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A FINAL REPORT

ON

"IMPLICATIONS OF THE INTRODUCTION OF NEW TECHNOLOGIES
FOR THE ROLE OF WOMEN IN THE TEXTILE AND
CLOTHING INDUSTRY IN THAILAND"

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OBJECTIVES OF THE STUDY

The objectives of this study are as follows:

1. to assess the impact of the prospective introduction of new technological processes in the textile and clothing industry on the sex and skill structures of human resources in Thailand.

2. to suggest policies and measures that will be conducive to enhancing the role and contribution of women to the envisaged future development of the Thai textile and clothing industry.

3. to identify areas and key issues for bilateral and multilateral co-operation to promote such development.

OUTLINE OF THE REPORT

Chapter I briefly sketches the historical role of textile in the Thai society and reviews the recent development of the textile and clothing industry in Thailand. Chapter II presents the current structure of the industry in terms of production, employment and export markets. Chapter III discusses the current situation of technology, productivity and quality. The human resource aspect is explored in further details in chapter IV. Chapter V examines the potential future changes and development of the Thai textile and clothing industry. Chapter VI suggests appropriate policies and measures to address those various constraints. Chapter VII summarizes and concludes the report with the examination of the possibilities for co-operation among concerned parties.

CHAPTER I

THE SIGNIFICANCE OF THE TEXTILE AND CLOTHING INDUSTRY IN THE THAI ECONOMY

1. HISTORICAL DEVELOPMENT

The production, distribution and consumption of textiles have always been an integral part in the economic, social and cultural lives of the Thai people in all parts of the country. The process of textile weaving has gone through a long period of developments with gradual improvements in artistic skills and the related techniques which have been passed down from generation to generation, always with women in the central role. For the people of the Lanna Thai and Sukhothai Periods, textile weaving was mainly for personal and family uses, whatever surplus there was may then be traded. High quality and intricately designed textiles made of such materials as silk and satin were imported from China, India, and Persia to be used by the royal families and the nobilities. At that time there was not yet a thriving industry producing enough textiles for exports.

During the Ayudhaya Periods, frequent diplomatic and trading contacts were made with Asian neighbours and European countries such as Portugal, Holland, England and France. These international exchanges provided much benefits, bringing about a great many changes and development in the arts, culture, technology and the economy. In particular, the influence of western ideas created a taste for a different living standard and stimulated demand for a variety

of new products, prominent among them were textile and clothing. Ayudhaya soon became the commercial centre for textiles, both for local and imported finished products, along with the raw materials such as cotton and silk yarns. The Revenue generated was so substantial that for certain period the trading in both local and imported textiles was controlled by the king himself.

Traditionally, the materials, designs and colours of textiles and garments serve as indicators of the wearers' social status. Aristocrats would use expensive imported fabrics not available to commoners. Monarchs regularly included silk fabrics among officials gifts to each other, rewards to their favorite subjects, or gave as salary.

The pervasive influence of western culture as a result of the reform initiated during the reign of King Rama IV in the Ratanakosin Period left its mark on numerous aspects of the Thai society. A movement toward western style of dressing was encouraged by the King and later continued by his son, King Rama V. Many dress-making shops began to open up in Bangkok to serve the fashionable elite class. But although western-styled dressing was encouraged, the traditional Thai costumes were still preferred for use in special and state occasions.

The dawn of democracy during the years following the 1932 revolution brought with it several lasting important social and cultural changes. Field Marshall Pibulsongkram issued guidelines on proper ways of dressing as part of his

campaign for Thailand's new cultural and social values. Western clothes were specified for all occasions and for everyone from the prime minister to peasant farmers. The subsequent changes had a great impact on textile consumption and production in Thailand, created an unprecedented increase in demand and stimulated various forms of new developments.

However, textile remained a cottage industry with products manufactured in a traditional manner until the middle of the 20th century. There were records of widespread silkworm raising and cotton growing since the Ayudhaya period under primitive methods. The production of silk by villagers in the Northeast was given special attention by King Rama V who engaged Japanese experts to undertake a survey and recommend measures to improve on the traditional method of silkworm raising. The Silk Department was established in 1909 and training courses in the process of silkcloth production were offered in many schools both in Bangkok and the Northeast, thus started the development of sericulture in Thailand. An interest in silkworm raising and silk yarn spinning was widely generated around that time. Spinning and spooling machines also began to take the place of human hands.

In 1935, Thailand's first modern textile factory was set up with machines imported from Germany by the Ministry of Defense to produce cotton clothes for military use. Privately owned factories soon followed, beginning an era of machine production. By 1950, there were at least 500 textile weaving

factories in Thailand, along with textile-related factories such as thread and yarn spinning and printing factories. Large factories were usually equipped with their own spinning and printing divisions.

An act promoting spinning, weaving and dyeing industries was promulgated by the Ministry of Industry in 1954. Most of the resulting investment was in automatic machines for the production of cotton yarn and fabrics. At that time, the Thai Government's industrialization policy was aimed towards the promotion of local entrepreneurs and domestic capital, while foreign joint ventures were not encouraged. Thus it was not until eight years later, when the Investment Promotion Act was revised in 1962 that the textile industry started to experience real growth, particularly since the law encouraged investment by foreign companies. Among foreign investors who were attracted by a variety of lucrative special privileges, the stable political situation and the abundant natural and human resources that Thailand had to offer, the largest group was the Japanese who wasted no time in establishing joint ventures with Thai business partners. Synthetic as well as cotton spinning and weaving factories were set up, along with synthetic filament. Japanese capital continuously flowed in and the subsequent expansion of the Thai textile industry occurred with a rapid pace, to such an extent that in 1964, only two years after the revision of the Investment Promotion Act, the Government had to put a temporary stop on new applications, particularly for the

production of grey cotton cloth.

Efforts at export promotion were initiated around this time, stimulated largely by the huge domestic surplus. In 1967, garment was targetted as an export-oriented industry and in late 1971, the Ministry of Finance announced tax rebates on several export items with textile products included among them. The Textile Association also gave direct subsidy to members who managed to obtain export orders, and the United States increased textile quota given to Thailand. All these factors contributed to solving the temporary excess in domestic supply and export activities soon began in earnest. The year 1973 was a major turning point, being the first time Thailand achieved a surplus in its textile trade balance.

The eventual transition of the textile industry from an import-substitution to an export-oriented industry was made possible by Government's investment promotion, together with the formation of joint ventures between Thai and Japanese investors. The joint ventures not only led to improved productivity through the transfer of production technology and modern management techniques, but also helped to penetrate and enlarge export markets as a result of the close co-operation with Japanese trading companies which have world-wide connections.

At present, the textile and clothing industry plays an influential role in the economic growth and industrialization of the Thai economy, accounting for 20 percent of the added

value of manufacturing industries. Each year the export values rise increasingly higher, reaching 74,000 million baht (1 U.S.\$ = 25.45 baht) in 1989, bringing the industry to the top of the list of foreign exchange earners for the fourth year in a row. In addition, being the largest industrial employer with more than 700,000 workers or 30 percent of manufacturing employment means that the significance of the textile and clothing industry in the lives of the Thai people covers the social as well as the economic aspects.

2. CURRENT POLICY ENVIRONMENT

The policy of the Thai Government toward the textile and clothing industry has always been of promotion and support. The government plays a very active role in all stages of the industry's development. The various supportive measures can be grouped into three broad categories as follows:

2.1 INVESTMENT PROMOTION. The Board of Investment (BOI) provides promotional incentives to investors, both local and foreign, for all aspects of the textile industry, started with weaving in 1962, then moved on to spinning, garment, synthetic yarn, and most recently, dyeing and finishing. Firms that are given BOI promotion are exempted from import duties and business taxes on machinery and equipment. Corporate income taxes are also exempted for a period ranging from 2-8 years. At first, the aim of BOI promotion was to provide incentive to expand production to meet domestic demand but later on was to encourage the breaking into foreign markets. The incentives are given

periodically so as not to create a domestic surplus. Since the middle of 1987, particular encouragement has been given to the midstream sector of the industry (dyeing, printing and finishing) in order to allow it to catch up with the fast growing requirements of the clothing sector which has been given a tremendous boost from foreign demand.

2.2 EXPORT PROMOTION. The tax rebates and compensation which have been in use since 1971 are credited for keeping down the production costs of exporters. In addition, the Bank of Thailand adds further financial support by providing rediscount facilities for promissory notes from textile exporters at preferential interest rate. Raw materials used in the production of textile products for exports are exempted from export duty, business and municipal taxes.

Exporters can also claim a 3.3 percent reduction in the cost of electricity used in their production process but this benefit is considered rather minor, since electricity constitutes a very small proportion of total cost for most textile producers, except for fibre manufacturers whose exports are insignificant anyway.

The Ministry of Commerce which plays a major role in import quota negotiations has been co-operating closely with textile and clothing firms in export promotion. Their assistance in seeking new foreign markets includes organizing several overseas exhibitions, Bangkok-Ready-to-Wear Fairs and the inclusion of representatives from private firms among

official trade missions abroad.

2.3 IMPORT PROTECTION. The protection given to domestic textile producers has been quite high, considering the various forms of import duty and the applicable rates. Apart from custom duty, there was a surcharge imposed on the import of synthetic fibre which was meant to protect domestic fibre producers. However, the resulting high cost of yarn raw materials was found to have an adverse effect on weavers, the surcharge was thus finally abolished and replaced by the higher import duty.

Recently, all aspects of the textile industry have experienced a remarkably strong growth responding to the strengthening demand, both locally and from abroad. This has led to a reversal of the Government's policy that was adopted several years ago when it was decided that because of the surplus in domestic supply, the textile industry was no longer eligible for promotional privileges. Since May 1987, the textile industry has again received investment promotion privileges, especially the yarn spinning, fabric weaving, dyeing and finishing sectors.

More significantly, in October 1989, in recognition of the continuously growing importance of the textile and clothing industry in the overall economy of Thailand, the government has approved the establishment of the National Textile Institute to help the industry's development and to give it a competitive edge in overseas markets.

The National Textile Institute will serve as a center

for planning, drawing up policy guidelines, offering recommendations for the preparation of publicity materials and training as well as serving as a workshop center. The industry will also be a technological research center for textile development, providing the analysis, testing and quality certificates for textile products and offering consultations on technical and management issues, along with advices on pattern and style developments.

To help the institute operate efficiently, a Textile Industry Development Fund will be formed, with the source of fund coming initially from the government budget and public donations. Other incomes are expected to be generated from fees collected from the various services provided by the institute.

CHAPTER II CURRENT STRUCTURE OF THE TEXTILE AND CLOTHING INDUSTRY

The textile industry encompasses a variety of activities but is normally grouped into the following three broad sectors:

1. The upstream sector, producing natural and made-made fibres.
2. The midstream sector, consisting of spinning, weaving, dyeing, printing and finishing activities.
3. The downstream sector, consisting mostly of clothing production.

1. STRUCTURE OF PRODUCTION

1.1 NATURAL FIBRE

Natural fibre production in Thailand is dominated by the production of cotton and silk. At present there are about 70 cotton mills of various sizes, five of which have promotional privileges. Most of these mills are underutilized, being active for only three or four months of the year, from November through February. The amount of cotton used annually is far greater than domestic output, with 90 percent imported each year. The shortage is becoming more serious as the area of cotton production has been declining steadily over the years due to competition from other uses for the available land. The price incentive for cotton farmers has not been sufficiently high to induce them to expand their acreage. Another discouraging factor is the cost of production since farmers have to spend a large amount of

money on insecticides and pest-eradicating chemicals.

The Northeast is Thailand's most important silk production area, accounting for more than 90 percent of total silk yarn output, area under mulberry trees and number of households engaged in silkworm raising. Both weft and warp yarns are produced locally. The former is obtained from native silkworms, either pure Thai stock or Thai-foreign hybrids. It is normally thick, coarse, and rather short. Native silkworms are easy to raise and are resistant to diseases and well adapted to local weather conditions. They need minimal care and villagers can reel them by hand.

Warp yarn, on the other hand, is produced only by foreign worm species which require special care and still have problems adapting to local soil and weather conditions. Specially-designed buildings have to be constructed to house them. All these factors increase production costs and farmers have to attend training courses before they can begin tending foreign silkworms. Farmers can buy silkworms eggs from the Agricultural Technical Department but both the quantity and quality supplied are irregular. Silk farmers therefore have to depend on only one large private firm who imports hybrid silkworm eggs from Japan and Taiwan.

1.2 MAN-MADE FIBRE

Thailand's man-made fibre production consists of polyester, nylon and rayon. This division of the textile industry received promotional privileges in 1969 to substitute both import and natural fibres. Currently there

are 7 producers with more than 90 percent utilization of their facilities, covering most of domestic demand. All raw materials for producing synthetic fibres have to be imported, but with the development of the petromechanical industry locally this situation will soon change. Man-made fibre production is the most capital-intensive phase in the whole textile production system. Employment in 1988 amounted to about 8,600 workers or slightly over 1 percent of total employment in the industry.

1.3 SPINNING

Spinning activities consist of yarn production to be used as raw materials in weaving, knitting and clothing production, and sewing thread production which goes directly to the clothing sector. The majority of spinning in Thailand is for yarn production. Spinning factories have long existed in Thailand and expanded rapidly under the Government's promotional efforts in the early 1960s. Most of the spinning is concentrated in sixty plants with approximately 2 million spindles. The spinning plants are generally integrated with weaving and knitting. In terms of employment, it ranks third in the textile production system with about 44,000 workers in 1988.

For the warp silk yarn which cannot be reeled by hand, farmers have to sell silk cocoons to factories with machines to reel the warp yarn. There are currently four such factories which buy silk cocoons, process them and sell the yarn at a price fixed by the Government.

1.4 WEAVING AND KNITTING

Numerous firms exist in this phase of the textile industry, producing four main types of fabrics: pure cotton fabrics, pure cotton knitted fabrics, synthetic fabrics and synthetic knitted fabrics. There are at least 1,000 registered weaving and 800 knitting factories, with most of the larger ones being integrated with spinning which help them control the availability, timing and quality of yarn supply.

Capacity utilization is estimated to be almost 90 percent with the larger firms operating newer and more efficient machines than the several hundreds small, family-owned firms which in some cases operate as little as ten looms. The weaving-knitting industry in Thailand remains labour-intensive, employing approximately 87,000 workers in 1988.

1.5 DYEING, PRINTING AND FINISHING

In general, this stage of the textile industry has a potential to play a crucial role in increasing the value added of the products. But in Thailand, it is considered to be the least modernized in the whole system, constituting the weak link in the development of the textile and clothing industry. Currently, there are about 350 dyeing, printing and finishing firms, including those which are integrated with the large weaving and knitting firms. The smaller ones are mostly family-owned, employing old, out-dated machines and produce on a commission basis.

2. LINKAGES AMONG FIRMS IN THE TEXTILE AND CLOTHING INDUSTRY

Linkages between the large, modern firms and the small, traditional firms in the textile sector is weak. The large firms have linkages within their own group and they also have easy access to modern technology, facilities and benefits from Government's assistance. The small firms tend to struggle on their own, with limited access to technology, capital, and marketing information. The clothing sector, on the other hand, has developed close linkages, both between large and small firms and between firms located in urban and rural areas, largely as a result of the expansion of the subcontracting arrangements.

However, looking at linkage between the textile and clothing sectors, it is noted that the backward linkages between the clothing sector and the local textile midstream sectors of spinning, weaving, dyeing and finishing industries is rather weak. The explosive growth of clothing export in the late 1980s has been accompanied by the rapid rise in imported materials while the local midstream sector has lagged considerably behind. This can partly be understood by tracing back to the origin of the textile and clothing industry three decades ago. While the textile sector was specially targetted by the Government as a major import-substitution industry, the clothing sector was passed over. The low level of per capita income in Thailand and the largely agricultural and rural subsistence Thai economy in the 1960s caused the domestic demand for clothing to be low.

In fact, per capita consumption of textile products in Thailand to-day still remains very low by international standard. Therefore, it was not considered to be a potentially viable import-substitution industry and was neglected in the wave of import-substitution promotion in the 1960s.

When the clothing industry started to grow in the 1970s, a large part of its output was aimed for export. Thus, from the very beginning it has to adapt itself to foreign competition while the textile sector enjoyed the privilege of growing up behind the high wall of protection. Several of the characteristics of the import-substitution industry can clearly be seen in the textile sector such as the high level of tariffs imposed on imported yarns and fabrics, the strict control placed on equipment and machinery, and the oligopolistic structure of the industry. The clothing sector which is constantly being exposed to intense competition thus has not been able to rely on the supply of domestic raw materials since the nature of clothing export market requires high degree of flexibility and quick response.

In contrast to the production of cotton and synthetic fabrics, silk production process is characterized by a high degree of subdivision and decentralization. The process is divided into several small, independent steps, each of which can easily be done in separate location. Therefore, there has always been a large number of small subcontractors involved. These subcontractors will pick up the necessary

raw materials from the parent firms, process it at home and either return it to the parent firms or pass on to another household for the next step. They will be paid according to the quality of the product.

The most famous Thai silk company, Jim Thompson, has long depended on the system of subcontracting and has been responsible for generating a large number of employment opportunities for rural households in the Northeast. The company distributes jobs to small local firms or villagers by supplying them with silk yarns and occasionally also credits. The finished products are then bought back after undergoing stringent inspection to ensure standard quality. The subcontractors are generally free to sell their products elsewhere if not satisfied with the offered price, after settling the costs of the raw materials. Such system has been very successful and has been gradually expanded. Subcontractors are chosen very carefully by the company and are given close technical supervision.

3. MARKET ORIENTATION

A majority of Thai textile products are sold in the domestic market but the export markets are playing an increasingly important role, especially for clothing and woven fabrics. It is estimated that 80 percent of clothing production is currently geared for export. Export values of clothing has been rising every year even when other textile items are declining. The highly competitive domestic market has been able to absorb the increased output of recent years

because of the economic recovery and the steadily improving agricultural income. Many clothing firms producing for domestic market have concentrated on the youth section with the emphasis on low-cost, flashily-designed products, often imitating well-known foreign labels.

The structure of Thailand's export markets has changed noticeably in recent years, from a reliance on countries with quota to non-quota countries. The ratio of quota to non-quota markets of clothing export was 78:22 in 1984 and approximately 47:53 in 1989. The woven fabric is also showing similar trend but yarn exports still remain dependent on quota markets.

The main quota markets are the United States and members of the European Economic Community, while the main non-quota markets are Singapore, Australia, Hong Kong, the Middle East and Japan, with the last one being the largest because of its strong currency and high purchasing power. The Eastern European countries have also entered the picture with retailers coming to Thailand to buy directly from wholesalers in the Pratunam and So-Beh areas.

In the short run, the Thai textile and clothing exports seems certain to continue to expand both in the quota and non-quota markets. But in the longer run, difficulties may develop as every country in Asia is expanding the capacity of its own textile industry at a rapid rate to compete in the world market. Among the front-runners are China, Indonesia, Bangladesh, Sri Lanka and the Philippines. The United States

has been trying hard to revive its own textile industry to compete with imports. U.S. clothing manufacturers are adopting measures to speed up delivery and minimize inventory such as the computerized ordering system linking retailers with clothing and fabric manufacturers. They are also conducting a campaign for U.S. consumers and retailers to buy more local products.

With the double threats of low-cost competition and protection looming in the near future, the Thai Government is co-operating closely with the private sector in the search for new ways of increasing the values of textile exports in the traditional markets and trying to penetrate new markets, especially those without quota restrictions. Strong efforts have also been made to promote overseas sales of non-traditional textile goods, particularly silk products and household furnishings such as carpets, bed-clothes, table-linens, towels and curtains.

CHAPTER III
CURRENT SITUATION REGARDING TECHNOLOGY, PRODUCTIVITY AND
QUALITY

Among the various stages of production in the Thai textile and clothing industry, there is a great variation in the level of technology and productivity, and an even wider variation between large and small firms. Man-made fibre production is very capital-intensive, and the technology currently in use is among the most modern in the entire industry, comparable to large overseas producers. Almost all of the raw materials are imported, the major source being the United States, Canada, United Kingdom and Japan. Cost of production of this textile sector is directly affected by changes in oil prices and foreign currency exchange rates. Raw materials constitute 60-65 percent of total production cost. The level of technology and degree of automation in man-made fibre firms require workers to be better educated and better trained technically than those in spinning and weaving firms.

In the spinning sector, machines used in the firms producing standard products are generally old, most having been in operation since the firms' establishment in the 1960s. More than half of the machines in use are from Japan or Taiwan. The duty on new machines is a major factor working against entrepreneurs' decision to modernize their facilities. In replacing old machines, many firms thus chose to import used equipment. Such practice occurs even among large profitable firms with modern management. Although

among large profitable firms with modern management. Although textile policy-makers consider it to be counter to the Government's plan to encourage modernization and quality improvement, its attempts to oppose the practice have been unsuccessful. Inexpensive second-hand machines in good conditions are available in plentiful number from producers in Hong Kong, South Korea and Taiwan who have chosen to fight competition from low-wage countries by moving up market to high technology products and high-grade clothing. Given the quality of local input and the major market that Thai textile products are targetted for the domestic market where quality requirement is not as stringent as the export markets, most entrepreneurs actually consider the second-hand machines to be more appropriate than the high-speed new ones.

The chronic shortage of local cotton which has resulted in irregularity both in terms of quality and quantity has caused the spinning industry to be heavily dependent on imported cotton fibre. Man-made fibre does not pose any quality problem. Local output each year remains below consumption and has to be made up by import whose price is lower than that prevailing in the domestic market. Since the early 1987 when the Government announced that promotion privileges will again be given to the spinning and weaving firms which produce entirely for exports, so many applications has been approved, raising fear that surplus may again occur and cause a depressing effect on the domestic price.

A majority of weaving firms still lag far behind in modernization. Power looms are commonly found in small firms although when the time comes for replacement the owners will most likely introduce automatic looms. Larger firms have already begun to modernize their facilities by introducing shuttleless looms for some time. Output of both woven and knitted fabrics has been growing slowly. There should be a large room for expansion, considering the demand existing in the clothing sector, especially for knitted fabrics which is currently being imported in large amount each year.

Among the factors that Thai textile and clothing entrepreneurs consider most important in determining their choice of technology are: the availability and cost of capital, quality of input, whether the firm is producing for export markets or for domestic consumers, the cost of unskilled labour and the availability of skilled personnel to operate and maintain the equipment. Most entrepreneurs regard the last factor as the most serious constraint in the introduction of new technology.

Dyeing, printing and finishing industry consists mostly of small firms, using very old, outdated or locally made equipments and the owners have no immediate plan to modernize their facilities. Most of the firm use batch dyeing technique, colour fastness and quality control remain major problems since most small firms have neither an inspection system nor checking equipment. Productivity and efficiency remain much lower than the rest of the textile industry.

These problems are caused by the lack of trained and qualified personnel at all levels of the production process, lack of quality control and the use of low-grade dyes and chemicals. Since this is a highly technical and highly skilled-intensive phase of the textile industry, an effort to increase the standard of the dyeing, printing and finishing will involve large amount of large investment. Other obstacles include the Government's regulation regarding waste water treatment, restriction on the use of underground water and the high import duty on dyes. The existing problems result in locally produced grey fabrics being sent for dyeing and finishing overseas and then imported back for use in the clothing sector. Local dyeing and finishing firms are thus discouraged from upgrading their facilities or expanding their capacities, as they cannot even be certain of obtaining sufficient local order to justify the necessary investment.

Productivity and quality of output are only partially determined by the type of technology in use. For the Thai textile industry which produces mostly standard products, the improvement from using new machinery or the latest technology is not considered by manufacturers to be worth the investment required. The main concern for textile entrepreneurs is therefore how to make the best use of existing machines and the traditional technology. For production of standard products like canvas fabric, well-maintained machines of 20 years old will probably do the job as well as brand new ones.

One problem is the improper maintainance and the lack of

in-house engineers and technicians. Large firms can afford to compete for the limited number of engineers available, while the medium and small firms find it to be an increasingly serious problem, negatively affecting the firms' productivity. Even the available engineers and technicians are in most cases not formally trained in the working of textile machinery and equipments. They have to rely on manufacturer' handbook or advice from visiting experts for technical information.

The surge in exports of clothing began in the early 1980s and has since grown stronger every year. The resulting jump in profit provides strong incentive for clothing firms to undertake expansion and modernization of their production facilities, especially since 1984. The most common choice is simply the addition of industrial sewing machines imported from Japan, Taiwan or South Korea. Foreign-made machines are generally preferred eventhough inexpensive, locally-made ones are widely available.

Most entrepreneurs do not perceive that there is much variation in the capabilities of used and new machines. Small manufacturers prefer to use old models, second-hand machines even when they are making a replacement for machines that have become obsolete. The large, export-oriented firms whose products are subject to foreign competition which require them to maintain a strict standard of quality control have started using computerized equipments in certain stages of production, such as in marking and pattern-making. These

are the firms that have already computerized their office machines for purposes of inventory control and other general accounting works. The major problem found in small and medium size firms is again the shortage of maintenance engineers. As in the textile sector, there is now a very keen competition among clothing firms for the limited pool of technicians and engineers. Naturally it is the small firms who are losing out.

The upcoming competition from low-wage producers in developing countries will soon have its effects on Thailand's clothing exports. The nature of foreign clothing markets is also changing considerably, consumers' preferences are becoming more diversified and individualistic as their incomes go up. Foreign retailers are placing their orders in smaller lots and demanding a quicker response. Given these factors, many clothing producers in Thailand who are contemplating expanding their production capacity have chosen to use the subcontracting arrangement instead of constructing new plants or purchasing new machines.

By using subcontractors, the parent firms are relieved of the burden to put down investment in capital machinery and inventory, thus allowing them to expand their capacities without the accompanied risks and fixed expenses. They will also save on labour and administrative expenses since there would be no need to maintain a large pool of permanent workers. Very little or no training at all is required, thus the firms can save not only wage costs but also all forms of

fringe benefits. If subcontractors can be easily found to do the works for them, the parent firms will then never have to turn down any order, large or small, and will be able to keep their clients from looking for other suppliers.

Subcontracting arrangements are spreading very quickly. Some streets in Bangkok are literally lined with scores of small shophouses that have been turned into clothing firms, some with as few as five sewing machines. Recently this phenomenon has further spreaded into the rural villages in all regions, creating jobs for several thousands women. The small firms which have turned into subcontractors no longer have to be concerned about finding markets for their products. They can now afford to specialize in certain line of clothing such as jeans, baby clothes or embroidery works, and can also afford to use the most appropriate technology and equipment. Workers' productivity and technical skills are expected to gradually improve as a result.

The exceptionally encouraging market situation in the last few years have added to the cash reserve of textile and clothing firms and have caused many manufacturers to start drawing up plans for expansion, quality improvement or renewal of outdated machines. In the medium term, plans to modernize existing facilities of textile and clothing firms will be significantly influenced by the promising domestic market and the new prospects arising from the opening up of trade with Burma, Laos and Vietnam as a consequence of the current Government's policy of "turning the battlefield into

the marketplace"

Textiles have always been among the biggest items in the border trade even when such trade was illegal and had to be carried out by smugglers. Being now a legal activity will definitely increase both the number of traders and their earnings. More interestingly, however, is the investment opportunity for Thai entrepreneurs in textile and clothing manufacturing projects in those three countries. Not only will the textile and clothing industry receive a big boost from the expanding market and an access to a new and cheaper source of labor and other inputs but it will also find it to be a good time to replace old machines with new and more efficient equipments. Most of the existing equipments in Thailand is suitable for the early stages of production that can be easily set up in Laos, Vietnam and Burma. An additional benefit is that, since the Thai Government now puts a limit on the number of weaving machines, local producers can take this opportunity to ship their old equipment to these neighbouring countries and replace them with newer, more modernized machines.

CHAPTER IV HUMAN RESOURCES FOR THAILAND'S TEXTILE AND CLOTHING INDUSTRY

1. RECRUITMENT

The Supply of workers to the textile and clothing industry in Thailand comes mainly from rural areas with almost 80 percent coming directly from farming villages. The method of recruiting workers in the industry varies according to levels of skills required.

1.1 LOW-SKILLED WORKERS

The low-skilled general workers or apprentices are either recruited from local labor markets or directly from rural villages. No prior training or experiences are required, and for small firms education is not even regarded as an important factor for employment.

Younger women are invariably preferred to older ones, both in the textile and clothing sectors as they are considered to be more agile. Many tasks, particularly those in the textile sector require workers to be either on their feet all the time or constantly moving around. Younger women are also more adaptable to new working environment and industrial discipline. Employers of some large-scale firms do not like to take in workers with prior experience in small firms fearing that they may have picked up certain bad work habits and will be more resistant to change than first-time entrants to the industry.

Modern employers see industrial discipline as the first rule to instill in their new workers. One entrepreneur made

it a strict rule not to mix old and new workers in the new plant that he was setting up in order not to let the new ones be influenced by the bad habits of the older workers. He also chose only the better educated workers, which he personally recruited directly from a few Northeastern provinces, right after they graduated from high schools. He had the co-operation of the governors whose provinces he chose partly on the basis of visiting their high schools and was impressed by the strict discipline and cleanliness.

Except for the case just mentioned, a characteristic shared by both large and small firms in their recruitment method is the preference for the of informal channel. Whenever there are openings in the firms for low-skilled workers, very rarely do the employers put an announcement in the newspaper or contact employment agencies. Instead, they simply put up a "position vacant" notice on the bulletin board of the workers' cafeteria or dormitories. Workers will then send out the news to their friends and relatives, who are either still in the villages or already working in other Bangkok's firms. Priority in hiring are given first to relatives and then to friends of existing workers. Some employers even look for the names on the household registration cards for verification of the relationship.

Such method of recruitment is seen to benefit both the employers and the workers. The employers save the expenses on newspapers' advertisement and agents' fees. Their only expenses may be the recruiter's travelling expenses to the

villages plus the transportation cost for the new workers. It is not rare to have an empty truck sent into a village and come out fully loaded with young village girls eager for a new experience and the promised cash income.

Current workers not only act as guarantors for their friends and relatives but also as their general supervisors. For the young workers, the psychic cost of having to be away from home in a strange environment will be much lessened if they can still find familiar faces around. The adjustment period thus become shorter and the chance of absenteeism or quitting is reduced.

However, disadvantages do exist, the main one being that there is a risk of workers quitting together. Workers from the same areas are likely to be called back by their families at the same time to lend extra hands during the busy agricultural seasons. When this occurs, it can prove to be quite disruptive to the firms' production plans.

1.2 SEMI-SKILLED AND SKILLED WORKERS

These category of workers are recruited from those with prior experiences from other firms or are promoted from workers who have had on-the-job training with the firm. It is observed that experiences and skills are generally much more highly valued by employers than formal education. Graduates from vocational schools are seen by owners of small firms to be unnecessarily expensive to hire since they will demand to be paid according to the Government's pay scale. It is considered a waste to pay them that much when they would have

to be trained at the firm's expenses almost from scratch again anyway. For larger firms, vocational school graduates may be hired for administrative tasks but applicants with short-term training background are preferred for production workers.

In the past, textile and clothing entrepreneurs do not like to recruit their workers directly from training institutes. But increasingly there has been more contact between the firms and the training institutes, for example, some clothing firms would get in touch with famous design and dressmaking schools, informing the administrators of their requirements and promise to take in all graduates who are specially trained according to the firm's specifications.

2. SKILL DEVELOPMENT AND PROMOTION

This section contains discussions on the existing opportunities to accumulate skills and experiences, focusing on unskilled women workers in the clothing industry.

Employment in the clothing industry can be classified into the following two broad categories:

2.1 NON-PRODUCTION WORKERS

Workers in this category are those in the divisions of purchasing, sales, accounting, personnel and public relation. The tasks require some minimum level of formal education and basic skills. Workers are hired on a full-time basis with employment contract and fixed salary, complete with welfare bonus and protection under the labour law. Their remunerations are based on educational level attained, work

experiences and type of skills. Most of the workers in this category are found to be young, under 30 years of age.

Very few workers at this level started out with knowledge about the textile and clothing industry. It is up to the employer to arrange in-house training or to apply the basic formal training that the workers had acquired in school to the clothing business. For example, workers in the purchasing division will be selected from applicants with knowledge in marketing and will be further trained in the knowledge about fabrics.

2.2 PRODUCTION WORKERS

The various production-related tasks in A clothing factory can be classified into two broad levels:

2.2.1 SUPERVISORS, FOREMEN AND HIGHER. Included in this level are designers, patterners and markers.

2.2.1.1 DESIGNERS. Workers in this position need to have basic formal skills either trained in schools or from past experiences. After joining the firm, they may be promoted by the employer to attend short-term training courses at local design schools or overseas. There is now such a high demand for designers that firms often recruited them directly from design schools, as mentioned previously.

The tasks of designers require some amount of skills plus knowledge about sewing thus the salaries tend to be quite high. Workers in this position are found to change jobs frequently, often to become self-employed, taking in subcontract work from their former employers and from other

firms, getting paid on a piece rate basis instead of receiving a fixed salary.

2.2.1.2 PATTERNERS AND MARKERS. These workers are responsible for details specified by designers and normally some technical training is required. With some experiences, they have the opportunity to become designers themselves and since most of them have similar qualifications as designers, it is a logical step to develop into designers later on.

The marker's job is crucial to cost control. In a small, family-owned firm, this job is often assigned to relatives of the owner or someone who could be trusted, otherwise they will be required to work closely with the owner. There are increasing use of electronic machines in this section, especially in the large firms. Machine controllers need to possess basic knowledge about computer programming.

It should be noted that jobs that are replaced by machines are the ones involving possibility for large cost reduction. Workers who are replaced are formerly already quite high up in the job ladder and are usually given another tasks, never dismissed outright.

2.2.2. BELOW SUPERVISOR LEVEL: CUTTING, SEWING AND FINISHING

Among the three production divisions of cutting, sewing and finishing, the criteria for hiring seem to be quite different. Cutting requires some knowledge about the

machinery and is considered to be heavy work mostly assigned to male workers. Cutters normally have a better chance of being promoted than workers in the sewing and finishing sections. The task of sewing requires attention to specific details, thus previous experiences are preferred for applicants in this section.

Finishing section is a general entry point for the unskilled who are normally required to undergo about two weeks of training, during which they are paid daily wages. After that period, the supervisor will decide who will be hired. The average age of the workers in this section is under 25 years, and almost 90 percent are women.

For the unskilled workers in the clothing firm who starts off in the finishing section, they can usually progress upward if they are able to display some form of ability to their supervisors. It is thus not difficult for workers to upgrade themselves if they are conscientious in their assigned tasks no matter how simple, such as cutting off loose thread from garments. If they do their initial tasks well, within a few days they may be given a chance to try other things and then continue their move upward.

Some of the unskilled who are denied admission into the higher-paid sewing section due to some deficiencies such as being too short, have unwisely refuse to take a job in the finishing section, considering it to be too lowly-paid. That is regrettable, since they are not necessarily stuck there for very long if they are determined to prove their worth to

the employer.

Workers in the sewing section generally have a better chance of moving up. But the chance varies greatly depending whether they are in large or small factories. In large factories, emphasis is put on the systematic division of labour with little chance for progress into other divisions, while workers in small factories normally have the chance to try their hands at many tasks and their special talents can be easily spotted by the employer.

For workers who get their start in small, subcontracting firms, they may try to upgrade themselves to larger, export-oriented firms after obtaining experiences in making some quality garments. Employment in larger firms provide the security of fixed salary and workers may also have a chance to supplement that salary with overtime pay or take-home, piece rate works. In addition, they are more likely to learn about high-class clothing that require special sewing skills or to work on fashionable clothes which would teach them a variety of skills. Finally, they may move up to the stage that is the dream of most women workers in clothing factories, that is, having their own dress-shop or become a subcontractor.

3. TRAINING AND SKILL DEVELOPMENT FOR THE TEXTILE AND CLOTHING INDUSTRY

Existing programs for skill development in the textile and clothing industry can be grouped into three categories:

1. Formal education at university and college levels
2. Short-term training courses
3. On-the-job training

3.1 FORMAL EDUCATION AT UNIVERSITY AND COLLEGE LEVEL

Courses dealing directly with textile technology are now being offered in several universities, vocational and technical colleges.

1. Department of Material Science, Faculty of Science, Chulalongkorn University, with a major in polymer and textile.

2. Department of Industrial Textile, Faculty of Textile Chemistry and Industrial Textile Design, Bangkok Technical College.

3. Faculty of Industrial Textile, Potharam Technical College, with a major in textile chemistry and textile design.

4. Rajamongkol Technical and Vocational College, Thewes Campus offers a major in textile chemistry and textile engineering within the Faculty of Engineering Technology.

In addition to this four institutions, courses on textile are being offered as minor subjects in the following institutions:

1. Department of Chemistry, Faculty of Industrial

Education and Science, King Mongkut Institute of Technology offers a course entitled "Textile Technology".

2. Department of General Science, Faculty of Science, Chulalongkorn University has a course entitled "Fabrics and Fabric Printing Technology".

3. Faculty of Science, Thammasat University which was opened just recently offers a course in "Basic Industrial Textile and Fabric Science".

4. In the five-year master plan covering 1992-1997, Thammasat University plans to establish the Department of Fine and Applied Arts which in its first years will concentrate on industrial arts with special focus on textile design and printing. The plan is to take in the first group of 30 students in 1992 who will graduate with a bachelor degree in 1996.

Apart from the above mentioned courses, numerous colleges have textile-related courses, mostly contained within the section on Home Economics, both in the undergraduate, graduate and technical or vocational college level. The emphasis, however, is on the fabric design and dressmaking, not on the production technology.

The capacity of these various institutions are all very limited, both in terms of facilities and equipments and teaching personnel. Putting together, these major recognized institutions are capable of turning out only 250 graduates annually. It was estimated that up to 1988, they had produced approximately 2,000 graduates, the number which

accounted for less than 0.5 percent of total employment in the textile and clothing industry. Considering the existing level and rate of technological development in this industry and their inevitable introduction in Thai firms, it is clear that the current situation of trained personnel lagging so far behind the industry's expansion demand immediate remedy, in order not to create a bottleneck in the industry's expansion path.

3.2. SHORT-TERM TRAINING COURSES

There are numerous private institutions and organizations all over the country offering short course training in garment-making and weaving. Private schools offer classes in dressmaking range from exclusive ones with connection to accredited foreign institutions, staffed with well-trained instructors and offer well-structured and comprehensive curriculum to the small schools that teach only sewing skills without any instruction in designing or pattern-making.

Several government agencies also operate training courses in textile and clothing, such as the Departments of Informal Education, Vocational Education and Industrial Promotion.

3.3 ON-THE -JOB TRAINING

Most of the skilled workers had acquired their skills from experiences, without undertaking formal training or systematic training programs. For example, a rural young woman's skill in silk-weaving is usually obtained during her

childhood years from the older members of her family. In general, there is not much on-the-job training provided and whatever there is seems to increase with the size of the firm.

The most likely explanation lies in the current boom in this industry which has caused a very high labour turnover rate. Workers with newly-acquired skills have a very good chance of being persuaded to move to another firm with a much increased salary. If it is a move from a small, family-owned firm to a larger one, the workers will usually also enjoy the added benefits of higher security which the larger firm can provide and they can expect better chance of promotion.

The skills trained in the textile and clothing industry are invariably general skills, that is, once the skills are learned, they can be easily transferred to the almost identical tasks in any other firm. Smaller firms are then particularly reluctant to undertake what they correctly considered to be a risky investment. Large firms can better afford to take the risk since they believe that their high wage and generous fringe benefits, together with better opportunities for advancement will be enough of an attraction for the workers to stay on.

Export-oriented firms which have to be especially concerned with quality control see the significance of on-the-job training more than firms that produced mainly for domestic market which have less pressure to produce standardized, quality products.

On-the-job training is conducted mostly by the simple methods of having supervisors watch over the tasks being done, arranging one or two-weeks special training before actual work, or simply learning-by-doing. By the last method, the unskilled workers would be able to start right away on their first day of work by being assigned the most simple task and gradually move on after their supervisors decide what are their special skills.

Apprenticeship is another form of training in the clothing industry. Some entrepreneurs do not wait for applicants to come to them but prefer to go scouting for workers with potential talents among the small dress-shops or subcontracting firms. They may even allow workers to keep their current jobs while doing the extra work as apprenticeship after hours. This is probably a way of cutting down on the risk of taking in apprentices who later turn out to be untrainable. The entrepreneurs are also free from the responsibility of having to pay full-time wages to the workers. On the other hand, there is the possibility that after the apprenticeship period is over, the workers who have now gained considerable skills will realize that their increased worth could easily bring them high wages anywhere in the very competitive market. They may thus refuse to work with their trainers. Some entrepreneurs attempt to circumvent this loss by requiring a bond, roughly equivalent to one year's wages that the skilled workers are expected to earn.

CHAPTER V

POTENTIAL FUTURE CHANGES AND DEVELOPMENTS IN THE THAI TEXTILE AND CLOTHING INDUSTRY

1. FUTURE CHANGES AND DEVELOPMENTS

Starting in the late 1980s onwards, the Thai textile and clothing industry has been facing a different competitive context. During the 1970s when export-orientation for clothing began, the comparative advantages in terms of abundant labour and relatively low wages were emphasized and exploited to the fullest. Thailand's major competitors at that time were the East Asian newly industrializing countries and the competition was conducted in the largely open market of the developed western countries. Towards the latter part of the 1970s, the developed countries which have gradually seen their own textile industries being almost driven out of business struggled to survive by resorting to various forms of defensive measures, ranging from adopting the latest technology and innovation to putting up of protective barriers in the forms of quotas and import tariffs.

In the textile sector, industrialized countries have become highly capital intensive and efficient. Exports of textile from Thailand are not competing directly with products of industrialized countries since they consist mostly of grey cotton cloth which were to be dyed and finished there. It is the development in the clothing industry that was considered to be more threatening, particularly in the marketing situation. Thailand's clothing

exports were then mainly the low-end, simple-styled models. The demand for these items contracts rapidly in the western market as consumers' income rise, and their tastes become more sophisticated. At the same time, there is a movement increasingly toward the "quick response" ordering system, to which Thailand suffers from a locational disadvantage.

Since there seems to be no imminent danger that technological change will bring about a drastic change in competitive advantage that developing countries are now enjoying from their lower labour cost, more efforts should be spent on responding to non-technological changes in the textile and clothing industry, while monitoring the latest developments in textile and clothing technology.

In the pre-assembly stage, some developments such as the applications of CAD and CNC technology may affect product segments characterized by long runs and standard products such as men's shirt and workwear. These items, however, are not high on the list of Thailand's export. Large manufacturers in Thailand are well aware of the recent innovations but few of them feel that switching to those new technologies will cause much reduction in unit cost particularly in the present market situation when they are already having more order than they can handle. Computer technology are being introduced in the very large, export-oriented firms whose products must meet stringent quality control. The areas where such technology are introduced are where the cost advantages are obvious such as in cutting,

marking and pattern-making.

Although complaints are often made regarding the high labour turnover rate and the need to improve the efficiency and quality of the workers, manufacturers are for the most part contented with the conventional technologies currently in use and feel that the most urgent need is to train workers to work with existing equipments. On the whole, textile and clothing manufacturers in Thailand see little justification to invest in the latest technology. For example, textile producers have opposed the Government's requirement that they need to purchase new equipment in order to receive investment promotional privileges. Instead, they opted for second-hand machines brought in from Hong Kong, Japan or Taiwan which they feel are much more suited to the production level and the quality of raw materials available in Thailand.

Thai entrepreneurs thus seem to be well aware of the advisability of using technology appropriate to labour cost, absorptive capacities and product types. The low wage advantage in Thailand still predominates in the decisions of the entrepreneurs although they recognize that the advantage probably will not remain much longer.

From the above discussion, it is clear that being a labour-rich, capital-scarce country does not put Thailand at a disadvantage in the face of technological developments toward greater automation. The low wage advantage currently enjoyed is still sufficient to sustain Thailand through current competition. But Thai entrepreneurs should start

making preparation now for the near future when the non-wage and non-technological factors will decisively determine the competitive condition in the textile and clothing industry.

Eventhough the future prospects for the Thai textile and clothing may seem promising, some serious structural problems remain and need to be solved to clear the way for the industry's expansion. The major problems are the shortage of raw materials, the weak linkage between the downstream and the midstream sectors and the scarcity of skilled human resources.

2. EXISTING PROBLEMS

2.1 SHORTAGE OF RAW MATERIALS.

2.1.1 COTTON. At present, demand for cotton greatly exceeds supply but the cotton farmers have little incentive to increase or improve their products, thus forcing the spinning sector to turn to foreign source of cotton raw materials. The Ministry of Agriculture has paid some attention to the improvement of the quality of local cotton and to expand acreage but supply remain largely deficient. From the point of view of the cotton farmers, the large demand without the accompanied rising price would not be effective in bringing about an increase in supply. Cotton is a multi-purpose cash crop with many other uses besides going into cotton mills. In addition, it is not grown as a main crop, therefore production depends very much on the price fluctuation. The discontinuity in farming means that experience and production technique are not efficiently

developed.

The low quality of local cotton results not only from the lack of technical knowledge on the part of the farmers, but also to the financial dependence of farmers on cotton millers or middlemen who provide cotton seeds and insecticides on credit to farmers with little regard to the quality or suitability to local soil condition. In turn, when the farmers sell their products, the creditors offer them a low price, citing poor quality as the reason. The combined effects thus result in low farmers' incentive either to expand production or to increase productivity and quality.

The next step in cotton production, the milling of cotton, when the cotton bought from farmers is separated from the seed, also has its own problems. Machinery used in this process are mostly very old and sub-standard. Cotton is therefore not properly cleaned, different grades of cotton are often mixed together and sometimes foreign matters are deliberately added to increase the weight before being sold to the spinning mills. The consequence is the low price and spinning firms turning to importing foreign cotton whose quality is more reliable.

2.1.2 Silk. Eventhough the Government has been giving support to the silk industry since the reign of King Rama V, the industry still lags very far behind other sectors in the textile industry.

Silkworms used in Thailand are of two types: native breed and foreign hybrid. The native breed can be raised by

farmers themselves or obtained from the Mulberry and Silk Station of the Department of Technical Agriculture, while the hybrid requires high technology and investment far beyond what the average villager can afford. The Department of Technical Agriculture cannot supply enough of the silkworm eggs and the villagers have to buy from a private firm and pay a high fee to attend a course on techniques of raising the hybrid silkworms.

Silk fabrics come from two sources: silk weaving factory and village households scattered throughout Thailand, particularly in the North and Northeast where the village women practice weaving as folkcrafts to supplement the family income during the dry seasons. Such folkcrafts do not need high investment cost but depend on artistic skills handed down for generations. The products with its uniquely Thai characteristics not only display the national identity but also command a high price among those who appreciate their artistic values. The market is currently still very limited partly because the supply is irregular. A project supported by the queen of Thailand has done much to publicize the beauty and uniqueness of these folkcrafts silk fabrics and has created demand among the affluent Bangkok's fashionable upper-class.

Ironically, the success of the promotion of the hybrid silkworm has caused a negative effect on the survival of silk folkcrafts. As the foreign hybrids yield more than three times the silk yarn produced by the native ones, many

villagers have turned away from the native silkworms. But there is now a shortage of foreign silkworm eggs, and silk-weaving to supplement income of the village households is suffering. The dependence on foreign hybrid has eliminated the self-reliance of the villagers and may ultimately cause the folkcrafts silk-weaving to disappear forever, in addition to hamper the efforts to capitalize on the expanding overseas markets for Thai silk products.

2.2 THE WEAK LINKAGE BETWEEN THE DOWNSTREAM AND THE MIDSTREAM SECTORS.

A weak link in the textile and clothing industry is the backward state of the dyeing, printing and finishing sector which is a major impediment to any attempt to increase value added and fashion content of textile products. The majority of Thailand's textile export is in the form of grey fabrics, part of which are re-imported after being finished overseas. The antiquated equipment currently in use in many of the small dyeing and finishing firms cannot meet the demand of high-fashion clothing business.

The remarkable success of South Korea and Taiwan as clothing exporters was due in no small part to the strong backward linkage to the midstream sector. A majority of materials for the clothing sector are supplied by local textile firms whereas in Thailand there is an increasing reliance in imports. This is an obstacle not only to the plan to increase value added and fashion contents of the final products but also to the ability to respond quickly to

the changing consumers' demand overseas. The diversified and individualistic clothing demand of high-income customers require manufacturers to place fabric order in small lots. Such order is not welcomed by large firms with efficient equipment while small firms are likely to turn out products of low quality. Clothing manufacturers are thus put in a dilemma.

In relation to the United States and European markets, Thailand is already disadvantaged by its location. Adding to that is the constraints imposed by existing port facilities and traffic conditions in Bangkok. Thai manufacturers may be able to have clothes cut, sewn and packed within two days of receiving overseas an order, but it could take them another two weeks to get the items out of Thailand. Similar problems apply to imports. Reliance on local raw materials will at least help speed up part of the manufacturing process.

Foreign buyers' specification regarding the type of fabrics is only part of the reasons why clothing firms depend on imported fabrics. An equally important reason is the tax incentive which allow producers to claim refund on imported raw materials that were used in the production of clothing for exports. Although the same allowance is also available for the use of domestic raw materials, it is much more difficult in practice.

2.3 SCARCITY OF SKILLED HUMAN RESOURCES.

There is no shortage in the supply of general production workers in the textile and clothing industry, therefore the

expansion of production capacity has been occurring smoothly. But that is true mainly for production aiming for domestic market or the lower segment of the foreign market. To retain and increase Thailand's share in the world market in the future, it has been emphatically stated many times in this report that the key is to upgrade the quality and increase the value added and fashion content of the products.

But the serious bottleneck is the scarcity of skilled personnel to handle the various steps in the development of the industry, from the management and executive level workers down to production workers. The scarcity has been recognized and possible solution discussed often but few measures have been implemented. The problem demand immediate attention and concerted effort from everyone concern. No further time can be wasted since the time it takes to acquire and train the needed human resources is several times longer than to install the most expensive and sophisticated machinery.

CHAPTER VI

POLICIES AND MEASURES TO SUPPORT DEVELOPMENT IN THE TEXTILE AND CLOTHING INDUSTRY

This chapter sets out the various suggestions on policies and measures which should be adopted or strengthened to support the envisaged future development of the textile and clothing industry in Thailand. In addition, specific measures that will particularly enhance the role and contribution of women will be identified along with measures promoting the development of small and medium scale textile and clothing factories in the rural areas.

The recommended policies and measures are classified into eight categories as follows:

1. IDENTIFY TARGET MARKETS

1.1 DOMESTIC MARKET

The Thai economy has performed remarkably well in the last few years, bringing improvement in the living standard of several groups of people. Domestic textile and clothing market thus seems to have a bright future. Although the increasingly larger proportion of textile output is going to foreign markets, the 55 million persons at home should not be taken for granted. It is rather surprising that in spite of being faced with the pressures coming both from the western textile producers with their superior technology and the developing countries producers with their low wage advantage, Thai producers have paid so little attention to the domestic

market and local consumers whose preferences they should understand best.

Major determinants of domestic demand for textile products depend on rates of population growth and economic expansion with the income elasticity of demand being larger than one. As income increases, consumer demand for textile is expected to increase at an even faster rate. Given the 11-13 percent GNP growth rate for the last two years and only a slightly lower rate expected in the next few years, the future of textile products in the local market is indeed very bright. Current level of textile consumption per capita in Thailand is only about 4 kilograms per year which is only one-quarter of the world average, indicating a large room for expansion. A majority of people in rural Thailand are still poorly dressed and the recent improvement in their income should generate a large amount of demand.

Most of the clothing needs for rural people have been met by the mass-produced, low-end products which were manufactured in Bangkok. Traders would come to Bo-Beh market, the largest wholesale clothing market, to buy a truckload of clothes back for sale to the villagers. Transportation costs and travel costs thus have to be included in the final retail prices. The promotion of subcontracting system in villages throughout Thailand will help make clothing available more cheaply and widely to poorer rural people.

1.2 FOREIGN MARKET

Garment exporters have been successful in reducing their dependence on markets with quota restrictions and diversifying into non-quota markets. Such a trend is expected to continue, with the main destinations being Japan, the Middle East and the Eastern European countries. Clothing imports per capita in Japan still remain at a low level in spite of the very high income of the population, being less than half the level of the United States. Imports of ladies' clothing, however, are rising very fast as Japanese professional women are spending their large salaries on luxurious items to support their new affluent lifestyles. The preferences of Japanese women currently lean toward very high quality products and famous brand names.

For Thai clothing manufacturers to capture this lucrative market for the high-end products, particular care has to be given to the quality and reliability. The special taste of Japanese customers have to be studied closely. This cannot be done in isolation but requires co-operation with Japanese designers on the fashion trends, colour sense and design. This can be done either by having Japanese fashion experts holding short-term seminars or workshops in Thailand or by sending Thai designers for apprenticeship with Japanese design firms. The latter method is indispensable for a majority of Thai designers who have been working only in the tropical climate and familiar environment of the home country. They have very little sense of the colours of

Autumn, Winter or Spring and the ways of dressing appropriate for those seasons. Joint ventures with Japanese clothing firms will also be useful in terms of the benefits of service from Japanese trading companies with their world-wide network.

Demand from consumers in the Middle East and the Eastern European countries still hold good prospects for the low-end products. Retailers from those countries would normally contact Thai wholesalers directly and order from the existing designs. They have been quite satisfied with the works of Thai designers but have had several complaints regarding the sewing and finishing quality or the colour fastness. Product improvement will go a long way toward expanding Thailand's share in this very large market. The hot climate in the Middle East means that most of the style made from local Thai fabrics will find a ready market there.

2. INCREASE THE VALUE ADDED AND FASHION CONTENT OF THE PRODUCT.

Thai textile and clothing manufacturers must look forward and prepare themselves for the future challenges which are getting ever tougher. They can learn a lot from the experiences of the East Asian newly industrializing countries. Hong Kong, Taiwan and South Korea have all enjoyed a boom in their textile and clothing industries until the early 1980s when the combination of factors forced them to undertake the restructuring process. These factors are: protectionistic trade practices adopted by the United States

and the European Community countries, the rapidly rising values of their own currencies, and competition from low-wage producers in developing countries including Thailand.

The restructuring that was undertaken just in time helped the East Asian manufacturers to remain profitable. By improving their efficiency and productivity, they were able to compete in the western markets. Low-end products were shifted to cheap labor countries as manufacturers concentrated their efforts on upgrading their exports.

Although Thailand has not yet faced the problems of rising currency value, the trade practices in the West and the low-wage competition are already beginning to hurt Thai exports. Competitors in low-wage nations such as Indonesia, the Philippines or even further away like Sri Lanka, Bangladesh, Pakistan, Egypt and the Caribbean countries are taking away many of the advantages that Thailand used to enjoy in the manufacturing of simple, low-end textile products.

The most obvious and urgent strategy for Thai manufacturers to adopt is to raise the value added of their products, especially by raising the fashion content and upgrading the product quality. A majority of Thai garment export firms are still heavily dependent on manufacturing to specific orders from foreign buyers which in effect means they are merely acting as sub-contractors. Original designs are extremely limited. Although some of the larger firms with long experiences in dealing with foreign buyers have

become confident enough to start suggesting design alterations or offering their own designs. Such designs have been tested by foreign retailers in some markets and the results were generally positive thus stimulating more interest from buyers for original Thai ideas and designs.

2.1 PROMOTING THAI DESIGNERS

Designers play a critical role in the success of an attempt to increase the fashion content of Thai textile products. To get away from competition of low-wage countries, Thailand needs to move quickly into the higher-class products which require development of our own designs. In addition, encouragement should be made for the wider use of brandnames which will be one way of making producers more aware of the critical need for quality control in the high-grade products market. Certain items with Thai designs and brandnames such as children's clothes have already been successfully marketed in Singapore.

Current limitations with Thai designers include the reluctance of the well-known clothing designers to apply their talents to the textile and clothing industry. They are quite content with serving the existing small group of their elite clients, charging very high prices for the tailored made clothes. Increasing the number of designers may alleviate this problem but the design courses are still quite limited in number and although the quality of training in some institutions is high, the concentration is on the artistic side with little attention paid to the industrial

application.

Encouragement must be made to link together the design field and the industry. Students taking design course should have an opportunity for practice sessions in industrial design. A special training course should be arranged in the academic institutions by taking in designers already working in the industry.

2.2 KEEPING UP WITH FASHION

Fashion trend is changing very fast and is the most volatile factor in the clothing industry. To keep up-to-date with the latest trend and development, short training courses should be organized with the help of experts from the major fashion capitals of the world. Holding design contests to encourage young designers to experiment with their ideas is a step in the right direction. Particular emphasis should be placed on application of traditional Thai designs to modern fashion trends.

3. DEVELOPMENT OF RAW MATERIALS

In the western developed countries, the high-end demand for textile and clothing is leaning more toward an increase use of natural fibres, among which cotton and silk are the most popular.

3.1 COTTON

The availability of land and the climate in Thailand should be working in its favour in the development of cotton production but the gap between supply and demand of local cotton is getting increasingly wider. If the situation can

be corrected, not only will a large amount of foreign exchange be saved each year but Thailand's ability to compete in the world textile and clothing market will also be raised since the linkage between the upstream and midstream sector will become stronger.

The poor quality and the shortage in the quantity supplied of cotton need the Government's assistance. This can be in the form of disseminating farming technology to cotton growers by sending experts to cotton growing areas to give technical advice and to train farmers in all aspects of cotton farming. The assistance should also include the supply of low interest credit, good quality seeds, appropriate fertilizer and pesticides. Cotton should be considered for inclusion in the "Four Together" program of the Ministry of Agriculture which aims at promoting the development and diversification of cash crops by encouraging co-operation between the four concerned parties consisting of farmers, businessmen, financial institutions and the Government.

3.2 SILK

Silk fabrics can play an important role in increasing the value added and fashion content of textile products. Its development is constrained by the shortage of silk yarn. Such shortage is traced back to the insufficient supply of silkworm eggs as spelled out in chapter V. The main governmental agency responsible for this function, that is, the Department of Technical Agriculture is presently

overburdened with many other activities and cannot be expected to quickly and efficiently solve this problem. Therefore, other institutions should be encouraged to actively participate in the silkworm production process.

Several institutions already possess the capability, both in terms of personnel and technology, such as Kasetsart University in Bangkok, Khon Kaen University in the Northeast and the various regional agricultural colleges, especially those located in the North and the Northeast. A special program could be arranged whereby villagers join with lecturers and students in the production of silkworms. Such program will serve simultaneously as a practical training for students, a promotion of research activities for the instructors to improve the quality of native breed of silkworm and an inexpensive supply source of silkworm eggs for the villagers. The Government can act as a co-ordinator for private firms and farmers, where farmers will be supplied with regular amount of silkworm eggs which they will raise and sell back to the firms at a guaranteed price.

4. TECHNOLOGICAL UPGRADING

4.1 Modify existing tax structure

The weakest link in the Thai textile and clothing industry is the dyeing, printing and finishing sector. Upgrading this sector requires both large capital investment and human resource development. On the Government's part, the existing tax and incentive system should be corrected as they have not been conducive to the sector's development.

Chemicals and dyestuffs used in the dyeing process are expensive due to the large import duty aiming at protecting a small number of domestic dyestuff producers. If the Government feels strongly that the need exist for such support, it could switch to reducing import tax on raw materials for dye producers, whereby the burden on the dyeing, printing and finishing industry will be lessened.

4.2 Improve traditional technology

A major objection to the dyeing industry has been the threat to the environment from polluted water coming out of the factories. To counter such objection, an increased use of natural dye should be encouraged. It is much less harmful to the environment and will also reduce production cost. Among rural villagers of Thailand, the use of natural dyes in fabric colouring dated back several hundred years. Many types of plants and herbs are known to be the source of materials for the dyes, for example, the indigo plant which gives a unique blue colour. In Japan, it is believed that cloth dyed with indigo has a special characteristics of being effective as bugs and mosquitoes repellent.

Fabrics coloured by the natural dyeing method possess characteristics quite distinct from chemical dyeing. The use of natural dyes result in fabrics of various shades, most of which are not easy to duplicate. The dyeing process is dependent on so many variables such as the age and condition of the plants from which the dye materials are taken, the weather, humidity, and the duration of the dyeing process.

Therefore, even dyestuffs coming from the same tree can yield significantly different colours if the dyeing process are conducted at different time of the day.

From the aspect of quality control, this fact may be potentially disastrous, since it will be almost impossible to turn out products in exactly the same colour and will certainly cause a big problem when production is done under special order with exact specifications. But what is considered a serious problem in one segment of the market may turn out to be a blessing in another segment. It can enhance the products' appeal, add to the charm and exoticity of the traditional, hand-made products. Buyers can be persuaded to derive extra satisfaction from the knowledge that they are the owners of products that are certainly one-of-a-kind.

There has been efforts recently by some women's groups and NGOs to revive the natural dyeing process for environmental, economic and technical reasons. In 1985, the Appropriate Technology Association started a project among women's groups in the district of Kaset Visai, Roi-et province to give advice on new natural dyeing techniques and modern designs. The major aim was to support and promote the local arts and crafts of the Northeastern people, and to supplement the income of women villagers between seasons.

It was expected that by educating the villagers to appreciate the economic values of local trees and plants, they will gradually realize that cutting down trees indiscriminately for firewood or any other purposes implies sacrificing an

important source of raw materials for their incomes.

The project has successfully aroused the villagers' consciousness and concern about their natural surroundings. They now seem to be more careful in selecting the materials that will yield the most benefit before cutting down any tree. Support should be given to similar projects to develop better techniques of local weaving with the use of natural dyes. The main deficiencies are the limited shade of colour variations and problem with colour fastness. Promoting the techniques of local weaving with natural dyes will raise the income of rural women and reduce the production cost at the same time, since the use of locally available material will save them money previously spent on chemical, imported dyes.

5. RESOLVE HUMAN RESOURCE PROBLEMS.

The discussion in chapter IV pointed out that the supply of personnel with specialized knowledge in textile and clothing technology is lagging seriously behind the rapidly increasing demand of the industry. Existing academic institutions and the related government agencies are lacking both in expertise and the necessary equipments, thus facing a constraint on the scope and expansion of their activities. The problem is certain to become even more severe in the future and if not resolved soon will turn out to be a major barrier to the development of the textile and clothing industry.

Although there has been rapid technological changes in the textile and clothing industry worldwide, the negative

impact on women workers has not yet materialized. No large scale displacement of women workers has been observed, largely because the expansion of the production capacity has far outweighed the replacement of workers by machines. The urgent issue to be addressed at the moment is, however, the shortage of qualified workers at all level of production and management. Essential measures that should be conducted cover both the short run and the long run, as follow:

5.1 IMPROVING THE AVAILABILITY AND QUALITY OF SKILL DEVELOPMENT AND TRAINING PROGRAMS

5.1.1 Development of qualified instructors.

There is a need to augment the capability of universities and colleges to set up or expand their textile departments. They are now being constrained by having to rely on the Government 's annual budget allocation and the limited number of qualified instructors. Many of the present instructors have no formal training in this field but have been able to teach only by relying on their long years of practical experiences. These persons should be the first group to be awarded scholarships to undertake formal training abroad either at a master degree level or for special non-degree courses with one to two years duration.

Considering that textile and clothing is not only the largest manufacturing industry but also the leading foreign exchange earner, the Thai Government should be prepared to allocate a special budget to academic institutions and related government units to enable them to improve the

efficiency and expand the existing capacity of their equipments. The amount of the budget to be allocated can be calculated as a fixed percentage of export earnings from the textile and clothing industry each year.

5.1.2 Development of training programs

Although education and training in dressmaking are widely available in both public and private vocational training centres, the contents of the curriculum are not oriented towards industrial production. Most instructions still depend only on class demonstrations due to the shortage of necessary equipments. A "model factory" should be established to incorporate all aspects of training, such as garment design and construction, pattern making, cutting, sewing, production planning, and quality control.

The co-operation of experts from textile and clothing firms is absolutely essential both in designing the programs and in teaching. Participating firms can send their workers to be trained at this model factory where the students not only learn to make garments but also produce them for the participating firms who will loan their experts and the necessary equipment. By actually having to produce according to the needs of the market, with the output being subject to stringent standard, the students will automatically learn how to take account of existing demand in their production planning, design and most importantly, in quality control.

As the shortage of garment workers is becoming more serious, the training program should be made widely available

as soon as possible, thus the course should be in the form of "Training the trainers" so that the skills taught can be disseminated quickly. Clothing firms must share the expenses by paying the training fees for their own workers. Other expenses can be partly paid for by charging for the garments made by the students according to the firms' order. This "model factory" can be set up immediately if one or more of the textile and clothing firms are willing to provide the facilities within their compound. 5

5.1.3 Assistance of international experts

The present shortage of engineers and technicians are hurting small and medium size firms more than the large ones since they cannot afford to pay the high salaries involved. International agencies which have both the fund and the access to textile and clothing experts can assist in providing guidance to small and medium size firms on equipment maintenance and production control through regular factory visits. Supervisors can be selected for special training to keep up to date with the latest technology. Whenever possible, the preference in selecting trainees should be given to women to allow them more opportunity to move up to supervisor level.

5.1.4 On-the-job training

On-the-job training for all levels of workers should be seriously and systematically encouraged. The training should be both in the technical and management aspects to increase productive efficiency of factory personnel. This would

ultimately lead to an overall reduction in the production costs and improvement of the long run competitive position of the Thai textile and clothing industry. With the upcoming competition from lower wage producers, improving productive efficiency is most imperative for cost cutting.

But, as discussed earlier, most firms lack the incentives to provide on-the-job training, the exception being the very large, export-oriented firms which have to be concerned about quality and have little fear of workers quitting. To encourage the development of small firms, they should be given special incentives to provide on-the-job training. Such incentives can be in the form of tax concession or reduction in the contribution to the workers' compensation fund.

5.1.5 Support the establishment of the department of textile in academic institutions.

Courses in textile that are presently being offered are scattered in many academic institutions. Students only take those courses as part of a requirements toward a degree in science or engineering and are only able to learn one or two small aspects of the textile industry. There must be an institution with a department of textile, offering courses that range from management, marketing, economics, industrial development, finance, to designs and arts, as well as courses in textile technology. Such a combination of courses leading toward a degree in textile is the only way to give the students an all-round composite program to prepare them for

the future international textile markets. It will be very useful in equipping textile industry's personnel with the knowledge to cope with the management and marketing problems which are becoming as important as technology in determining the success of a textile firm.

Such an institution will serve as research and training centre for the development of textile industry in Thailand. It will be equipped with facilities for students, researchers, and other professionals in the industry. Apart from regular degree courses offered to students, the institution should provide intensive courses in textile design and technology which are specially tailored for professionals of different functions and levels, both from Thailand and neighbouring countries.

For such an establishment to be truly useful for the development of the textile industry, it will require the total support and involvement of the textile and clothing firms from its very inception. It is planned purely from an academic point of view, it will most likely end up being just another program toward a degree, with little practical uses. The textile and clothing associations must co-operate to set up this institution which will directly serve the needs of their members. Financial and technological support may come from international organizations and other institutions in the form of equipments, experts and exchange programs. Co-ordination will also be required with government units responsible for the development of the textile industry, such

as, the Departments of Industrial Promotion, Export Promotion and Technical Agriculture.

6. Enhance the Role and Contribution of Women to Further the Development of the Industry

6.1 Promoting subcontracting arrangement by women

The subcontracting system in the textile and garment industry has many good features and should be strongly recommended. One distinguished feature is that a large proportion of participants are women. Married women's participation in the labour market is often prevented by their domestic responsibilities, housework, and particularly the care of their young children. Such responsibilities restrain women from taking employment far away from home or factory employment which normally require fixed working hours. The subcontracting arrangement allow women to conveniently combine housework and paidwork. The simple tasks that young children at home can help out can be the most effective way of passing down the traditional skills and crafts, for example, the arts of silk weaving.

However, along with the advantages just mentioned, some caution should be exercised to ensure that the returns to workers in subcontracting arrangement is fair and equitable. Since an incentive for entrepreneurs of clothing firms in Bangkok to decentralize their works to the villages is to cut down their labor costs, they may try to keep the wages as low as possible with little regard to the workers' welfare.

Having no employment contract, these workers are invariably denied protection under the labour law, and any other benefits from their employers apart from compensation for each piece of work they produce. The existence of middlemen and traders may further reduce returns to workers at the end of the sub-contracting chain. The Government should look into the possibility of encouraging the women subcontractors to organize into village groups or co-operatives to act as central unit in negotiating with Bangkok firms. Such grouping would give rural women workers a stronger bargaining power, leading to higher returns.

Other problems in the subcontracting arrangement are the difficulties of maintaining standard and quality, giving close technical advice and supervision, and generating new designs or conveying the specifications for each new designs and fashion. At present, parent firms sometimes provide the subcontractors with sewing machines on credit and deduct the installment payments from the compensations for finished products. The Government or an outside organization should make arrangement to lease or sell sewing machines to villagers who are interested in joining the subcontracting system. This will allow the villagers to get a better deal.

Training course on sewing techniques for various styles of clothing should be organized for rural women to improve the quality of their products. The provincial vocational colleges that offer courses in home economics which normally include sewing can be requested to participate in this

training course by providing facilities and instructors. As the travel involved may prevent many villagers from attending, the course should be in the form of "Training the trainers". Each village can select a few representatives to attend the course who will then return and disseminate the knowledge to others.

6.2 Development of women as entrepreneurs

The clothing industry has generated at least half a million jobs for Thai women but the majority are concentrated in the lower rung as sewing and general production workers, with less than 1 percent in the managerial and administrative level. More women should be encouraged to make their way up to the management level or become entrepreneurs themselves. Currently, the expansion in the production capacity of the clothing industry by the subcontracting arrangement has been made possible largely by women workers who have gained experience or connections during their period of employment in the large or medium size clothing firms. After accumulating some experiences and realizing that it is not difficult to start their own businesses under the subcontracting arrangement, these women will quit their regular employment and try to be on their own.

Unfortunately, many of them soon run into problems, such as obtaining credit to expand their businesses, production and quality control, financial management and finding markets for their products. The situation is even more serious for those whose businesses are located in the rural areas. To

enhance women's role so that they can be supportive to the future development of the textile and clothing industry, both financial and technical support should be provided to the women entrepreneurs.

6.2.1 Financial Support

One major obstacle for women entrepreneurs running any small business is the inability to obtain credit from formal financial institutions because they do not possess the necessary collaterals. As a result, numerous small businesses started up by women tend to remain undeveloped, stagnate, or if they choose to turn to local money lenders, the exorbitant interest rate they are required to pay is often the major factor causing them to go out of business entirely.

Since 1984, an organization called the Friends of Women's World Banking Association in Thailand (FWWBT) has been providing credit assistance to women owners of small business. It is an affiliation of the Women's World Banking, an international non-profit organization which was set up to help women entrepreneurs establish credit to start and develop small businesses. The major aim is to encourage women in developing societies to start getting involved with the banking process to establish credit for loans which can be used as a tool to develop their ventures to the best of their abilities.

FWWBT is engaged in a loan guarantee program in co-operation with the Bangkok Bank and several non-governmental

organizations such as the National Women Council of Thailand and the Thai-german Development Foundation. Funds are deposited with the Bank which regard it as a blanket guarantee for loans granted by the Bank to FWWT borrowers. For any defaulted loan, FWWT is liable for 50 Percent, the NGO 25 percent and the Bank assumes the rest. The Bank further agrees to grant loans to FWWT borrowers totalling no less than twice the amount of the guaranteed fund.

To support women entrepreneurs of clothing firms, a special fund can be deposited under this program and earmark it for this group only. The screening of loan applications and other routine management can be handled by the staff of the organization. Further support to women entrepreneurs such as skill training and upgrading, quality control and marketing techniques can also be conducted through this organization.

6.2.2 Technical Support

A crucial follow-up to the granting of the loan is training in production, management and marketing aspects. Knowledge necessary to owners of small business includes understanding of production control, preventive maintenance, product development, financial foundation, capital budgeting, asset management and financial planning. In addition to relying on the classroom format as an instruction method, the use of videotapes would make the information more widely available. Renting it out for a small fee will enable women who cannot afford the time or the money to attend the

classroom sessions to enjoy similar benefits. Videotape players and televisions are now becoming quite common in the villages. Other information to be disseminated through this medium include selected aspects of dressmaking, production control and so on.

6.3 Development of rural women as mechanics.

One problem of the clothing manufacturers, aside from sewing skills of the workers, is the shortage of maintenance workers for their equipment. The problem is particularly acute in the rural areas. When a machine breakdown, it will take a long time to get repaired, or will continue to be used despite some malfunctions. Thus the damages will occur either to the production schedule or to product quality.

To encourage the development of women as mechanics, a special course on the mechanics of sewing machines should be set up with enrollment limited to women only. The reason for this limitation is that Thai women have been raised to consider 'femininity' to be a highly-valued attribute. Any task involving machinery are thought to be unfeminine and thus to be avoided. Women will therefore be reluctant to enroll in any mechanics course, particularly if they will be a minority among men.

Various women organization have long offered courses related to dressmaking but the persons who design and run the courses still hold the traditional concept of women's "proper role" in society. Consequently such courses routinely include sewing techniques and embroidery skills but never

have any instructions about the machine itself. The special course on sewing machine technology and repair "for women only" as mentioned above may be conducted in co-operation with private companies supplying sewing machines. The companies already have qualified instructors and such course can be a good promotional campaign for their products. The successful trainees can also act as company representatives in the villages.

CHAPTER VII

SUMMARY AND CONCLUSION

In the process of Thailand's economic development and industrialization, the textile and clothing industry has been playing an increasingly important role. In 1989, it accounted for 20 percent of manufacturing value added while exports value rose to 74,000 million baht, making the industry the largest foreign exchange earner for the fourth year in a row. In addition, it is the largest industrial employer with more than 700,000 workers or 30 percent of manufacturing employment.

The textile industry is normally grouped into three broad sectors: the upstream sector of natural and man-made fibre production, the midstream sector of spinning, weaving, dyeing, printing and finishing activities, and the downstream sector which consists mostly of clothing production.

Natural fibre production in Thailand is dominated by the production of cotton and silk. The amount of cotton used annually is far greater than domestic output, with 90 percent imported each year. The shortage is becoming more serious as the area of cotton production has been declining steadily over the years due to competition from other uses for the available land. Cotton is a multi-purpose cash crop with many other uses besides going into cotton mills. In addition, it is not grown as a main crop, therefore production depends very much on the price fluctuation. The discontinuity in farming also means that experience and production technique

are not efficiently developed.

The Northeast is Thailand's most important area of silk production, accounting for more than 90 percent of total silk yarn output, area under mulberry trees and number of households engaged in silkworm raising. Local silk production comprises of both warp and weft yarn. Warp yarn is obtained from native silkworms which can either be raised by the farmers themselves or obtained from the Department of Technical Agriculture. Weft yarn is produced only from foreign worm species which requires high technology and investment far beyond what the average villager can afford.

Among the various stages of production in the Thai textile and clothing industry, there is a great variation in the level of technology and productivity, and an even wider variation between large and small firms. Man-made fibre production is the most capital-intensive phase in the whole textile production system. Technology currently in use is among the most modern in the entire industry, comparable to large overseas producers. The level of technology and degree of automation in man-made fibre firms require workers to be better educated and better trained technically than those in spinning and weaving firms.

Spinning factories have long existed in Thailand and expanded rapidly under the Government's promotional efforts in the early 1960s. Machines used in the firms producing standard products are generally old, most having been in operation since the firms' establishment. The 44 percent

duty on new machines is a major factor working against entrepreneurs decision to modernize their facilities.

A majority of Thai weaving firms are lagging far behind in modernization. Larger firms have begun to modernize their facilities by introducing shuttleless looms for some time. But there still are several hundreds small, family-owned firms operating as little as ten looms.

In Thailand, the dyeing, printing and finishing stage of the textile industry is considered to be the least modernized in the whole system, constituting the weakest link in the development of the Thai textile and clothing industry. It consists mostly of small firms, using very old, outdated or locally made equipments and the owners have no immediate plan to modernize their facilities. Productivity and efficiency remain much lower than the rest of the textile industry. These problems are caused by the lack of trained and qualified personnel at all levels of the production process, lack of quality control and the use of low-grade dyes and chemicals. Other obstacles include the Government's restriction on the use of underground water, regulation regarding waste water treatment, and the high import duty on dyes. Such problems have resulted in locally produced grey fabrics being sent for dyeing and finishing overseas and then imported back for use in the clothing sector.

For the Thai textile industry which produces mostly standard products, the improvement from using new machinery or the latest technology are not considered by manufacturers

to be worth the investment required. Manufacturers seem to be well aware of the advisability of using technology appropriate to their absorptive capacity, product types and labor costs. The low wage advantage in Thailand still predominates in the decision of the entrepreneurs although they recognize that the advantage probably will not prevail for much longer.

Linkages between the large, modern firms and the small, traditional firms in the textile sector is weak while the clothing sector has developed a close linkage both between large and small firms and between firms located in urban and rural areas, largely as a result of the expansion of the subcontracting arrangements. Many clothing producers in Thailand who are contemplating expanding their production capacity have chosen to use subcontracting arrangement instead of constructing new plants or purchasing new machines. Subcontracting system is spreading very quickly, both in Bangkok and into the rural villages in all regions, creating jobs for several thousands women.

For women workers, the subcontracting arrangement allows them to conveniently combine housework and paidwork, but one major drawback is the lack of employment contract and protection under the labor law. The Government should look into the possibility of encouraging women subcontractors to organize into village groups or co-operatives to act as central unit in negotiating with Bangkok firms. Such grouping would give rural women a stronger bargaining power,

leading to fairer and more equitable returns for their efforts.

Training course on sewing techniques for various styles of clothing should be organized for rural women to improve the quality of their products. The provincial vocational colleges that offer courses in home economics which normally include sewing can be requested to participate in this training course by providing facilities and instructors.

Women workers in the textile and clothing industry are concentrated in the lower rung as sewing and general production workers, with less than 1 percent in the managerial and administrative level. More women should be encouraged to move up to the management level or to become entrepreneurs themselves. Both financial and technical support are needed to enhance women's role so that they can be supportive to the future development of the textile and clothing industry.

Thai textile products are sold mainly in the domestic market but the export market is becoming ever more important, especially for clothing and woven fabrics. It is estimated that 80 percent of clothing production is currently geared for export. The structure of Thailand's export market for textile and clothing has changed noticeably in recent years, from a reliance on countries with quota to non-quota countries. The ratio of quota to non-quota markets of clothing export was 78:22 in 1984 and approximately 47:53 in

1989.

Although the future prospects for the Thai textile and clothing industry may seem promising, some serious structural problems remain and need to be solved to clear the way for the industry's expansion. The major problems are (1) the shortage of raw materials, (2) the weak linkage between the downstream and the midstream sectors and (3) the scarcity of skilled human resources.

(1) The Shortage of raw materials.

The poor quality and the shortage in the quantity supplied of cotton need the Government's assistance. This can be in the form of disseminating farming technology to cotton growers by sending experts to cotton growing areas to give technical advice and to train farmers in all aspects of cotton farming. The assistance should also include the supply of low interest credit, good quality seeds, appropriate fertilizer and pesticides.

Since the Department of Technical Agriculture cannot supply enough of the silkworm eggs and the silkworm farmers have to buy from a private firm and pay a high fee to attend a course on techniques of raising the hybrid silkworms, other institutions should be encouraged to participate in the silkworm production process. Several institutions already possess the capability, both in terms of supply personnel and technology, such as Kasetsart University in Bangkok, Khon Kaen University in the Northeast and the various regional agricultural colleges, especially those located in the North

and the Northeast. A special program could be arranged whereby villagers join with lecturers and students in the production of silkworm. Such program will serve simultaneously as a practical training for students, a promotion of research activities for the instructors to improve the quality of native breed of silkworm and an inexpensive source of silkworm eggs for the villagers. The Government can act as a co-ordinator for private firms and farmers, where farmers will be supplied with regular amount of silkworm eggs which they will raise and sell back to the firms at a guaranteed price.

(2) The weak linkage between the downstream and the midstream sectors

One of the major obstacle to the growth of the textile sector is the weak backward linkages between the clothing and the local midstream sectors of spinning, weaving, dyeing and finishing industries. The clothing sector had to adapt itself from the very beginning to foreign competition while the textile sector enjoyed the privilege of growing up behind the high wall of protection. Being constantly exposed to intense competition, the clothing sector thus has not been able to rely on the supply of domestic raw materials since the nature of clothing export market requires high degree of flexibility and quick response.

Although the expansion of the textile production capacity has thus far been occurring rather smoothly, that is true mainly for production aiming for domestic market or the

lower segment of the foreign market. Competition for the market share in the latter is becoming more intense as every developing country in Asia is expanding the capacity of its own textile industry at a rapid rate. Among the front runners are China, Indonesia, Bangladesh, Sri Lanka and the Philippines. The developed countries, in the meantime, has resorted to various forms of defensive measures, ranging from adopting the latest technology and innovation to putting up protective barriers in the forms of quotas and import tariffs. At the same time, there is a movement increasingly toward the "quick response" ordering system, to which Thailand suffers from a locational disadvantage. To retain and increase Thailand's share in the world market in the future, it has been emphatically stated many times in this report that the key is to upgrade the quality and increase the value added and fashion content of the products. Thailand needs to move quickly into the higher-class products which require development of its own designs. In addition, encouragement should be made for the wider use of brandname which will be one way of making producers more aware of the critical need for quality control in the high-grade products market.

For Thai clothing manufacturers to capture the lucrative market for the high-end products such as the Japanese market, particular care has to be given to the quality and reliability. The special taste of Japanese customers have to be studied closely. This cannot be done in isolation but

requires co-operation with Japanese designers on the fashion trends, color sense and designs. This can be arranged either by having Japanese fashion experts holding short-term seminars or workshops in Thailand or by sending Thai designers for apprenticeship with Japanese design firms.

Training courses in design are still quite limited in number and although the quality of some institutions is high, the concentration is on the artistic side with little attention paid to the industrial application. Encouragement must be made to link together the design field and the industry. Students taking design course should have an opportunity for practice sessions in industrial design. A special training course should be arranged in the academic institutions by taking in designers already working in the industry. Furthermore, to enable Thai designers to keep up-to-date with the latest trend and development in the textile and clothing industry, short training course should be organized with the help of experts from the world's major fashion capitals.

The Government should specify policies and measures in the development of the whole structure of the textile and clothing industry to encourage a more balanced expansion and to strengthen the linkage between the various sectors. The weakest link is the dyeing printing and finishing sector should be given a firm policy direction towards the factory location, water supply and waste water treatment. In particular, such policies must be practical and feasible,

conducive to the establishment of modern dyeing, printing and finishing industry in Thailand, enable it to compete with other countries on an equal basis.

Existing tax and incentive structures should be corrected to encourage the modernization of the production process and the sectoral linkages. This includes adjusting import duty on machinery and parts, chemical and dyestuffs, and the implementation of the value added tax in place of the existing sales tax which would help lessen the tax burden on final textile products.

(3) The scarcity of skilled human resources

Although there has been rapid technological changes in the textile and clothing industry worldwide, the negative impact on women workers has not yet materialized. The same holds true for Thailand. No large scale displacement of women workers has been observed, largely because the expansion of the production capacity has far outweighed the replacement of workers by machines. The urgent issue to be addressed at the moment is, however, the shortage of qualified workers, both men and women, at all levels of production and management.

Existing programs for skill development in the textile and clothing industry can be grouped in to three categories: on-the-job training, short-term training courses and formal education at university and college levels.

Skills trained in the textile and clothing firms are invariably general skills that can easily be transferred to

other firms. Smaller firms are thus particularly reluctant to undertake investment in training while larger firms can afford to do so since the high wage and fringe benefits they offer plus the better opportunities for advancement will be enough to attract the workers. To encourage more training, small firms should be given special incentives either in the form of tax concession or reduction in the contribution to the workers' compensation fund.

Although education and training in dressmaking are widely available in both public and private vocational training centres, the contents of the curriculum are not oriented towards industrial production. Most instructions still depend only on class demonstrations due to the shortage of necessary equipments. A "model factory" should be established to incorporate all aspects of training, such as garment design and construction, pattern making, cutting, sewing, production planning, and quality control.

The co-operation of experts from textile and clothing firms is absolutely essential both in designing the programs and in teaching. Participating firms can send their workers to be trained at this model factory where the students not only learn to make garments but also produce them for the participating firms who will loan their experts and the necessary equipment. By actually having to produce according to the needs of the market, with the output being subject to stringent standard, the students will automatically learn how to take account of existing demand in their production

planning, design and most importantly, in quality control.

As the shortage of garment workers is becoming more serious, the training program should be made widely available as soon as possible, thus the course should be in the form of "Training the trainers" so that the skills taught can be disseminated quickly. Clothing firms must share the expenses by paying the training fees for their own workers. Other expenses can be partly paid for by charging for the garments made by the students according to the firms' order. This "model factory" can be set up immediately if one or more of the textile and clothing firms are willing to provide the facilities within their compound.

The main concern for textile entrepreneurs is how to make the best use of existing machines and the traditional technology. But one major problem is the improper maintenance and the lack of in-house engineers and technicians. Large firms can afford to compete for the limited number of engineers available, while the medium and small firms find it to be an increasingly serious problem. Even the available engineers and technicians are in most cases not formally trained in the working of textile machinery and equipment. International agencies which have both the fund and the access to textile and clothing experts can assist in providing guidance to small and medium size firms on equipment maintenance and production control through regular factory visits. In addition, supervisors can be selected for special training to

keep up-to-date with the latest technology.

With regard to formal education at university and college levels, the capacities of existing institutions are all very limited, both in terms of facilities, equipments and teaching personnel. Altogether, these major recognized institutions are capable of turning out less than 0.5 Percent of total employment in the textile and clothing industry annually. Considering the level and rate of technological development in this industry and their inevitable introduction in Thai firms, it is clear that the current situation of trained personnel lagging so far behind the industry's expansion demand immediate remedy, in order not to create a bottleneck in the industry's expansion path.

In surveying the existing programs of textile studies and training at different institutions in Thailand, it is found that only partial training in limited areas of the textile and clothing industry is being offered. Students only take courses in textile as part of a requirement toward a degree in science or engineering and are only able to learn one or two small aspects of the textile industry. It is therefore highly recommended that an institution with a complete program in textile technology, production, design and related fields in textile management and marketing be established either within a university, a college or a governmental unit. There is an urgent need for a total study of textile art, science and technology. to give students an all-round composite program to prepare them for the future

international textile market and to cope competently with the existing problem of a shortage in trained personnel at all levels.

The most practical and feasible implementation would be to work on an entirely new program at a university where a complete area of study is being envisaged with a pragmatic philosophy to give the best and most efficient training and education at all levels for immediate employment in textile industry and research centers.

Among the higher educational institutions in Thailand, Thammasat University has the most complete program of studies covering all areas of the textile industry. The unit responsible for the development of this textile education and training program is very active and capable, with the planning and working committee consisting of academic and professional experts from both the public and private sectors.

The university administration has allocated a piece of land to build a Faculty of Fine and Applied Arts at the Rangsit campus, about an hour's drive to the North of Bangkok. Among the first to be opened in the 1992 academic year is the textile department. This campus is located near many large textile mills and the Bang Sai Traditional Arts and Crafts Center under the royal patronage of Her Majesty the Queen of Thailand. In addition, being situated right next to the prestigious Asian Institute of Technology, the department could take advantage of the institute's excellent

facilities and teaching staffs, particularly in the sciences, computer, technology and engineering. Thammasat University also has its own Faculties of Science and Engineering in the Rangsit campus which will be directly associated with the Faculty of Fine and Applied Arts.

The following is an outline of the curriculum of textile studies scheduled to be implemented in the academic year 1992:

Core Courses include the following subjects: fundamentals in Textile Technology, fundamentals in textile design, fundamentals in textile production, study of traditional textile art, management in textile industry and business.

Advanced studies cover the following specialised fields: dyeing, color, weaving, knitting, print making, computer graphic and design. Related courses include such fashion design, garment design, drawing and painting.

In the final year, every student is required to have a one semester (3-4 months) training program with textile companies.

Degrees and Diplomas to be granted:

1. Bachelor of Fine Arts (Textile) - 4 years program
2. Master of Fine Arts (Textile) - 2 years program
3. Diploma in Textile Studies - 2 years program
4. Associate Degree in Textile Studies - 3 years program
5. Certificate in Special Areas of Textile Industry

With such a comprehensive program of study, Thammasat

University needs academic and financial support from international organizations to supplement the very limited fund available from the national budget allocation. During the early stage of the development of the Textile department, transferring of technology is to be given first priority. Assistance and cooperation from advanced industrial countries will help make this program a most complete and practical one, solving the existing shortage of qualified personnel in the textile and clothing industry.

Table 1

Structure of Thai Textile Industry
Man-made Fibre

	1984	1985	1986	1987	1988
Production (tons)	115,527	127,072	133,406	140,504	155,639
Index	989	1087	1142	1202	1332
(% growth)	1.2	10.0	5.0	5.3	10.8
Consumption (tons)	133,408	137,405	149,172	161,034	172,500
Growth Rate (%)	6.7	3.0	8.6	8.0	7.1
Number of employees	6,577	7,060	7,411	7,806	8,647

Source: The Thai Textile Manufacturing Association

Table 2

Structure of Thai Textile Industry
Cotton and Silk

	1984	1985	1986	1987	1988
Production (tons)					
Weft silk yarn	801	929	949	987	1,000
Warp silk yarn	31	38	45	57	69
Total	832	967	994	1,044	1,069
Consumption (tons)					
Silk	1,212	1,398	1,642	2,057	
Cotton	158,512	177,777	222,239	246,853	250,134

Source: Ministry of Agriculture

Table 3

Structure of Thai Textile Industry
Spinning

	1984	1985	1986	1987	1988
Facilities (no. of spindles)	1,801,936	1,936,700	1,954,700	2,068,100	2,562,200
Index	334	359	363	384	475
Number of employees	33,999	35,213	35,540	37,602	44,176
Productivity (kg/spindles)	151	151	181	182	154
Production (tons)					
Cotton yarn	118,837	131,472	169,470	182,789	184,052
Man-made fibre yarn	153,359	161,482	184,145	194,203	209,375
Total	272,196	292,954	353,615	376,992	393,427
Index	345	371	448	477	498
% growth	8.2	7.6	20.7	6.6	4.4
Consumption (tons)					
Cotton yarn	117,950	124,295	137,850	161,023	212,582
Man-made fibre yarn	146,391	156,501	171,070	192,893	229,596
Total	264,341	280,796	308,920	353,916	442,178
Growth rate (%)	6.3	6.2	10.0	14.6	24.9

Source: The Thai Textile Manufacturing Association

Table 4
Structure of Thai Textile Industry
Weaving

	1984	1985	1986	1987	1988
Facilities (units)	79,456	79,612	79,670	93,708	103,586
Index	219	219	220	258	286
% growth	2.9	0.2	0.1	17.6	10.5
Number of employees	36,956	37,028	37,056	42,594	47,084
Productivity (1,000 yd/unit)	23.5	24.6	26.9	25.7	28.1
Production (1,000 square yards)					
Cotton Yarn	936,210	984,180	1,060,347	1,180,731	1,432,374
Man-made fibre yarn	927,927	971,454	1,080,189	1,224,311	1,478,081
Total	1,864,137	1,955,634	2,140,536	2,405,042	2,910,455
Index	315	331	362	407	492
% growth	5.7	5.1	9.5	12.4	21.0
Consumption(1,000 square yards)					
Cotton yarn	616,245	649,329	683,419	725,892	773,758
Man-made fibre yarn	422,741	425,248	448,076	467,865	488,030
Total	1,038,986	1,074,577	1,131,495	1,193,757	1,261,788
Growth rate(%)	5.5	3.4	5.3	5.5	5.7

Source: The Thai Textile Manufacturing Association

Table 5
Structure of Thai Textile Industry
Knitting

	1984	1985	1986	1987	1988
Facilities (units)	48,465	54,727	58,430	64,825	71,113
Index	1152	1301	1389	1541	1690
Number of employees	28,271	31,925	34,085	36,594	40,145
Productivity(tons/unit)	1.30	1.27	1.35	1.48	1.65
Production (tons)					
Cotton Yarn	14,332	15,310	20,300	29,980	38,482
Man-made fibre yarn	48,873	54,397	58,290	66,038	78,522
Total	63,205	69,707	78,590	96,018	117,004
Index	685	755	852	1040	1268
Consumption (1,000 square yards)	435,190	489,476	507,003	575,315	636,195
Growth rate (%)	0.8	12.5	3.6	13.5	10.6

Source: The Thai Textile Manufacturing Association

Table 6

Structure of Thai Textile Industry
Clothing

	1984	1985	1986	1987	1988
Facilities(units)	277,838	304,133	330,091	385,749	381,526
Index(1971-100)	1003	1098	1192	1393	1378
Number of employees	420,105	438,038	465,404	519,461	626,042
Productivity (1,000 pcs./unit)	3.1	3.0	3.1	3.3	4.0
Production (1,000 pcs.)					
Woven Fabric	473,097	508,245	568,230	691,627	834,042
Knitted fabric	394,303	417,927	467,252	568,721	685,828
Total	867,400	926,172	1,035,482	1,260,348	1,519,870
Index	321	343	384	467	563
Consumption (1,000 pcs.)					
Woven fabric	410,510	429,614	450,369	474,867	501,391
Knitted fabric	229,119	247,326	260,164	307,304	343,073
Total	639,629	676,940	710,533	782,171	844,464
Growth rate (%)	5.7	5.8	5.0	10.1	8.0

Source: The Thai Textile Manufacturing Association

Table 7**Number of Employees in Thai Textile Industry**

	1984	1985	1986	1987	1988
Man-made fibre	6,577	7,060	7,411	7,806	8,647
Spinning	33,999	35,213	35,540	37,602	44,176
Weaving	36,956	37,028	37,056	42,594	47,084
Knitting	28,271	31,925	34,085	36,594	40,145
Dyeing					
Cotton	8,654	9,281	10,014	11,575	14,726
Man-made fabric	11,539	12,961	14,159	16,441	20,094
Clothing	420,105	438,038	465,404	519,461	626,042
Other textile products	56,858	59,310	62,137	69,752	80,852
TOTAL	606,567	622,672	657,370	741,932	881,766

Source: The Thai Textile Manufacturing Association