | 24.00     | ***    |
| 01-06-94 | 31-3-95  | 40.00*  | 35.00     | 35.00     | ***    |
|          |          | 36.00*  |           |           |        |
| 01-04-95 | 31-7-97  | 50.00*  | 40.00     | 40.00     | ***    |
|          |          | 45.00**   |           |           |        |
| 01-08-97 | 24-10-97 | 90.00*  | 65.00     | 65.00     | ***    |
|          |          | 80.00**   |           |           |        |
| 25-10-97 | 14-01-02 | 100.00*   | 70.00     | 70.00     | ***    |
|          |          | 85.00**   |           |           |        |
| 15-01-02 | To Date  | 110.00+(70)*                                      | 70+(70)*  | 70+(70)*  |        |
|          |          | 100.00+(60)**                                     | 70+(40)** | 70+(40)** |        |

Source: MCSE.

\* Price for First Grade

\*\* Price for Second Grade

\*\*\* No More Cultivation

( ) Additional payment for cleaning

Due to eroding procurement, government raised cotton procurement prices of long staple cotton and Mahlaing variety of short staple cotton by 27 and 20 percent respectively in 1976-77. Initial response to the new price hike was good, but it has not been sustained, again due to long freezing of prices. It took almost 12 years to set a new price in 1987-88. During that period, particularly in the early and mid 1980s cotton production has significantly improved due to the intensive government campaign in cotton production with the implementation of the whole township high yielding programmes. Despite increase in absolute terms, cotton procurement by TIC did not correspond to the rise in production, however, with procurement accounting for less than 40 percent of total production. Long freezing of cotton prices during that period seemingly stemmed from government policy to provide relatively cheap cotton to

the emerging state textile industry with the establishment of new textile mills.

Cotton procurement by TIC has further eroded with the pursuance of market-oriented economy in 1989. The effect was two dimensional. First, it has been associated with depressed production. With non-enforcement of central planning, farmers opted to grow more remunerative crops instead of cotton leading to a substantial decline in area. On the other hand, no more inputs were specifically allotted for cotton, forcing farmers to resort to the open market for fertilizers and insecticides. But being open market prices were much higher than the government prices, they simply opted not to use them resulting in reduced yields. Both of these factors contributed to production decline. Second, it has stemmed from uncompetitive government procurement prices of cotton. In fact TIC had raised procurement price of cotton four to five times in a period between 1990 and 1993 over that existed in 1988-89. Yet they were still two to two and half times lower than the open market prices. As a result, cotton procurement by TIC dipped to historically low ebb in 1993-94.

After MCSE has taken over the responsibility cotton procurement in 1994-95 the cotton prices were increased by almost 500 percent for long staple cotton and nearly 400 percent for short staple cotton respectively, during a span of nine years. Since open market prices offered by private traders were 150-200 percent higher than the government procurement prices according to cotton type and quality, farmers just failed to respond to significant price hikes of the government price hikes with a significant portion of cotton being smuggled out to the unofficial markets. On the other hand, even high open market prices of cotton could not attract farmers to favour cotton with respect to alternative crops in the cropping system such as mungbean, sesamum, pesingon and chillies because the prices of these crops have also increased 6 to 10 times during the corresponding period and at a much less production cost thereby accruing higher net income than cotton.

While general consumption associated with the population growth is rising every year, opening of private spinning mills in recent years further raised the local demand of cotton resulting in its scarcity, a factor

ultimately determining the market prices of cotton. Consequently, to improve the procurement of cotton by the government sector to supply to the state textile mills and to adequately satisfy needs of private sector for mill and non mill uses, it appears that priority should be given to efforts to increase the production which is in commensurate with the consumption. However, substantial increases in production are achievable only when cotton prices are competitive relative to the prices of alternative crops apart from provision of other support services to serve as incentives to the cotton farmer. Government procurement prices should also be reflective to the prevailing domestic and world market prices with seasonal or yearly adjustments made in due course.

To estimate the value of Myanmar cotton which will reflect the international price, the export parity price of long staple cotton was computed based on Yangon FOB export price for 2001-02. The export parity price for the first trade of long staple cotton which was priced at 180 Kyat/viss by MCSE was equivalent to 348.75 Kyat/viss i.e, about two times higher than the official procurement price. But it was very close to the open market price which ranged around 350-375 Kyat/viss in that year. The computation of export parity price of cotton is provided in annex-1.

#### **4.5.3. Private Sector Procurement**

In August 1998, State Peace and Development Council partially liberalized cotton marketing by directing the Ministry of Agriculture and Irrigation to accord freedom to private traders and ginners in marketing and ginning of cotton subject to registration and formal approval by MCSE. According to the directive, private traders were allowed to procure a pre-registered quantity of specified type of cotton in a predesignated area. They were liable to sell 50 percent of cotton procured to MCSE and were allowed to export through MCSE within the quantity of cotton left over after due sales were made to MCSE. In 1999-2000 and 2000-01, the quantity of cotton that is required by registered traders to sell to MCSE was reduced to 25 percent.

Theoretically, registered private traders were supposed to buy a predetermined a quantity of cotton in a specified area. But, in practice it rarely

happen. MCSE was not in a position to supervise their activities all over cotton area which was in most areas not grown in belts but sandwiched with a variety of crops in the farming systems over a wide area. Many malpractices were involved in the private sector cotton marketing and ginning. For the time being, legal enforcement is not consistent to contain those practices.

Private sector involvement in cotton marketing is to be welcomed. Yet, they must perform business in an organized and orderly manner abiding with existing laws, regulations and procedures. There should not be foul play in any form. Close coordination, utmost cooperation, mutual understanding and fair treatment among the players. Government, private business and cotton farmers are essential to elevate Myanmar cotton to new horizons of prosperity. The number of private businessman registered with MCSE for cotton procurement and ginning is provided in Table 17.

**Table 17 : Registered Private Cotton Traders and Ginners**

| Year      | No. of private traders | Private ginners |                  |                   |
|-----------|------------------------|-----------------|------------------|-------------------|
|           |                        | Number          | No. of ginneries | No. of gin stands |
| 1998-1999 | 527                    | 361             | 361              | 579               |
| 1999-2000 | 379                    | 287             | 287              | 655               |
| 2000-2001 | 421                    | 370             | 370              | 845               |

Source: MCSE.

#### **4.6. The Myanmar Cotton and Cotton Products Merchants and Manufacturers' Association**

Even when the cotton trade has been under the monopoly of the government, before it was partially liberalized in 1998, the private sector involvement in the cotton industry in general and in the cotton trade in particular was rather significant, sharing more than 70 percent of total domestic production during 1980s and early 1990s. Now with the government procurement declining mainly due to uncompetitive cotton prices, being paid to the farmers, role of private sector in cotton trade and other segments of cotton industry has increased even more.

While government encourages private sector participation in all business sectors including cotton industry in line with the open market policy, some reservation have to be made for cotton trade, however. Malpractices overwhelmingly practiced by many private traders, ginner and spinners in defiance of government regulations threaten the long-term sustainability of the cotton industry itself.

In this context, government has authorized the Ministry Agriculture and Irrigation to form Myanma Cotton and Cotton Products Merchants and Manufacturers Association with membership spanning across all segments of cotton industry including traders, ginner and large scale spinners. The association has yet to become a fully active body in the later part of this year. When fully functional, the association will play an important role in facilitating coordination among the players of cotton industry. While it will help the cotton growers in achieving remunerative price for the produce, the association will ensure the benefits accrued from the businesses were shared proportionately among the players. It will also be in the vanguard of rules and regulations by the association members which are set by the government for cotton trade to harmonize the interests of the public sector with those of the private business.

#### **4.7. Ginning and Processing Sector**

With a few exceptions ginning is done in Myanmar with the use of outdated ginning machines which belong basically to the single roller gin models of the late 1900s. As part of modernization scheme, installation of modern ginning facilities has taken place in the public sector though. Currently, MCSE owns a 141 saw gin facility, along with a number of small 40 saw gins and recently introduced double roller gins. Currently with low procurement of cotton, MCSE ginneries operate with excess capacity.

Similarly, in spite of largely outdated technology, private sector seems to possess the adequate capacity to gin whatever the quantity of domestically produced cotton is supplied to the private sector. In addition, a large number of manually operated traditional wooden gins are still widely used in rural areas, particularly for ginning short staple cotton.

Cotton is grown in Myanmar almost throughout the year, hence cotton production is not confined to a single season but spread over the time allowing cotton gins to exploit its capacity.

Even when the current aggregate capacity of gins appears adequate, the quality of ginning leaves much to be desired in both sectors. Gineries do not improve the fiber quality of cotton but they must minimize damage to the intrinsic qualities of cotton fiber. Ginning outturn is largely dependent on the type of ginning machine to the degree as it may be with the ginning process itself. Ginning capacities of both Sectors are presented in Table 18.

**Table 18 : Ginning Capacities of Myanmar**

| Sector             | Type of gin       | No.          | Annual capacity<br>( MT of Seed Cotton) |
|--------------------|-------------------|--------------|---|
| Public             | Single roller gin | 479          | 84,470                                  |
|                    | Double roller gin | 18           | 9,520                                   |
|                    | 141 Saw gin       | 1            | 9,400                                   |
|                    | 40 Saw gin        | 3            | 1,560                                   |
| Sub-sector total   | -                 | -            | 104,950                                 |
| Private            | Single roller gin | 845          | 132,480                                 |
| <b>Grand total</b> | -                 | <b>1,346</b> | <b>237,410</b>                          |

Source: MCSE.

#### 4.8. Downstream Industries

Myanmar also has a considerable capacity for bale pressing as well as delinting and oil crushing of the seeds. However, while bale pressing and delinting facilities are currently confined to the public sector, under MCSE, private sector apparently possesses much higher capacity for oil crushing of the seeds. A major portion of cotton seeds produced in the private sector is believed to be used for oil crushing because MCSE normally provides cottonseeds of different cotton types in adequate amounts required for planting purposes. In 1999, there were 30 registered private cottonseed oil mills in Myanmar. However, data on the ca-

capacities or the production of cotton by-products not readily available for the private sector. Hence, Table 19 and Table 20 provide factory capacities and production of cotton by-products in the downstream industries of public sector only.

**Table 19 : Factory Capacities in Cotton By-product Downstream Industries in the Public Sector**

| Type of factory  | No. | Unit               | Capacity | Remark |
|------------------|-----|--------------------|----------|--------|
| 1. Cotton baling | 13  | 360 lb bale        | 216,960  | MCSE   |
| 2. Delinting     | 2   | MT of cotton seeds | 17,540   |        |
| 3. Oil crushing  | 6   | MT of cotton seeds | 17,870   | MCSE   |
| Public sector    |     |                    |          |        |
| Private sector   | 30  | MT of cotton seeds | n.a.     |        |

Source: MCSE.

**Table 20 : The Production of Cotton Seed By-products in the Public Sector**

(MT)

| Year    | Linters<br>(360 lb bales) | Refined oil | Soap stock | Seed cake |
|---------|---------------------------|-------------|------------|-----------|
| 1993-94 | 767                       | 233         | 152        | 3,096     |
| 1994-95 | 983                       | 42          | 24         | 398       |
| 1995-96 | 840                       | 102         | 43         | 1,004     |
| 1996-97 | 795                       | 215         | 80         | 2,446     |
| 1997-98 | 881                       | 363         | 142        | 3,006     |
| 1998-99 | 998                       | 294         | 101        | 1,605     |
| 1999-00 | 715                       | 162         | 57         | 1,767     |
| 2000-01 | 1,276                     | 236         | 85         | 1,889     |

Source: MCSE.

#### 4.9. Challenges in Cotton Production

Myanmar has made considerable progress in cotton production since the dawn of last century, particularly during the past decade. Yet, it is still far away from meeting even the modest needs of current populace in clothing from domestic production. It has been worked out that cotton production needs to be raised nearly three times from the level of 1999-00 to meet the projected 15 yards of cloth per capita for the current 50 million peoples of Myanmar. While opportunities definitely exist which will favour achieving this target, concerted efforts are yet needed

to overcome bottlenecks which constrain achieving full production potential of cotton. Constraints to cotton production vary in nature but some common production constraints are identified as follows.

#### **4.9.1. Technical**

##### **4.9.1.1. The lack of Suitable Varieties with Specific Adaptation to Differing Growing Seasons**

Myanmar is unique in having three ecologically diverse cotton growing seasons, viz. Premonsoon, monsoon and latemonsoon. Premonsoon cotton with the use of long staple varieties is typically planted ahead of monsoon rains during the relatively cool period in the months of February and March to be harvested in the middle of monsoon season during the months of July and August. Since premonsoon cotton receives no rains at planting time and during the period until 60-75 days after planting, irrigation is necessary to ensure crop establishment, optimum crop growth and good yield. Premonsoon season is otherwise considered favourable for cotton except that it subjects to high temperatures during May and June coinciding with peak flowering. Harvesting is also usually caught in the monsoon rains with a deleterious effect on yield and lint quality.

The varieties should thus be heat tolerant to withstand high temperatures during flowering to minimize flower abortion. They should also be early maturing to allow harvesting completed in July when relatively dry spell occurs and timely planting of monsoon rice which immediately follows premonsoon cotton in the cropping system.

Both indigenous short staple varieties and long staple cotton varieties are grown in the monsoon season with the former sharing 80 percent of the total monsoon cotton area. Both cotton types subject to the vagaries of monsoon rains which are characterized by the erratic patterns in total rainfall and distribution.

While longer duration and hardy native cottons are more adaptive to this niche, the long staple types usually suffer from heavy rains during the

harvesting time. Vigorous types with relatively longer duration to withstand weather adversities and to escape heavy rains during the harvesting time is thus imperative for long staple cotton component.

With a few exceptions almost all of latemonsoon cotton which is exclusively of long staple varieties is grown rainfed. Since the crop is grown in the middle of rainy season, usually preceded by an early monsoon crop, rainfall can support moisture requirement of the crop only up to the initial flowering stage i.e. around 50-60 days after planting. Accordingly, the crop usually subjects to moisture stress from peaking flowering onwards, a major factor limiting otherwise high yielding potential of latemonsoon cotton. Varieties should be of medium duration but with a less pronounced determinate habit to escape terminal drought on one hand and to exploit occasional late rains on the other.

It is evident that the varietal needs vary widely among the growing seasons. Yet, until recently, Lungyaw-3 has been a single bread and butter variety grown over the entire long staple cotton area and across all growing seasons. It has been a good variety with wide adaptation, producing relatively stable yields in most cases. However, full production potential of the variety nor the season could not be achieved with the use of single variety in all seasons and in all regions. Moreover, Lungyaw-3 variety has been degenerating due to long years of cultivation, which is compounded by the lack of adequate purity maintenance and systematic seed production scheme.

However, measures have been taken recently to diversify cotton varieties to suit to the specific cotton growing environments of Myanmar. Apart from specific adaptation to the designated environment, these varieties also possess high degree of tolerance to jassids, an important character for integration of IPM in cotton production. Currently four new introduced varieties, namely LRA-5166, Surabhi, MCU-9 and MCU-5 VT were identified for commercial cultivation in different seasons. But it will take a few years to cover the entire long staple cotton area with the new varieties.

In fact, a few introduced long staple cotton varieties such as LA-887,

SR-60, and Angali have been in cultivation along with Lungraw-3 for the past 5-6 years. However, despite the high yielding capacity and premium lint quality, these varieties never became widely popular among the farmers due to high susceptibility to sucking pests, particularly jassids and higher input needs in case of LA-887 and SR-60 and limited rejuvenation capacity in case of Angali. Fibre quality parameters of long staple cotton varieties, currently under commercial cultivation and varieties which are identified suitable for release for future expansion are presented in Table 21.

**Table 21 :Fibre Quality Parameters of Long Staple Cotton Varieties**

| Variety   | Year of release or introduction | Ginning (percent) | Staple length (mm) | Fineness (micronaire) | Strength (lb/mg) | Maturity ratio |
|-----------|---------------------------------|-------------------|--------------------|-----------------------|------------------|----------------|
| Lungyaw-3 | 1983                            | 35                | 28                 | 4.30                  | 7.40             | 0.90           |
| LA-887    | 1996                            | 37                | 31                 | 3.50                  | 8.00             | 0.90           |
| MCU-5VT   | 1997                            | 34                | 30                 | 3.40                  | 8.70             | 0.90           |
| MCU-9     | 1997                            | 36                | 27                 | 4.30                  | 8.30             | 1.00           |
| Surabhi   | 1997                            | 33                | 29                 | 3.50                  | 8.40             | 0.90           |
| Angali    | 1998                            | 36                | 27                 | 3.60                  | 8.40             | 0.90           |
| SR-60     | 1998                            | 36                | 27                 | 3.60                  | 8.40             | 0.90           |
| LRA-5166  | 1999                            | 35                | 27                 | 4.00                  | 8.50             | 0.85           |

Source: MCSE.

Farmers were much impressed with the performance of commercial hybrid cottons, experimentally introduced from Vietnam and India. The major constraint was only the high cost of imported seeds, which ranged between 7,000 to 10,000 Kyats per acre compared with 150-300 Kyats, farmers have paid for conventional subsidized seeds in 1999-2000. Even then, many farmers are ready to pay about 30-50% of this cost as long as hybrids produce yields not less than 540 kg of lint/ha. When available, locally produced hybrid seeds will cost much less than the imported ones. Hybrid cotton seed production is currently in progress at the research unit of MCSE, producing encouraging initial results.

In Myanmar, cotton yields are expressed in seed cotton rather than the lint which has a true commercial value. Therefore, cotton yield expression of a given variety in Myanmar may not adequately represent the real commercial value of this variety because ginning percent of different

varieties range widely with varieties possessing high ginning percentages producing higher commercial outputs. Given the current commercial ginning outturn of the cotton varieties in Myanmar ranges between 32 to 33 percent, the improvement in ginning outturn to 40%, which is common for many improved cotton varieties worldwide will translate into an increase in the average yield of Myanmar from 180 to 193 kg/ha in 1999-2000. In this context, improving ginning outturn of cotton should be adequately stressed in future cotton improvement programmes of Myanmar.

#### **4.9.1.2. Low Seed Quality**

There has been a deterioration in the genetic purity of cotton varieties and seed quality is often not as good it is desired. In fact, cotton was a component crop in the World Bank assisted seed development project which has been carried out from 1978 to 1994 to establish quality seed production systems for major crops including cotton. Since then, a systematic seed flow involving breeder seed, foundation seed, registered seed and certified seed has been organized, quality control standards for each seed stage were established and field inspection technique has been set. The National Seed Committee was formed at the central level which is supported by the technical subcommittee to deliberate the related issues and to regulate the seed multiplication and seed supply system.

While early three stages of seed production, namely breeder seed, foundation and registered seed which are carried out at the government farms owned by MCSE are running without difficulty, certified seed production which is carried out in the farmers' fields is encountering difficulties. With general low procurement price of cotton and inadequate premium for certified seed cotton, farmers seldom comply with the procedures set for field inspection and roguing of off-types. They also usually fail to sell the whole harvest to MCSE, requiring MCSE to distribute occasionally gin run seeds for planting purposes in the wake of insufficient supply of certified seeds. Therefore there is an urgent need to provide adequate incentives for certified seed cotton growers and that national seed law be enacted to prevent malpractices in cotton marketing, particularly in certified seed production of cotton.

#### **4.9.1.3. High Yield Losses due to Insect Pests and Weed Growth**

The use of hairy leaf varieties not only saves the cost for control of jassids, a major early season pest on cotton, but also contributes to suppression of bollworms in the later stages. It is so because the possibility to exclude early season sprays directed towards jassids in a way spares beneficial insects, allowing them to attack more harmful bollworms in the mid or later part of the season.

Even then, yield losses from bollworms such as *H. armigera* and *P.gossypiella* are rather significant ranging from 30 to 70 percent. Overlapping growing seasons, staggered sowing and protracted harvesting periods in rain grown cotton areas result in continuous multiplication of cotton pests, especially bollworms. Meanwhile, insect pests are not adequately controlled due to increasing pesticide costs, lack of sprayers and poor implementation of IPM. Pesticide costs rose about 200 to 300 percent during the last three years. At an average rate of 0.87 l/ha, the insecticide use is practically under dosed potentially creating other associated problems such as resistance build-up and resurgence of pests.

Rain grown cotton particularly presents special problems in weed control because excessive wet conditions at critical times do not always permit effective cultivation. Labour is often in short supply at critical times due to competition from food crops. Herbicides are so far not used in cotton due to high cost and lack of equipments.

#### **4.9.1.4. Inadequate Use of Fertilizers**

The use of fertilizers is an important input to increasing cotton yields and sustaining soil productivity. In Myanmar, urea, triple superphosphate and muriate of potash containing major nutrients N, P and K respectively are mainly used for long staple cotton with recommended rates ranging from 56-56-56 lb to 112-56-56 lb per acre depending on soil type, availability of irrigation water and targeted yield. However, fertilizers are applied only on an estimated 50 percent of long staple cotton area at an average rate of 66 kg /ha i.e 30 to 40 percent of the recommended rate. Inadequate use of fertilizers are stemmed from the low

government quotas provided for farmers and soaring market prices during the past years. While fertilizer prices have increased by 200-300 percent during the past three years, government procurement price of cotton basically remained unchanged during the corresponding period. So, even when the farmers received government quotas as designated, part of the fertilizers were usually diverted to other crops which gave higher returns. Thus, fertilizer use in cotton may be even less than the actually distributed quantity by MCSE. Another reason for the low use of fertilizer lies in that fertilizers do not always provide assured returns as it might be in the absence of adequate pest control, particularly when the elevated doses of urea are applied. Removal of government subsidies for basic farm inputs further compounded the problem leading to the generally declining use during the past years (Table 22).

**Table 22 : The Distribution of Fertilizers and Pesticides for Long Staple Cotton by MCSE**

| Year                | Fertilizers(MT) |       |       |        |       | Insecticides (Liter) |
|---------------------|-----------------|-------|-------|--------|-------|----------------------|
|                     | Urea            | TSP   | MOP   | Others | Total |                      |
| 1997-1998           | 4,476           | 3,031 | 1,559 | 259    | 9,325 | 192,288              |
| 1998-1999           | 7,047           | 1,989 | 540   | 364    | 9,940 | 153,728              |
| 1999-2000           | 4,104           | 590   | 734   | 166    | 5,594 | 83,369               |
| 2000-2001           | 3,758           | 999   | 739   | 1,275  | 6,771 | 148,246              |
| Average rate per/ha |                 |       |       |        | 66 kg | 0.87                 |

Source: MCSE.

Note: Fertilizers and insecticides are estimated to apply on 50% and 70% of total long staple cotton area respectively.

At the current government procurement price of cotton and in the absence of subsidies for basic farm inputs, farmers are not likely to use more inputs in near future than the current application levels. On the other hand, it will need at least to double the current rates of fertilizers and insecticides to boost cotton yields to the level of 400 kg lint/ha. In this context, restoring partial subsidy for inputs appears necessary during the transitional period until government procurement prices are adjusted to the market prices to transform cotton growing into economically profitable venture.

#### 4.9.1.5. Low Irrigated Area

Globally, countries with higher proportion of cotton under irrigation produce higher yields. Thus, 73 percent of world cotton production comes from 53 percent of irrigated areas. In Myanmar too, cotton yields could be increased by 70-100 percent through the proper irrigation, particularly in late monsoon season. Government policy which promotes special high yielding cotton zones in areas where irrigation is available is in the right direction for increasing cotton production. However, irrigated area under cotton is so far limited in the light of government's preferential allocation of summer rice in the gravity irrigation areas at the expense of premonsoon cotton.

In fact, most of the areas coming into existence served by pump irrigation is designated for irrigated latemonsoon cotton. The irrigation is however, practiced to a limited extent in these areas partly due to farmers reluctance to pay for water fees which are charged much higher than in gravity irrigation areas. The other reason for low irrigation in cotton is that farmers can earn much more money by growing winter crops in these areas, such as wheat or chickpea without resorting to irrigation. On the other hand, irrigation efficiency leaves much to be desired in these areas due to intermittent nature of irrigation and poor farm layout. Irrigated area under cotton in proportion to total irrigated area is provided in Table 23.

**Table 23 : Irrigated Area under Cotton and its Share in Total Irrigated Area**

(‘000 ha)

| Year    | Total irrigated area under all crops | Irrigated area under cotton |              |       | Percentage share |
|---------|--------------------------------------|-----------------------------|--------------|-------|------------------|
|         |                                      | Pre-monsoon                 | Late-monsoon | Total |                  |
| 1994-95 | 1,912                                | 9.40                        | 2.60         | 12.00 | 0.63             |
| 1995-96 | 2,143                                | 17.00                       | -            | 17.00 | 0.79             |
| 1996-97 | 1,866                                | 21.00                       | -            | 21.00 | 1.13             |
| 1997-98 | 1,923                                | 17.30                       | 4.70         | 22.00 | 1.14             |
| 1998-99 | 2,081                                | 23.20                       | 1.80         | 25.00 | 1.20             |
| 1999-00 | 2,348                                | 11.90                       | 1.10         | 13.00 | 0.55             |
| 2000-01 | 2,438                                | 13.00                       | 3.00         | 16.00 | 0.66             |

Source: Settlement and Land Records Department.

## **4.9.2. Absence of Scientific Grading of Cotton and Outdated Ginning Technology**

Despite a notable increase in cotton production over the years, improper picking methods and malpractices adopted by some cotton farmers and traders involving adulteration of seed cotton with water and foreign matter and mixing of varieties or even species have reduced the quality of seed cotton. These factors coupled with inappropriate ginning techniques have downgraded the lint quality. As such, the country may have been losing some 15-20 percent or more of the commercial value of its cotton.

The core of problem facing the cotton industry in Myanmar has been the absence of any scientifically devised grading system and inadequate price premium for better quality cotton.

Cotton grading system currently used in Myanmar is vague and subjective and based on visual evaluation of cotton. It is everybody's interest; cotton farmers, ginners and textile millers to establish a scientifically devised grading system to ensure the supply of higher quality cotton to the industry. However, until and unless the premium prices are suitably provided for higher grades of cotton, the practical application of the system will be at best limited.

While ginning will not improve the inherent fibre quality of cotton, improper ginning however, can downgrade the quality of lint apart from reducing ginning outturns. Since most of the gins employed in the cotton industry, particularly in the private sector are antiquated, modernization of ginning sector is indispensable to preserve the intrinsic fibre qualities of cotton while increasing ginning outturn and ginning efficiency to the benefit of the industry.

## **4.9.3. Institutional**

### **4.9.3.1. Inadequate Research Support**

Cotton research is currently undertaken by the research unit within MCSE, based in the heart of cotton growing areas in Upper Myanmar. Adaptive

research activities are conducted at the MCSE regional cotton farms and farmer's fields. Research programmes are however so far limited to breeding works and some agronomic practices due to lack of trained personnel and laboratory facilities.

A cotton fibre and miniature spinning laboratory has been established in early 1980s with FAO/UNDP assistance to support the varietal improvement works. As a whole, upgrading and strengthening of research personnel as well as facilities are urgently needed to address in-depth the technical issues which limits cotton productivity which is one of the lowest among the cotton producing countries.

#### **4.9.3.2. Extension**

With a relatively favourable ratio of extension agents to cotton area (1:480ha) which is supervised by each and individual agent, cotton extension constitutes a major strength in the basic functions of MCSE. However, the effective extension activities are by far constrained by inadequate logistic support including means of transport and extension aids.

While the professional skill of the extension agents leaves much to be desired, lack of enthusiasm and motivation from the part of farmers to readily accept the improved cotton growing techniques presents a main hurdle confronting effective extension campaign. Since such a low farmers' enthusiasm is stemmed from unattractive procurement prices, it calls for appropriate policy adjustments in cotton pricing to motivate farmers to use the improved production technology.

#### **4.9.4. Economics and Policy**

##### **4.9.4.1. Inadequate Credit**

Formal credits for long staple cotton are provided by Myanmar Agriculture Development Bank (MADB). MADB provides 2,500 Kyats/acre for long staple cotton at 15 percent interest rate. Considering the cost of production of long staple cotton which approximated 16,300 Kyats/acre

for rainfed cotton and 20,000 Kyats/acre for irrigated cotton respectively in 1999-2000, the loan rate appeared too small. The loan rate should be raised to cover at least 30-50 percent of the total cost for each type of cotton.

MCSE also provides an early advancement of a part of the payment for seed cotton to be procured. Yet, the amount for advance payments has been decreasing lately due to high default rates.

Farmers also receive credits in kind or cash from informal sources, mainly from cotton traders and ginners through interlocked contracts. But no estimates are available on how significant it is. It is however, learnt that loan terms are not very favorable for farmers. If the farmers receive credits in kinds such as seeds, fertilizers and insecticides the price of these inputs are fixed at higher rate than the market prices whereas creditors recovered cotton for the cost of these inputs by settling cotton prices at a relatively lower rate than the expected market prices. It is almost a set norm that farmers return one viss of seed cotton at picking time for every viss of seed received at planting time.

In these interlocked contracts mutual trust plays a major role because the borrowers know that repayment default will result in loss of future borrowing opportunities.

#### **4.9.4.2. Low Financial Returns**

Financial returns are a crucial element in a farmer's choice to grow cotton or alternative crops. Apart from yield and procurement price, costs of production are the major determinant of producer return.

In Myanmar, the returns from cotton were found to be the second lowest behind summer rice out of four competing crops included in the observation in 1999-2000 (Table 24). Obviously, escalating input prices, high labour cost and extensive control on procurement prices have reduced financial returns of cotton and summer rice making them financially unattractive relative to other crops for which no price controls were imposed.

**Table 24 : Financial Returns of Cotton and Competing Crops**

| Corp        | Unit          | Yield (per acre) | Production cost per acre (Kyat) | Revenue per acre (Kyat) | Net profit per acre (Kyat) | Return per Kyat invested |
|-------------|---------------|------------------|---------------------------------|-------------------------|----------------------------|--------------------------|
| Pigeon pea  | 72 lb(basket) | 12               | 10,190                          | 51,600                  | 41,410                     | 4.06                     |
| Green Gram  | 72 lb(basket) | 13               | 13,870                          | 47,489                  | 33,615                     | 2.42                     |
| Sesamum     | 54 lb(basket) | 4                | 9,900                           | 13,908                  | 4,008                      | 0.40                     |
| Summer rice | 46 lb(basket) | 80               | 26,395                          | 30,000                  | 3,605                      | 0.14                     |
| Cotton      | viss          | 200              | 16,300                          | 20,000                  | 3,700                      | 0.23                     |

Source: CSO and DAP, 2001.

Note: Based on government procurement price. But the revenue will be higher, if the above-quota sales at market prices are considered.

#### **4.9.4.3. Low Cotton Procurement Price**

The computation of export parity price for cotton which approximated 348 Kyat/viss (Annex-1) in 2001-02 showed that government procurement price at kyat/viss constituted only 29 percent of the international price whereas open market price in that year closely reflected to it.

Cotton is a difficult crop to manage and requires a relatively high level of skill from farmers to obtain a reasonable yield. Input and labour needs are also higher than many other crops. Therefore, even if the cotton prices are attractive many farmers may not likely favour cotton income generating. Instead, they will choose alternative crops which will provide higher returns at a lower cost and minimum care.

In Myanmar's case, government procurement prices of cotton are low and not remunerative relative to competing crops. Such a failure to establish a procurement price which is competitive with alternative crops have probably resulted in shortfalls in fulfilling area targets in project areas in spite of mandatory allocation and stagnating yields which were seemingly brought about by deliberate delayed plantings, diversion of government provided cheaper fertilizers and insecticides to other more profitable crops and general lack of interest among farmers to apply the improved production techniques.

#### 4.9.4.4. Low Comparative Advantage of Cotton Production

Domestic Resources Cost Ratio (DRC)\* of cotton is computed to estimate the comparative advantage of cotton in relation to some major crops in Myanmar in 2000-01 (Table 25).

**Table 25 : Domestic Resources Cost Ratio (DRC) for Cotton and Some Major Crops of Myanmar**

| Crop       | DRC  | Remark                            |
|------------|------|-----------------------------------|
| Cotton     | 0.48 | Non irrigated late-monsoon cotton |
| Rice       | 0.33 |                                   |
| Sugarcane  | 0.91 |                                   |
| Green gram | 0.29 |                                   |
| Maize      | 0.43 |                                   |

Source: San Thein and Mathias von Oppen (2002) and own calculation based on survey.

With a DRC of 0.48, cotton has better comparative advantage than sugarcane but lower than rice, green gram and maize in the use of domestic resources to produce a unit of an output value.

#### 4.10. Opportunities in Cotton Production

Myanmar with its conducive climate, the largest fallow land area than any country in the region, and still substantial untapped irrigation potential and relatively rich experience in cotton production is poised for a breakthrough in cotton production that will virtually remit in meaty raw material needs of domestic textile industry, generate exportable surplus and energize the national economy for rapid growth.

Cotton production can be boosted by the expansion of cultivated area and increased productivity. Fortunately, both opportunities are open to Myanmar.

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\* Domestic Resource Cost Ratio (DRC) is used to estimate the price that a country pays in terms of domestic resources in order to save one unit of foreign exchange by not importing the product (or by exporting the product).

#### **4.10.1. Area Expansion**

Even though area expansion in the traditional cotton growing areas is already constrained by growing competition between cotton and food crops for land, water and labour resources due to population pressure, there is still a large scope to extend cotton area in regions with least ratio of population per fallow land e.g. Shan State, Kayah State and Northern parts of Sagaing Division. In fact these regions offer more favourable soil and weather conditions for cotton growing than drought prone traditional areas.

Myanmar currently has 8 million ha of cultivable waste land which can be brought into cultivation for growing various crops including cotton. It will only need to develop necessary infrastructure facilities in new areas to handle a new crop in terms of transportation, storage, processing and marketing.

#### **4.10.2. Increasing Yields**

At present, Myanmar belongs to the lowest yielding countries of the world. But it only indicates its enormous potential to achieve much higher yield levels than currently recovered. Yields of world's major cotton producing countries have reach plateau because they already attained very high yield levels, suggesting agronomic management of the cotton plant has reached near optimization. For these countries, new and innovative technologies are needed to increase yields further.

In the case of Myanmar with average yields recovering only 1/3 of world aggregate average, the available recoverable potential of cotton plant is far from fully utilized. Therefore, with some minor modifications and adjustments in the currently available world production technology to adapt to specific local conditions of Myanmar, cotton yields could be significantly increased. Even now, the production technology which is capable of increasing yields at least 2 to 3 times than current levels is available. Individual farmers are obtaining yields in excess of 800 kg/ha. It only requires mass application to have an impact on the national yield.

Availability of the improved technology is no assurance that they will be adopted. So the real issue is not so much technology, but dissemination and adoption of technology, which involves education, training, extension, demonstration, technical support, production and distribution of critical inputs such as improved seeds, fertilizers and pesticides.

#### **4.10.3. Increased Irrigation Facilities**

World average cotton yields are much higher as compared to those of Myanmar, partly because 55 percent of the world cotton area is irrigated. On a global basis, irrigated yields are more than two times higher than those of rainfed (854 kg/ha vs. 391 kg/ha). Meanwhile, less than 10 percent of total cotton area receive partial irrigation in Myanmar.

Recognizing the potential contribution of irrigation to increased cotton yields, government has already drawn plans to increase irrigated area under long staple cotton to 200 thousand acres during the five year period (2001/02-2005/06), by sharing water with rice in old gravity irrigation systems and designating some newly commissioned dams and water pumping projects specifically for cotton. Irrigated cotton area might be increased further in future in view of government plans to build more dams and implement water pumping projects in regions with existing substantial cotton area or with a large potential for future expansion.

#### **4.10.4. Rising Demand**

The fact that local market cotton prices have soared in recent years is indicative of rising demand relative to supply. Increased cotton prices will help boost cotton area, yield and production. It also apparently had counterbalanced and moderated the impact of low government procurement prices on cotton area and production.

Demand by the government sector will be increased substantially when the projected new textile mills are operational towards 2005-2006. In addition, the export oriented textile and garment industry with an annual

turnover of US\$ 400 million is becoming one of the most predominate business in Myanmar. Even though these firms currently import 99 per cent of the raw material requirement, they can become an important market for Myanmar cotton in future.

#### **4.10.5. Strong Government Commitment**

Strong government will and commitment is absolutely critical to implement and accomplish programmes on a national scale. Intensive cotton production drive will require not only improvements in production technology, but also improvements in infrastructure, transport and communication. It also needs to deal with the organization and management structures and regulations within government organizations apart from pursuing relevant policies in product and input pricing, marketing and trade. These measures can not be easily done but could be accomplished, if there is a strong will and commitment from the government to sweep aside whatever the obstacles are met and create a national sense of urgency to catalyse cotton production. In Myanmar's case it is already clear; the vision has been set and the programmes have been laid out with full inspiration. Cotton has been proclaimed as a pillar crop of agriculture sector to avail of the opportunities open to the country.

#### **4.11. Proposed Strategy for Future Development of Textile Industry with Particular Emphasis on Cotton Development**

Key issues challenging the textile industry of Myanmar are multifaceted. Yet, low efficiency due to outdated textile technology in the public sector, continued reliance of the private sector on the antiquated machines and makeshift wooden implements for production of yarn or fabrics and low supply of basic raw material, cotton to the industry due to its low productivity are considered most critical.

In this context, future scenario for the development of textile industry in general and cotton industry in particular to address the pressing issues should include the following approaches.

#### 4.11.1. Textile Industry

- (i) Upgradation of existing textile factories in the public sector.
- (ii) Modernization and expansion of the textile industry both in public and private sectors covering all segments of the industry such as spinning weaving , processing and finishing and garment production by establishing factories with the employment of advance technologies and for this purpose to encourage both Foreign Direct Investment as well as research and development in the sector.
- (iii) Encourage the private sector to participate in financing of textile industry
- (iv) Product upgradation and diversification to meet the growing domestic needs and export promotion. The textile industry is facing increased consumer demand for higher quality products at value prices.
- (v) On the average, 60 to 70 percent of the cost to produce a 100 percent cotton yarn are attributable to the fibre. This fact alone highlights the need to ensure the supply of cotton to the industry at a reasonable price with specified fibre qualities.
- (vi) Support to the handloom cottage industry for traditional fabric production. The cottage industry has inherent strengths like flexibility of production in small quantities, low level of capital investment and the tradition of excellent craftsmanship to produce specially designed traditional fabrics.
- (vii) Liberalize the export of value added yarn and textiles for which world demand and prices are high so that mills can expand capacity , modernize and absorb higher cotton prices.
- (viii) Develop human resource skills and capabilities by addressing the professional man power needs of the industry , as well as the cutting edge level of workers and shop-floor supervisors.
- (ix) Create awareness and take supportive measures for application of IT, for upgradation of technology, enhancement of efficiency , productivity and quality.
- (x) Welfare schemes for ensuring a healthy and safe working environment for workers.

## **4.11.2. Cotton Industry**

It envisages development of all aspects of cotton industry from research to production , marketing and processing by addressing technical, institutional and policy perspectives.

### **4.11.2.1. Technical**

- (i) A progressive shift to hirsutum varieties in place of rainfed arboreums to achieve a quantum jump in yield and quality. Arboreum cottons should be confined to moisture stress and drought prone areas for any end use requirement for which, hirsutum is not suitable
- (ii) Development of cotton varieties with high yielding capacity, better fibre quality and high ginning outturn with specific adaptability to differing agro-ecological zones.
- (iii) Strengthen hybrid cotton programme and explore the commercial use transgenic cotton.
- (iv) Upgrade and strengthen the fibre and spinning test facilities to support cotton breeding programme and facilitate commercial grading of lint.
- (v) Supply of good quality seeds of improved varieties by establishing a systematic seed production programme supported by seed certification facilities and appropriate quality control measures which meet internationally recognized norms and standards. For this purpose the sequential stages of seed multiplication viz., Breeder, Foundation, Registered and Certified should be grown under close supervision to enable to track the purity of seed as well as the lint.
- (vi) Take measures to prevent varietal mixing. Limit number of varieties grown within each ecological zone.
- (vii) Develop location specific package of practices with regard to spacing and geometry, time of sowing, nutrient requirements, weed control, irrigation water intercropping etc, to maximize cotton yields and economic returns.
- (viii) Effectively employ IPM practices to reduce insecticide use, delaying resistance problem and increased profitability.
- (ix) Undertake research in the post-harvest handling of cotton, storage, ginning and pressing.

#### **4.11.2.2. Institutional**

- (i) Upgrade and accelerate cotton research and development activities. Organize an independent cotton research division within MCSE.
- (ii) Strengthen extension activities by upgrading the technical capability of field agents and providing extension aids.
- (iii) Establish special high yielding zones in favourable areas with adequate technical support and input availability.
- (iv) Provide infrastructure, transport and communication facilities in new cotton areas.

#### **4.11.2.3. Policy**

- (i) Identify and develop new areas for area expansion.
- (ii) Increase irrigated area under cotton.
- (iii) Establish high powered "Cotton Authority" comprising heads of departments which are involved in cotton sector in one way or other under the Ministry of Industry (1), the Ministry of Commerce, the Ministry of Industry (2), and the Ministry of Finance and Revenue to oversee and coordinate the entire cotton sector including production, product pricing, marketing, processing, consumption, export/import, credit and input policy, etc., in a well orchestrated manner.
- (iv) Establish cotton procurement prices by taking account of production cost and relative profitability with competing crops. Prices should be set by Cotton Authority with appropriate adjustments in every marketing season or every year based on world market trends, changing production cost, consumption level and inflation.
- (v) Establish regulated markets or organize auctions in major cotton growing zones to be managed by a committee comprising elected representatives of growers, private traders and MCSE personnel to prevent unfair trade practices.
- (vi) Fix higher premium price for high grade cotton to encourage farmers to produce high quality cotton or consider to pay farmers rebates or bonuses based on ginning outturn and higher export prices of lint when applicable.

- (vii) Provide credits timely and adequately. Credits from private sources should also be encouraged.
- (viii) During the transitional period some subsidy for basic inputs should be provided.
- (ix) Encourage private sector participation in seed production and adaptive research.
- (x) Consider partial funding for cotton research and development by growers, traders, ginneries and the textile mills in the form of a levy on crop or on volume of business.
- (xi) Attract foreign capital or active participation of local private entrepreneurs in cotton production, processing and upgrading of existing facilities in cotton sector.

## 5. CONCLUSION

Myanmar's current textile industry may not be regarded as a developed one in its true sense, Yet it is on a take-off position meeting 95 percent of clothing needs of the people from domestic production.

Efforts are already under way to increase per capita consumption of fabrics which at 5.47 yd is admittedly low even by the regional standard through modernization of the industry on one hand and the increased supply of cotton on the other to adequately meet the needs of the textile industry in this basic raw material.

The relatively modern component of the current textile industry belongs to the public sector. However, more than 60 percent of the current domestic production of fabrics is being accounted for by the private sector. It is so, despite the latter's largely outdated technology which is basically a cottage one, thus highlighting even greater potential contribution of the private sector to the future Myanmar textile industry once future projections regarding the modernization of the industry on a national scale encompassing both public and private sectors is fully materialized.

Clothing comes next only to food in importance. So Myanmar cannot afford to be complacent with what is achieved now on the textile front.

Clothing needs will increase not only in proportion to the population growth but it will also rise with improved living standards of the people as envisaged in the economic development plans of the government.

Right now, Myanmar is not exporting lint cotton nor domestically produced fabrics in large quantities except for ready-made garments, which are produced by the specialized export oriented garment industry, using basically the imported raw material.

Nonetheless, with a relatively low cost of production for cotton or cost competitiveness of the textile products compared to major cotton producing countries or textile exporting countries, mainly due to low labour wages, promising export potential for both cotton and textile lies ahead in Myanmar, provided it is rationally exploited.

The road to the perceived goal of the textile industry may not be such rosy, however. It calls for bold initiatives, relevant policy adjustments, large investments both by the public and private sectors and responsiveness to commercial acumen.

Modern textile machines are capital intensive. So apart from public sector commitment, foreign and local private business participation is crucial. Government has already embarked on the ambitious programmes for upgrading and renovation of existing textile factories and machineries along with expansion plans including building of new modern spinning, weaving and finishing complexes in near and future terms.

With the opening up of the economy in the late 1980s, private sector has also initiated active involvement in modern spinning segment. Yet, the activities are so far limited and it should be expanded to include weaving and finishing components.

Myanmar has a long tradition for hand weaving. Traditional weaving skills and craftsmanship have been ingrained since generations. Moreover, Myanmar is unique in preserving and wearing of traditional clothes. In this context, while it may need to maintain part of the handloom segment for weaving special traditional costumes, the segment as a whole

should be developed, however, turning into a more cost-effective but less labour-intensive powerloom technology in the long run.

Until now, the policies towards the textile industry are centered around import substitution rather than the export thrust and the protection of existing employment in the public sector. But it may be probably more appropriate to develop an export oriented textile industry in view of vastly superior cost effectiveness of Myanmar textile industry compared to other countries and its vast potential for substantially increased supply of domestically produced cotton at a relatively cheaper prices. On the other hand, since textile production is value added at each stage in production line, export of finished or semi-finished textile products will still be profitable even with the use of higher priced imported cotton.

Albeit such a likely scenario, the development of Myanmar textile industry still basically depend on the domestic supply of cotton in the foreseeable future due to a multitude of reasons: some are policy related while some are of economic nature. Accordingly, strategic issues relating to increased domestic cotton production are coming into sharper focus. In this regard, it seems that appropriate price adjustments alone will provide a great impulse for the immediate growth of cotton industry.

As it has been stated earlier, Myanmar has the capability to substantially expand cotton production even from the current cotton area. Farmer's lack of motivation and willingness to pursue high cotton yields due to uncompetitive cotton prices are only hindering to easily reachable goal of doubling current production within a short span of time.

However, once the government procurement prices are adjusted to the prevailing market prices, the public sector textile industry will have no more cotton price advantage in the future and would have to compete own its own efficiency and marketing capabilities.

While it may need further refinement in technology and increased use of inputs to attain cotton yields beyond 1,200 kg/ha, doubling of the current cotton yields of Myanmar which stood at 508 kg/ha in 2000-01, may not be such a challenging task, if purely technical point of view is

considered. The production technology to produce 1,200-1,300 kg/ha cotton yields has been available in Myanmar since 1980s. Yet, the technology has been largely ignored except for a limited application due to unfavorable cotton piece factor.

In addition, the use of technology to produce 1,200-1,300 kg/ha yield will not necessarily be associated with the higher use of inputs than the current levels because there is still a scope to improve yields with the use of 'non-monetary' inputs like correct time of planting, good land preparation to avoid early weed competition, use of quality seeds of varieties tolerant to insects and moisture stress, timely thinning to maintain optimum plant population, need-based and timely plant population. If adequately adopted, these techniques will allow to control costs of productions of cotton thereby making cotton profitable and competitive with alternative crops.

It is felt that to encourage the farmers or to ensure fair prices to them, a scheme of minimum support price which is effectively used in many cotton production countries mechanism which covers the cost of production plus reasonable margins of profit be adopted.

With the projected increased participation of the private sector in the textile industry, the parallel increased involvement of private sector in the cotton industry in general and in the cotton trade in particular is foreseen. However, this sector should rather readily co-operate and co-ordinate with the public sector agencies than conflicting in the larger interests of Myanmar cotton.

Today's textile industry is becoming more demanding with respect to quality of cotton due to changing textile technology as is with consumer demand. Today's spinner is obsessed with Value For Money (VFM), i.e. cotton's intrinsic value, which determines what value the spinner, in turn, can add to cotton. Improved quality of cotton is thus important to accrue higher income for farmer and making the textile industry more efficient and competitive.

Globally, cotton is facing fierce competition from man-made fibers.

However, due to a surge in consumer preferences for natural cotton fibers, world per capita consumption of cotton has been rising lately, particularly in the developed countries.

Hence, projected substantial growth in the domestic market and likely upswing in the international markets due to free market access, facilitated by globalization spells a bright scenario for future Myanmar textile industry. But it may be again stressed that the mission to develop Myanmar textile industry into a thriving modern industry with a global standing will require big capital outlays and resources apart from policy adjustments and dedicated efforts both by the public and private sectors. And above all these essential ingredients, awakening nation to the reality of its potentials and galvanizing the commitment of the government for urgent and decisive implementation will be even more critical to success.

## REFERENCES

1. Cools, J.W.F, 1990, *Economic Aspects of the Production of Cotton, Jute and Sugarcane*, Myanmar, Yangon , FAO.
2. CSO, 2001, *Statistical Yearbook*, Myanmar, Yangon, Central Statistical Organization.
3. CSO and DAP, 2001, *Myanmar Agriculture Statistics (1989-90 to 1999-2000)*, Myanmar, Yangon, Central Statistical Organization in Collaboration with Department of Agricultural Planning.
4. Hla, Khin May and Tin Hla, 2000, *Background Study of Agriculture Sector and Agro-based Industries in Myanmar*, Seminar paper on Human Resources Development in Myanmar, Thailand, Mahidol University and Myanmar, Yangon, UMFCCI.
5. Kyaw, Moe, 2001, *Textile and Garment Industry: Emerging Export Industry*: Kudo, T. ed., *Industrial Development in Myanmar: Prospects and Challenges*. IDE, Tokyo.
6. Thein, San and Matthias von Oppen, 2002, *Measuring Comparative Advantage of Myanmar Sugarcane Production in State Sector: A Policy Analysis Matrix Approach*.
7. TIC, 1988, *Self Sufficiency in Textiles in Burma to 1993/94*, Myanmar, Yangon, Textile Industries Corporation, in Myanmar Language.

**Annex - 1**

**Private and Social Prices of Cotton Production (2001-02)**

| Cost items                                  | Quantity                | Private price(Kyat) |           | Social price(Kyat) |           |
|---|-------------------------|---------------------|-----------|--------------------|-----------|
|   |                         | Rate                | Value     | Rate               | Value     |
| Tradable inputs                             |                         | -                   | 6,212.50  | -                  | 10,995.25 |
| Urea fertilizer                             | 50 Kg, 1 bag            | 2,000               | 1,000.01  | 4,296              | 4,296.00  |
| TSP fertilizer                              | 50 Kg, ¼ bag            | 3,500               | 875.00    | 5,071              | 1,267.75  |
| MOP fertilizer                              | 50 Kg, ¼ bag            | 2,650               | 662.50    | 4,606              | 1,151.50  |
| Compound fertilizer                         | 50 Kg, ¼ bag            | 5,000               | 625.00    | 6,000              | 750.00    |
| Insecticides                                | 1.0 litre               | 1,800               | 1,800.00  | 2,530              | 2,530.00  |
| Seeds                                       | 10 Viss                 | 25                  | 250.00    | 100                | 1,000.00  |
| Factor costs                                |                         |                     | 18,792.50 |                    | 19,017.50 |
| Labour costs                                |                         |                     | 16,100.00 |                    | 16,100.00 |
| Spreading of FYM                            | 2 Females               | 200                 | 400.00    | 200                | 400.00    |
| Ploughing (Pair of bullocks)                | 3 Mornings              | 500                 | 1,500.00  | 500                | 1,500.00  |
| Harrowing (Pair of bullocks)                | 2 Mornings              | 500                 | 1,000.00  | 500                | 1,000.00  |
| Clearing of trash & debris                  | 4 Females               | 200                 | 800.00    | 200                | 800.00    |
| Marking of sowing                           |                         |                     |           |                    |           |
| Lines(Pair of bullocks)                     | 1 Mornings              | 500                 | 500.00    | 500                | 500.00    |
| Planting                                    | 5 Females               | 200                 | 1,000.00  | 200                | 1,000.00  |
| Thinning                                    | 2 Females               | 200                 | 400.00    | 200                | 400.00    |
| Hand-weeding                                | 12 Females<br>(2 Times) | 200                 | 2,400.00  | 200                | 2,400.00  |
| Inter-row cultivation<br>(Pair of bullocks) | 3 Mornings<br>(3 Times) | 500                 | 1,500.00  | 500                | 1,500.00  |
| Fertilizer application                      | 2 Males<br>(2 Times)    | 250                 | 500.00    | 250                | 500.00    |
| Spraying                                    | 8 Males<br>(4 Times)    | 250                 | 2,000.00  | 250                | 2,000.00  |
| Picking(Per viss basis)                     | 144 Viss                | 25                  | 3,600.00  | 25                 | 3,600.00  |
| Transport to farm-house                     | 144 Viss                | 250                 | 250.00    | 250                | 250.00    |
| Transport to purchasing centre              | 50 Viss                 | 250                 | 250.00    | 250                | 250.00    |

## Annex - 1 Continued

| Cost items   | Quantity       | Private price(Kyat) |           | Social price(Kyat)        |           |
|--|----------------|---------------------|-----------|---------------------------|-----------|
|  |                | Rate                | Value     | Rate                      | Value     |
| Capital cost   |                |                     | 187.50    |                           | 412.50    |
| Interest cost  |                |                     |           | @ 15 Ks                   | 225.00    |
| Advance purchase payment (1500 Kyats, interest free) |                |                     |           | interest 4 months         |           |
| Agri bank loan (2,500 Kyats)                         |                |                     | 187.50    | @ 15 Ks interest 4 months | 187.50    |
| FYM (Cowdung)  | 5 (Cart Poads) | 500                 | 2,500.00  | 5.00                      | 2,500.00  |
| Land tax   | 1 acre         | 5                   | 5.00      | 5.00                      | 5.00      |
| Output (Seed cotton)                                 | 144 Viss       |                     | 37,200.00 | 348.72                    | 50,220.00 |
| Sold to MCSE (Govt)                                  | 50 Viss        | 180 Ks/Viss         | 9,000.00  |                           |           |
| Sold to private dealers                              | 94 Viss        | 300 Ks/Viss         | 28,200.00 |                           |           |
| Profit   | 1 acre         | -                   | 12,195.00 | -                         | 20,207.25 |