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ESTABLISHMENT OF A TEXTILE TRAINING AND SERVICE CENTRE

DP/SRL/79/054

SRI LANKA

Report of the evaluation mission*

United Nations Industrial Development Organization

Vienna

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SUMMARY OF FINDINGS AND RECOMMENDATIONS

The purpose of the evaluation mission was to assess the outputs or results of project DP/SRL/79/054 - "Establishment of a Textile Training and Service Centre" in developing an institutional service capability to industry in selected areas, identify accomplishments and shortfalls, examine external factors and make an assessment of actual and/or potential effectiveness and finally to make recommendations for future action or follow-up.

The approach taken by the Centre was carefully assessed and the effectiveness of the Centre was studied in terms of skilled manpower available, methodologies and techniques in operation, and its capacity to provide quality consulting, testing, training and information services relevant to industry needs.

Through extensive and intensive interviews, the utility of the Centre to industry was assessed, including the extent to which the Centre is adequately meeting the needs of the industry.

The sustainability of the Centre was also evaluated and observations made.

Findings

The project has led to the following useful accomplishments:

- A basic Textile Training and Service Centre able to meet operational and supervisory training needs and consultancy trouble-shooting requirements of industry has been established;
- A fully functional pilot plant for spinning, weaving, knitting and laboratory scale machines in processing has been established;
- A good textile testing and quality control laboratory is in the process of being completed;
- A workshop for bench fitting section and drawing classrooms for training mechanics has also been established; and
- Various modular courses in spinning, weaving, knitting and processing have been developed and are regularly provided to industry.

Overall, given the difficulties inherent in establishing a new Centre of this kind an outstanding co-ordinated effort on the part of project staff, the Sri Lankan Government, UNDP and UNIDO has made this possible.

There were, however, numerous findings which indicate that the further international technical assistance would be required to strengthen the Centre to provide a more comprehensive and sophisticated service to industry. This is required if the Centre is to make a major impact on the efficiency and overall profitability of the textile industry in Sri Lanka.

Recommendations

Recommendations were made to consolidate the excellent initiatives taken by the project to establish a professional training capacity at the Centre.

Another major recommendation in view of the urgent rehabilitation needs of industry was to strengthen the consultancy function of the Centre. Towards this end a capability to provide full technical and managerial diagnostic services to industry is required. Moreover, a full range of modern management techniques need to be introduced to the industry.

To provide this sophisticated service to industry the establishment of an Industrial Engineering/Management Services Division is recommended to provide the missing management orientation at the Centre.

Various other recommendations were made concerning the need for institutionalization of service related procedures, methodologies, guidelines, etc. Further suggestions were made with respect to the establishment of a Liaison Advisory Committee, the establishment of a Deputy Director Office responsible for co-ordinated services and a Training Co-ordination Unit.

INTRODUCTION

The project DP/SRL/79/054 which helped established a textile training and service effectively started with Preparatory Assistance project at Colombo in June 1981. The full-scale project is scheduled to terminate in November 1986 and thus is in its fifth year. The full-scale project was originally approved for US\$1,831,450 for 3 years and 7 months. Since then project revisions have extended it for a total 5 years. The budget progressively increased to total US\$2,734,366. Following consultations between the Government, UNDP and UNIDO, it was decided to field a Mission to carry out a joint evaluation of the above project to examine the efficiency and effectiveness of project achievement and the extent which a lasting institutional capacity and capability able to provide useful services to the textile industry, has been created. Parameters for future assistance, if any are required, were also to be considered.

The evaluation was foreseen in the original Project Document signed in March 1982, and is in line with standard UNDP procedures.

The responsibilities and tasks of this evaluation team are fully outlined in the Terms-of-Reference attached in Annex I.

The members of the Evaluation Team were:

1. Mr. S. Sundaram, UNDP Consultant, Team Leader
2. Dr. P.A.T. Gunasinghe, Director of Ministry of Textile Industries, Representative of the Government of Sri Lanka
3. Mr. Hans Heep, UNIDO Evaluation Unit, Representative of UNIDO.

The mission took place from 10 to 25 February 1986. Its findings and recommendations are based on the visits to and discussions with the majority of staff at the Textile Training and Service Centre and extensive interviews conducted with end-users, U.N. and Government officials. The evaluation team had the privilege to receive numerous comments, opinions and advice from the Government, semi-Government organizations, many textile factories, the Textile Manufacturer's Association, National Apprenticeship Board and Moratuwa University. All international project staff and all national senior and middle level centre staff were systematically interviewed. (Please see Annex II - List of Persons met.) The evaluation team also consulted a large number of reports, documents and available background material.

The evaluation team would like to express its sincere appreciation for the co-operation and assistance received during their mission

Preliminary findings and recommendations were informally discussed with the Ministry's Secretary, UNDP Resident Representative, UNDP Deputy Resident Representative, UNIDO Senior Industrial Development Field Advisor (SIDFA), National Project Director and the UNIDO Chief Technical Advisor (CTA).

A tripartite meeting was held at the Centre at Ratmalana, Colombo at the end of the evaluation to present its main findings and recommendations with the participation of Government, UNDP/UNIDO and project management.

After the Tripartite Review the Minister of Textile Industry was personally briefed by the evaluation team in his office. The Secretary of the Ministry of Textiles was also present.

A full field report was left in Sri Lanka.

CHAPTER I. PROJECT FORMULATION

A. Objectives of the project

The development objective of the project as stated in the Project Document is:

"To improve Sri Lankan balance of payments and contribute to national development"

The original immediate objectives are:

- "1. To strengthen the textile industry's performance in textile production through mill-level investigational work, training and consultancy services and thereby increase production from an average capacity utilization of 45% during the years 1977 to 1980.
2. To establish a unit for trial spinning, weaving, knitting and processing on behalf of industry, thereby making the industry more competitive in home and overseas markets by introducing new concepts in yarn and fabric manufacturing, transferring technology to mill staff and the development of new products. (Processing is the term used in Sri Lanka to describe bleaching, dyeing, printing and finishing of textiles.)
3. To establish suitable preventive maintenance schemes with a view to improving machines productivity, thus providing a means to overcome what is a current deficiency in most mills and one of the reasons for low production. At the same time ensuring mill become more cost-effective with the minimum of capital expenditure and consequently competitive.
4. To formulate and introduce training courses to upgrade the levels of skill of middle and lower management personnel from all textile mills with spinning, weaving, and processing facilities and to make a start on the up-grading of skills in the knitting industry. 14,000 man-days of training is the overall objective. At the same time establish worker training methods and programmes and minimum skill standards.
5. To establish a textile library and a textile machinery data bank, the former to provide know-how facilities to anyone in industry requiring same and to provide a source of information to consultancy and training staff, the latter with a view to offering facilities to industry to compare like machines for performance and suitability for local industry."

The Project was revised in August/September 1985 and the immediate objectives were reformulated as follows:

- "1. To strengthen the textile industry's performance through mill-level investigational work, training and consultancy services and thereby increase production from an average capacity utilisation of 45% during the years 1977 to 1980.
2. To make the industry more competitive in home and overseas markets by establishing a unit for trial spinning, weaving, knitting and processing on behalf of industry. This will be achieved by introducing new concepts in yarn and fabric manufactures, transferring technology to mill staff and the development of new products.
3. To overcome the current lack -- in most mills -- of a suitable preventative maintenance scheme, thereby overcoming one of the reasons for low productivity. It will also ensure mills become more cost-effective and competitive with the minimum of capital.
4. To upgrade the levels of skill of middle and lower management personnel of all textile mills by introducing appropriate training courses. At the same time establish worker training schemes by offering advice on training bays, training methods and programmes and minimum standards of skill required.
5. To provide "know-how" to anyone in industry by establishing a textile library, a Quarterly Bulletin and a textile machinery data bank, which will also provide a source of information to Centre-based consultancy and training staff."

The objectives given are a mixture of a dated development objective, project justification achievement indicators and Centre activity statements. It confuses what the project will do with what the Centre is expected to do once it is established. The "institution-building function" of the project was not clearly specified.

Project design will be fully discussed in Chapter I, Section C.

B. Economic and Development Policy Conditions for the Project*

1.1 Overall Economic Performance

Sri Lanka is a small, socially segmented and complex nation of 15.4 million people. Ethnicity, religion, regionalism, caste, class and political affiliation determine the structure of the society and are significant for social and economic policies as well as for national politics.

*This chapter has been extracted from a draft UNIDO Industrial Development Review Series on Sri Lanka and a restricted report prepared by the Shirley Institute on behalf of the Government of Sri Lanka.

The Gross Domestic Product (GDP) in 1984 was about US\$5 billion or US\$320 per capita. The rate of increase of GDP between 1978 and 1984 was about 5.7 per cent annually. The country ranks in the upper zone of the low-income developing countries (according to the definition of the World Bank). Financial imbalances in the budget, deficits in the balance of payments and a low rate of industrial and export growth have not been overcome.

In February 1984 the Government decided on a shift in investment priorities to focus on adequate support of on-going projects. In a move to liberalize the economy, investment is to be retained in sectors and activities which represent genuine governmental activities.

Investments are now aimed at reducing the balance of payments gap, improve the infrastructure (power, irrigation, transport and communications) and meet urgent health, education and housing needs.

All these measures are intended to supplement the removal of price controls. Import regulations and the application of a unified and floating exchange rate, as well as promotion of foreign investment, are further measures taken to strengthen economic progress.

1.2 State-owned Enterprises

A recent study of many state-owned enterprises by UNDP/ILO identified shortcomings in the areas of finance and accounting, marketing, production, materials management and personnel. Capacity utilization in some cases is below 50 per cent. Modernization and adjustment of the state-owned enterprises which provide 60 per cent of the industrial and 40 per cent of the industrial value-added was considered to be important.

1.3. Economic Policy

The shortcomings in many state-owned companies have been made more evident by import liberalization. The quality of foreign products is better and the prices are more competitive. In order to keep the local markets and to absorb a larger share of the purchasing power abroad, an improvement in the quality of production and the strengthening of export management capabilities are required. The Government has introduced export promotion policies and mechanisms.

Recently, economic experts in Sri Lanka have recommended that the producers turn their attention to the domestic market to meet local demand in order to save foreign currency. This policy, in order to succeed, requires a technical upgrading of the Sri Lankan industry.

1.4 Industrialization Process and Policy

The economic development of Sri Lanka is not -- as that of other developing countries -- based on a transformation from an agrarian to an industrial society. A comparison of figures for 1965 and 1984 shows that the share of the manufacturing sector in the GDP has declined slightly from 16 to 15 per cent. However, this share has not been stable in the last twenty year period: in 1977 the percentage was 23.1, and in 1983, 16.1. Tobacco processing is the most important branch, textile industry ranks second, while the non-metallic mineral industries recorded a large increase in production. For the years 1985 and 1986 a considerable growth of the manufacturing sector is expected.

The Sri Lankan industry (including construction) employs 18.3 per cent of the local labour force (approximately 5.6 million inhabitants). Sri Lanka's industry is characterised to a large extent by the progress and deficiencies of state-owned enterprises which form a larger part of the industry. The private sector in industry has not yet been able to increase its contribution to the GDP and employment. Most of the state-owned and private companies depend on imported machinery and materials. High energy costs and power cuts, as well as lack of technical skills and inappropriate product design and quality, often hamper competitiveness in national and international markets. The Sri Lankan industry faces many problems in keeping their markets as a result of management and technical inefficiencies.

Several Government institutions and agencies offer services such as management assistance, financial support, apprenticeship training and technical upgrading at regional and national facilities. This policy (executed and intended) includes trouble shooting services to state-owned enterprises and investment capital for efficient enterprises. The policy towards private enterprises has not yet gained the same momentum as that in favour of the state-owned enterprises from the view point of policy makers.

As a special service to free enterprises, the Government attracts investment through liberalization of controls, tax reliefs or similiar measures and locations in special "free trade" zones. The technical upgrading of the state-owned enterprises and private business skills has to be intensified.

1.5 Growth and Structural Change

Trying to identify structural changes within the manufacturing sector that have occurred over a ten year period (1973-1982), we can conclude that the largest gain in relative importance was achieved by textiles. From 7.8 to 15.3 per cent this branch almost exactly doubled its manufactured value-added share. This development is linked to foreign investment in Sri Lanka's first export-processing zone which was established 1979.

1.6 Performance and Efficiency

The only industrial branch which has consistently improved its capacity utilization performance throughout the last seven years are wearing apparel and leather products. This branch has moved up from a below-average figure in 1977 to remarkable 99 per cent 1984. All other branches with the notable exception of basic metal products (only 17 percent) reported capacity utilization rates of at least 68 per cent in 1984. Whereas the textile production industry capacity utilization is roughly estimated at 45 - 55 per cent.

National statistics published by the Central Bank of Ceylon broadly show that industrial exports (excluding tea, which appears under agricultural exports) accounted for 34 percent of all exports in 1984 with the main driving force being textiles and garments which were responsible for 20 per cent of the total.

1.7 Industrial Textile Development Objectives and Prospects

The development of a viable competitive manufacturing sector is considered by the Government as the backbone for Sri Lanka's future development prospects, in particular for achieving the income, employment and export targets set for the remaining years of the 1980s.

The textile sector's future prospects will largely depend on deliberate efforts to overcome the constraints of a small domestic market, a narrow technological base and lack of competition for innovation and improvement. There is a large scope for the textile cloth and yarn industry to supply the garment makers in the import processing zones. At present almost all cloth is being imported. There is however a need to improve marketing capabilities, quality and increase efficiency if the local industry is to become competitive.

A Government priority policy area relates to public sector industrial enterprises which are to receive technical assistance aimed at improving their efficiency. Concerning efforts to partly privatise public enterprises, it was reported that five textile mills were brought under management contracts with private foreign firms.

1.8 Institutional Framework for Industry

In Sri Lanka, four different ministries share the overall responsibility for industrial development. These are the Ministry of Industries and Scientific Affairs, which can be considered as the 'parent ministry' for the formulation and implementation of industrial policy and the respective framework of rules and regulations; further the Ministry of Finance and Planning; the Ministry of Rural Industrial Development and the Ministry of Textile Industries.

The Ministry of Textile Industries has as its main objectives:

- Monitoring and development of textile industries, including spinning of yarn, weaving, knitting and finishing textiles, manufacture of made-up textile goods, wearing apparel (except footwear), carpets and rugs, cordage rope and twine industries, and textiles printing (except batik printing);
- Supervision of the management of state-owned textile manufacturing enterprises; and
- Promotion of the export of textile products, including made-up garments.

The Textile Training and Service Centre was established by Government under the Ministry of Textile Industries to provide those support services required by the industry if Sri Lanka's development objectives are to be achieved in this sub-sector.

1.9 Assessment of textile industry needs which have important implications for the Textile Training and Service Centre

The textile industry in Sri Lanka has a fairly compact spinning and processing sectors, but an extensive weaving sector in which small, largely rural powerloom and (to a decreasing extent) handloom weaving units play a major role, alongside the large composite mills and a number of synthetic weaving and knitting establishments.

Textiles as a whole account for 20 per cent of employment in the manufacturing industry but less than 10 per cent of value added; this ratio is amongst the lowest of any sector, as is the fixed capital invested per employee. Further comparisons, for example, of wage levels and trends against those elsewhere in industry and agriculture, all highlight the problems of a labour industry hit by a severe crisis of markets, profitability, and liquidity.

Apart from employment concerns, however, attention has recently been focussed on the textile industry as an alternative source for the growing quantities of imported fabric required by the export garment sector.

Since 1980, the major public sector companies have been managed by expatriate companies. This experiment has been relatively successful and recent initiatives in export marketing, major rehabilitation, and new investment have largely stemmed from this quarter. By way of contrast, many private companies have been unable to exploit their apparently closer connection with the export garment industry to any significant degree.

Overall there has been a failure of local manufacturers to develop any independent initiative in the marketing and distribution of their products, allied to a lack of product development and appropriate investment throughout all sectors of the industry.

Confirmation of this is found in the very depressed state of textile consumption as evidenced by both recent levels of consumer expenditure and price trends for textiles compared with most other manufactured products.

Prices have fallen behind the rate of inflation to such an extent that the financial viability of most companies has been seriously jeopardised and manufacturers have resorted to cheapening their products with poorer raw materials and quality standards, thereby reducing their own productive efficiency and marketability.

The industry has suffered in terms of new investment, proper care and maintenance of existing facilities, and loss of skilled staff to more lucrative industrial sectors, especially the garment sector.

The recovery of domestic demand is a key element in the industry's future; replacement of imports is every bit as worthwhile as import substitution for the garment sector. For many producers, this will be a more reliable and attainable target than an immediate and substantial export orientation.

Training

A major area of concern is the level of technical skill and experience at all levels of the industry. The Textile Training and Service Centre has developed a capability to provide a variety of training services.

The Open University has a potentially important role to play and good facilities are in place or awaiting installation.

The University of Moratuwa is developing a degree level course along with an extension of the existing Diploma and future part-time courses.

Management

Apart from the areas of marketing or financial control discussed above, one of the most serious problems facing management concerns the lack of motivation and high levels of absenteeism encountered in many companies and sectors of the industry. This has seriously disruptive effects on production planning but in the longer term, impedes the development of a skilled, productive, and quality conscious workforce.

The extension of full-time industrial engineering and energy management services throughout the industry is also needed.

Products

The requirements of the export garment market are expected to be, in general terms, for a lower count (coarser) spun yarns, heavier fabric constructions, and a higher proportion of dyed fabrics, as well as very different print styles from local requirements. Polyester-cotton blends are expected to play a growing role in export and local markets, and wider-width fabrics will also be increasingly demanded in both areas.

A smaller, but not insignificant, direct export market may be developed for high quality handloom products, provided (predominantly low count) yarns of appropriate quality and cost are available; the supply and price situation has been particularly difficult in the recent past. The development of improved yarn dyeing capability on an appropriate scale will also be important to this sector.

Present total effective capacity has been revised somewhat from existing estimates; the areas of spinning, weaving, and processing are broadly in balance and capable of supplying some 130 million metres per annum (plus an undefined capacity in the handloom sector) compared with current production of 95 million metres (+24 m.m. handwoven) in 1984. At these levels, existing capacity might not be sufficient to cope with even a revitalized domestic demand, let alone any significant success in the export market.

Improved quality and cost of spun cotton and blended yarns is seen as a first priority for attention, since the performance of the spinning sector effectively limits the efficiency, marketability and investment potential of all subsequent stages of textile production. This area is dominated by the public sector mills.

The Textile Training and Service Centre must be developed to provide the full range of service required to meet all the needs identified above.

C. Project Design

The project objective should have read (refer to Chapter I, Section A for cross-reference purposes):

"The establishment of a Textile Training and Service Centre (henceforth the Textile Training and Service Centre will be referred to as the 'Centre') capable of providing operator/supervisory training, trouble-shooting consultancy advice, marketing and information services to the textile industry in the areas of spinning, weaving, knitting and processing of textiles.

At the completion of the project the Centre created will be able to provide these services on a regular basis".

Such an objective clearly indicates that an institution building project is involved. This in turn recognizes that the project outputs should have been defined in terms of functional modules as recommended by UNDP in its Programme Advisory Note on Industrial Research and Service Institutes (UNDP/PPM/TL/29) and UNIDO in its Manual on Project Design and Evaluation (UNIDO/PC.31/Rev.1).

The Project Document should have included in its Institutional Framework Section an organogram of the proposed Centre. Since the Centre is organized along textile production process lines, i.e., Spinning, Weaving, Knitting, Processing, Basic Engineering, Quality Control Control/Testing Division. The development of each of these should have been fully described as an output module.

Each Division was expected to be able to provide a set of services to industry (i.e., trouble-shooting, training, testing, etc.) in its area of concentration by the end of the project. This capability should have been specified.

If all Divisions (modules) are able and do provide the services specified in the output statements the project objective of establishing a multi-functional Textile Training and Service Centre will have been achieved.

The fact that a certain number of people have been trained and consultancies have been carried out are achievement indicators and not project outputs or objectives.

From experience functional units need to be defined in terms of the services it is expected to be able to provide within and outside the organization, i.e., beneficiaries/end-users.

Each output capability to be created should be further specified in terms of what services will be provided to whom, at what level, and how often, i.e., planned level of services. The actual delivery or completion of envisaged work by the individual Divisions would serve to indicate that capability has been created. Therefore the need for achievement indicators.

To fully define capability and capacity, each Division (module) should have been further specified as follows:

- (a) What technical methodologies, testing and other procedures, guidelines, etc., are needed, specified by type (workshop, classrooms, etc.);

- (b) What equipment is needed (general description) than fully specify in project input section;
- (c) For which end-users/beneficiary/client are the services of the unit to be extended, how large are the needs and demands, how will demand be stimulated, how will feedback information on utility and quality of services be obtained and used; and
- (d) How will service capability be financed and managed.

Most of the output statement information requirements discussed above are contained in the Project Document but not in the fashion suggested above. This has caused the oversight of specifying for each Division. The methodologies, procedures, guidelines, etc., required to efficiently and systematically provide services to industry are required under (a) above.

The Chief Technical Adviser, in conformity with the requirements of UNIDO's internal evaluation system format, did well in reporting on project performance using this approach, although the issue of methodologies and procedures was missed. This aspect is discussed in later Sections of this report.

Recommendation 15 (viii), Chapter IV, Section B, contains an illustration of a modular output statement as suggested above. To that illustration the number of assignments which will be carried out during the tenure level the project would have to be included.

CHAPTER II. PROJECT IMPLEMENTATION

A. Delivery of inputs

UNDP/UNIDO inputs

The original large-scale budget (C) approved for this project after a one period of preparatory assistance was approved on 4 March 1982. The latest presently valid revision (L) was approved on 6 September 1985, both can be summarised as follows:

<u>Budget Line</u>	<u>Original Budget C (m/m)</u>		<u>Revision L (m/m)</u>	
	US\$		US\$	
11.01 Chief Technical Advisor	267,400	(43)	427,576	(66)
11.02 Spinning Advisor	138,600	(24)	256,985	(42)
11.03 Weaving Advisor	138,600	(24)	150,025	(24)
11.04 Processing Advisor	138,600	(24)	266,076	(42.6)
11.05 Knitting Advisor	75,600	(12)	188,280	(30)
11.06 Product Dev/Marketing	75,600	(12)	152,933	(24)
Sub Total - International Experts	834,400	(139)	1,441,875	(228.6)
13.99 Administration Support Personnel	18,000	(180)	36,198	(307.5)
15+16.00 Other personnel costs	18,500		36,210	
17.99 National Expert, installation & weaving				
19.99 Total personnel	870,900		1,526,528	Adjustment (530)
31. Fellowships	118,700	(60)	120,378	(59)
32. Study tours	4,000	(1.5)	15,931	(4.5)
39. Training Total	123,600	(61.5)	136,090	(63.5)
49. Equipment Total	974,000		1,206,016	
59. Miscellaneous	42,000		44,281	
99. TOTAL	2,010,500		2,912,915	
Less Preparatory Assistance	178,550		178,550	
GRAND TOTAL	1,831,450		2,734,365	

The Project's one year Preparatory Phase started with the arrival of the Chief Technical Adviser (CTA) on 5 June 1981. The full-scale Project Document was approved on 4 March 1982, which increased assistance by 31 months for a total of 43 months. Subsequently the project was extended 4 months on 21.4.83 due to late arrival of experts, which also made it necessary to extend the appointment of the CTA. Major factors causing these extensions were the delays in appointing the national counterparts and in the construction of the Centre's buildings.

For a number of reasons it was not possible to fill 15 of the senior counterpart vacancies and 12 of the junior technical vacancies. This delay had a twofold detrimental effect on the project: (a) it was not possible to nominate personnel for the fellowship programmes, 49 m/m were still outstanding at the time and (b) 27 national personnel to be appointed - have not received any training from the UNIDO experts, which caused the need to extend the experts assignments. Consequently, on 29 November 1984 the project was extended 13 months to now 60 months.

On 6 September 1985 (Revision L) the project was further extended six months for a total of 66 months. Buildings, staff, equipment and experts were fully in place only by June 1985. Government therefore requested the extension into the second half of 1986 to allow the Centre's staff to make full use of the international staff.

Almost the entire position of the 49 per cent increase in budget from March 1982 to September 1984 is accounted for by a 72 per cent increase in the expert component and a 23 per cent in the equipment consignment, the latter is due to adjustments in the equipment required, i.e., quality control equipment and inflation.

Government Inputs

Although there were delays in Government inputs in the formative years of the project, i.e., building delays and delays in recruitment of staff, these major setbacks appear to have been totally overcome by about mid 1985. Currently, the only repercussion from these delays in inputs is in the implementation of fellowships, these are now crowded into late 1985 and the first half of 1986. This concentration of fellowships is causing some concern in that 25 per cent of the senior staff are currently away on fellowship and one more UNIDO fellowship the situation will worsen to 35 per cent in April 1986. By September 1986 the situation should have returned to about 15 per cent fellowship absenteeism.

Delays in Government inputs such as: provision of used machinery, a second telephone line, some furniture and fittings, should be dealt with as quickly as possible to facilitate and maintain a good level of activities at the Centre. The premises of the Centre are adequate. However office space is already tight and further expansion will require an extension to the building. There are no hostel arrangements for trainees from outlying areas.

Catering facilities are required for the staff and trainees. The evaluation team has not been able to assess whether Government has made adequate provisions for the future and recurrent costs of the Centre. This must be clarified as soon as possible.

All used equipment for training purposes has been donated by Government industry and further assistance in this area can be expected.

B. Implementation of Project Activities

The CTA arrived in the duty station on Friday 5th June, 1981 under a Preparatory Assistance project. On Monday 8th June a counterpart was provided to the CTA. Since that first meeting, communication with the Ministry of Textiles has been on a regular and continuous basis.

In early June a start was made on the review of the textile industry to ascertain justification for the establishment of a Textile Training and Service Centre. Some 33 visits to major textile undertakings were undertaken, covering 98 per cent of total spindleage, 67.5 per cent of total loomage and 78 per cent of processing facilities.

A tentative decision of the Centre was submitted to the Ministry in June 1981 and a rough costing of building requirements provided so that the Ministry could formulate a figure for the 1982 budget. A finalised design was submitted towards the end of 1981.

As UNIDO had requested early submission of the Project Document, work in this area was started immediately after the review of industry which had remarkable enthusiasm for a Centre. The draft was completed by 20th November 1981.

During 1981 a start was made on preparing syllabuses for future courses and the CTA started to tackle some of the problems which had arisen during his survey of industry.

The first Centre Bulletin was also prepared for publication in October 1981. In this a start was made on advising industry on job specifications and minimum standards of skill required of personnel employed in textiles. Regular Bulletins are issued and are very much appreciated by industry.

Job descriptions for required experts were prepared in the later part of 1981. Initially short-term assignments for experts were planned but as the Ministry could not guarantee the availability of counterparts this plan was eventually abandoned.

The first course offered by the Centre -- Fitting and Basic Engineering Skills -- started on 7 December 1981, at an outside institutional venue during their holiday period.

Detailed drawings of the Centre were drawn up by December 1981 and in early February 1982 the CTA accompanied Ministry officials to the Government Bureau of Engineering Consultants for detailed discussions on building requirements. Subsequently that Bureau was appointed as the Ministry building consultants. Earlier, the Ministry had purchased three acres of land at Ratmalana just outside Colombo (30 minute drive).

At about this time -- early 1982 -- it became clear that progress was restricted in that the "legal status" of the Centre was not clear and, until this was sorted out by the Government Legal Department, the establishment of the Centre could not be discussed at Cabinet level. Until approved by the Cabinet, a Board of Governors (who in turn could appoint staff, set salaries, benefits, etc.) could not be appointed. This delay, in turn, delayed the arrival of experts.

The Project Document was approved by March/April and in spite of the above-mentioned predictable delays the project proper was scheduled to follow on immediately after the termination of the Preparatory Assistance.

In the period March 1 to May 31, 1982 the Director-Designate was named. Also during this period machinery requirements were drawn up with a view to preparing requisitions as soon as the project proper was started -- and the building programme started.

In June 1982 it was decided to advertise and interview candidates for some of the many vacancies. This decision was made despite the fact that salaries and conditions could not be finalised. Unfortunately out of eleven candidates none was found to be suitable for the important senior posts. Towards the end of 1982 it was possible to appoint two Heads of Divisions. Between the end of January and end of April 1983, three advisers arrived on the project, making a staff of CTA, three advisers and three national staff. This made it possible to activate the planned fellowship programme and one National staff started his programme.

Building was started early 1983 and progressed well until about the end of the first quarters in 1983, then there was a dramatic slowdown during April/May - possibly due to holidays - this appeared to be the starting point of the programme falling behind schedule.

Nevertheless, preparation of project equipment requisitions continued into 1983 hoping that at least the roof of the machinery block would be in a position at the time of arrival of machinery. In spite of building delays it was possible to start moving machinery under cover as it arrived in late 1983.

During 1983 trouble shooting services to industry was more actively carried out than training because of shortage of staff.

A significant milestone in 1983 was the passing of the "Bill", to establish the Centre on December 15th. Also by this date the buildings had been roofed and final concreting of floors started in the main machinery block.

A local textile engineer was appointed at this stage to supervise uncrating, inspection and positioning of machinery. Advisers and the few counterparts appointed had little time to spare for this work because of service activities and the need to offer some training courses.

As the project moved into 1984 it was thought that a Board of Governors would be appointed immediately so that terms and conditions could be finalised. The Board were named on the 23 May and the Director was appointed on a full-time basis in June 1984. Also in early 1984 another counterpart was appointed making a total of four and the knitting adviser arrived in May 1984.

During 1984 international advisers and counterparts made numerous visits to the building site to supervise and advise on machine installations. However, the shortage of National Staff was still very acute and the building programme had fallen further behind schedule.

The first meeting of the Board of Governors was held on the 20 August 1984 and thereafter met regularly to thrash out salaries and conditions. Because of this it was possible to appoint some assistant training officers and workshop staff before the end of the year. The third quarter of the year also saw the appointment of the last and final adviser, i.e. in Product Development/Marketing.

Unfortunately, 1984 was not the year for taking over the buildings as a power supply had not been available, but it was possible to increase training activities. It was possible -- towards the end of the year -- for some of the staff to move into their offices and workshops.

The first half of 1985 saw a major increase in all activities. This was achieved because power was made available in late January and twelve new staff -- mainly senior staff -- were appointed by April. This period also saw the staff of the British Council/ODA aid programme in the training in consultancy techniques. Two weaknesses in the project had now been overcome.

The second half of 1985 saw the remaining vacancies filled and a corresponding surge forward in activities. New activities such as in Centre trials and investigations were also introduced. Practical aid was offered and accepted to other organizations such as the Moratuwa and Kelaniya Universities. The Centre also took part in a major textile exhibition by having a stand at the exhibition. Technical articles were prepared for local newspapers. A careers booklet was published. All such activities had previously been impossible because of staff shortages.

CHAPTER III. PROJECT RESULTS AND ACHIEVEMENT OF OBJECTIVES

A. Outputs

A.1 Centre's Services to Industry

(a) Training Services provided to Industry

One of the main activities of the Centre has been the implementation of training courses developed with the assistance of the project. By the end of 1985, 11,276 man-days of training of textile personnel were completed. The break-down is as follows:

6020 man/days, textile fitter training
932 man/days, spinning/weaving operator training
4324 man/days, middle/lower management textile training

Of this a total of about 1,000 man/days were on fitting and basic engineering skills. No progress was obtained in spinning textile mechanics training, but loom mechanics training is expected to start in March or April 1986. Approximately 80 courses are conducted per annum. A target of 4,500 man/days of training per annum was the project target, about 4,000 have been reached in 1985. The Centre is training middle and lower management personnel by means of short extensive course in certain aspects of 'textile manufacturing'. All courses are aimed at improving quality and productivity and lowering costs. Industry response have confirmed that the training has had an impact. However, the results cannot be quantified.

Seminars are offered to senior mill staff. Fifteen seminars are targeted during the life of the project. Twelve have been completed to-date.

The project has been able to negotiate with the National Apprenticeship Board to intensively train 20 apprentices for 6 months in loom mechanics. This if started in March and will amount to 2,400 man/days of training before the end of the project, more if the planned second course follows on immediately after the first.

Mostly the second and third level Centre staff are active in training. All planned posts are filled and twelve staff are included in training.

In-mill training in response to industry needs have been developed, particularly to train plant trainers in ring spinning and weaving. Although the Centre did not intend to train operators, it has decided to fill the expressed need of industry. After trainers are trained in the mill they are subsequently assisted and supervised by the Centre Staff. The results of these efforts are very positive.

The in-mill training programme has enabled the mills assisted to reduce 4-5 months training time to 18-20 days, with good results.

Once weaving looms are installed a weaving, mechanics course can be introduced. 1298 trainees have gone through the Centres courses since the start of the project.

Courses are held both in the Centre and in the plants. The Centre is active in translating their courses in Sinhalese which is welcomed by industry.

(b) Consultancy Services to Industry

Consultancy basically in the form of trouble shooting has increased 36 per cent over the last six months. On an annual basis, approximately 500 mill visits are reported per annum. From the start of the project 7,478 man/hours of consultancy have been given.

Consultancy has been provided mainly by the international experts accompanied by the counterparts.

Most of the pilot plant trials and investigations have been carried out in the Spinning Division with over 1113 trials conducted over the last six months. Processing has carried out 300 trials, and weaving 100. Knitting has not been conducted since the key staff are away on long-term fellowships.

The demand for these services is increasing as awareness is created in industry. The Centre is still able to meet ad-hoc consultancy requests promptly.

(c) Pilot Demonstration Plant

The Spinning Division along with the mini spinning plant, open-end spinning unit form a compact trial spinning pilot plant. The plant can test small quantities of raw material for spinability and ready-made labs for pilot spinning trials.

The weaving section has a comprehensive set of equipment to include warping, sizing, conventional weaving and shuttleless weaving techniques.

The knitting section has a variety of knitting machines and are versatile in its function for trials and training.

The processing department have laboratory scale machines to explain the basic principle and to carry out small laboratory trials.

The testing laboratory is almost complete and, when the last few equipments arrive, is expected to be a full spinning/fabric testing laboratory capable of doing independent testing.

The engineering division has all the basic equipment for teaching engineering principle and skills.

Most of the machinery is in running order. In-centre investigations total approximately 3000 man/hours per year. The textile testing laboratory will become fully equipped by April 1986.

(d) Other Services to the Industry

A library consisting of 1,243 textile books, research papers, technical reports, magazines, bulletins, etc., is established. Attempts are being made to obtain books from various sources and the British Council Consultant has agreed to ship 50 textile books and the British Council is likely to make a grant of £1,000 for books.

A quarterly bulletin is published with articles of interest, job skills, case studies and other data of interest to the industry.

Moratuwa University is allowed to use the Centre's facilities and to get assistance in their subjects.

The Centre has held three seminars in the second half of 1985 and about 152 people attended these cumulatively.

A.2 Institution-building Outputs

The other category of output and in the long term a very important one is the extent to which the Centre has been developed as an independent sustainable institution able to perform its intended functions without the assistance of long-term experts. We will discuss the present situation and assess the extent to which the Centre could perform these functions alone.

(a) Training Function

The Centre runs various short-term courses to train small staff in textile skills and knowledge as well as basic fittings and engineering knowledge. Most of the courses are documented with curricular course descriptions, series of exercises, lecture notes, tests, etc. In general the materials developed look good. The various Divisions have developed these courses for trainers in modules which are being given as such. Much of the training for trainers courses, trainability tests, etc., were developed by the national counterparts with the help from experts from the British Council. National counterparts have so far acquired limited knowledge in the area and it is doubtful whether they will be able to maintain standards in formulating any further courses to complement the existing training programme.

Training Officers which should total six are all appointed except the Quality Control Officers. Assistant Training Officers also total six and all are appointed. Workshop staff total 14 and, except for 2 Quality Control Lab Assistants, are all appointed.

Space and classroom facilities are adequate. Their utilization needs to be better managed according to staff interviewed.

The Centre is having difficulty in getting industry to supply trainees for long periods of time, i.e., more than one week. It is felt that with the increasing realization of the utility of the courses offered and with more aggressive marketing more trainees will be sent to the Centre.

The Centre charges a fee for the courses which helps to pay the cost of the courses.

Training equipment are more than adequate with the presence of the pilot demonstration plant. Audio-visual equipment is available and is used to train trainees in presentation techniques.

The assessment of training needs is not being systematically accomplished and no evaluation follow-up is carried out. A centralized co-ordination point for training is required.

The technical staff have special salary grades and at present the Centre is able to attract fairly good staff. However they are not able to attract the best ones since the industry is still offering much higher salaries than the Centre. Something has to be done in this area.

Sri Lanka is a small country and everyone in industry seems to be aware of the Centre's existence and are aware of the utility of the services it can offer.

(b) Consultancy Services

Out of target of 10 Senior Technical Staff able to carry out consultancy work, presently there are 8 who have been appointed, including the Director.

The industry was very much aware of the Centre's present capabilities and the reputation of its staff.

Without the presence of international experts this service may not continue for a long time due to the lack of full acceptability of all of the Centre's staff by industry. A consultant must be of the highest calibre, particularly in terms of experience and knowledge. This takes time. The Centre does have a number of exceptional staff and consultancy services must be built around them. Particularly if they are not to be attracted away from the Centre by the industry.

With the presence of the international experts the Centre is able to provide very useful trouble shooting services to the industry as was intended by the project.

The Centre has established good relations with its industrial clients. While they have found the training services useful, although needing expansion, they consider the consultancy services to be quite inadequate to meet their needs.

There is an urgent need to develop the Centre's capabilities further to the point where it can assess the technical and managerial needs of a particularly mill in its totality. The Centre must be able to diagnose and identify all areas which may require assistance. These could include problems related to management systems/practices, training of all levels of staff, industrial engineering, techniques and technologies, quality control/maintenance, etc. Neither the present experts nor the national staff are at present in a position to provide the full range of services required.

Even the services presently provided need to be better structured and systematized. Methodologies, procedures and guidelines for service capabilities need to be developed.

There is a need to establish a central control/co-ordination mechanism for the provision of the Centre's services. At the moment there is no central unit responsible for liaising with industry to develop and co-ordinate an integrated programme of assistance to a particular mill. There is also the need to strengthen the Centre's monitoring and follow-up systems. Documentation of mill visits, diagnosis made, assistance rendered, results obtained and follow-up required needs to be systematized.

It should be stressed that the fact that the Centre is now in a position to develop beyond the present practice of providing routine advice on a case-by-case basis is an achievement. Specific recommendations are discussed in detail in Chapter IV, Section B.

(c) Pilot Demonstration Plant

This function consists of fairly good pilot plant for spinning weaving and knitting. There is also a small-scale mini spinning plant. On the processing side we have only laboratory-scale machines. At present all these facilities are under-utilized, probably due to the fact that the industry is not used to these kinds of tests and experiments. It is however important that the Centre should try to utilize these services better than the present. More visits to the Centre by the industry should be organized.

The facility is used for training, trials and investigations, and testing. An engineering staff is available to maintain the plant.

(c) Office Facilities

Office facilities are cramped but do not hinder the Centre's ability to provide services. Typing and photocopying facilities are available. A larger and a more reliable photocopying machine is required. There will be a need in the future to expand the buildings.

(d) Other Services to Industry

The Library in the present form is very meagre and should be augmented suitably. The books are in the course of acquisition. The bulletins and knitting journal presently published do contain articles of interest, but how far the activity can be kept effectively going after the experts have departed should be questioned.

A modern cataloging, classification system needs to be installed on an urgent basis. An abstracting service is required.

There have been seminars on technical subjects, textile mill management, procurement and raw materials. Types of seminars seem to have been helpful. In the context of Sri Lanka, seminars on raw materials in connection to quality and productivity are very important. Suitable mechanism of continuing these seminars after the experts leave is absent.

Participation in textile seminars and workshops organized by other organizations should be fostered.

The Centre's participation in exhibitions should be continued.

(e) Miscellaneous

The financing of this Centre is presently coming from the Government budget and some fees are charged for the training. There is however no mechanisms to make the Centre charge fees for consultancy services from the industry, etc., to make the Centre self-supporting. Industry claimed to be willing to financially support the Centre. The need for a fee structure for services provided by the Centre remains and should be established at the earliest opportunity.

The provision of services is partially constrained by transport facilities and an unreliable telephone system. The phone system needs to be up-graded on an urgent basis. The transport problem is expected to worsen when the UNDP/UNIDI assistance phase out.

B. Achievement of the Immediate Objective

If we take the immediate objective as the establishment of a Centre capable of providing operator/supervisory training, trouble shooting, consultancy service, marketing and information services to the textile industry in the areas of spinning, weaving, knitting and processing of textiles we can say that the objective is well on the way of being achieved.

The Centre as a whole is yet to be fully organized, and is under-staffed as a number of counterparts are away on training/fellowship.

The Director of the Centre is a retired Government Analyst and his contract is due to expire in the middle of this year. There is a need for a least one Deputy Director immediately. The present number of instructors and areas covered are insufficient. If the Centre is to expand its programme, instructors from other specializations are required along with a full time staff for training co-ordination.

The Centre is well established as a small part of the Ministry on the permanent basis by an Act of Parliament since January 1984.

An appropriate fee structure remains as an outstanding issues requiring attention.

The Centre has excellent links with the Universities, National Apprenticeship Board, Textile Manufacturers' Association and other related bodies. A working level liaison committee needs to be established to advise the Centre and provide feed-back.

The industries positive response to the usefulness of the Centre services is to some extent tied to the presence of international experts. Further strengthening is required.

The Centre's ability to provide training and trouble shooting services has recently increased rapidly once the Centre has become fully staffed and the pilot equipment has become operational. The time has come however to up-grade the Centre to provide a more sophisticated service to industry.

The issues raised above are fully discussed in the Conclusions and Recommendations Chapter of this report.

C. Contribution to the Achievement of the Development Objectives

It is too early to discuss the impact of the Centre on the national development objectives. But it is clear that the Centre has already started providing basic training needs and trouble shooting type consultancy. The textile industry accounts for nearly 20 per cent of the manufacturing industry and employment, and thus will remain a priority area, particularly if in the course of time it is able to supply the very large garment exports with suitable indigenous raw materials. The Government is attaching great importance to increasing the local valued added to exports. It is clear to the Evaluation Team that the Centre has the potential to make an ever increasing contribution to Sri Lanka's development objectives.

However, if the Centre is to succeed in up-grading the textile industry in all aspects, the development of more sophisticated training consultancy and training services is required.

CHAPTER IV. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The Textile Training and Service Centre (TTSC) Project evaluated on the expected achievements of outputs has led to the following useful accomplishments:

- A basic Textile Training and Service Centre able meet floor level operator and supervisory training needs and the consultancy trouble shooting requirements of industry has been established;
- An adequate number of national counterparts able to provide these services are in position. They have received or will have received the planned skills and knowledge by the end of the project through on-the-job and other training programmes provided by the project;
- A pilot plant for spinning, weaving and knitting and laboratory scale machines in processing has been commissioned;
- A good textile testing and quality control laboratory is in the process of being completed barring a few pieces of equipment which are due to arrive;
- A workshop bench fitting section and drawing classrooms for training mechanics has also been established; and
- Various modular courses in spinning, weaving, knitting and processing have been developed and are provided to industry. (11,276 man/days covering 88 courses have been conducted. Reference: 1 July - 31 Dec 1985 CTA Report.)

This was an outstanding effort, however, further strengthening is required if the Centre is to become fully relevant to the industry.

Factors external to the project (like industry not sending adequate members of qualified personnel for training, delays in the appointment of local counterparts, delays in building, electricity supply, telephone facility, etc.) were affecting the timely implementation and has caused major cost overruns. But for the experienced CTA who was co-ordinating and putting things in place, the project would not have progressed to the stage it is now. The project has had to be flexible throughout in order to maintain an implementation momentum. The field staff and UNIDO headquarters have played an important role in this achievement. The Ministry of Textile Industries has also done everything in their power to make this project a success.

The evaluation mission has also made the following observations:

- All the equipment in the Centre are not fully utilized at present. But it is expected that they will be utilized in due course. The testing laboratory is expected to be fully operational by April 1986;

- The Knitting Division with an effective international adviser is handicapped as two of his counterparts are on long-term fellowship. Although the division is likely to be very useful to the industry in future, at present, the industry is using this service in a limited way. This is mainly due to the fact that the knitting industry is dispersed in many small units. They are thus unable to spare the people for training. The University is also using this facility for students specialising in knitting;
- The Spinning Division has given the highest number of hours in consultancy. The need of spinning in Sri Lanka is at present very high. On the equipment side, in the Pilot Plant, there is no blow-room, which need not be a constraint;
- The Weaving Division has a good choice of equipment to give training as well as to investigate mill problems. They have also developed mechanics training, weaving, maintenance courses, etc. This department is on the right track. The Team's discussions with the Textile Manufacturers Association further strengthened this observation;
- The Weaving Division is planning to co-operate with the National Apprenticeship Board to run over one year weaving mechanics course with six months practical and classroom training in the Centre. The intake is planned to be about 20 per batch;
- The Processing Division is an important division, and is equipped with laboratory-scale machinery. Pilot plant trials may not be possible with these equipments. These are suitable for instructing the trainees on the basic principle of dyeing, printing and finishing. As the basic requirement for this branch, the trainees were given lessons in basic chemistry. The textile industry has a strong chemistry bias;
- The other courses held were modular in nature, covering individual subjects only. This was inevitable since the industry cannot spare the trainees for a period longer than one week or two weeks;

The overall assessment of the capacity of the processing division showed that the industry requires better services to tackle their problems, particularly those relating to synthetic and blended textiles;

- The entire course content has a slant on cotton processing. Although cotton is presently an important product, Sri Lanka is moving very fast into synthetic and blended materials, as are the rest of the countries in developing world. The Centre can play an important role in the area of substitution of fabrics for the local garment industry. The calibre of people in this department has to be much higher, both by qualifications and practical experience to be able to effectively give consultancy services in this branch;
- The Engineering Department is equipped to provide training in basic engineering skills and the Centre is acquiring second-hand machinery from the mills to extend this training on practical basis on these machines;

- The establishment of Marketing and Product Development Service at the Centre has not been a good success. It is expected that after the departure of the Advisor the continuing capability of the department may cease to exist. The local part-time counterpart has now been charged with the co-ordination of training programme. Moreover, the approach taken by the Advisor is not in line with the needs of Sri Lankan industry. Much needed demand surveys and other market research activity has not been carried out. The most urgent need at this point of time is the market advice related to cloth designing, new types of fabrics which uses available raw materials and systematic work on how to compete with imported cloth; and
- On the information side the rudimentary collection of publications are by themselves insufficient. Much of the deficiencies which are due to lack of funds. This is expected to be rectified when grant of books from the British Council and other services arrive. Modern classification and cataloging system has not been established, which limits the already limited utility of this Section. This unit does not provide an abstracting service to the Industry for which there is a need.

The Mission had visited various agencies and textile mills in an attempt to assess the impact of the Centre as well as to ascertain from them their future needs:

- (1) Moratuwa University is launching an ambitious programme of preparing graduates and post-graduates for the textile industry with the help of Leeds University. Presently they are running a Diploma Course and a Conversion Course in the textile technology. The Professor and Head of the Department of the Moratuwa University is on the Board of Governors of the Centre and his guidance is being taken. An interaction between the two institutions resulting in students from the University also making use of the Centre is taking place. The testing lab in the Moratuwa University is presently doing commercial testing and in course of time this activity is expected to shift to Centre. The University and the Centre co-operate in sharing facilities and equipment.
- (2) National Apprenticeship Board. To cater to the urgent needs of loom mechanics, a one year course is being worked out with the Centre. This co-operation between the National Apprenticeship Board is welcomed by all concerned. The Board was fully aware and appreciative of the Centre.
- (3) Sri Lanka Bureau of Standards Laboratory is presently catering to the needs of independent testing including textile materials. The Centre is working closely with this institution and, in due course, with the data provided by the Centre on various spare parts, accessories, etc., it should be able to contribute substantially to their standardization and certification schemes. Co-operation is very good.

(4) Visits to various mills and discussion with the Manufacturers Association Representatives.

The Mission met with the Manufacturers' Association and undertook visits to several textile mills to discuss first hand information about the impact of the services rendered by the Centre. The Mission also interviewed many supervisors and workers who were trained by the Centre.

In the area of training, the industries expressed gratitude for the Centre to have launched this ambitious programme. They also brought to our attention specific areas where further help will be needed.

They feel that the training of the supervisors should include certain basic concepts of human relations/personnel management to strengthen leadership qualities, reduce absenteeism, provide effective counselling, increase safety, etc.

The industry felt that the training in the area of synthetic yarn and fabric dyeing, printing and finishing should be considerably strengthened. The industry feels that a good training in fabric analysis and designing is the primary requisite.

On the consultancy side they expect much more than the present ad-hoc trouble shooting services. They would expect a package which will look into all aspects of technical and general management of the industry, so as to improve the quality and quantity, reduce the production costs and operate with optimal raw materials and stores.

The Industry had a special need for assistance in computer colour matching which is already extensively used by industry elsewhere.

The Industry also felt that the number of seminars which are currently held are insufficient in number and in their content.

They also felt that the marketing and development cell currently operating is less effective to the industry, as the concept of its function need to adapt to the context Sri Lanka's textile industry. Any advice on development should take into consideration the state of the industry, available raw materials, and in-depth knowledge for future export and local market trends applicable to Sri Lanka.

B. Recommendations

1. The Centre's efforts to up-grade the industry floor level training capability by assisting Textile companies to establish or improve their training programmes should continue and become even more effective. The present training of trainers scheme such as was conducted by Fielden House Training Centre (assisted by the British Council) should be continued. This training scheme should include more inputs to further the basic management skills needs of lower and middle management. Subjects like human relations, motivation, safety, absenteeism, incentives, waste control, cost reduction, energy conservation in the Sri Lankan context, etc., should be introduced. The systematic training methods for the training of trainers should be continued for at least two or three years. The British Council training consultants may visit Sri Lanka two times a year for a total of six months in a year. The same group should also continue training all the counterparts in consultancy techniques, structured method of assessing the needs of the industry and thereby strengthening the Centre's capability to provide systematic consultancy services;
2. The provision of consultancy services at all levels is urgently required in the present context of the Sri Lanka's textile industry. This consultancy work should not confine itself to trouble shooting at the elementary level. Consultancy should identify areas where major improvement in the overall performance of the industry could be realized by making detailed diagnostic studies, preparing short and medium-term blueprints for rehabilitation of textile plant's technical, technological and managerial efficiency. There is also the need to establish improved mechanisms to actively assist industry in any rehabilitation programme recommended by the Centre. This will need liaison staff supported by an Industrial Engineering/Management Division who can go into the mills to comprehensively diagnose needs and problems can be responsible for the formulation of integrated programme of assistance to the mill in question. Application of modern integrated management techniques to the textile industry will yield high returns. Present textile industry management practises render the industry uncompetitive against textile imports and in international markets.

By establishing an Industrial Engineering/Management Services capability the Centre can assist the industry in studying the production and managerial processes to identify areas requiring increased efficiency and effectiveness. The consultancy function should be better organized and a clear strategy should be developed to sell this service.

As the requirements may vary from training, maintenance, quality, human resources development, inventories, material waste, general management, etc., a liaison function at the Deputy Director's level at the Centre to develop the initial proposal and supervise the technical and managerial assistance is required. This liaison function would also monitor and evaluate the assistance provided and would be responsible for the preparation of reports as required;

Given the context and needs of Sri Lanka the present level of experience, skills and knowledge of the counterparts will not be fully accepted by the industry without further upgrading. The team appreciates that institutions of this type require 5 to 10 years to reach the a truly professional consultancy services capability. The period ahead is very critical if a sustained capability and capacity is to grow at the Centre.

Hence it is felt that the input of experts should continue for at least three to four years. In the first two years, it may be on a full-time and later on, on a short-term visit basis. The Centre could then have experts on their panel who will visit them say twice a year for a period of two weeks each. They will support the Centre's staff in solving more difficult problems. This should ensure that the Centre will be able to provide increasingly useful assistance to the industry.

It is vital that in this phase of the project that the experts should be drawn from professional consulting companies or individuals with in-depth consultancy, knowledge and qualifications and with specific experience in the region;

3. To up-grade the textile industry both in quality and productivity, a powerful Industrial Engineering/Management Services Division is absolutely essential in the Centre. Assistance will be needed to establish this division with experienced industrial engineers and management specialists in the textile industry to make the Centre more effective in providing services to industry;
4. Areas to be covered by the Industrial Engineering/Management Services Division should inter alia, include the following: undertake productivity studies, workload, incentive schemes, machine audit, maintenance audit, etc. This will form the basis for fixation of wage rates, workload, norms for production, norms for productivity, norms for accessories and spares consumption, etc. Improvements to any area can then be compared with established norms. Performance can also be compared with the various norms, existing in other countries and can act as a continuous monitor;
5. Textile manufacture involves a good deal of energy consumption, accounting for about 10 - 15 per cent of manufacturing costs. With rapidly rising energy costs in Sri Lanka, this sphere of activity assumes greater importance. If attention could be paid to energy conservation, 30 to 40 per cent of energy costs could be saved.

There are many techniques available by which energy costs could be reduced in the industry, especially through improved steam generation, distribution and utilization methods. The Centre can play a role in advising on energy conservation opportunities:

6. Effluent treatment and conservation through water re-cycling from an important area of water management. Effluent discharge from exhaust dye liquors and from chemical operations form a major source of pollution. A great deal of research has gone in these areas and new techniques are readily available to solve this problem. The Centre should develop a capability to attend to the problem of energy conservation and water pollution and water re-cycling in the textile industry in the coming years. This should form an important continuing service to industry and the country. Saving of energy in any form is a direct saving of foreign exchange resources to Sri Lanka;

7. Quality control, especially the quality assurance function in addition to present objectives of testing and certification should be developed further.

The quality control assistance provided by the Centre to the industry should be developed as a diagnostic tool rather than merely monitoring the quality. The Centre can develop suitable quality control systems which provided for increased efficiency such as correlating machine settings to the quality of the end product, etc. Quality audit and comparison with imported products with a view to import substitution in another aspect;

8. There is a need to conserve resources through improved maintenance systems, modern techniques and by reducing machine down-time through improved parts and material management. Sri Lanka is no exception to this universal problem in the developing countries. As much as 50 per cent under-utilization has been reported to be due to poor maintenance as the major contributing factor.

The present level of training and maintenance services provided by the Centre should be strengthened by the establishment of additional programmes which have a more sophisticated management perspective. This would require the establishing of modern preventative maintenance and a maintenance audit programme forming an integrated maintenance management programme. The Centre should develop suitable skills to provide this service to the industry;

9. The textile industry requires substantial inputs of consumable spares. The cost of these spares can reach about 10 per cent machinery replacement costs. The Centre should prepare inventories of all important accessories and spares used by the textile industries, quantity used and prices, including estimation of costs due to the delay involved in opening and financing letters of credit and other costs involved in the important of these auxiliaries and accessories. These surveys should include value analysis of critical and non-critical items. The Centre can also act as a clearing house or source of advice in promoting local manufacture of critical as well as high value accessories and spare parts given the Sri Lankan production factor endowments. This could generate substantial savings in the production costs as well as saving foreign exchange.

Extending this idea, systematic spare parts development can study the feasibility of setting up small foundries and related work-shops. Moreover, surveys with a view toward increased standardization to spare parts requirements within the textile mills can contribute substantially to the reduction of costs. This is a big area of work which could be carried out in co-operation with a standards institution. The norms of consumable spares could then be arrived at so that each mill can have a measure and decide where they stand nationally and by comparison with similar industries in Sri Lanka as well as abroad;

10. The Centre should also provide consultancy assistance in the fields of materials management which should include all aspects of ordering, receiving, inspecting, issuing stocks and dealing with obsolete and on-moving stocks from important avenues for increased efficiency in industry;

11. The need to carry out a market survey on fabric types suitable for export and domestic use including textile import substitution potential of Sri Lanka is urgently required. The Centre should then be placed in a position to advise in developing or improving these products;
12. The use of a computer in the textile industry is fast becoming indispensable. Even in less developed countries, textile industry computer systems can play a vital part in the continuous monitoring of the individual performance and providing analysis of stoppages and breakdowns. The computer is also used for effective fabric design. Computerized integrated management information systems are now common in most advanced mills.

Initially in the context of Sri Lanka a computerized colour matching service at the Centre could be a first step in this direction. It is well known that the uses of colour matching computer has given about 15 per cent saving in the costs of dye-stuffs used. All dye stuffs being imported, this service will save substantial foreign exchange to the country. The provision of this and other common user services besides the economic justification would also serve as an entry point for the Centre for the provision of a wider range of services to industry. The establishment of a colour computer in the Centre will assist the industry in evaluating dye stuffs and the shades quickly and accurately. One such computer can serve all the mills in Sri Lanka.

The Centre should charge a special fee for this service, so that this department can be self-financed. This service may be extended in the future to other industries, which use colour, such as the paint industry. The installation of a colour computer is like bringing a highly experienced capable colourist into the country;

13. The information section should at the outset subscribe to other world abstracting services in the field and publish those that are relevant to the Sri Lankan context in the Bulletin as an abstract column;
14. For meeting the continued increasing budget demands and to improve the involvement of the industry with the Centre, a membership fee is recommended, depending on the number of spindles, number of looms, cloth processed, etc., which will entitle the member mill to get basic information service, periodically fixed number of visits by the Centre staff, etc. Any additional services like industrial engineering studies, energy conservation studies, investigations, sponsored research, training, etc., can be charged separately. If this idea is implemented, it will bring the Centre in line with the co-operative research training centres elsewhere in the world, particularly in the textile industry. With a supporting grant from the Government and supplemented by the above income industry would have an incentive to demand and the Centre an incentive identifying itself with the Centre and to demand increasingly sophisticated services;

15. Immediately the following points should be attended to during the existing project life to expedite the maturity of the Centre:

- (i) Develop, install, test, evaluate, adopt and institutionalize detailed policies, procedures, methods, logics, formats, and guidelines for the services provided by the Centre (trouble shooting, work studies, training programmes, productivity studies, etc.) to help ensure that a continuing professional capability be established at the Centre to provide and monitor these services efficiently and effectively;
- (ii) As part of the above, develop and institutionalize for the training programme an evaluation/feedback system which will regularly monitor and assess training courses' effectiveness and impact;
- (iii) Establish a permanent Liaison Advisory Committee to include the Director, Deputy Director, Senior Technologists and management and technical representatives from the industry. The Committee assesses the Centre's effectiveness in meeting these needs and advise on how services could be improved. To allow widest participation, this committee should be reconstituted every two years. (See Figure 1 for an illustration of the interaction/feedback that would facilitate this is committee.

The liaison advisory committee should consist of the Centre's Director, Deputy Director, Senior Technologists and Representatives of the Industry. It would review the activities of the Centre from time to time and advise the governing body on the new directions. A typical representation could be:

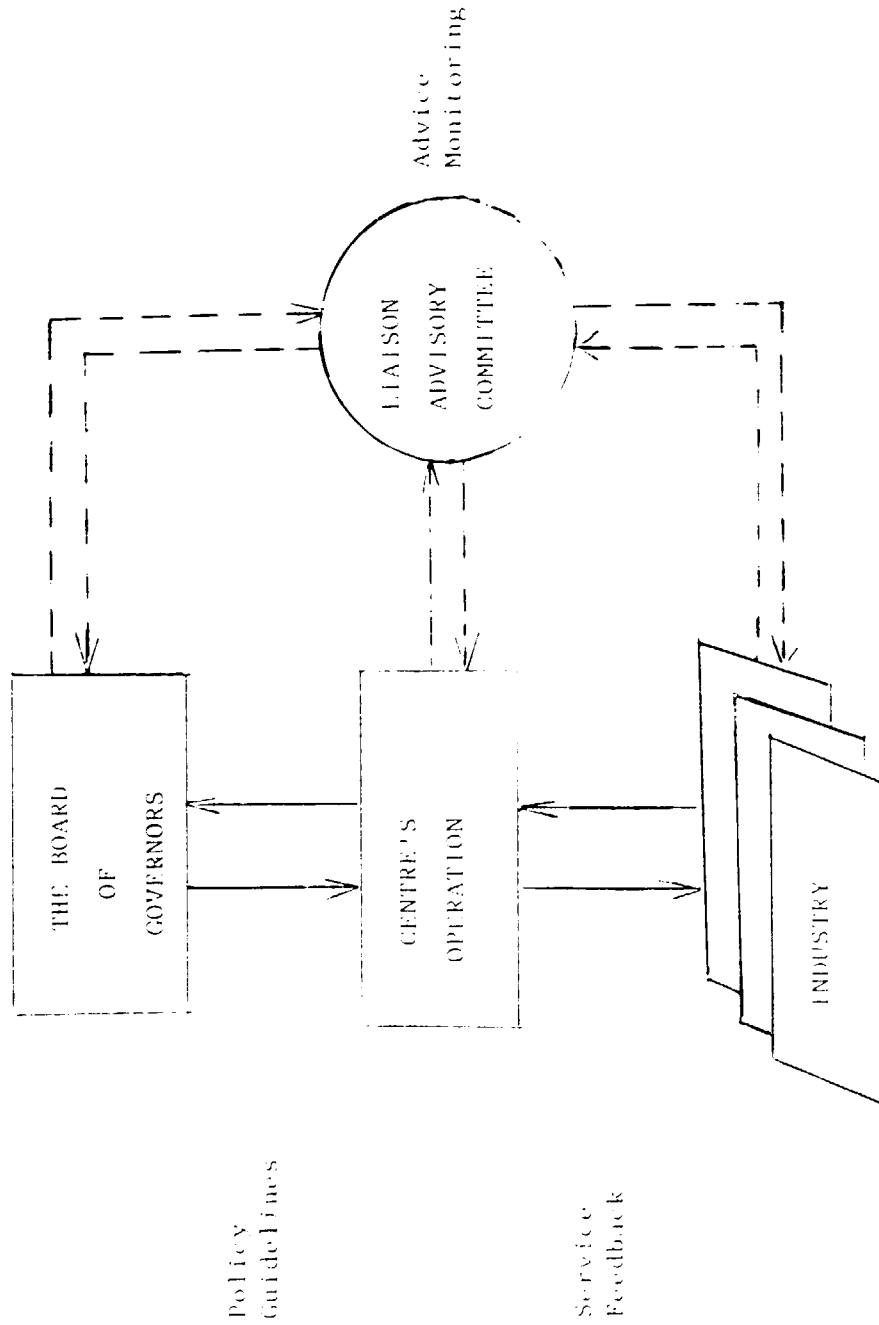
Centre's Director/Deputy Director	1
Senior Technologists/Head of Depts.	2 or 3
Management Services Head	1
Industry technical/management	3
Specialists from University or Public Bodies	2

- (iv) A Deputy Director's post should be established and a full-time dynamic Deputy Director should be appointed on an urgent basis. He should have the calibre to succeed the present Director when he retires. This post should not be charged with routine administrative problems. The Deputy Director should be charged with responsibilities of liaising with industry with a view towards developing integrated programmes of assistance. He should also supervise the implementation of these programmes and ensure maximum co-ordination between the Centre's various functional Divisions;
- (v) Attached to the Deputing Director's Office, a Training Co-ordination Unit needs to be established which will be charged with the responsibility of systematically identifying, formulating, co-ordinating, monitoring, and evaluating the training programmes, implemented by the respective training Divisions. This Unit will also be responsible for the training facilities and equipment not located in the pilot/demonstration plant;

Figure 1

THE CENTRE

Interaction and feedback of the Liaison Advisory Committee with the Centre and its Policy



- (vi) Liaison Support Unit should also be established in the Deputy Director's Office to support in routine follow-up and monitoring of consulting services provided by the Centre's divisions. (See Figure 2 which depicts the organization structure recommended by the Evaluation Team);
- (vii) Sri Lanka has various institutions for the textile education and training: the Moratuwa University, Open University and National Apprenticeship Board, and various other technical training schools. It would be necessary for the Government to examine the functions of the various institutions and give suitable directives so that the efforts of these institutions are not duplicated and scarce resources underutilized. A suitable policy may be evolved in the course of time, by the representatives of these institutions and other related bodies. The establishment of a Textile Training Board or Committee should be considered by the Government to co-ordinate the large numbers of institutions directly or indirectly involved in training manpower for the textile industry at all levels; and
- (viii) In summary the Centre is at a critical stage in its development and needs a further phase of technical co-operation assistance to develop into a more complete organization. Any further assistance will need to focus on a more systematic institution-building approach. Attention will be primarily aimed at further strengthening the national staff and in establishing new consulting capabilities in the area of management services and industrial engineering. It is very important that the present momentum should not be lost. A project for further assistance should be formulated at the earliest opportunity to ensure continuity and to maintain momentum.

A new project formatted along the following lines is suggested:

Function: Institution-building
Duration: 3 years from November 1986
Immediate Objective:

To strengthen the Textile Training and Service Centre, specifically by building up its capacity and capability to provide professional consultancy services to the textile industry to study, diagnose, develop and implement remedial action programmes in the fields of industrial engineering and in the management of human, physical plant and material production resources. A market research capability will also be developed.

At the end of the project continuous need oriented consultancy expertise will be provided to industry in order to:

- Improve the quality and efficient handling of raw materials;

Suggested Organization Chart for the Centre with the new functional areas

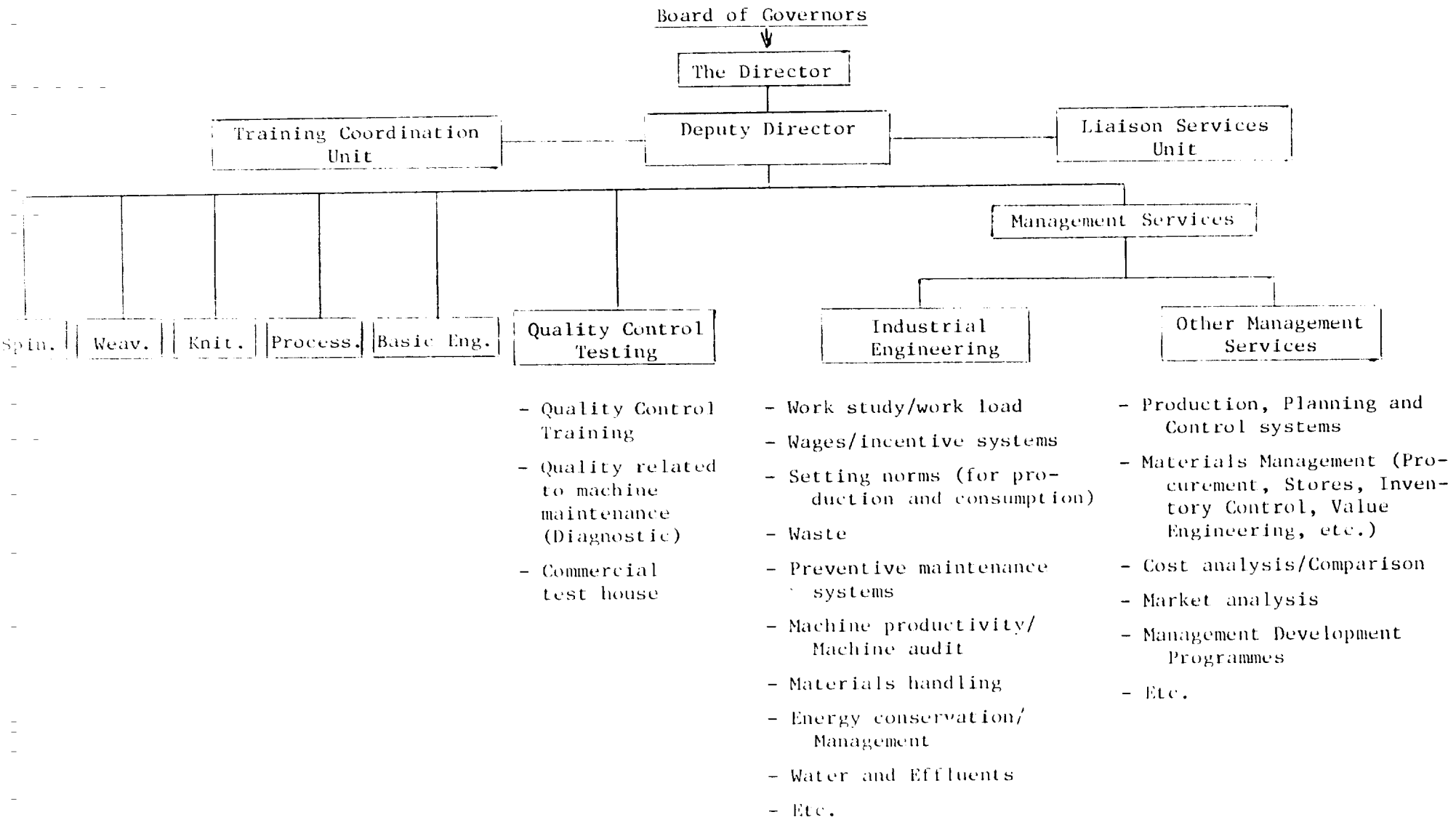


FIGURE 1

- Improve the quality of existing textile industry products with a particular emphasis on input substitution to feed the local and export garment industry;
- Introduce more efficient and effective process control methods, maintenance systems and quality standards;
- Establish regular quality control throughout the production process in order to meet the needs of the garment industry; and
- Introduce modern management and marketing techniques in the textile industry.

The Textile Training and Services Centre will continue to function as a training centre for training of manpower at the operator, lower and middle management level. Information services will be continued and further expanded as well as the existing trouble shooting services in spinning, weaving, knitting and processing.

Special Considerations

The Project is also expected to provide expertise on the treatment of textile production effluent and thereby contribute to the Government's efforts to prevent the pollution of the environment.

Output

As a result of project activities, the following functions of the Centre will be strengthened or developed:

Output 1 - An Industrial Engineering/Management Services Division will be established and will be able to provide an integrated package of consultancy services to the industry. This Division with technical/technological inputs from already established Divisions will be able to study, diagnose and remedy problems in the following areas:

Industrial Engineering

Other Management Services

- Work study/work load analysis and other areas of other job evaluation studies
 - Wages/incentive systems
 - Productivity studies, setting norms (to improve production methods)
 - Study of spare parts and accessories consumption nationally
 - Waste reduction (raw materials) and recycling
 - Preventative maintenance systems
 - Integrated machine productivity/machine audit systems
 - Materials handling
 - Energy management studies and applications of standards
 - Water management studies and application of standards
 - Quality audit as a diagnostic tool
- Diagnostic studies to identify major improvement and prepare plans of action
 - Advise on rehabilitation and up-grading of industry
 - Production planning and control system
 - Materials management systems
 - Stores and Inventory studies
 - Cost analysis/comparison
 - Application of computer in the textile industry
 - Management development programmes primarily through seminars
 - Market analysis

Staff Required:

Industrial Engineering

One Senior Industrial Engineer with experience in the textile industry. Two Assistant Industrial Engineers preferably with textile engineering training, if not, a graduate in any branch of engineering. They will need one year fellowships in industrial engineering related to their area of assignment.

The above will handle all functions of the Industrial Engineering Department. However for the water and the effluent handling functions, one Chemist will be required, who will be trained on-the-job and will perhaps need fellowship training for 6 months.

Management Services

Two Masters of Business Administration graduates who will be trained in textile mill management.

Methodologies/Procedures

A complete set of methodologies, procedures, work routines, reporting formats, guidelines, checklists will be developed and installed in this Division and through them in the technical divisions of the Centre. Consultancy methodology and procedures (management audit, management/production surveys, problem diagnosis techniques, study design, data gathering techniques, analysis and presentations, scheduling and standard costing) will be institutionalized. Planning of assignment methodology will be developed (objective formulation, terms-of-reference formulation, scheduling, costing, presentation techniques, implementation and follow-up). Report writing will be standardized (structuring, layout, format, etc.).

Premises/Facilities

The Division will need office space and furniture for five people in accordance with the Sri Lankan practices and standards.

Market/Marketing

The Division will provide services to the entire textile industry. The marketing of services will be actively pursued by the Deputy Director who will be directly charged with liaison developing integrated and co-ordinated programmes of consultancy assistance to industry.

Management/Finance

The services of this Division will be partially financed by membership fees paid by industry and fees charged for services at rates to be established by Government and in accordance with practices established in the region.

Further outputs to strengthen the existing divisions through short-term consultant experts to conduct training courses in special fields will need to be developed by the Centre, UNIDO and Government; and

16. It is recommended that a consultancy expert be hired under the present project to fully work out the details of the second phase project and assist in specifying action required to up-grade existing as recommended above.

Terms-of-Reference

Tri-partate in-depth evaluation mission on project
DP/SRL/79/054 - Textile training & service centre

I. Background

At the request of the Ministry of Textile Industries of the Sri Lankan Government, the project was first mooted and agreed in 1979, but UNIDO found it difficult to agree to its immediate implementation without justification being fully investigated and a comprehensive Project Document drawn up. Consequently, the Preparatory Assistance Document was revised in November 1981. Following the CTA's investigations a detailed Project Document was prepared by late 1981 and signed in March/April 1982. The project proper commenced operations in June 1982 and the CTA stayed in post as Project Manager. The project is now on revision 'L', signed in August 1985 and, with this revision, all original "future UNDP assistance" recommendations have been absorbed. New total cost, including Preparatory Assistance, amounts to approx. US\$ 2.9 million.

In view of the size of the project which is now the largest single UNDP project in Sri Lanka, it was decided by UNDP/UNIDO in 1984 that an evaluation was necessary in the final stages of the project. At that time, there were several problems with the recruitment of staff and with building delays. These problems are now resolved but an evaluation is still considered to be beneficial to future progress. As advisors will now start to depart from about August 1986, an evaluation in the 1st quarter of 1986 was considered to be an appropriate time. Furthermore, handing over of machinery and equipment is already underway with the first consignment, valued at US\$ 608,000 being handed over in July 1985.

II. Scope and Purpose of the Evaluation

In accordance with the provisions contained in Chapter 3470 of the Policies and Procedures Manual (PPM) and the relevant guidelines described in UNDP/PROG/FIELD/150 of 30 September 1982, also the Revised Policies and Procedures of UNDP for Monitoring, Evaluation and Reporting currently under field test, the primary purpose of the evaluation mission, in relation to the inputs provided both by UNDP and the Government, is to:

- (i) measure and assess the outputs or results of project activities in developing institutional capability in selected areas and compare with original expectations;
- (ii) within this context, identify accomplishments and shortfalls and the reasons thereof;
- (iii) examine the external factors which have facilitated or impeded project progress;

- (iv) make an assessment of actual and/or potential project effectiveness, i.e., progress in achieving the project objective and in providing relevant services to the intended clients. This will include a re-examination of the adequacy of project design (formulation);
- (v) make recommendations for future action or follow up.

In carrying out these tasks, the mission will specifically address the following issues:

- (a) strategy of the Centre and the approach to achieving phased growth; position of the Centre in its environment;
- (b) effectiveness and efficiency of the Centre:
 - (i) consultancy services;
 - (ii) testing services;
 - (iii) training services;
 - (iv) information services;
- (c) suitability of the Centre for its intended purpose in the field along the lines indicated in the attached outline. It should be presented to the Government in draft form so there is an opportunity to discuss it. The report should be submitted in final form simultaneously to UNDP and UNIDO. The UNDP will be responsible for formal submission of the report to the Government and for reporting on results of the evaluation to the Governing Council of UNDP;
- (d) level of expertise of national staff; outlook for attaining the Centre's self-sufficiency in the near term;
- (e) based on overall achievements to date, specify areas of the Centre's activities which need further strengthening and - if any - the preconditions and parameters for additional technical assistance; and
- (f) the level of confidence of the end-users, the business circles and the possible evolution of the Centre.

III. Composition of the Mission

The mission will be composed of the following:

- One representative of the UNDP (textile technologist);
- One representative of UNIDO (Evaluation Unit);
- One representative of the Government of Sri Lanka.

The representatives should not have been directly involved in the design, approval and implementation of the project.

IV. Consultations in the Field

The mission will maintain close liaison with the UNDP Representative in Sri Lanka, the concerned Government organizations and the project's national and international staff, as well as the SIDFA. Although the mission should feel free to discuss with the authorities concerned all matters relevant to its assignment, it is not authorized to make any commitments on behalf of UNDP or UNIDO.

V. Timetable and Report of the Mission

The UNDP and UNIDO representatives will receive briefings as appropriate at their respective headquarters. Upon arrival in Colombo the mission will be briefed by the UNDP Resident Representative, who will also provide the necessary substantive and administrative support. The mission will attempt to complete its work within two weeks, starting in Colombo on 12th February 1986. Upon completion of its work, it will be debriefed by the Resident Representative. At the end of the mission, the UNDP Resident Representative will organize a meeting involving senior Government officials, where the mission will present its initial findings, conclusion and recommendations, and be ready to discuss these.

The report should be prepared in draft in the field along the lines indicated in the attached outline. It should be presented to the Government in draft form so that there is an opportunity to discuss it. The report should be submitted in final form simultaneously to UNDP and UNIDO. The UNDP will be responsible for formal submission of the report to the Government and for reporting on results of the evaluation to the Governing Council of UNDP.

List of Persons Consulted during the Mission

United Nations Development Programme, Colombo

- Mr. C. Jan Kamp - Resident Representative
Mr. M. Kahane - Deputy Resident Representative

United Nations Industrial Development Organization, Colombo

- Mr. T. Schroll - Senior Industrial Development
Field Advisor
Mr. S. Ericsson - Junior Professional Officer

Ministry of Textiles

- Mr. Vincent Panditha - Secretary
Dr. P.A.T. Gunasinghe - Director, Ministry of Textiles
(Member of Mission)

Sri Lanka Standards Institution

- Dr. N.R. de Silva - Director-General

National Apprenticeship Board

- Dr. Dharmasiri Amarasinghe - Deputy Director

Textile Manufacturing Association

- Mr. A.Y.S. Gnanam - Chairman
Mr. Muni Kundanmal - Deputy Chairman

Mettegama Textile Mills

- Mr. D.S. Chandrasekeram - Acting General Manager

Swastika Textile Ltd.

- Mr. N.H. Amalean - Managing Director

Baksone Textile Ltd.

- Mr. Jelto Bakegem - Director

Kundanmanl Ltd.

- Mr. D. Kundanmal - Director
Mr. Hiro Shobraj - Director
and various trainers,
trainees and
supervisors.

Cyntex Ltd.

Mr. A.S. Wijetunge - Director

Mahabellana Weaving Mills

Mr. T. Sounderaja - Director

Hybro Ltd.

Mr. A.P. Muththiah - Director

United Spinning and Weaving Mills

Mr. R. Srinivasan - General Manager
Mr. Jeganathan
and various trainers, trainees
and supervisors

Favourite Ltd.

Mr. R.N. Mirchandani - Director
Mr. C.J. Mirchandani - Director

Thulhiriya Textiles

Mr. B.P. Singh - Processing Manager
Mr. N.D. Seth - Marketing Manager

Kundanmal Industries

Mr. Gope Jayawickreme - Director
and various trainees and
supervisors.

Asian Cotton Mills

Mr. K.H.M. Akbar - Managing Director
Mr. Lobo J.S. Gomez - Quality Control Manager

Moratuwa University

Prof. Dr. Lakdas Fernando - Prof and Head of Dept. of Textiles

Industrial Training Services Ltd.,
United Kingdom

Mr. Eric Lindsay - Training Instructor

Fielden House Productivity Centre,
United Kingdom

Mr. D.F. Halpin - Chief Executive
Mr. D.A. Hague - Training Instructor

The British Council, Colombo

- Mr. Marcus Gilbert - Asst. Representative (visited by UNIDO staff member, Mr. P. Ellwood, on Mission's behalf)

UNIDO Advisory Staff

- Mr. J. Woolfenden - Chief Technical Advisor
Dr. A. Hassan - Processing Advisor
Mr. G. Ryder - Spinning Advisor
Mr. E. Pararajasingham - Weaving Advisor
Mr. Z.T. Bartnik - Knitting Advisor
Mr. J. Raymakers - Product Dev/Marketing Advisor

Senior National Technical Staff

- Mr. E.B. Dissanaike - Director
Mr. M. Fernando - Head, Spinning
Mr. G.J. Molligoda - Head, Weaving
Mr. U.H. Liyanage - Head, Processing
Mr. W.G.H. Mettananda - Textile Technologist (wvg)
Mr. P. Abeyaratne Banda - Textile Technologist (proc)
Mr. D.R. De Silva - Textile Technologist (kng)
Mr. M.T.M. Mashood - Engineer (eng)
Mr. D.P. Gunawardene - Textile Technologist (PD/M)
and various junior staff when necessary