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TEXTILE DEVELOPMENT CENTRE, PHASE II .

DP/EGY/77/008

EGYPT

Terminal report *

Prepared for the Government of Egypt
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

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Vienna

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The monetary unit in Egypt is the pound (LE). During the period covered by this report, the value of the Egyptian pound was as follows:-

Prior to August 1981 : US$ 1 = LE 0.70
After August 1981 : US$ 1 = LE 0.82168

A comma (,) is used to distinguish thousands and millions.

A full stop (.) is used to indicate decimals.

In addition to abbreviations in common use, the following are also used in this report:-

GTC	General Textile Corporation
TCF	Textile Consolidation Fund
TQCC	Textile Quality Control Centre
TDC	Textile Development Centre
TIC	Textile Information Centre
V..	Mill Visit Report (TDC reference)
TR..	Technical Report (TDC reference)
RR..	Research Report (TDC reference)

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ABSTRACT

The Textile Development Centre (TDC) has been established in Alexandria to complement the existing Textile Quality Control and Textile Information Centres. This report covers the project DP/EGY/77/008 Textile Development Centre Phase II. The main activities took place from 1979 to 1982 but there was a modest extension through 1985. The purpose of the project was to establish within the TDC the necessary pilot plants to enable the Centre to carry out applied research for the textile industry in the fields of weaving, knitting, fabric finishing and ready-made garment manufacture and to provide mill-level consultancy and training services.

The report explains the objectives and logic of the project, describes the activities carried out and the outputs produced, discusses the achievements and the extent to which the project results are being utilized and ends with the findings and recommendations. There are also 25 Annexes.

The immediate objective, establishment of the pilot plants was accomplished on schedule in 1982 and everything was to a very high standard. The purpose of the extension was to help to bring the TDC to the stage of being a viable, self-sufficient, fully operational unit capable of making maximum use of the facilities provided. Unfortunately, due to shortage of funds this has only been achieved to a limited extent. Nevertheless, considerable progress has been made mainly through the efforts of the national staff.

The Government have now expressed a wish to continue their cooperation with UNIDO in the field of textiles and have identified certain critical areas in which they are badly in need of assistance mainly through high-level consultancy. To consolidate what has already been achieved and to further promote the activities of the TDC it is recommended that such assistance be given if at all possible.

TEXTILE DEVELOPMENT CENTRE PHASE II
DP/EGY/77/008

1. OBJECTIVE AND LOGIC OF THE PROJECT

The objectives as stated in the original Project Document, DP/EGY/77/008/A/01/37 Textile Development Centre Phase II, duration 3 years starting in July 1979 were as follows:-

Development Objectives

To contribute to the establishment of a Textile Development Centre which will meet the needs of the entire textile industry in Egypt and possible extend it services to other Arab countries.

Immediate Objectives

To establish within the Textile Development Centre the necessary pilot plants to carry out applied research for the textile industry in the areas of weaving, knitting, fabric finishing and garment manufacture. In this connection, the facilities provided by the Textile Quality Control Centre and the Textile Development Centre Phase I will be complementary.

Outputs

Although not specifically stated in the Project Document it has always been understood that the following outputs would be expected:-

(i) Pilot plant and testing facilities suitable for solving problems encountered by industry.

(ii) Facilities for carrying out in-depth studies of textile materials, particularly cotton and its blends and also textile machines, processes, finishes, etc.

(iii) The capability of carrying out quantitative and qualitative studies on industrial processes in textile mills to improve quality, productivity and efficiency.

(iv) A technical consultancy service for solving management and technical problems and extending modern techniques to industry.

(v) An on-going programme of training courses, seminars and conferences for communicating with industry at all levels.

(vi) Dissemination of information to industry through Technical reports, Research reports and papers in the Textile Information Bulletin.

The Egyptian textile industry produces on average 280,000 tons of yarn and over 1 billion metres of fabric annually from its 35 public sector and 1,600 private sector factories which are divided as follows:-

Process	Percentage of Production	
	Public Sector	Private Sector
Spinning	100%	0%
Weaving	65%	35%
Knitting	40%	60%
Dyeing and Finishing	75%	25%
Apparel	20%	80%

Backgound Information

At the start of the project, it employed over 50% of the industrial labour force and accounted for 33% of industrial production and 60% of exported manufactured goods. There was a large expansion and modernisation programme in progress.

The industry was still based largely on the processing of Egyptian long-staple cottons but there was a move towards blends with polyester and the introduction of

short-staple, imported cottons. Waste fibres, which used to be exported, were being processed on open-end spinning machines.

All spinning was in the public sector but weaving and finishing were divided between public and private sectors.

There was some knitting and garment manufacturing in the public sector but mostly it was carried out in many small, privately-owned factories. The biggest potential growth area was in ready-made garments.

The public sector mills were mostly very large.

Leadership in the industry was very good but there was a shortage of well trained engineers and technicians and good staff at middle management and supervisor levels.

Technical standards were found to vary greatly from mill to mill.

The mills were facing many problems due to lack of information and shortage of properly trained staff.

Logic of the Project

The need for a Textile Development Centre in Egypt arose out of the vital importance of the textile industry to the Egyptian economy and the financial advantages of exporting finished fabrics and ready-made garments rather than raw materials.

As part of its ambitious plans for the modernization and expansion of the textile industry and diversification into new products such as blended yarns and fabrics, finished fabrics and ready-made garments the Government recognised the need for an independent and impartial laboratory capable of carrying out the semi-industrial scale experiments and applied research work so essential to the mills without in any way distupting their production schedules, and of providing mill-level consultancy

services and training facilities. Due to certain financial constraints the Government sought the assistance of UNDP in this venture.

The Government had previously established, with the assistance of UNDP and UNIDO (DP/EGY/69/562), a Textile Quality Control Centre and a Textile Information Centre. The Textile Quality Control Centre was already fulfilling an important role in improving and maintaining export quality by testing and issuing mandatory quality assurance certificates for all textile exports and assisting mills to implant effective quality control systems of their own.

One of the first effects of the activities of the Textile Quality Control Centre was that large quantities of goods submitted for export were rejected. This led to arguments as to the quality standards that could reasonably be expected under local conditions and the best ways of achieving them. Clearly some experimental work was required and as the textile mills in Egypt tend to be very large and geared to production not research it was felt that the best idea would be to establish a Textile Development Centre equipped with the necessary pilot plants to carry out trials on behalf of all the mills. This new facility would be built on the same site as the existing Textile Quality Control and Textile Information Centres. The three Centres would complement each other and together form a single integrated Textile Development Complex (see Annex I for details) to serve the entire textile industry.

In view of the success of the previous Textile Quality Control Centre project it was natural for the Government to turn again to UNDP and UNIDO for financial and technical assistance.

The original concept covered all aspects from fibres to ready-made garments, i.e. spinning, weaving, knitting, dyeing and finishing and ready-made garment manufacture but, due to a crisis of finance, it had to be re-designed.

Since spinning was the biggest and most important section especially as regards exports, it was decided to complete the spinning section and postpone the rest until more funds became available. Accordingly the project document for DP/EGY/73/020 Textile Development Centre Phase I was signed on 8 August 1974.

Phase I of the project was scheduled to start in 1975 with a duration of 4 years but, due to delays in the design and construction of the buildings, it was not possible to begin to install equipment until June 1979. Even so, the physical facilities were all in place and Phase I completed by the end of 1979.

The project document for the present project, DP/EGY/77/008 Textile Development Centre Phase II, was signed on 4 July 1978. It was scheduled to start in July 1979 with a duration of 3 years but, in fact, some preliminary work was carried out in late 1978 and early 1979. It therefore over-lapped to some extent with Phase I.

Despite the late start of Phase I, the main objectives of both Phases I and II were accomplished on schedule during 1982, by which time the following had been achieved :-

- The buildings had bee completed.
- All equipment for the laboratories and pilot plants had been installed.
- The Centre was staffed by 25 engineers and chemists with appropriate academic qualifications and some modest experience in consultancy and applied research work.

- Eleven expert assignments in the areas of spinning, weaving, dyeing & finishing, knitting and garment manufacture had been completed.
- A list of topics requiring investigation, covering all sectors of the textile industry, had been compiled.
- 15 seminars and 12 training courses with full documentation had been given to a total of over 1500 engineers, chemists and technicians from the textile industry.
- 5 reports on applied research work had been issued.
- 28 mills had received direct assistance through visits by the experts and their counterparts.

However, due to the reduced time scale and the diversity of the fields of activity of the Centre, it had not been possible to bring the TDC to the stage of being a viable, self-sufficient, fully operational unit by 1982 and therefore an extension to the project was proposed.

During the extension the emphasis would shift from institution building and the identification of problems for investigation to the actual implementation of the Centre's work programme and full utilisation of the facilities already provided.

Project Extension 1982-85

The first proposal for extension of the project included:-

(i) Highly qualified international consultants well experienced in applied research work who would undertake short, preferably repeated missions to the project to help plan and implement the work programme and train the national staff.

(ii) A resident Research Co-ordinator to continuously follow up the research work in the absence of the consultants and to contribute in his own field of competence as well as dealing with the administration.

(iii) Additional items of equipment recommended by the previous consultants and experts as required for specific purposes.

(iv) Fellowships and Study Tours to other well established applied research centres.

(v) Supporting Services.

The budget for the above came to $ 1,763,000.

However, at that stage there was a large cut in funds for the Country Programme so the proposed inputs were revised to reduce the budget successively to $ 800,000, $ 550,000, $ 450,000 and $ 411,900. Eventually $ 204,000 were approved to see the project through 1983 and 1984. However, this expenditure was no approved until 4 Feb 1984 so very little activity took place in 1983 and the project continued into 1985.

Because of the reduced budget and its delayed approval, UNIDO's involvement in the project since 1982 has been far less than had been thought necessary at the time and consequently the progress has been less that envisaged. Notwithstanding this considerable utilization of the project results has been achieved mainly through 16 efforts of the national staff as reported in sections 3 and 4.

A terminal Tri-Partite meeting (TRM) was held in Alexandria on 8 May 1985 at which the Government, UNDP, UNIDO and the Project Management were represented.

2. ACTIVITIES CARRIED OUT AND OUTPUTS PRODUCED

2.1 Project Management

At the start of the project a Board of Management was appointed to decide policy and guide and co-ordinate the activities of the project. UNDP, the Textile Consolidation Fund, the public sector textile mills, the existing Egyptian textile institutions and the project management were all represented.

A Technical Sub-Committee of the Board was appointed to advise on technical matters such as choice of equipment, selection of experts, topics for inclusion in the work programme etc. and in their individual capacities to assist in execution of the project.

A National Director/Project Co-Manager was made responsible for day-to-day activities.

Details of the above are given in Annex 2.

The original chairman of the Technical Committee was later appointed Minister of Industry whilst the present chairman of the committee is also chairman of the newly formed General Textile Corporation. The project Co-manager is now General Manager of the Centre and also General Manager of The Textile Consolidation Fund.

2.2 Premises and Service Equipment

There were long delays at the start of the project with design and construction of the buildings and layout of the equipment, particularly in the wet-processing laboratory. However, this work has now all been completed and to a very high standard. The main building of the TDC has 3 floors

and the wet-processing laboratory one. The total floor area is 9,500 square metres. A general layout plan of the whole complex is shown in Annex 4.

One of the guiding principles in designing this Centre was to provide maximum flexibility. For example the air-conditioning plant has been so designed that each of the 4 dry-processing laboratories, blowroom, spinning, weaving and knitting can be maintained at different, pre-determined atmospheric conditions all at the same time. For example, it is possible to have 30 to 50% relative humidity in spinning and 70 to 80% r.h. in weaving simultaneously irrespective of the ambient conditions. This is very important for certain types of experimental work.

2.3 Equipment

All the UNDP provided equipment has been received, installed and commissioned and is now being used for demonstration, applied research and training purposes. A list of the equipment is given in Annex 5. The total cost was US $ 683,219.

2.4 Organization Chart

A tentative organization chart for the TDC in 1985 was prepared at the start of the project. It has been modified somewhat in the light of experience. The actual chart is shown in Annex 3.

2.5 International Staff

All the expert and consultant assignments envisaged, amounting to 98.1 man-months, have been completed, as shown in Annex 6, and terminal reports issued (see Annex 12) with the exception of 2 consultants who have already been selected and whose assignments (3 man-months total) are scheduled for later in 1985.

Some of the experts, notably the weaving expert, arrived before the equipment was installed so they concentrated on mill consultancy and training.

2.6 Counterpart Staff

35 national counterparts have worked with the UNIDO experts and received on-the-job training (see Annex 7). Unfortunately some have now left the TDC for various reasons but the rest are carrying on the work started by the experts, especially in training.

2.7 Fellowships and Study Tours

Two fellowships were awarded in weaving, 2 in knitting and 4 in dyeing and finishing totalling 22 man/months (see Annex 8). The fellows received instruction in the works of the machinery suppliers to the project and the laboratories of Ciba Geigy and the International Institute for Cotton. This took a lot of organizing but the results were very satisfactory.

Eight study tours were awarded totalling 4.5 man-months. This included a visit to the 1979 International Textile Machinery Exhibition in Hannover by the National Director and 4 engineers.

They were accompanied by the UNIDO back-stopping officer and the Project Manager. On their return, they prepared detailed reports on what they had seen which were printed in a book and circulated to all the mill managers and engineers who had been unable to attend the Exhibition. This was a well organized and particularly useful exercise which should be repeated in future; the ITMA exhibitions take place in Europe every 4 years.

2.8 Training Courses and Seminars

The International Staff prepared and ran 9 fully documented, training courses which were attended by 160 delegates from industry. Also 28 seminars were organized and attended by over 2500 delegates from industry. Details are given in Annexes 9 and 10. Copies of the Training Manuals and other literature that was distributed are available in the Textile Information Centre.

Training is now regarded as one of the most important expects of the work of the TDC in view of the shortage of properly trained staff in the mills. Training courses are now being run by the national staff.

2.9 Mill Level Consultancy

A list of 32 mills which have received technical consultancy from the UNIDO Experts and Consultants is given in Annex 11 together with an indication of the topics covered. 80 reports on mill visits by the international staff and 89 detailed technical reports with recommendations by the experts and/or national staff have been distributed. These are listed in Annexes 13 and 14. Copies are available in the Textile Information Centre.

2.10 Applied Research

Applied research work was initiated as soon as the equipment was installed. At first the projects were designed mainly to familiarize the national staff with the new equipment but soon the mills began to refer practical problems to the Centre. Notes on 60 topics identified by the experts and consultants as suitable for inclusion in the applied research programme were submitted to the Technical Committee of the TDC by the Project Manager in an Interim Project Report in 1982. Copies are available at the TIC.

The applied research activities are discussed by the Technical Committee with the engineers concerned at monthly meetings. The work programme is formally reviewed and up-dated annually but new topics can be introduced at any time if there is an emergancy. A copy of the programme for 1983-1985 in attached as Annex 15. A list of the research reports (RR) that have been issued is given in Annex 16.

2.11 Budgets

The work was carried out within the limitations of the budget. For reference the closing budget for Phase I is attached as Annex 17 and that for Phase II as Annex 18.

3. ACHIEVEMENT OF IMMEDIATE OBJECTIVES

The immediate objectives, namely establishment of the necessary Pilot Plants to carry out applied research in the areas of weaving, knitting, fabric finishing and garment manufacture have been achieved.

The buildings are purpose-built, spacious and more than adequate to house all the equipment that has been provided. The dry-processing laboratories are fully air-conditioned with individual controls so that it is possible to have pre-determined conditions in each laboratory and to vary those conditions when required, e.g to determine the optimum conditions for processing cottons contaminated with honeydew. It is also possible to have different selected conditions in each laboratory simultaneously, e.g. 30% rh in spinning for processing sticky cottons and 78% rh in weaving.

The equipment has been well selected, installed and commissioned and whilst it will not cover all eventualities it offers a very wide range of possibilities. If we were starting again in 1985 we would choose very similar equipment.

The Centre is staffed by engineers and chemists with appropriate qualifications and some experience in consultancy and applied research work gained whilst working with the UNIDO Experts and Consultants.

The TDC itself is well managed and the staff benefit from the advice and guidance of the Technical Committee which is comprised of the top technical personnel in the Egyptian textile industry and which meets once a month at the TDC.

With the physical facilities that are in place and the most essential human resources that are available, the basic pre-requistes have been created for the centre to carry out the kind of applied research

work and provide the services to industry that were originally envisaged. A good start has already been made as described in Section 4, "Utilization of Project Results".

4. UTILIZATION OF PROJECT RESULTS

4.1 Implementation of the Expert's Recommendations

Most of the UNDP/UNIDO inputs were completed in 1982 as explained in Section 1. On completion of his assignment in 1982, the Project Manager prepared a Project Interim Report which included a set of recommendation based upon his own ideas and those expressed by the various espects and consultants in their terminal reports. It is very gratifying to see that nearly all the recommendations have now been implemented at least to some extent. As an indication of the progress that has been made during the past 3 years the original recommendations are re-stated in Annex 19 together with an account of how they have been implemented.

4.2 Use of Equipment

All the UNDP/UNIDO provided equipment is being used for demonstration, applied research or training purposes by the national staff who were trained in the project. Of course, it is not possible to use all of the equipment all of the time but utilization is increasing and will continue to do so as the work programme develops and as more staff are appointed.

The equipment provided was obviously well selected and is appropriate to the work of the Centre. Whilst it does not cater for all eventualities it is flexible and offers a wide range of possible applications. Naturally, more equipment will be required from time to time and, in fact, many additional items have already been acquired by the Centre from non-UN sources. These additional items, which are listed in Annex 20 for reference purposes, complement the equipment provided through the project.

4.3 Utilization of the Capabilities Created

The basic pre-requisites now exist and the capabilities have been created for the TDC to start fulfilling its proper functions. The basis is sound but it will take time before the standard of work reaches that of some of the long established research and development centres in other countries. Nevertheless a good start has been made as discussed below and the Centre is begining to have an impact on the textile industry.

4.4 Typical Services Provided

The following are typical services which are now being provided by the TDC:-

a) Trouble-shooting services and consultancy to industry.

b) Training courses particularly in ready-made garment manufacture (see section 45 and Annex 20).

c) Gradually increasing applied research for the textile industry in all fields (see Annexes 15 and 16).

d) Dissemination of technical information to the industry by issuing periodical bulletins, in both Arabic and English, reviewing the most recent developments in textiles. Issue 19 of the Textile Information Bulletin has just been distributed. The circulation is 400 copies of each issue.

e) Communication at all levels of the industry by organizing seminars and training courses.

f) Assisting the industry in setting and maintaining standards.

g) Qualitative and operational studies of weaving, knitting, dyeing, finishing and garment manufacture in textile mills with a view to increasing productivity and efficiency and decreasing waste and the percentage of second quality.

h) Technical consultancy in existing management and technological problems with a view to extending modern solutions.

i) Introduction of new fabric producing techniques in weaving and knitting e.g. blending wool noil with cotton.

j) Modification of finishing technologies required by the use of new fibre types and fabrics and materials.

4.5 Training Provided

The Board of Management have decided that in view of the severe shortage of properly trained personnel in the textile industry the top priority for the Textile Development Centre at this time must be training and for the next four years the main accent will be upon training technicians and junior management who, as in all developing countries, are in very short supply. At present the TDC offers regular training courses of about 3 months duration and short courses in a wide range of topics. As of September 1985 a Vocational Training School will be opened within the TDC for new entrants to the industry; preparations are already well advanced. Further details of the training provided are given below:-

(a) Regular Training Courses in Garment Manufacture

It is Government policy that the textile mills shall diversify into ready-made garment manufacture and several mills have already committed themselves in this respect. As this is something quite new in Egypt, the TDC are

running an introductory course in garment manufacture. The duration is 3 months and so far it has been run 4 times with an average of 25 trainees each time. An outline of the course content is given in Annex 22. It is intended to prepare a more advanced course in the future.

(b) Short Courses for Mill Engineers and Technicians

Short training courses are now available at the Textile Development Centre for mill engineers and technicians. The duration is either one or two weeks. The 49 topics covered are shown in Annex 21 and full details are given in the TCF brochure "Technical Training Courses", which is available from the Textile Information Centre.

The courses are taught by the national staff of the TDC supported by lecturers from the University of Alexandria and the textile mills. The essential theory is combined with practical work on the UNIDO provided equipment.

All the courses are not given every year but 25 courses were given to 373 trainees during 1983-84 and 21 courses during 1984-85 to 376 trainees. The reason for providing short courses is that it has been found that the mills are willing to release their key personnel for 1 or 2 weeks but not for longer periods.

The standard of the training aimed at varies according to the course from elementary to advanced. The tuition may be given in Arabic or English.

(c) Vocational Training School

A vocational training school is being established within the TDC. It will open in September 1985 and provide a 2-year sandwich course for school-leavers entering the textile industry with a view to becoming supervisors. The trainees will be employees of the various mills. They will be sent to the TDC for 8 months each year and spend the other 4 months in their own factories doing practical work.

The first year will be devoted to science, mathematics and the principles of textile processing, whilst in their second year the trainees will concentrate in spinning or weaving or garment manufacture or dyeing and finishing.

The practical work in dyeing and finishing will be carried out on the UNDP/UNIDO provided equipment but in the case of spinning and garments additional machines have been acquired by the TDC so that the training programme will not interfere with the development work being carried out on the UNIDO equipment in thoses departments.

The school will have an intake of 60 trainees a year and the programme will run for at least 6 years thereby training 600 potential supervisors.

The course will be taught by the staff of the TDC assisted by instructors and demonstrators from the University and mills.

(d) University Students

Students from the Faculty of Engineering visit the TDC every week for practical training on the UNIDO provided equipment.

4.6 Examples of Applied Research Work

A list of 46 research reports that have been issued is given in Annex 16 and copies are available at the TIC. The following are examples of work which has had some impact on the industry.

(a) Samples of cotton/polyester woven fabrics were collected world wide and analysed. The most appropriate specifications for Egypt were selected. Samples were prepared at the TDC and submitted to the mills concerned. Several of these specifications are now being produced commercially.

(b) Some private sector knitting factories were refusing to use 100% nylon yarn produced by Misr Rayon but, after the intervention of the TDC they now accept it.

(c) A study of the effect of different levels of yarn twist on the dimensional stability of weft knitted fabrics was carried out. It was shown that yarn twist had very little effect on dimensional stability of the fabrics and therefore the solution to the problem of fabric shrinkage must be sought elsewhere. This is being followed up in the finishing department.

(d) The fibre manufacturers were anxious to introduce some polyester fibre into popular fabrics but this was resisted by the spinning and weaving mills. Tests were carried out at the TDC with various percentages of polyester with the result that blended yarns are now being used in popular fabrics.

(e) Extensive trials on the dyeability of locally manufactured polyester and viscose fibres alone and when blended with cotton were carried out on the pilot plant. The information was provided to both fibre producers and users which served to resolve differences of opinion and led to the acceptance of the locally made product.

(f) The pilot plant was used to identify the causes of damage to cotton fabric during bleaching (i.e. black spots and holes in the fabric) in one of the mills. The problem was resolved, and the advice given was acted upon by the mill whose fabric is now of export quality.

5. FINDINGS

All the textile mills in Egypt are still facing many problems and there can be no doubt that the services of the Textile Development Centre are and will continue to be needed.

The industry was originally based on the processing of Egyptian long-staple cottons but now there is a definite move towards blending Egyptian cotton with polyester and other man-made fibres and also to the introduction of short-staple, imported cottons. This year, for the first time, half a million bales of American cotton have been imported and distributed to mills outside the Delta (i.e. the cultivated area) because the domestic crop of raw cotton is insufficient to meet both export demands and the needs of the textile industry. Also short-staple cotton is less expensive and perfectly adequate for the manufacture of "popular cloth".

Considerable modifications of the equipment and processing conditions are required when a mill changes over from long-staple cotton to short-staple cotton or blends. The TDC has been able to help several mills to effect the change-over much more smoothly that would otherwise have been the case.

The mills have demonstrated their willingness to utilize the services of the Textile Development Centre by their attendance at seminars and training courses and by referring problems to the Centre for study. There is a constant stream of visitors to the TDC seeking information and advice.

All the parties concerned with establishing the TDC seem to be well satisfied with the work that has been carried out and with the present status of the Centre. For example, following a meeting of the

Technical Committee of the TCF on 27 April 1985, at which several of the applied research projects were discussed with the Engineers concerned, the Chairman of the newly-formed General Textile Corporation said that he had been critical of the TDC in the past but now he was convinted that it was doing good work especially in the fields of blending of cotton with man-made fibres, improving the dimensional stability of knitted garments and training.

Further cooperation with UNDP and UNIDO would be much appreciated by the Government. At the terminal Tri-Partite meeting (TRM) which was held in Alexandria on 8 May 1985, the Chairman of the Textile Consolidation Fund, after thanking UNDP and UNIDO for their great assistance in establishing such a Centre which was already beginning to have an impact upon the industry, said that the Government valued very highly the good relations that had been established with UNIDO over the years and a way must be found to continue the cooperation. He said that they would be seeking assistance in 4 critical areas namely, ready-made garments, blending of cotton and man-made fibres, finishing of blended fabrics and dimensional stability of knitted garments and he hoped that UNDP would be able to help.

The Head of Finance of UNIDO said that UNIDO had invested $ 2 million in this Centre and from what he had seen he considered it to be money well spent. He was very impressed by the Centre as a whole and by the work that was being carried out, especially when compared with some other centres that he had visited.

UNDP's representative said that this was the best Research and Development Centre in Egypt and was now regarded as a Centre of Excellence especially in the field of training. However he felt that the Centre needed more "promotion" and that it should strengthen its links with other similar institutions within Egypt and abroad.

UNIDO's representative said that UNIDO had been very pleased to participate in this project and only regretted that they had not had the means to do more during the extension. The centre was making good use of the facilities provided but clearly there was scope for further co-operation. UNIDO would be willing to assist the TDC further at any time provided that suitable financial arrangements could be made. He thought that the training course in machine maintenance was being presented in a very professionel manner and hoped that the course in ready-made garment manufacture would be raised to a similar level, possibly with the assistance of UNIDO, in which case it would be of great value to the Egyptian factories that are going to diversify into ready-made garments and also to trainees from other countries and, as such, would be strongly recommended by UNIDO.

The project was well planned and organized. One of the most helpful features was that the Project Manager (Designate) was appointed in 1975 and he visited Alexandria several times before the main activities of Phase I began in 1979. This helped to get shings off to a good start. Also there was a car and driver available right from the start and adequate provision for travel by the experts.

The Textile Consolidation Fund were most helpful at all times and serious in their attitude which contributed greatly to the success of the project.

6. RECOMMENDATIONS

6.1 Consolidation, Further Development and Utilization of Results

To consolidate what has already been accomplished and ensure the fullest possible utilization of the facilities provided, the Government should consider requesting further UNIDO inputs as previously recommended.

As explained in Section 1, the immediate objective, i.e. establishment of the pilot plants, was reached on schedule in 1982 but, at that time it was felt by the Government and UNIDO that further assistance would be required to make the Centre a viable, self sufficient operating unit. The project was extended but unfortunately, due to financial constrints, on only a very limited scale. Considerable progress has been made since 1982 mainly through the efforts of the national staff but there is still a long way to go before the TDC can take its rightful place among the leading textile research and development institutions of the world. Progress could be accelerated very considerably by further UNIDO inputs particularly repeated short visits by highly specialized consultants and a resident Research Coordinator to continuously follow up the work on site.

At the terminal TRM, the Goverment's representatives identified the following areas in which they felt badly in need of assistance

- Ready-made garments
- Cotton/man-made fibre blends
- Finishing of blended fabrics
- Dimensional stability of knitted garments.

UNIDO are in a good position to help in all those areas.

6.2 Country Programme

As the next 5-year Country Programme will be being compiled soon it is recommended that the TCF should make their requirements known as soon as possible. It is further recommended that they should seek UNIDO's assistance to draft the necessary project proposals.

6.3 Upkeep and Maintenance

The present very high standard of the premises and equipment should be maintained.

6.4 Equipment

No further textile machines are required at this time but the situation should be reviewed annually by the Technical Committee with a view to up-dating the equipment and extending the facilities if thought to be necessary.

A mini-computer for analysing experimental data would be useful.

6.5 Staff Development

The specialized engineers should be sent to international exhibitions such as the International Textile Machinery Exhibitions which are held every 4 years and they should publish their findings for the benefit of their colleagues as they did in 1979. They should also attend selected seminars to keep themselves informed on modern developments.

The engineers and chemists should continue to keep in close touch with the manufacturers of textile machinery, accessories and auxiliaries and to encourage them to continue to give demonstrations and seminars at the Centre. The TDC should try out new products under Egyptian conditions and pass on their findings to industry.

The General Manager should visit some textile mills and garment factories in the Far East.

6.6 Training Trainers

The training function should be up-graded by giving the trainers some formal training in training techniques. It should be possible to find some suitable short courses given by Egyptian Universities and Teacher Training Colleges. If not, consider requesting a special SAS project from UNIDO.

6.7 Training Courses

Training is of vital importance to the Egyptian textile industry. The TDC should continue to run short courses to up-grade the skills of mill engineers and technicians.

The existing course in basic garment manufacture is very good but the TDC should now develop a more advanced course, possibly with UNIDO assistance.

6.8 TCDC in Ready-Made Garments

Ready-made garment manufacture is of interest to many developing countries. Once a sufficiently high level course has been developed at the TDC, a TCDC funded training programme could be launched under the IDA (Industrial Decade for Africa) scheme. This would help less developed countries and also bring benefits to Egypt.

6.9 Generation of Income

The TDC is now regarded by UNIDO as a centre of excellence and it is hoped that UNIDO will be able to organise training courses and seminars in Alexandria for the benefit of other African Countries. The TDC has already run several courses for trainees from other Arab countries and it is hoped that this activity will expand.

The TDC should now re-consider the possibility of charging fees for its training services to generate an income which could be used for the up-keep and extension of the facilities.

6.10 Applied Research

Although training is very important, especially at this time, the applied research side should not be neglected. The programme for 1983-85 is very comprehensive; it should now be refined and narrowed down to only a few topics of immediate interest to the mills and problems that are likely to assume greater importance such as the finishing of blended fabrics so that the studies can be made in more depth.

A more systematic approach to the design and reporting of experiments along the lines indicated by Burnip, Nield and Shaw should be developed. This is one of the main areas in which it was proposed that UNIDO should assist during the project extension.

6.11 Mill Consultancy

The senior staff should have as much contact with the mills as possible. Written reports should be prepared immediately following visits, preferably on the lines of the "Sample of Survey Reports at companies Visited" given in Hollman's final report.

In this way vital information will not be lost and a data bank will be built up at the TDC for future reference.

6.12 Reporting

Experimental work should be written up as soon as it is completed and the reports distributed as soon as possible. This pre-supposes adequate secretarial back-up.

6.13 Publication of Findings

The Textile Information Bulletin is widely read in Egypt but the Centre should aim to publish two or three papers a year in international journals so that its work will become better known.

The International Trade Centre (ITC) would be very pleased to publish an article on the TDC in their magazine "Forum" which has a circulation of 7,000 copies.

6.14 Communications

Try to improve the communications between the TDC and its business partners nationally and internationally either by telephone, telex or radio. The difficulty of communicating with UNDP in Cairo and UNIDO has been one of the biggest problems in implementing the project.

6.15 Cooperation with Other Institutions

The Centre has established good relations with various internal and external institutions as indicated in Annexes 23 and 24. Such links should be strengthened in the future as an institution such as the TDC cannot work properly in a vacuum.

6.16 Conferences and Seminars

The TDC has already organized many seminars and training courses for the benefit of mill engineers and chemists (see Annexes 9 and 10) and also the Annual Conference of the ITMF (International Textile Machinery Federation) with 300 delegates in 1984.

Consideration should be given to organizing at the TDC an Annual Conference in Textile Industry for African countries possibly financed through IDA funds. In this connection it might be a good idea to arrange a diagnostic mission to African countries to establish what they require.

ORGANISATION CHART

Ministry of Industry & National Wealth

Textile Consolidation Fund

Textile Quality Control Centre (TQCC)

- Testing & Quality Control.
- Quality Assurance for exports.
- Mill consultancy.
- Special tests on fibres, yarns, grey and finished fabrics, woven and knitted garments, chemicals, dye-stuffs, etc.
- Training.
- Mechanical, electrical and electronic workshops.

Textile Development Centre (TDC)

- Pilot plants for spinning, weaving, knitting, dyeing & finishing, garment manufacture.
- Semi-industrial trials.
- Applied research.
- Mill consultancy.
- Training.

Textile Information Centre (TIC)

- Library.
- Documentation.
- Information.
- Printing & Photocopying.
- Permanent exhbition.

MANAGEMENT STRUCTURE OF THE TEXTILE DEVELOPMENT CENTRE

Policy is decided by a Board of Management which reports to the Minister of Industry.

A Sub-Committee advises on technical matters.

A National Director is responsible for day-to-day activities.

Composition of the Board of Management

Chairman:

Chairman of the Textile Consolidation Fund.

Members:

Resident Representative of the UNDP.

Deputy Chairman, General Organisation for Industrialisation.

Chairman of Misr Spinning & Weaving Co., Mehalla El-Kubra. *

Chairman of Arab & United Spinning & Weaving Co. *

Chairman of Misr Fine Spinning & Weaving Co., Kafr El-Dawar. *

Chairman of Alexandria Spinning & Weaving Co. *

Head of Cotton Technology Research, Ministry of Agriculture.

Chairman, Cotton Arbitration & Testing General Organization (CATGO), Ministry of Trade.

Director of the Academy of Scientific Research and Technology.

Head of the Textile Department, University of Alexandria. *

General Manager of the Textile Consolidation Fund.

Project Manager, UNIDO.

National Director/Project Co-Manager, TDC.

Other persons, co-opted as necessary.

Composition of the Technical Committee

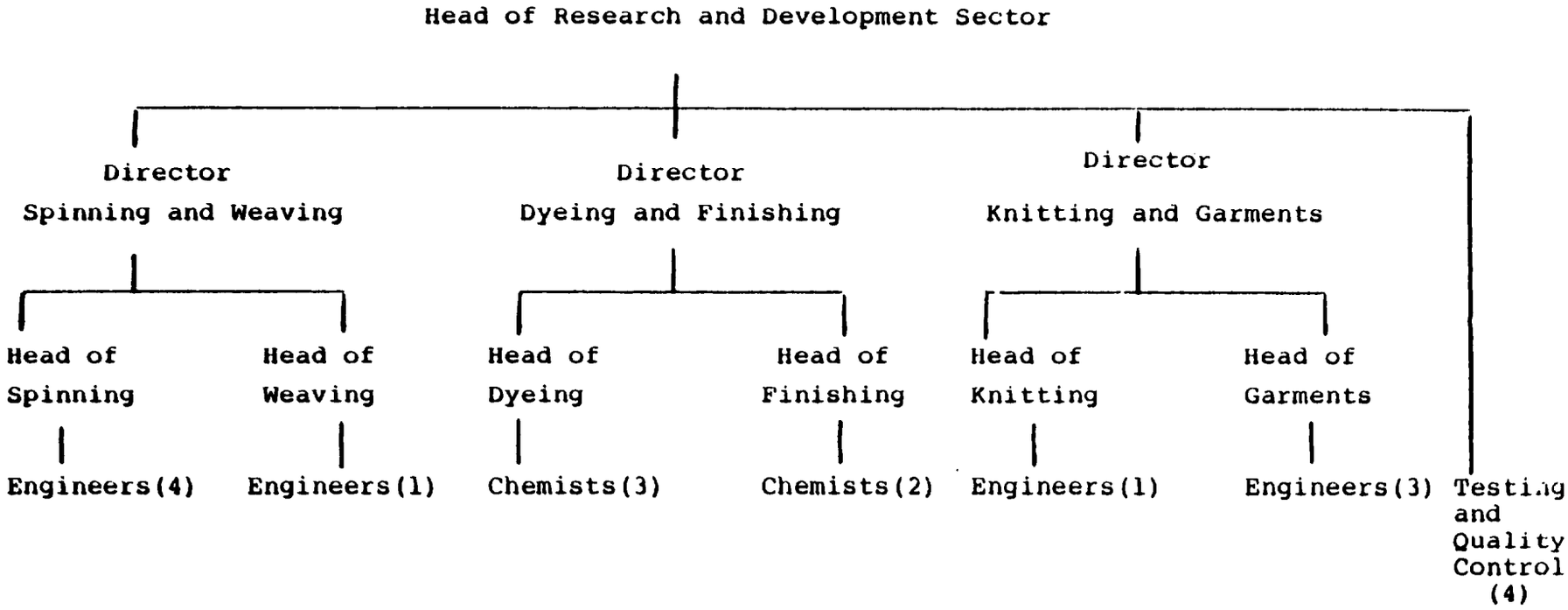
* indicates a member of the Technical Committee.

The Board meets when circumstances require.

The Technical Committee meets once a month.

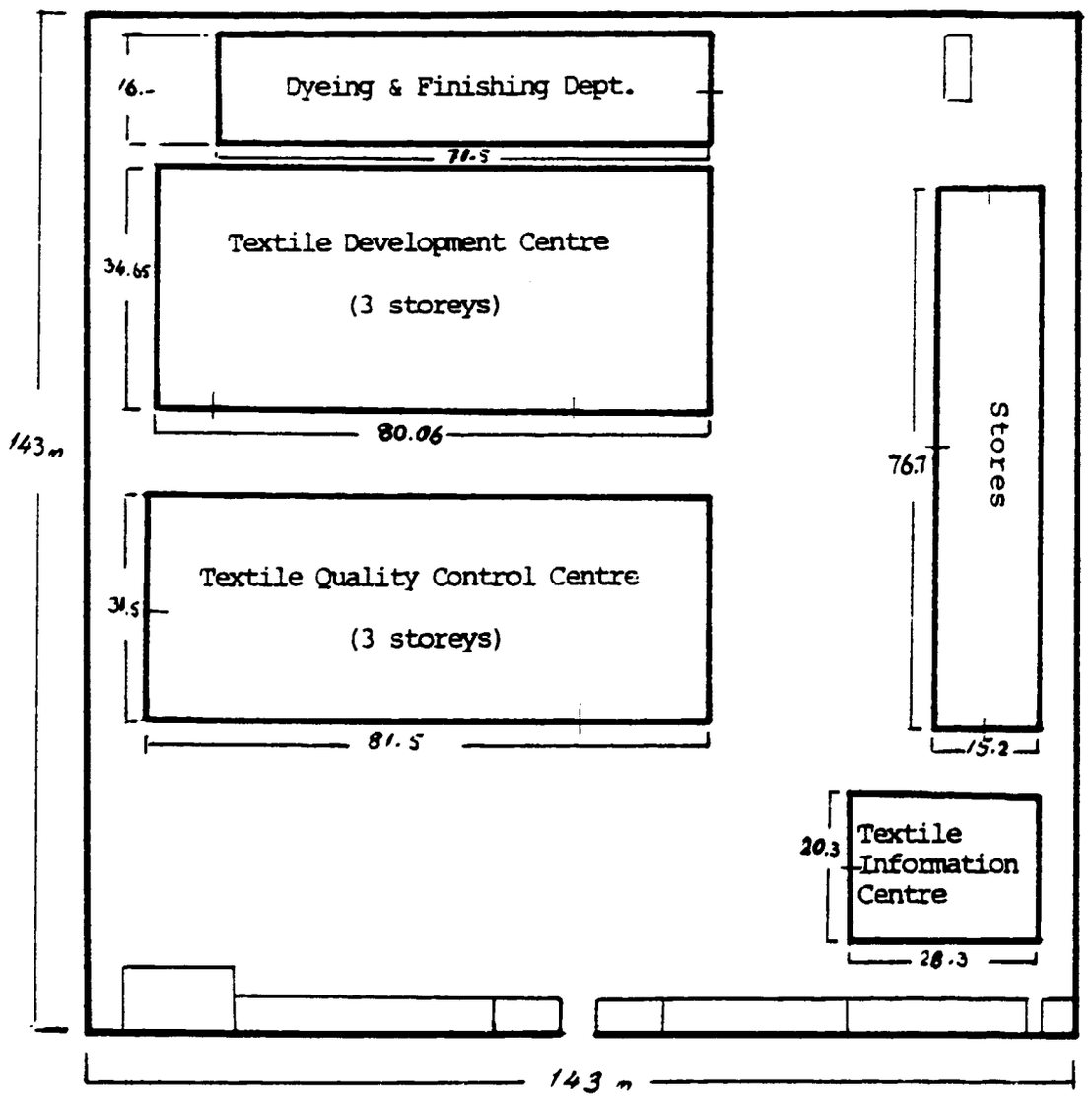
In their individual capacities, the members help to expedite decision making, overcome logistical problems and facilitate execution of the work programme.

ORGANIZATION CHART OF THE TDC



Annex 4

THE TEXTILE DEVELOPMENT CENTRE, ALEXANDRIA



Scale 1:1000

Dims. in meters

EQUIPMENT PROVIDED BY UNDP/UNIDO

The main items of equipment provided by UNDP through UNIDO were as follows:

Quantity	Description	US Dollar Equivalent
	WEAVING	
1	NORTHROP ST/44" MARK II AUTOMATIC LOOM.	15,281
1	PICANOL WEAVING MACHINE WITH FLEXIBLE RAPIERS, TYPE "PRESIDENT", MODEL PGW4-R, 69" REED SPACE. WITH ACCESSORIES.	23,488
1	WEAVING MACHINE, MAV-S-RPC MODEL, 185 WITH ACCESSORIES.	49,547
1	MOD. 85 ES 120 E10 D2 "F" SULZER WEAVING MACHINE WITH WEFT INSERTION SYSTEM AND ACCESSORIES.	78,890
1	ELITEX P 125 ZB-8 PNEUMATIC SHUTTLE-LESS JET LOOM WITH ACCESSORIES.	10,380
1	COMPRESSOR WITH ACCESSORIES.	1,697
1	GBQ-CAO AUTOMATIC PIRN WINDING MACINE WITH 2-SPINDLES.	1,812
	KNITTING	
1	WARP KNITTING MACHINE WITH 4 GUIDE BARS TYPE KS4 WITH ACCESSORIES.	54,582
1	RL-MULTI-PURPOSE RASCHEL MACHINE WITH ACCESSORIES.	45,926
108	SECTIONAL WARP BEAMS.	16,780
1	CHAIN LINK GRINDING MACHINE TYPE KSM, WITH ACCESSORIES.	8,799
1	WEVENIT A24/2 CIRCULAR JACQUARD KNITTING MACHINE WITH ACCESSORIES.	51,625

Quantity	Description	US Dollar Equivalent
	GARMENTS	
1	W.+G. 101 SINGLE NEEDLE HIGH SPEED LOCKSTITCH INDUSTRIAL SEWING MACHINE	,719
1	W.+G. 504-4-45 3-NEEDLE BOTTOM COVER STITCH INTERLOCK INDUSTRIAL SEWING MACHINE.	1,335
1	W.+G. 61-05 356 MD22 3-NEEDLE BOTTOM COVER STITCH INTERLOCK INDUSTRIAL SEWING MACHINE.	1,335
1	W.+G. 514-4-25 BLIND HEMMING INDUSTRIAL SEWING MACHINE.	1,370
1	W.+G. 514-4-63 2-NEEDLE 4-THREAD INTERMITTENT SHIRRING MACHINE.	1,449
1	W.+G. 516-4-28 2-NEEDLE 5-THREAD SAFETY STITCH INDUSTRIAL SEWING MACHINE.	1,501
1	W.+G. 101 SINGLE NEEDLE HIGH SPEED LOCKSTITCH INDUSTRIAL SEWING MACHINE	,720
1	W.+G. 101 SINGLE NEEDLE HIGH SPEED LOCKSTITCH AND HEMMER MACHINE.	,737
1	W.+G. 516-4-52 3-NEEDLE FIVE THREAD SAFETY STITCH OVERLOCK SEWING MACHINE.	1,561
1	W.+G. 61-02-240 2-NEEDLE TOP AND BOTTOM COVER STITCH INTERLOCK INDUSTRIAL SEWING MACHINE WITH ACCESSORIES.	1,750
1	W.+G. 41-01-356 3-NEEDLE BOTTOM COVER STITCH INTERLOCK INDUSTRIAL SEWING MACHINE WITH ACCESSORIES.	1,716
1	W.+G. 61-05-356 MD22 3-NEEDLE TOP AND BOTTOM COVER STITCH WITH METERING DEVICE WITH ACCESSORIES.	2,232
1	NECCHI MACHINE TYPE 400-100, S/N 6095	1,591
1	NECCHI MACHINE TYPE 400-102, S/N 6134	1,591
1	NECCHI 440-100 AUTOMATIC BUTTON SEWING ON MACHINE WITH ACCESSORIES.	2,474
1	NECCHI 881-100 SINGLE NEEDLE, NEEDLE FEED STRAIGHT STITCH INDUSTRIAL SEWING MACHINE WITH ACCESSORIES.	1,323

Quantity	Description	US Dollar Equivalent
	DYEING AND FINISHING	
1	LABORATORY PADDING MANGLE. WITH SPARE PARTS.	9,352
1	MATHIS "VACUUMAT" PASTE EVACUATING UNIT TYPE LPE.	2,278
1	MATHIS PRINTING UNIT TYPE DWE.	4,638
1	MATHIS LABORATORY STEAMER TYPE DHE WITH SPARE PARTS.	20,554
1	MATHIS LABORATORY JIGGER TYPE WJ 350 MM WITH SPARE PARTS.	10,177
1	MATHIS LABORATORY JET DYEING APPARATUS TYPE JF. WITH SPARE PARS.	16,451
1	MATHIS LABORATORY WINCH TYPE H WITH SPARE PARTS.	8,068
1	NAOMOTO MODEL: NMP-380 HEAT TRANSFER PRESS.	1,349
1	LABORATORY WATER EXTRACTOR	4,622
1	MELTING POINT APPARATUS	1,432
1	VISCOSIMETER	1,131
1	CROCKMETER WITH COUNTER	,880
1	STIFFNESS TESTER	,626
1	WATER DISTILLING APPARATUS	1,417
2	RÜHROMAG-MAGNET-STIRRERS	,494
1	PAPER CHROMATOGRAPHY EQUIPMENT	1,161
1	ALL-GLASS SEPARATING CHAMBER	,953
1set	KJELDAHL DIGESTION APPARATUS	1,964
1	MUFFLE FURNACE	1,472
1	ACCULAB INFRARED SPECTROPHOTOMETER.	10,741
1	"TSUJI" MOD. CA-500 CALENDERING MACHINE.	18,658
1	ROACHES LAB. THERMOSOLING RANGE.	22,530
1	ZIMMER LABORATORY FABRIC PRINTING MACHINE, TYPE MINI-MDK	5,830
1	XENON LAMP FADE-O-METER (XENOTEST 1505)	15,790
1	ICS COLOURMETER/SPECTROPHOTOMETER	43,453
1	CONVELTION DRYING OVEN +	
2	MULTIPLE WATER BATHS	1,030

Quantity	Description	US Dollar Equivalent
1	PORTABLE DIGITAZ pH/mv METER +	
1	CREASE RECOVERY TESTER +	
1	ELECTRIC WATER CONDUCTIVITY METER	3,120
1	WATER AND CHENICAL EFFLUENT KIT	,930
1	COMPUTER CONTROLLED HT DEING SYSTEM +	
1	DAYLIGHT + ULTRAVIOLET COLOUR MATCHING BOX +	
1	PERSPIROMETER	13,300
1	LAB. FOAM APPLICATOR AND GENERATOR	27,325
1	BECKMANN VIBRANILL VM 100	1,270
1	TUMBLE DRIER	,500
	TESTING EQUIPMENT	
3	PICK COUNTER, METRIC MODEL, 0-10 cm GRADUATED IN 1/10TH DIVISIONS	1,260
3	PICK COUNTER, 4" MODEL, GRADUATED IN 1/4" DIVISIONS.	1,140
1	120959 - FADENEINLAUFMESSGERAET FMG 200 4 CM RUN-IN MEASURING DEVICE.	1,021
1	145069 IMPULSGEBER AN 4 KETTB. F FMG-200 ACCESSORIES/MACHINES.	,750
1	TYPE 2232 PRECISION SOUND LEVEL METER SN. 1005904/1007885 WITH ACCESSORIES.	,575
1	TYPE 4230 CALIBRATOR SN. 1025440	,191
1	MINI USTER PORTABLE EVENESS TESTING INSTRUMENT (TESTER) TYPE MIU-TE.	2,154
1	MEASURING HEAD FOR MINI USTER EVENESS TESTING EQUIPMENT TYPE MIU-MS 60	,481
1	MEASURING HEAD FOR MINI USTER PORTABLE EVENESS TESTING EQUIPMENT TYPE MIU-MS 30/10.	,885
1	PC180S2 ELECTRONIC PRECISION BALANCE S/N B66403.	1,482
2	PC2000S2 ELECTRONIC PRECISION BALANCE	2,520
3	THERMO-HYGROGRAPH V 780/1	1,387
1	PRECION BALANCE W 630 COMPLETE	,994

Quantity	Description	US Dollar Equivalent
2	GMW-4000 VERTICAL COTTON DUST ELUTRIATOR.	,903
1	MOTOR FOR DRIVING OPENING ROLLER FOR OPEN END SPINNING MO/5 1110 163.	,154
2	WHIRLING HYGROMETER MODEL 93 A	,155
2	CARD WIRE INSPECTION VIEWER.	1,223
1	SWAGING MACHINE WITH ROLLERS.	,086
	VEHICLES	
1	PEUGEOT 504 ESTATE	6,337
1	PEUGEOT 505 SR SEDAN	11,184
	OFFICE EQUIPMENT	
1	ELECTRIC TYPEWRITER, CONTINENTAL 800	1,650
1	PHOTOCOPYING MACHINE TOSHIBA 704	4,860

INTERNATIONAL STAFF

Name and Nationality	Post No	Specialisation	Arrival	Departure	Man/Months
Roy Nield (UK)	01	Project Manager/Chief Technical Adviser.	Jul 1979 Apr 1985	Jul 1982 May 1985	29.5 1
* Jack Shaw (UK)	02	Spinning	Sep 1981	Dec 1982	12
Derek Wyles (UK)	05	Dyeing	May 1981	Nov 1981	6
Derek Wyles (UK)	06	Finishing	Nov 1981	Apr 1982	6
Nita Aasmundrud (Sweden)	07	Childrens Garments	Sep 1980	Nov 1980	3
Carlo Palizzotto (Italy)	08A	Knitted Garments	Sep 1982	Dec 1982	3
Hartwig Hollmann (Germany)	08B	Woven Garments	Sep 1981	Nov 1981	3
Tomatsu Hoshiyama (Japan)	09	Weaving	Jun 1980	Aug 1981	14
George Currie (UK)	10A	Warp Knitting	Jan 1981	Apr 1981	3
* Malcolm Burnip (UK)	10B	Circular Knitting	Aug 1981	Apr 1982	3
John Gordon (UK)	10C	Stability of Garments			
Stephen Sello (USA)	11A	D&F Laboratories	May 1980	Jun 1980	1
Istvan Rusznak (Hungary)	11B	Dyeing & Finishing	Oct 1980	Nov 1980	1
Robert Hirschler (Hungary)	11C	Colour Measurement	Oct 1981	Dec 1981	1.9
Richard Bridge (UK)	11D	Dust Control	Nov 1981	Dec 1981	1
Roger Leach (UK)	11E	Noise Control	Aug 1982	Sep 1982	1
Donald Terrington (UK)	11F	Dyeing of Wool	Dec 1982	Feb 1983	2
Geoffrey Parish (UK)	11G	Water Conservation	Mar 1983	Apr 1983	1
John Roberts (UK)	11H	Energy Conservation	Jan 1983	Feb 1983	1
* John Gordon (UK)	11	Stability of Garments	Feb 1985	Nov 1985	2
Ivan Cresimir Spanic	11L	Polyester Fibre Production	1985	1985	2
					98.1

* Split missions.

NATIONAL COUNTERPART STAFF

Name	Qualifications	Present Position	Dates of Service
Magdi Elaref	B Sc (Alexandria) M Sc (Raleigh) UN Study Tour	General Manager, TCF. General Manager, TDC. Former UN Consultant	Start to Now
Sami El Meligy	B Sc (Alexnadria) PG Diploma (Alexandria) M.Sc (Manchester) 25 years mill experience UN Study Tour	Head of Research and Development Sector	Start to Now
Fayez El Attar	B Sc (Alexandria) M Sc (Manchester)	Head of Textile Quality Control Sector. Former UN Expert	Start to Now
SPINNING:			
Hosni Hassenein	B Sc (Alexandria) M Sc (Alexandria) PG Diploma (Manchester) PhD (Leeds) UN Fellowship	Director of Spinning & Weaving.	Start to Now
Salah Saber	B Sc (Alexandria) PG Diploma (Manchester) UN Fellowship	Joint Head of Spinning.	Start to Now
Neama Kishk	B Sc (Alexandria) PG Diploma (Manchester) UN Fellowship	Joint Head of Spinning.	Start to Now

NATIONAL COUNTERPART STAFF (CONTINUED)

Name	Qualifications	Present Position	Dates of Service
Omar Dafrawi	B Sc (Alexandria) UN Study Tour.	Spinning Engineer	Start to Now
Magda Sadek	B Sc (Alexandria)	Spinning Engineer	Start to Now
Adel El Said	B Sc (Alexandria)	Spinning Engineer	15.12.82 to 7.4.83
Alaa Ahmed Hafez	B Sc (Alexandria)	Spinning Engineer	20.5.85 to Now
WEAVING:			
Ibrahim Gebaly	B Sc (Alexandria) UN Fellowship	Head of Weaving	Start to Now
Alaa Fahmy	B Sc (Alexandria) PG Diploma (Manchester) UN Fellowship	Weaving Engineer. Now at Amreya, Textile Mill.	Start to 20.6.82
Madiha Mansour	B Sc (Alexandria) UN Fellowship	Weaving Engineer	Start to Now

NATIONAL COUNTERPART STAFF (CONTINUED)

Name	Qualifications	Present Position	Dates of Service
KNITTING AND GARMENTS			
Sohair S. Elnasr	B Sc (Alexandria) M Sc (Alexandria) PG Diploma (UK) UN Study Tour.	Director of Knitting and Ready-Made Garments	Start to Now
Mohamed El Shamy	B Sc (Alexandria) UN Fellowship.	Knitting Engineer	Start to 15.1.83
Mohamed Ibrahim	B Sc (Alexandria) UN Fellowship.	Knitting Engineer	Start to 1.4.84
Mostafa El Shazly	B Sc (Alexandria)	Knitting Engineer Now at Kafr El-Dawar Mill.	25.9.80 to 1.2.81
Josette Abeid	B Sc (Alexandria) UN Fellowship	Garment Engineer	Start to Now
Sanna El-Hawary	B Sc (Alexandria)	Garment Engineer	Start to Now
Nabila El-Attar	B Sc (Alexandria)	Garment Engineer	Start to Now
Moustafa Sabry	B Sc (Alexandria)	Knitting Engineer	30.4.85 to Now

NATIONAL COUNTERPART STAFF (CONTINUED)

Name	Qualifications	Present Position	Dates of Service
DYEING AND FINISHING:			
Abdel Hamid Khairallah	B Sc (Alexandria) Certificates (Indian Universities). UN Fellowship. UN Study Tour.	Director of Dyeing & Finishing.	Start to Now
Yuser Allam	B Sc (Alexandria)	Textile Chemist Head of Section.	Start to Now
Mona Okda	B Sc (Alexandria) UN Fellowship.	Textile Chemist.	Start to Now
Samia Selim	B Sc (Alexandria) UN Fellowship.	Chemical Engineer	Start to Now
Hoda Abd El-Aziz	B Sc (Alexandria) UN Fellowship.	Chemical Engineer	Start to Now
Hassan Kassrawy	B Sc (Alexandria) UN Fellowship.	Textile Chemist	Start to Now
Hisham Ramadan	B Sc (Alexandria)	Textile Chemist	12.2.79 to 1.3.80
Magda Abd El-Moneim	B Sc (Alexandria)	Textile Chemist	Start to Now

NATIONAL COUNTERPART STAFF (CONTINUED)

Name	Qualifications	Present Position	Dates of Service
TESTING AND QUALITY CONTROL:			
Leila Abbas	B Sc (Alexandria)	Textile Chemist Head of Section.	Start to Now
Samia Rizk	B Sc (Alexandria)	Electrical Engineer Dust Control Engineer	Start to Now
Samuel Samuel	B Sc (Alexandria)	Electronics Engineer	Start to Now
Abdel Maguid	B Sc of the Cotton Institute.	Head of Fibre Lab.	Start to Now
DOCUMENTATION AND INFORMATION:			
Mohamed Hussein	B Comm (Alexandria) UN Study Tour.	Administrative Officer, TCF. Secretary to Board of Management. Secretary to Technical Committee. Director, Textile Information Centre.	Start to Now
Hassan Zaki	B Sc (Alexandria) UN Study Tour.	Information Officer, TIC.	Start to Now
Sanna Ragab	B Comm (Cairo)	Librarian	Start to Now
Ahmed Mahrous	B A (Alexandria)	Assistant Librarian	Start to Now

STUDY TOURS

Name	Man/months	Starting	Countries Visited	Field of Activity
Magdi El Aref	0.3	Oct 1979	West Germany	Textile Machinery
Sami El Meligui	0.3	Oct 1979	West Germany	Textile Machinery
Soheir Seif El Nasr	0.3	Oct 1979	West Germany	Textile Machinery
Abdel Hamid Khairallah	0.3	Oct 1979	West Germany	Textile Machinery
Omar Dafrawi	0.3	Oct 1979	West Germany	Textile Machinery
Sami El Meligui	1	May 1982	USA and Switzerland	Management
Mohammed Hussein	0.5	Jan 1983	Switzerland	Information Services
Hassan Zaki	0.5	Jan 1983	Switzerland	Information Services

FELLOWSHIPS

Mohammed El Shamy	3.0	May 1980	Switzerland/Germany	Knitting
Mohammed Ali Ibrahim	3.0	May 1980	Switzerland/Germany	Knitting
Madeha Mansour	2.0	Feb 1982	Switzerland/France	Weaving
Ibrahim Gebaly	2.0	Feb 1982	Switzerland/France	Weaving
Abdel Hamid Khairallah	3.0	May 1982	England/Switzerland	Dyeing & Finishing
Mona Okda	3.0	May 1982	England/Switzerland	Dyeing & Finishing
Samia Selim	3.0	May 1982	England/Switzerland	Dyeing & Finishing
Hassan El Kassrawy	3.0	May 1982	England/Switzerland	Dyeing & Finishing

TRAINING COURSES FOR MILL ENGINEERS & TECHNICIANS

1981

1 Weaving for Engineers (TC1)
T Hoshiyama 2 weeks.

2 Warp Knitting for Engineers (TC2)
G Currie 1 week.

3 Warp Knitting for Technicians (TC3)
G Currie 1 week.

4 Weaving for Engineers (Repeat of TC1)
T Hoshiyama 2 weeks.

5 Weaving for Engineers (Repeat of TC1)
T Hoshiyama 2 weeks.

6 Colour Measurement in Textiles (TC4)
R Hirschler 2 weeks.

7 Computerized Colour Matching (TC5)
R Hirschler 1 week at Mehalla.

1982

8 Dyeing and Finishing of Cotton and Synthetics (TC6&7)
D H Wyles & A H Khairallah 2 weeks.

9 Knitting Technology (TC8)
M.S Burnip 2 days

Training Manuals are available in the TIC Library.

SEMINARS FOR MILL ENGINEERS & CHEMISTS

1980

S1 Functional Finishes for Natural and Synthetic Fibres.
S B Sello 1 day

S2 Mercerizing and Bleaching.
I Rusznak 1 day

S3 The Wet Processing of Textiles.
I Rusznak 1 day at National Research Centre.

1981

S4 Problems in Weaving and How to Solve Them.
T Hoshiyama 1 day.

S5 Warp Knitting Appreciation.
G Currie 1 day.

Utilisation of Polyester in the Textile Industry. 3 days.
Union des Constructeurs de Materiel Textile de France.

The MAV Loom.
SACM, France 1 day.

S6 Shuttleless looms.
T Hoshiyama 1 day.

S7 Recent Developments in Coloration and Finishing.
D H Wyles 1 day.

S8 Knitted Fabric Geometry and Dimensional Control of Fabrics.
M S Burnip 1 day.

S9 Applied Research Methods.
R Nield and M S Burnip 1 day.

S10 Principles of Knitted Fabric Geometry & Application to the Dimensional Control of fabrics and garments - Part II.
M S Burnip 1 day.

S11 Dust Measurement & Control in Textile Mills
R S Bridge 1 day.

S12 Applications of Colour Measurement.
R Hirschler 1 day.

S13 Colour Measurement and Control.
R Hirschler 2 days at National Research Centre.

S14 Yarn Spinning For Knitters.
J Shaw 1 day.

SEMINARS FOR MILL ENGINEERS & CHEMISTS (CONTINUED)

1982

- The Future of Textiles; Fibre Fracture; Friction and Wear Problems in Textiles; Applications of Polyester. Professor J. W. S. Hearle (UMIST, UK) in co-operation with Alexandria University & Misr Rayon 3 days.

- Garment Manufacture.
International Insitute for Cotton (IIC) 4 days.

- Textile Testing Instruments.
Shirley Developments Ltd 1 days.

- The Promotion of Polyester in the Egyptian Textile Industry.
Beida Dyers & National Research Centre.
(Paper by Mr Wyles) 5 days.

S15 Noise and its measurement related to Textile mills.
R. Leach 1 day.

1983

S16 Dyeing & Finishing of Wool And Wool Blend Fabrics
D. Terrington. 1 day.

S17 Energy in Textiles.
J. Roberts. 1 day.

S18 The Processing of Knitted Fabrics.
J. Gordon. 1 day.

S19 Water Conservation in the Textile Industry.
G. Parish. 1 day.

S20 Sizing Machines.
Charles Delancy (Technical Agent of Strandberg Co). 1 day.

- Pattern Makjng for Ready-Made Garments.
of UNIDO. with Eng. Soheir Seif El Nasr
of the TDC (in Cairo). 5 days.

1984

- Quality Control in Garment Manufacture.
J. Don Johnson, V. President, Kurt Solman Associates Inc. 5 days.

MILL CONSULTANCY

The following mills have received technical assistance from UNIDO consultants and issued reports as shown. The report numbers are TDC references. The titles are listed in Annexes 13 and 14.

Mill	Consultants	Subjects	Reports Issued	
Misr Mehalla	Rusznak	Dyeing & Finishing	TR2, TR18	
	Hoshiyama	Weaving	TR12	
	Hollmann	Garments	TR28	
	Wyles	Dyeing & Finishing	TR39	V15
	Leach	Noise Control	TR52	
	Hirschler	Colour Measurement		V48
	Terrington	Wool Dyeing &Finishing		V66
KABO	Rusznak	Dyeing & Finishing	TR15	
	Currie	Knitting	TR3, TR6	
	Wyles	Dyeing & Finishing		V4
	Burnip	Knitting	TR6A	
	Leach	Noise Control	TR49	
	Pallizzotto	Garment Manufacturing		V57
	Gordon	Dyeing & Finishing	TR56, TR57, TR58,TR59,TR60	V78
	Roberts	Energy Conservation		V72, V81

MILL CONSULTANCY (CONTINUED)

Mill	Consultants	Subjects	Reports Issued	
STIA	Rusznak	Dyeing & Finishing	TR16	
	Hoshiyama	Weaving	TR14	
	Hollmann	Garments		V27
	Wyles	Dyeing & Finishing		V3, V12
	Leach	Noise Control	TR51	
	Pallizzotto	Garment Manufacturing		V60
	Roberts	Energy Conservation		V71
	Terrington	Wool Dyeing & Finishing		V61, V56
Orient Linen	Rusznak	Dyeing & Finishing	TR17	
	Hoshiyama	Weaving	TR8, TR11	
	Hollmann	Garments	TR33	V29
	Wyles	Dyeing & Finishing		V2, V34
	Shaw	Spinning	TR54, TR55	V35, V52
	Pallizzotto	Garment Manufacturing		V59
	Parish	Water Conservation	TR61, TR64	
	Roberts	Energy Conservation		V74
El Nasr Dyeing Mehalla	Rusznak	Dyeing & Finishing	TR19	
	Hoshiyama	Weaving	TR9	
	Hollmann	Garments	TR29	
	Wyles	Dyeing & Finishing		V17
	Leach	Noise Control	TR53	
	Hirschler	Colour Measurement		V51

MILL CONSULTANCY (CONTINUED)

Mill	Consultants	Subjects	Reports Issued	
Kafr El Dawar	Hoshiyama	Weaving	TR7	
	Shaw	Spinning	TR44	V39, V40
	Wyles	Dyeing & Finishing		V37
	Leach	Noise Control	TR46	
	Roberts	Energy Conservation		V69
Damietta	Hoshiyama	Weaving	TR10	
Delta	Hoshiyama	Weaving	TR13	
El Nasr for Knitting	Currie	Knitting	TR4	
	Wyles	Dyeing & Finishing		V41
National Spinning	Currie	Knitting	TR5	
	Hollmann	Garments	TR35	V31
	Wyles	Dyeing & Finishing		V8
	Leach	Noise Control	TR50	
	Palizzotto	Garment Manufacturing		V56
	Roberts	Energy Conservation		V73
Nile Clothing Co. Cairo	Hollmann	Garments	TR27	
Arab German Co. Alex.	Hollmann	Garments	TR34	V30
	Pallizzotto	Garment Manufacturing		V58

MILL CONSULTANCY (CONTINUED)

Mill	Consultants	Subjects	Reports Issued	
Elgharbia, Mehalla	Burnip	Knitting		V18
	Wyles	Dyeing & Finishing		V16
	Gordon	Dyeing & Finishing		V79
El Safa Knitting, Mehalla	Burnip	Knitting		V19
Indemiable Knitting, Cairo	Burnip	Knitting		V20
Diea Knitting, Cairo	Burnip	Knitting		V21
Samir Knitting, Cairo	Burnip	Knitting		V22
Arab & United	Bridge	Dust Control	TR30	
	Wyles	Dyeing & Finishing		V10
	Shaw	Spinning	TR21	V25, V32
	Parish	Water Conservation	TR63	
	Roberts	Energy Conservation		V82
Alexandria	Wyles	Dyeing & Finishing	TR22	V5
	Shaw	Spinning	TR31, TR38	V46, V54
	Leach	Noise Control	TR47	
	Roberts	Energy Conservation		V75

MILL CONSULTANCY (CONTINUED)

Mill	Consultants	Subjects	Reports Issued	
El-Siouf	Wyles	Dyeing & Finishing	TR32	V1
	Shaw	Spinning	TR45	
	Parish	Water Conservation	TR62	
	Roberts	Energy Conservation		V77
Ismadye	Wyles	Dyeing & Finishing		V6
	Hirschler	Colour Measurement		V49
	Terrington	Wool Dyeing & Finishing		V68
Misr Beida Dyers	Wyles	Dyeing & Finishing	TR41	V7
	Leach	Noise Control	TR48	
	Hirschler	Colour Measurement		V50
	Roberts	Energy Conservation		V70
	Terrington	Wool Dyeing & Finishing		V62
Modern Textiles	Wyles	Dyeing & Finishing		V9, V11, V26, V28, V38
	Roberts	Energy Conservation		V76
Misr Rayon	Wyles	Dyeing & Finishing		V13
	Shaw	Spinning		V24
Egyptian Starch & Yeast	Wyles	Dyeing & Finishing		V14, V45
	Terrington	Wool Dyeing & Finishing		V5
National Research Dentre	Wyles	Dyeing & Finishing		V23

MILL CONSULTANCY (CONTINUED)

Mill	Consultants	Subjects	Reports Issued
CATGO	Shaw	Spinning	V33, V53
Cairo International Fair	Shaw	Spinning	V47
Industrial Establishment for Silk & Cotton (Esco)	Wyles	Dyeing & Finishing	V42
Egyptian Mill for Spinning & Weaving of Wool (Wooltex).	Terrington	Wool Dyeing & Finishing	V65
Cairo Dyeing & Finishing Co.	Wyles	Dyeing & Finishing	V43
Misr Helwan Spinning & Weaving Co.	Wyles	Dyeing & Finishing	V44
Textile Development Centre	Wyles	Dyeing & Finishing	TR20,TR23,TR24, TR25,TR26,TR40, TR42.
	Shaw	Spinning	TR36,TR37,TR43
	Burnip	Knitting	TR21
Arafa Co.	Pallizzotto	Garment Manufacturing	V55

MILL CONSULTANCY (CONTINUED)

Mill	Consultants	Subjects	Reports Issued
Municipal Water Supply Works.	Parish	Water Conservation	V80
El-Sabbagh Carpet Manufacturers.	Terrington	Wool Dyeing & Finishing	V67

The following terminal reports have been issued by the international staff on completion of their assignments. Copies are available in the Textile Information Centre, Alexandria.

Dr Roy Nield - Project Interim Report, June 1982.
Project Manager/Chief Technical Adviser.

Dr Stephen Sello.
Consultant in Dyeing & Finishing Laboratories.

Professor Istvan Rusznak.
Consultant in Dyeing & Finishing.

Mrs Nita Aasmundrud.
Adviser in Ladies & Children Garments.

Mr Tamotsu Hoshiyama.
Weaving Technologist.

Mr George Currie.
Adviser in Warp Knitting.

Dr Robert Hirschler.
Consultant in Colour Measurement.

Mr Hartwig Hollmann.
Adviser in Garment Industries.

Dr Malcolm Burnip.
Adviser in Knitting.

Mr Richard Bridge.
Consultant in Environmental Dust Levels.

Mr Roger Leach.
Consultant in Noise Control in Textile Mills.

Mr Derek Wyles.
Adviser in Dyeing & Finishing.

Mr Jack Shaw.
Adviser in Spinning.

Mr Carlo Palizzotto.
Expert in Garment Manufacturing and Design.

Mr Geoffrey Parish.
Expert in Water Conservation.

Dr John Roberts.
Adviser in Energy Conservation.

Mr Donald Terrington.
Expert in Wool Dyeing and Finishing.

Dr Roy Nield - Terminal Report.
Project Manager/Chief Technical Adviser.

DP/EGY/77/008

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V1 El-Siouf Spinning and Weaving Co.
D. H. Wyles - May 1981.

V2 Orient Linen and Cotton Co.
D. H. Wyles - May 1981.

V3 El Nasr Spinning and Weaving Co. (STIA)
D. H. Wyles - May 1981.

V4 El Nasr Clothing and Textiles Co. (KABO)
D. H. Wyles - May 1981.

V5 Alexandria Spinning and Weaving Co., Bakous.
D. H. Wyles - May 1981.

V6 Ismadye Dyestuffs and Chemicals Co., Kafr El-Dawar.
D. H. Wyles - May 1981.

V7 Misr Beida Dyers Co., Kafr El-Dawar.
D. H. Wyles - May 1981.

V8 National Spinning and Weaving Co.
D. H. Wyles - June 1981.

V9 Modern Textiles Co.
D. H. Wyles - June 1981.

V10 Arab and United Spinning and Weaving Co.
D. H. Wyles - August 1981.

V11 Modern Textiles Co.
D. H. Wyles - August 1981.

V12 El Nasr Wool & Selected Textile Co., (STIA)
D. H. Wyles - August 1981.

V13. Misr Rayon Co., Kafr El-Dawar.
D. H. Wyles - August 1981.

V14 Egyptian Starch Products and Yeast Co.
D. H. Wyles - September 1981.

V15 Misr Spinning and Weaving Co., Mehalla.
D. H. Wyles - September 1981.

V16 Elmessiry & Co. El Gharbia Industrial Co. Mehalla.
D. H. Wyles - September 1981.

V17 El Nasr Spinning, Weaving and Dyeing Co., Mehalla.
D. H. Wyles - September 1981.

V18 El Gharabia Industrial Co , El Messiri & Co., Mehalla.
M. S. Burnip - August 1981.

V19 El Safa Knitting Co., Mehalla.
M. S. Burnip - August 1981.

REPORTS ON MILL VISITS (CONTINUED)

V20 Indemiable Knitting Co., Cairo.
M. S. Burnip - August 1981.

V21 Diea Knitting Co., Cairo.
M. S. Burnip - August 1981.

V22 Samir Knitting Co., Cairo.
M. S. Burnip - August 1981.

V23 National Research Centre, Cairo.
D. H. Wyles - October 1981.

V24 Misr Rayon Co. Kafr El-Dawar.
J. Shaw - October 1981.

V25 Arab & United Co.
J. Shaw - November 1981.

V26 Modern Textile Co.
D. H. Wyles - November 1981.

V27 El Nasr Wool and Selected Textiles Co. (STIA)
H. Hollmann - September 1981.

V28 Modern Textiles Co.
D. H. Wyles - December 1981.

V29 Orient Linen & Cotton Co.
H. Hollmann - September 1981.

V30 Arab German Shirt Co.
H. Hollmann - September 1981.

V31 National Spinning & Weaving Co.
H. Hollmann - September 1981.

V32 Arab & United Co.
J. Shaw. - November 1981.

V33 CATGO.
J. Shaw. - November 1981.

V34 Orient Linen & Cotton Co.
D. H. Wyles - December 1981.

V35 Orient Linen
J. Shaw.- December 1981.

V36

V37 Misr Fine Spinning & Weaving Co. Kafr El-Dawar
D. H. Wyles - January 1982.

V38 Modern Textiles Co.
D. H. Wyles - February 1982.

V39 Kafr El-Dawar Spinning and Weaving Co.
J. Shaw.- February 1982.

V40 Kafr El-Dawar.
J. Shaw - February 1982.

V41 El Nasr Co. for Knitting (Chourbagui) Cairo.
D. H. Wyles.- March 1982.

V42 ESCO Co.
D. H. Wyles - March 1982.

V43 Cairo Dyeing and Finishing Co.
D. H. Wyles - March 1982.

V44 Misr Helwan
D. H. Wyles - March 1982.

V45 Starch, Yeast & Detergent Co..
D. H. Wyles - March 1982.

V46 Alexandria Spinning & Weaving
J. Shaw - March 1982.

V47 International Fair in Cairo - 2nd April.
J. Shaw - April 1982.

V48 Misr Spinning & Weaving Co. Mehalla El-Kubra.
R. Hirschler - November 1981.

V49 Ismadye Dyestuffs and Chemical Co. Kafr El-Dawar.
R. Hirschler - 10 November & 6, 7 December 1981.

V50 Misr Beida Dyers Co.
R. Hirschler - November 1981.

V51 El Nasr Spinning & Weaving & Finishing Co.
Mehalla El-Kubra.
R. Hirschler - December 1981.

V52 Orient Linen & Cotton Co.
J. Shaw - November 1982.

V53 CATGO
J. Shaw - November 1982.

V54 Alexandria Spinning & Weaving Co.
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V55 Arafa Co.
C. Palizzotto - November 1982.

V56 National Spinning & Weaving Co.
C. Palizzotto - November 1982.

REPORTS ON MILL VISITS (CONTINUED)

V57 El Nasr Clothing & Textiles Co. (Kabo).
C. Palizzotto - November 1982.

V58 Arab-German Co.
C. Palizzotto - November 1982.

V59 Orient Linen and Cotton Co.
C. Palizzotto - November 1982.

V60 El Nasr Wool and Selected Textiles (Vestia Co).
C. Palizzotto - November 1982.

V61 El Nasr Wool and Selected Textiles (Stia).
D. Terrington - February 1983.

V62 Misr Beida Dyers.
D. Terrington - February 1983.

V63 Misr Spinning & Weaving Co. Mehalla El-Kubra.
D. Terrington - February 1983.

V64 El Nasr Wool and Selected Textiles (Stia).
D. Terrington - February 1983.

V65 Wooltex.
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V66 Carpet Yarn Dyeing and Manufacturers.
D. Terrington - February 1983.

V67 Ismadye
D. Terrington - February 1983.

V68 Egyptian Starch Yeast and Detergent Co.
D. Terrington - February 1983.

V69 Misr Fine Spinning & Weaving Co.
J. G. Roberts - February 1983.

V70 Misr Beida Dyers Co.
J. G. Roberts - February 1983.

V71 El Nasr Wool and Selected Textile Co.
J. G. Roberts - February 1983.

V72 El Nasr Clothing and Textiles Co. (Kabor).
J. G. Roberts - February 1983.

V73 National Spinning & Weaving Co. Alex.
J. G. Roberts - February 1983.

REPORTS ON MILL VISITS (CONTINUED)

V74 Orient Linen and Cotton Co.
J. G. Roberts - February 1983.

V75 Alexandria Spinning & Weaving Co.
J. G. Roberts - February 1983.

V76 Modern Textiles Co. Alexandria.
J. G. Roberts - February 1983.

V77 El-Siouf Spinning & Weaving Co. Alex.
J. G. Roberts - February 1983.

V78 El Nasr Clothing and Textiles Co. (Kabo).
J. Gordon - March 1983.

V79 El Messiry and Co. (El Gharbia Industrial Co.) Mehalla.
J. Gordon - March 1983.

V80 Municipal Water Supply Works, New Manshia Plant.
G. Parish - March 1983.

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TR1 A Preliminary Survey of Egyptian Textile Mills.
Roy Nield & Magdi Elaref - June 1980.

TR2 Misr Spinning & Weaving Co., Mehalla El-Kubra.
I Rusznak - November 1980.

TR3 El Nasr Clothing & Textile Co. (KABO).
G Currie - March 1981.

TR4 El Nasr Co. for Knitting (Chourbagui) Cairo.
G Currie - March 1981.

TR5 National Spinning & Weaving Company.
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TR6 El Nasr Clothing & Textile Co. (KABO).
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TR7 Misr Fine & Spinning & Weaving co., Kafr El-Dawar.
T Hoshiyama - September 1980.

TR8 Orient Linen & Cotton Co.
T Hoshiyama - September 1980.

TR9 El Nasr Spinning, Weaving & Dyeing Co., Mehalla El-Kubra.
T Hoshiyama - November 1980.

TR10 El Nasr Spinning & Weaving Co., Damietta.
T Hoshiyama - December 1980.

TR11 Orient Linen & Cotton Co., Alexandria.
T Hoshiyama - December 1980.

TR12 Misr Spinning & Weaving Co., Mehalla El-Kubra.
T Hoshiyama - February 1981.

TR13 Delta Spinning & Weaving Co., Tanta.
T Hoshiyama - March 1981.

TR14 El Nasr Wool & Selected Textile Co. (STIA).
T Hoshiyama - June 1981.

TR15 El Nasr Clothing & Textiles Co. (KABO).
I Rusznak.- November 1980.

TR16 El Nasr Wool and Selected Textiles Co. (STIA).
I Rusznak.- November 1980.

TR17 Orient Linen & Cotton Co.
I Rusznak.- November 1980.

TR18 Misr Spinning & Weaving Co., Mehalla El-Kubra.
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TECHNICAL REPORTS (CONTINUED)

TR19 El Nasr Spinning Weaving & Dyeing Co., Mehalla
I Rusznak - November 1980.

TR20 The use of relilient ruber bowls for removing water from woven fabrics.
D H Wyles - October 1981

TR21 Work Programme for the Knitting Department
M S Burnip - (Sep-Dec 1981).

TR22 Alexandria Spinning & Weaving Co.
D H Wyles - November 1981.

TR23 Energy Saving in Dyeing and Finishing.
D H Wyles - November 1981.

TR24 Waste Saving in Dyeing and Finishing.
D H Wyles - November 1981.

TR25 Effluent Treatment.
D H Wyles - November 1981.

TR26 Development of a standard system of process control in finishing.
D H Wyles - November 1981.

TR27 Nile Clothing Co. Cairo.
H Hollmann - November 1981.

TR28 Misr Spinning & Weaving Co., Mehalla El-Kubra.
H Hollmann - November 1981.

TR29 El Nasr Spinning, Weaving and Dyeing Co., Mehalla.
H Hollmann - November 1981.

TR30 Environmental Dust Measurement in Egyptian Mills.
R S Bridge - December 1981.

TR31 Spinning Machinery Survey - Alexandria Spinning and Weaving Co.
J Shaw - December 1981.

TR32 The Dyeing and Finishing of Woven Polyester/Cotton Fabrics.
D H Wyles - December 1981.

TR33 Orient Linen & Cotton Co.
H Hollmann - November 1981.

TR34 Arab German Co., for Clothing and Equipment.
H Hollmann - November 1981.

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TR35 National Spinning & Weaving Co.
H. Hollmann - November 1981.

TR36 Work Programme for The Spinning Department.
J. Shaw - December 1981.

TR37 Yarn Spinning (Standard Test Procedures for Applied & Research Work).
J. Shaw - December 1981.

TR38 Environmental Dust Measurements At Alexandria Spinning & Weaving Co.
J. Shaw - January 1982.

TR39 Misr Spinning and Weaving Co., Mehalla El-Kubra.
D. H. Wyles - January 1982.

TR40 Removal of Soil From Polyester Filament Fabrics.
D. H. Wyles - January 1982.

TR41 Quality Control System at Beida Dyers.
D. H. Wyles - April 1982.

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D. H. Wyles - April 1982.

TR43 Mid-Year Work Programme for the Spinning Department
J. Shaw - May 1982.

TR44 Environmental Dust Studies at Kafr El-Dawar Spinning & Weaving Co.
J. Shaw - May 1982.

TR45 Environmental Dust Measurements at El-Siouf Spinning & Weaving Co.
S. Rizk - July 1982.

TR46 Misr Fine Spinning Co.
Roger Leach - September 1982.

TR47 Alexandria Spinning & Weaving Co.
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TR48 Beida Dyers.
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TR49 El Nasr Clothing & Textiles Co. (Kabor).
Roger Leach - September 1982.

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TECHNICAL REPORTS (CONTINUED)

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Roger Leach - September 1982.

TR52 Misr Spinning & Weaving Co. Mehalla El-Kubra.
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TR53 El Nasr Spinning, Weaving & Dyeing Co. Mehalla El-Kubra.
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TR54 Orient Linen and Cotton Co.
J. Shaw - December 1982.

TR55 Orient Linene and Cotton Co.
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TR56 El Nasr Clothing & Textiles Co. (Kabo).
John Gordon - March 1983.

TR57 El Nasr Clothing & Textiles Co. (Kabo).
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TR58 El Nasr Clothing & Textiles Co. (Kabo).
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TR59 El Nasr Clothing & Textiles Co. (Kabo).
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Soheir Seif El Nasr - March 1983.

TR61 Orient Linen and Cotton Co.
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TR63 Arab and United Spinning and Weaving Co.
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TR65 Spinning Technology.
Hosney M. H. & S. Saber - October 1983.

TR66 Fibre Testing.
Mohsen El-Nashaar - October 1983.

TR67 Yarn Testing.
Fayez El Attar - November 1983.

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TR68 Open-End Spinning Technology.
Ibrahiem El-Hawarey - November 1983.

TR69 Polyester Processing.
Hosney Hassanien - December 1983.

TR70 Pattern Making.
Soheir Sief El-Nasr - December 1983.

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Mahmoued El-Gemery - December 1983.

TR72 Textile Dyeing Technology.
Ahmed Fouad El-Nagaway - January 1984.

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Hosney M. Hassanien - January 1984.

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Ahmed Abou El-Nader - January 1984.

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Ibrahiem El-Gebaley - February 1984.

TR77 Knitting Defects.
Soheir Sief El-Nasr - February 1984.

TR78 Dyeing & Finishing Testing.
Laila Mohamed Abbas - February 1984.

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Glaal Deabes - February 1984.

TR80 Loom Mechanisms.
Mohamed Salmeen - March 1984.

TR81 Weaving Defects.
Hosney Hassanien - March 1984.

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Abdel Hamid Khairallah - March 1984.

TR83 Maintenance & Calibration of Textile Testing Equipment.
Samia Rezek - March 1984.

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Moustafa El-Okeily - April 1984.

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Abdel Hamid Khairallah - April 1984.

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Mohamed Mahmoud El-Masrey - May 1984.

TR87 Electronics in Textiles.
Magdi El-Messeiry - May 1984.

TR88 Specification of Textile Products.
Laila Abbar Helmy - May 1984.

TR89 Textile Machinery Maintenance.
Hosney Hassanien - May 1984.

WORKING PROGRAMME

Annex 15
Page 1 of 15

SPINNING DEPARTMENT

(1983-1985)

A. APPLIED RESEARCH

1. Card Sliver Quality Against Card Production

This work to examine quality variation in card sliver for five materials at various card production rates and machine settings.

2. Single Head Comber Work

To study the basic functions of the comber and the effect of making certain adjustments.

3. Open End Waste Spinning

To study the effect of machine component setting on yarn quality and proporties.

4. Quality of Ring Spin Yarn

To study the effect of machine component setting on yarn quality and properties.

5. Superjet Spinning Rings

To evaluate the high speed superjet rings for polyester cotton and their associated balloon control rings.

6. Polyester-Cotton Yarn Spinning

To supervise two pilot plant process lots at Orient Linen & Cotton Co. and El Siouf.

7. Blow-Room Processing of 100% Polyester

To process 100% polyester in the blow-room varying the machine process ie number of opening points, and the lap forming conditions at the scutcher.

8. New Cottons

To continue the spinnability work for the new cottons which will reach the mills in 1983-1984. Fibre sampling to be carried out prior to bale selection for spinnability trails in 1983.

Giza 76 Giza 77
Giza 80 Giza 81
Giza 82

9. H. Production Carding

Rewire the one high production card putting cotton wire specification on the SSI card and the synthetic wire specification on the Crosrol card.

The SSI card to be evaluated by taking card sliver with and sithout fixed flat and processing through to a combed yarn. The fixed flats should show a waste saving at the comber for a fixed step gauge setting.

10. Speed Limits at D.F.

To determine practical speed limits when processing 100% polyester and 65%-35% and 50%-50% polyester-cotton blends.

11. High Speed OE Spinning

Processing of meduim yarns for knitting at speeds up to 60000 rpm from 100% cotton and 50/50 blend of polyester-cotton.

12. Rotating Yarn Lappets

To determine the effectiveness of rotating yarn lappets, as a means of reducing end breaks, samples can be obtained from Nitto Shoji of Japan.

13. Evaluation of Air Spinning Rings

Freely rotating air suspended rings are claimed to extend traveller life and increase spindle speeds with no deterioration in end breaks. Samples may be obtained either through SSI or Cognetex Group of Companies Via Selice 94 140026 (Bo) Italy.

14. High Speed Cotton Combing

The comparison between heavy lap short feed compared to light lap long feed combing on sliver quality. Machines production to be constant. The benefits of using backward feed compared to forward feed and when it should be used.

15. Blending of Polyester and Cotton

Compare the intimacy of blend through the process between blow room and draw frame blending start with 50/50 blend match the cotton to the polyester.

16. Open-End Spinning

Using waste blends with fairly high trash level determine the relationship between build up of rotor deposits and yarn periodicity and if possible show the effect in fabric forms.

17. Spinning of 30/1 Ne combed yarns from Dandara cotton for El-Siouf Company Ltd. (RR28).

18. Blending of Dandara cotton and G75 cotton for ESCO Company Ltd. (RR26).

19. Spinning of OE spun yarns at low twist factor for Orient Linen Company. (RR27).

20. Elimination of Felted Groups of fibres appeared in the polyester-viscose rayon (67%-33%) coloured yarns as white spots distributed Randomly along the yarn. (RR36). For Misr Rayon Co.

21. Effect of Twist Factor and spindle speed on productivity and end-brakes rate for Ne 80/1 yarn for Kafr El-Dawar Fine Spinning & Weaving Co. (RR47).

22. Deterioration beheviour for the Dandara cotton properties during the last 4 years. (Confidential).

23. Blending of wool comber noils and G75 cotton for processing OE and Ring Spun blended yarns, on the cotton spinning m/cs. (RR46).

24. Spinning of OE spun yarns from blends of 2nd grade polyMisr fibres and Misr Rayon waste fibres at different levels. (RR37).

25. Spinning of Ring Spun yarns from blends of 2nd grade PolyMisr fibres and Misr Rayon waste fibres at different levels.

26. Optimization for the Draw Frame settings for the Dandara and G70 cottons.

27. Production of cotton-polyester-viscose rayon blended yarns at different levels for the popular fabrics.

28. Production of 8/1 Ne yarn 100% Dandara cotton for Misr Rayon Co.

29. Spinning quality for commercialy produced yarns in all the spinning mills from the different types of the season 84-85 seasons

    G75
    Dandara
    G80
    G81
    G70
    G76
    G69
    G45

30. Blending of G70, G76, and G69 cottons to give higher properties of yarns produced.

31. Spinning of 100% polyester (coloured) to produce 30/1 & 40/1 Ne yarns for Misr Rayon Co.

WORKING PROGRAMME
WEAVING DEPARTMENT
(1983-1985)

A. APPLIED RESEARCH

1. Effect of changing of back rest on fabric proporties on (SACM LOOM).

2. Effect of changing of back rest on fabric proporties (PICANOL LOOM).

3. Effect of changing of back rest on fabric proporties (NORTHROP LOOM).

4. Productivity and quality of weaving blended yarns polyester/viscose (70%-30%) 20/1 warp and 12/2 weft for producing the most suitable fabrics used for ladies outerwear by changing picks and designs.

5. Productivity and quality of weaving blended yarns polyester/viscose (70%-30%) 20/1 warp, 100% polyester 16/1 for weft for producing the most suitable fabrics used for ladies outerwear, by changing picks and designs.

6. Comparison of productivity and quality of table spreads by using 100% cotton 24/2 in warp and weft, and 24/2 polyester/viscose (70%-30%) in warp and weft.

7. Production of Carś coverings fabrics for Misr Rayon Co.

8. Production of stretched continuous-filaments Nylon 6 yarns in warp & weft, at different Denier Levels.

9. Effect of Fabric Design and Picks/cm by using 14/1 75-25% polyester-cotton warp yarns, and different warp yarns of different blends.

10. Effect of cotton (G75 & Dandara) mixing on Fabric Appearance (RR26).

11. Production of shirts fabrics of polyester-viscose blends for Misr-Rayon Co.

12. Productivity and quality of popular fabric "Damour" out of:

WARP		WEFT	
BLEND	SYSTEM	BLEND	SYSTEM
75% cotton-25% Polyester	RS	75% Cotton-25%polyester	RS
75% cotton-25% polyester	RS	75% Cotton-25%polyester	OE
75% Cotton-25% polyester	RS	IOO% Cotton	RS
IOO Cotton	RS	IOO% Cotton	RS
IOO Cotton	OE	IOO% Cotton	OE

13. Productivity and quality of popular fabric "Dabalan out of:-

WARP		WEFT	
BLEND	SYSTEM	BLEND	SYSTEM
75% Cotton-25% polyester	RS	75% Cotton-25% polyester	RS
75% Cotton-25% polyester	RS	75% Cotton-25% polyester	OE
75% Cotton-25% polyester	RS	IOO% Cotton	RS
IOO% Cotton	RS	IOO% Cotton	RS
IOO% Cotton	OE	IOO% Cotton	OE

14. Productivity and quality of popular fabric "Folar" out of:-

WARP		WEFT	
BLEND	SYSTEM	BLEND	SYSTEM
75% Cotton-25% polyester	RS	75% Cotton-25% Polyester	RS
75% Cotton-25% polyester	RS	75% cotton-25% polyester	OE
75% Cotton-25% polyester	RS	IOO% Cotton	RS
IOO% Cotton	RS	IOO Cotton	RS
IOO% Cotton	OE	IOO Cotton	OE

15. Productivity and quality of popular fabric "Teel" out of:-

WARP		WEFT	
BLEND	SYSTEM	BLEND	SYSTEM
65% cotton-35% polyester	RS	65% cotton-35%polyester	RS
65% cotton-35% polyester	RS	65% cotton-35%polyester	OE
65% Cotton-35% Polyester	RS	I00% Cotton	RS
I00% Cotton	RS	I00% Cotton	RS
I00% Cotton	OE	I00% Cotton	OE

16. Productivity and quality of popular fabric "Zofeir" out of:-

WARP		WEFT	
BLEND	SYSTEM	BLEND	SYSTEM
55% Cotton-45% polyester	RS	55% cotton - 45%polyester	RS
55% Cotton-45% polyester	RS	55% cotton - 45%polyester	OE
55% Cotton-45% polyester	RS	I00% cotton	RS
I00% Cotton	RS	I00% cotton	RS
I00% Cotton	OE	I00% cotton	OE.

17. Production of printing fabrics from Nylon 6 continuous filaments yarns for Misr-Rayon Co.

18. Production of Blankets on the Sulzer D2 loom.

19. Production of Pilled Fabrics made of cotton-polyester blends for Misr-Rayon Co.

WORKING PROGRAMME

KNITTING DEPARTMENT

(1983-1985)

The figures in brackets are TDC references to Research Reports (RR) or Technical Reports (TR).

A. APPLIED RESEARCH

1. The geometry and dimensional properties on the circular knitting machine for different count of open-end cotton yarn with the object of determining the amounts of relaxation shrinkage which are induced by different designs. (RR40).

2. The development of polyester-cotton blend percentage which is suitable for circular knitting machines as a trials involving ring spun and open-end spun yarns.

3. The effect of machine speed upon fabric loop length (RR25).

4. The production of a range of standard Raschel and Tricot Knitted fabrics in the raschel and tricot machines for the purpose of providing a training in systematic experimental design, analysis and testing with different strucures (RR35).

5. Processing of "Dandara" cotton 30/1 on the double jersey circular knitting machine for El-Siouf Co. Ltd. (RR33).

6. Processing of fine yarn count (Nylon 100%) on the double jersey knitting machine for Misr Rayon Co. (RR31).

7. Assesment of tubular mercerization on A 28 gauge single jersey fabric and A 24 gauge single jersey fabric at El-Nasr Clothing and Textiles Co. (Kabo) (TR60).

8. The knittability of polyester yarn (150/30/1) on double jersey circular knitting machine for Misr Rayon Co. (RR34).

9. Study the efficient of Nylon yarn Denier (40/8) in warping and knitting operation produced by Misr Rayon, some private sector mills were refusing to use this yarn but they now accept it.

10. Effect of different levels of yarn twist on the dimensional stability of weft knitted fabrics. It was shown that yarn twist had very little effect on dimensional stability of the fabrics.

11. Dimensional stability of weft knitted fabrics (grey and finished) and garment produced by Kabo, Tricona and Stia factories.

12. Knittability of polyester viscose yarn on warp knitting raschel M/c for Misr Rayon Co.

13. Knittability of fine linen yarn on circular knitting M/c for Orient Linen Company.

14. Knittability of polyester-cotton yarn on circular knitting M/c and the ability of fabric to dyeing.

15. Study on circular knitted fabric defects "Jersey" their causes (yarn - machine - labor) and recommendations to decrease percent fabric seconds for:-

    - El-Nasr Clothing & Textile Co. (Kabo).
    - El-Nasr Wool & Selected Textiles Co. (Stia).
    - Cairo Clothing & Hosiery Co. (Tricona Cairo).

16. Study on circular knitted fabric defects (Rib) their causes (yarn - machine - labor) and recommendations to decrease percent fabric seconds for :-

    - El Nasr Clothing & Textile Co. (Kabo).
    - El Nasr Wool & Selected Textiles Co. (Stia).
    - Cairo Clothing & Hosiery Co. (Tricona Cairo).

17. Study on circular knitted fabric defects "Inter-lock" their causes (yarn - machine - labor) and recommendations to decrease percent fabric seconds for :-

    - El Nasr Clothing & Textile Co. (Kabo).
    - El Nasr Wool & Selected Textiles Co. (Stia).
    - Cairo Clothing & Hosiery Co. (Tricona Cairo).

18. Assesment of dimensional changes that occur during processing. The two major bleaching methods in use have been compared to asess the change that occur in both dimensions and final dimensional stability.

    - El-Gharbia Industrial Company (El-Messiri Co.).
    - Misr Spinning & Weaving Co. Mehalla El-Kobra.

19. Existing levels of noise is comparison with International levels and recommendations for reduction for :-

- El-Nasr Company for Spinning, Weaving & Knitting (Chourbagi).
- El-Gharbia Industrial Company (El-Messiri Co.).

WORKING PROGRAMME

GARMENT DEPARTMENT

(1983-1985)

1. Setting up the following production units using machines supplied by industry.

   2 lines for pyjamas (2x8 machines).
   1 line for skirts (10 machines).
   1 pattern making department.
   1 cutting-out department (4 machines).
   1 garment finishing department (4 ironing tables).

2. Designing and preparing documentation for a training course in garment technology with a duration of 3 months.

   Presenting the course 4 times to an average of 25 trainess.

3. Collecting the different types of stitches (RR44).

4. Study of the layout priniciples of the sewing room.

5. Running and adjusting the sewing machines to work under proper conditions.

6. Study on percent waste for (T. Shirt) manufacture. Recommendations for decrease waste percent for:-

   - El-Nasr Clothing & Textile Co. (Kabo) for knitted T. Shirts & knitted singlets.
   - Arafa Company (Sujack) for knitted T. Shirts and knitted singlets.
   - Sultan Commercial Agency for knitted T. Shirts.
   - Cairo Clothing & Hosiery Co. (Tricona Cairo) for knitted singlets.
   - Arabic Germany Company for woven shirts.

7. Study on percent waste for pyjama manufacture. Recommendations for decrease waste percent for:-

   - El Nasr Clothing & Textiles Co. (Kabo) for knitted pyjama.
   - Misr Spinning & Weaving Co. Mehall El-Kobra for woven pyjama.
   - National Spinning & Weaving Co. for woven pyjama.

8. Study on percent waste for suit manufacture.
   Recommendations for decrease waste percent for:-
   - Orient Linen & Cotton Co.
   - Misr Spinning & Weaving Co. Mehalla El-Kobra.

WORKING PROGRAMME

CHEMICAL PROCESSING

(1983 - 1985)

A. Applied Research

1. Study the dye-affinity of local manufactured polyester/cotton and polyester/viscose fibre blend in H.T. dyeing machines (Jets - auto-claves).

2. Study the efficiency of auxiliaries in scouring, bleaching, dyeing, printing and finishing, practical trails on pilot-plant followed by instrumental analysis of products.

3. Evaluation of Whiteness

   a- degree of whiteness of raw wool, raw cotton and bleached fibres using different scales (CIBA-GEIGY) plastic white scale, Hunterlab reflectometer and visual assesment).

   b- study the affinity, wash fastness and stability of optical brightening agents.

4. Applying transfere printing technique;

   a- on polyester blends with viscose, cotton and wool.

   b- acid dyes on wool.

   c- preparation of transfere paper.

5. Laboratory trials on foam application of finishes and dyes on textile fabrics.

6. Laboratory trials on lab jig for mercerising cotton fabrics and its effect on the colour yield .

7. Laboratory trials on utilising direct electric current in saving chemicals in exhaustion dyeing.

8. Preparatory work on thin-layer and paper-chromatography with particular application on the evaluation of resines, auxiliaries and dyestuffs.

9. Utilising the Infra-red Spectrophotometry in the identification of chemical compounds and fibres.

10. Energy conservation, in the dyeing & finishing plants. A complete survey of the energy sources and consumption in textile mills. Correlation of data collected, study of costs on the light of the world wide standard for:-

- Cairo Dyeing & Finishing.
- El Nasr Co. for spinning , weaving & knitting "Chourbagi"
- Misr/Helwan spinning & weaving Co.
- Industrial establishment for silic & Cotton "ESCO"

11. Water Conservation in the wet processing of textiles
    a) Systimatic collection of data on water usage in machines, water quality from different sources (surface, underground, treated and boiler feed).

    b) Efforts to approach the optium levels as per the international estimations for:-

- Misr spinning & weaving . Mehalla Elkoubra.
- El Nasr Dyeing & Finishing Mehalla Elkoubra.
- Cairo Dyeing & Finishing.
- Misr/Helwan Spinning & Weaving Co.
- Modern Textiles.
- El Nasr clothing & textiles "KABO"

12. Colour measurement technique; application in,
    a) Preparation of colour maps for dyestuff stocks in dyehouses.

    b) Evaluation of dyeaffinity and exhausion of dyebaths for:-

- Misr Spinning & Weaving Mehalla Elkoubra.
- El Nasr Dyeing & Finishing Mehalla Elkoubra.
- Misr Rayon.
- Chemical& Dyestuff manufacuring "ISMADYE"

13. Efficiency & productivity of machines, utilised in scouring, bleaching, dyeing, printing and finishing. A survey study in 3 levels of mills, small, medium and large size units, with special reference to quality of products for:-

- Cairo Dyeing & Finishing.
- Misr/Helwan spinning & weaving.
- National spinning & weaving.
- Orient linen & cotton.
- El Siouf spinning & weaving.
- The Arab & united spinning & weaving.

14. Special finishing of textiles, applying up-to-date techniques in finishing natural and man-made fibres such as, soil-release, moth-proof, antistatic, flame-proof, and durable press finishes for:-

-Misr Bieda Dyers.
- Egyptian Co. for spinning & weaving of wool "Wooltex"
- Misr/Helwan spinning & weaving.
- Modern Textiles.
- Orient linen & cotton.
- Arab & United spinning & weaving.
- El Nasr wool & selected textiles "STIA"

15. Processing Control,
   a) Stage-wise programmes in the whole spectrum of the chemical processing from loom state to final finish.
   b) Recommending independent trouble shooting schemes in every stage.
   c) Tracing the sources of defects, collecting and sorting specimes for reference for:-
      - Egyptian Co. for spinning & weaving of wool "Wooltex"
      - Misr/Helwan spinning & weaving.
      - Orient linen & cotton.
      - El Siouf spinning & weaving.
      - El Nasr wool & selected textiles "STIA"

16. Full scale study on the dimentional stability of knitted fabrics and garments, particularly the effect of knitting and finishing machinary in the three major knitware producing mills, namely :-
   - El Nasr Clothing & Textiles Co. (Kabo).
   - El Nasr Wool & Selected Textiles (Stia).
   - Cairo Clothing & Hosiery Co. (Tricona).

RESEARCH REPORTS

RR. 1 BLOWROOM PROCESSING OF COTTON WASTE.

RR. 2 STUDIES OF YARN IRREGULARITIES.

RR. 3 RING FRAME SPINNING OF 36 NE YARNS.

RR. 4 THE PRODUCTION AND TESTING OF A RANGE OF DOUBLE JERSEY FABRICS.

RR. 5 THE PRODUCTION AND TESTING OF A RANGE OF WARP KNITTED FABRICS.

RR. 6 COMPARISON OF WARP KNITTING AT KABO AND THE TDC.

RR. 7 STUDIES OF BOBBIN WEIGHT AT THE RING FRAME.

RR. 8 COMMISSIONING OF THE RIETER COMBER IN T.D.C.

RR. 9 POLYESTER-COTTON YARNS SUMMARY REPORT FOR POPULAR FABRICS.

RR. 10 POLYESTER-COTTON YARNS (100% COTTON) FOR POPULAR FABRICS.

RR. 11 POLYESTER-COTTON YARNS 25%-75% FOR POPULAR FABRICS.

RR. 12 POLYESTER-COTTON YARNS 35%-65% FOR POPULAR FABRICS

RR. 13 POLYESTER-COTTON YARNS 45%-55% FOR POPULAR FABRICS.

RR. 14 HIGH DRAWING EFFECT OF ROLLER SETTINGS.

RR. 15 HIGH SPEED DRAWING EFFECT OF DELIVERY SPEED.

RR. 16 HIGH SPEED DRAWING EFFECT OF SILVER TENSION.

RR. 17 WORK PROGRAMME FOR PREPARATION OF POLYESTER-COTTON YARNS FOR WEAVING POPULAR FABRICS.

RR.18 RING FRAME SPINNABILITY OF COTTON TYPE GIZA 66.

RR 19 SPINNABILITY OF OE YARNS FROM GIZA 66

RR.20 OBSERVATIONS OF COMBER AT KAFR EL DAWAR.

RR.21 RING FRAME SPINNABILITY OF COTTON TYPE GIZA 70.

RR.22 OBSERVATION OF COMBER AT ALEXANDRIA SPINNING COMBANY

RR.23 SPINNING COUNT LIMIT FOR COTTON GIZA 75.

RR 24 PRODUCTIVITY AND QUALITY OF WEAVING OF BLENDED YARNS POLYESTER/VISCOSE 70/30%) 20/1 NE WARP & WEFT.

RR.25 THE EFFECT OF ROTATIONAL SPEED UPON KNITTED FABRIC LOOP LENGTH AND WIDTH PRODUCED BY THE CRICULAR KNITTING MACHINE. (ENG. SOHAIR S.EL NASR)

RR.26 BLENDING OF DANDARA AND GIZA 75 COTTONS. (DR. HOSNEY. HASSANIN)

RR.27 SPINNING OF OE SPUN YARNS AT LOW TWIST FACTOR. (DR. HOSNEY HASSANIN)

RESEARCH REPORTS.

RR.28 30/1 NE COMBED YARNS FROM DANDARA COTTON.

RR.29 SPRING COUNT LIMIT FOR COTTON TYPE GIZA 68
DR. HOSNEY. HASSANIEN.

RR.30 PROCESSING CARDED YARNS 65-35% BLEND OF POLYESTER COTTON- ORIENT LINEN.
DR. HOSNEY. HASSANIEN.

RR.31 PROCESSING OF FINE NYLON 100% FINE COUNT YARN ON THE CIRULAR DOUBLE CIRCULAR KNITTING MACHINE.
ENG. SOHEIR SIEF ELNASR & ENG. MOHAMED ALI.

RR.32 ASSESSMENT OF NATURAL COLOUR AND DYEABILITY OF GIZA 75 AND DANDARA EGYPTIAN COTTON BLENDS.
CHEMIST. ABDELHAMID KHAIRALLA.
ENG. SAMIA SELIM.
ENG. MAGDA NASSAF.

RR.33 PROCESSING OF "DANDARA" COTTON 30/1 ON THE DOULBLE JERSEY CIRCULAR KNITTING MACHINE.
ENG. SOHEIR SIEF ELNASR & ENG. MOHAMED ALI.

RR.34 THE KNITTABILITY OF POLYESTER YARN(150/30/1)ON DOUBLE JERSEY CIRCULAR KNITTING MACHINE.
ENG. SOHEIR SIEF ELNASR.

RR.35 THE EFFECT OF RACK MEASUREMENT IN THE WARP KNITTING MACHINES ON THE FABRIC PROPERTIES.
Eng. SOHEIR SIEF ELNASR & ENG. MOHAMED ALI.

RR.36 ELIMINATION OF FELTED GROUPS OF FIBRES APPEARED IN THE POLYESTER-VISCOSE RAYON (67% - 33%) COLOURED YARNS, AS WHITE SPOTS DISTRIBUTED RANDOMLY ALONG THE YARN LENGTH, PRODUCED IN MISR RAYON & CO. LTD.
DR. HOSNEY M. HASSANIN. APRIL 1984.

RR.37 SPINNING OF OPEN END SPUN YARNS FROM BLENDS OF 2ND GRADE POLYMISR FIBRES AND MISR-RAYON WASTE FIBRES AT DIFFERENT LEVELS. D. Hosney H.

RR.38 PRODUCTIVITY AND QULAITY OF WEAVING BLENDED YARNS POLYESTER/VISCOSE (70%-30%) 20/1 WARP, 100% POLYESTER 16/1 FOR WEFT FOR PRODUCING THE MOST SUITABLE FABRICS USED FOR LADIES OUTERWEAR. D. Hosney. H.

RR.39 PRODUCTIVITY AND QUALITY OF WEAVING BLENDED YARN POLYESTER/VISCOSE (70-30%) 20/1 WARP AND 12/1 WEFT. DR. HOSNEY M. HASSANIN.

RR.40 THE DIMENSIONAL PROPERTIES OF CIRCULAR KNITTED FABRICS WHEN PROCESSING COTTON OPEN END YARNS. ENG. SOHEIR SEIF EL NASR.

RR.41 PRODUCTIVITY AND QUALITY OF WEAVING BLENDED YARNS POLYESTER/VISCOSE (70 -30%) 20/1 WARP AND 12/1 WEFT FOR PRODUCING THE MOST SUITABLE FABRICS USED WEFT FOR LADIES OUTERWEAR. DR. HOSNEY M. HASSANIN.

RESEARCH REPORTS

RR.42 COMPARISON OF PRODUCTIVITY AND QUALITY OF TABLE SPREADS BY USING 100% COTTON 24/2 WARP AND WEFT AND 24/2 POLYESTER/ VISCOSE (70%-30%) IN WARP & WEFT. (DR HOSNEY M. H).

RR.43 MODIFYING THE STANDARD PATTERN TO FIT BODY MEASUREMENTS FOR ALL INPORTANT STRUCTURAL LINES. (ENG. JOSET JOSEPH)

RR.44 A STUDY DIFFERENT TYPE OF STITCHES. (ENG. SOHEIR SIEF EL NASR)

RR.45 EFFECT OF TENSION DRAFTS AND MACHINE SPEEDS ON NEP POTENTIAL IN DRAWING AND ROVING FRAMES. (DR. HOSNEY M. HASSANIEN)

RR. 46 BLENDING OF WOOL, COMBER NOILS AND G-75 COTTON FOR PROCESSING OPEN END AND RING SPUN BLENDED YARNS, ON THE COTTON SPINNING MACHINES.

UNIDO

PROJECT BUDGET/REVISION

Annex 17
Page 1 of 2

3 COUNTRY	4 PROJECT NUMBER AND AMEND.	5 SPECIFIC ACTIVITY
EGYPT	DP/EGY/73/020/1/01/37	31.7.B

10 PROJECT TITLE

TEXTILE DEVELOPMENT CENTRE, ALEXANDRIA
PHASE I

CLOSING BUDGET REVISION - PHASE I.

15 10 PROJECT PERSONNEL 11 EXPERTS / Post title	16 TOTAL		17 1976 + P.Y		18 1977		19 1978		20 1979	
	m/m	$	m/m	$	m/m	$	m/m	$	m/m	$
1101 Project Manager	4.8	22,158		-		-		-	4.8	22,158
02										
03 Consultants	6.2	23,789	2.1	7,590	1.8	7,428	1.9	8,311	0.4	460
04 Equipment expert	1.0	3,500	1.0	3,500						
05										
06										
07										
08										
09										
10										
11										
12										
13										
14										
1199 SUBTOTAL:	12.0	49,447	3.1	11,090	1.8	7,428	1.9	8,311	5.2	22,618

21 REMARKS

Form/FS 83/Rev 3 (10 78)

UNIDO

PROJECT BUDGET/REVISION

4 PROJECT NUMBER

2 PAD NUMBER

		16. TOTAL		17.		18.		19.		20.	
		m/m	$	m/m	$	m/m	$	m/m	$	m/m	$
12.01	OPAS Experts										
13.00	Support Personnel		2,272		1,730						542
14.00	Volunteers										
15.00	Experts Travel		1,367								1,367
16.00	Other Personnel Costs		4,648		4,384						264
17.01	Locally hired Experts										
17.02	Locally hired Experts										
19.00	Total Personnel Component	12.0	57,734	3.1	17,204	1.8	7,428	1.9	8,311	5.2	24,791
20.	SUBCONTRACTS										
29.00	Total Subcontracts Component										
30.	TRAINING										
31.00	Fellowships		38,224		-		21,474		12,180		4,570
32.00	Study Tours, UNDP G. Training/Meetings										
33.00	In-service Training										
34.00	Group Training (non-UNDP)										
35.00	Meetings/Consultations (non-UNDP)										
39.00	Total Training Component		38,224		-		21,474		12,180		4,570
40.	EQUIPMENT										
49.00	Total Equipment Component		406,415		3		402,351		258		3,803
50.	MISCELLANEOUS										
51.00	Operations — Maintenance		241		241		-		-		-
52.00	Reports										
53.00	Sundries		4,767		340		3,030		150		1,247
55.00	Hospitality (non UNDP)										
59.00	Total Miscellaneous Component		5,008		581		3,030		150		1,247
99.	GRAND TOTAL:	12.0	507,381	3.1	17,788	1.8	434,283	1.9	20,899	5.2	34,411

ANNEX 18
Page 1 of 3

UNITED NATIONS DEVELOPMENT PROGRAMME

MANDATORY PROJECT REVISION 1985

COUNTRY: **EGYPT**

TITLE: **TEXTILE DEVELOPMENT CENTRE, PHASE II TEXTILE INDUSTRY**

PROJECT NO: **DP/EGY/77/008/N/01/37**

The attached budget of the above project is hereby rephased to reflect actual expenditure for the year 1984 and the consequential effect on the budgets for future years.

Budget lines 11-01 and 11-11 have been increased to reflect the expert proforma cost. Line 13-00 reflects $6,692 as outstanding obligation in 1985. Line 15-00 allows $1,771 for experts' travel. Line 32-00 has been decreased by $5,955 to cover the minus balances of lines 13-00 and 15-00 in 1984. $5,000 have been earmarked on line 41-00 for the purchase of books and periodicals.

The change to the project budget - UNDP input is as follows:

Previous UNDP input - Project budget code	"M"	$1,421,788. (line 99 total)
Revised UNDP input - Project budget code	"N"	$1,431,263. (line 99 total)
UNDP input -	Increase	$9,475.

for A.A. Yassiliev, Director, IO/UNIDO
Agreed on behalf of the Executing Agency — Date: 8. APR. 1985

Approved on behalf of the UNDP — Date

UNIDO MANDATORY REVISION - 1985

COUNTRY	PROJECT NUMBER AND AMEND	P.P.C.S.A.	DATE PRINTED
EGYPT	DP/EGY/77/008/N/01/37	31.7.8	85/04/01

PROJECT TITLE

TEXTILE DEVELOPMENT CENTRE, PHASE II TEXTILE INDUSTRY

PROJECT PERSONNEL EXPERTS POST/TITLE	TOTAL M/M	TOTAL $	72-76 M/M	72-76 $	77-81 M/M	77-81 $	1982 M/M	1982 $	1983 M/M	1983 $
11 01 PROJECT MANAGER	30.5	187,374			22.5	129,797	7.0	49,327		
11 02 SPINNING TECHNOLOGIST	12.0	63,039			3.1	14,754	8.9	48,288		3-
11 05 DYEING EXPERT	6.0	30,739			6.0	30,739				
11 06 FINISHING EXPERT	6.0	33,377			1.8	10,242	4.2	23,135		
11 07 GARMENT TECHNOLOGIST	3.0	13,874			3.0	13,874				
11 08 GARMENT TECHNOLOGIST	6.0	38,246			3.0	23,925	3.0	14,423		102-
11 09 WEAVING TECHNOLOGIST	14.0	83,205			14.0	83,205				
11 10 KNITTING TECHNOLOGIST	6.1	37,420			4.0	23,354	1.0	6,065	1.1	8,001
11 11 CONSULTANTS	14.5	82,985			5.4	23,535	2.4	5,760	2.7	20,690
11 XX	98.1	570,259			62.8	353,425	26.5	146,998	3.8	28,586
13 00 ADM. SUPPORT PERSONNEL		61,599				16,661		11,271		13,940
15 00 PROJECT TRAVEL		12,802				5,552		1,929		18
16 00 OTHER PERSONNEL COSTS		4,626				1,326		668		602
1X XX	98.1	649,286			62.8	376,964	26.5	160,866	3.8	43,146
31 00 INDIVIDUAL FELLOWSHIPS		38,859				9,350		29,464		
32 00 STUDY-TRS/UNDP GROUP T		13,944				6,649		3,821		3,474
3X XX		52,803				15,999		33,285		3,474
41 00 EXPENDABLE EQUIPMENT		22,025				8,831				3,275
42 00 NON EXPENDABLE EQUIPM.		678,219				514,158		20,475		14,102
4X XX		700,244				522,989		20,475		17,377
51 00 SUNDRIES		28,930				13,246		9,299		3,385
TOTAL	98.1	1,431,263			62.8	929,198	26.5	223,925	3.8	67,382

REMARKS

COUNTRY	PROJECT NUMBER AND AMEND	P.P.C.S.A.	DATE PRINTED
EGYPT	DP/EGY/77/008/N/01/37	31.7.8	85/04/01

PROJECT PERSONNEL EXPERTS POST/TITLE	1984 M/M	1984 $	1985 M/M	1985 $	1986 M/M	1986 $	SUBSEQ M/M	SUBSEQ $	M/M	$
11 01			1.0	8,250						
11 02										
11 05										
11 06										
11 07										
11 08										
11 09										
11 10										
11 11			4.0	33,000						
11 XX			5.0	41,250						
13 00		13,035		6,692						
15 00		3,533		1,770						
16 00		544		1,486						
1X XX		17,112	5.0	51,198						
31 00		45								
32 00										
3X XX	/	45								
41 00		4,919		5,000						
42 00		90,531		38,953						
4X XX		95,450		43,953						
51 00		1,864		1,136						
TOTAL		114,471	5.0	96,287						

FOLLOW UP OF RECOMMENDATIONS GIVEN IN PROJECT INTERIM REPORT OF 1982

On completion of his assignment in 1982, the Project Manager/Chief Technical Adviser submitted a Project Interim Report with recommendations based on his own ideas and those of the experts who had worked in the project. To indicate the progress made since then in terms of utilization of the facilities provided and benefits to industry, the main recommendations are summarized below with comments on the extent to which they have been implemented.

a) To consolidate what has already been achieved and ensure maximum utilization of the facilities provided, the Project should be extended for at least 2 years.

The project was extended but on a limited basis (budget only $ 204,000) and not approved until February 1984. This resulted in reduction in planned activities as explained in Section 1 so that the outputs were less than originally envisaged.

b) The emphasis should now shift from building up the physical and human resources to applied research.

Some applied research work has been carried out by every department. 46 research reports have been prepared by the experts and the national staff (see Annex 18).

c) The nature of research is such that new items of equipment are continually being required. An annual budget should be established to cover such necessities.

Additional items of equipment have been acquired by the TDC from other sources (see Annex 19) to complement the equipment provided through the project together with a wide range of accessories and materials necessary to clothe the machines and carry out experiments.

d) The advantages of having a Public sector industry should be exploited to the full through rationalisation of production, standardisation of products, specialisation, etc.

A new General Textile Corporation has now been formed which covers this recommendation. The Chairman of the GTC is also the Chairman of the Technical Committee of the TDC which creates a basis for stronger links between the Centre and industry.

e) Until more engineers become available, a way should be found to encourage engineers to stay in jobs where their technical talents can be fully utilised. As in many other countries, good engineers tend to be promoted to administrative positions leaving unqualified and/or inexperienced persons to take vital technical decisions.

The specialized engineers have been given considerable increases in salary and other incentives. This has reduced the loss of trained staff as compared to Phase I. (see Annex 7).

f) Greater incentives should be given to make more young people want to enter the industry.

The new 2-year training course which will be given to new entrants to the industry by the Vocational Training School to be opened in the TDC in September 1985 is expected to attract more young people into the textile industry. It will turn out 60 potential supervisors a year.

g) In addition to seeking solutions for long-standing problems like how to remove neps from Egyptian cotton, the TDC should aim to develop expertise in newer fields such as dust control, noise reduction, water conservation, energy saving, computerised colour matching, etc.

The national staff have followed up the work on all these subjects which we still included in their work programmes.

Training courses and mill consultancy in dust control, noise reduction, water conservation, energy saving and computer applications in the textile industry are now run by the national staff who worked with the UNIDO consultants in those fields during the project. Work is also being carried out on the application of mini-computers in the textile industry.

h) Try to recruit at least two well-qualified engineers with industrial research experience to support the National Director and strengthen the core-group of research workers.

One PhD with 10 years mill experience has been appointed and the organisation chart is now as shown in Annex 3.

i) The senior staff should attend international exhibitions and symposia such as the International Textile Machinery Exhibition (every 4 years) to keep abreast of recent developments.

The National Director and 5 other members of ths senior staff attended the International Textile Machinery Exhibition in Milan in 1983 at the expense of the Textile Consolidation Fund.

j) Continue the present staff development programme within the TDC and in the mills. Staff should be encouraged to visit mills frequently to increase their industrial experience and to appreciate problems in full-scale production. Visits should be recorded by formal reports with conclusions.

All the senior staff are continually working with the mills and, more and more requests for assistance and advice are coming from the mills.

Verbal reports are made but much valuable information is lost because writen reports are not generally made recording decisions taken and further action required.

k) Encourage staff who have attended training courses, etc, to utilise their newly acquired knowledge on their return and to pass it on to their colleagues in a formal way, e.g. through internal seminars.

This is being done through seminars and training courses run by the National Staff so that there is a multiplier effect.

l) Continue to appoint new graduates and train them at the TDC.

Two new graduates have been appointed in 1985.

m) In the future, encourage some of the engineers who have received training and experience at the TDC to move out into the mills. This will be beneficial to both the mills and the TDC. It will also provide job opportunities for new graduates.

This is something for the future; at present the policy is to try to keep experienced staff in the TDC.

n) Appoint experienced mechanics in all areas (similar to those already in spinning and weaving). This will be of great help to the engineers and will make the TDC independent of outside assistance except in exceptional circumstances.

2 additional mechanics have been appointed, 1 in spinning and 1 in knitting. The arrangement of calling in technicians from the mills for specific purposes on a temporary basis as and when the need arises is continuing. Ideally, the Centre would have its own permanent staff but in the meantime this cooperation is proving to be very effective.

o) Provide secretarial support (initially 2 typists) for the applied research staff.

Now that the project administrative support staff have gone, at least one more typist who can type in English is required for typing reports.

p) Procure the additional items of equipment as listed. The equipment for dyeing polyester and polyester/cotton fabrics will be particularly useful.

It was not possible to provide all the equipment recommended but 16 carefully selected items from the above list have been provided by UNDP/UNIDO. These items are included in Annex 5.

q) The TDC is expected to carry out semi-industrial scale trials for which considerable quantities of material (cotton, sliver, yarn, fabric, etc) will be required. A simple procedure for obtaining such supplies should be established.

Arrangements have been made by the TDC with a number of mills to supply such materials and this seems to be working well with few formalities.

r) Gradually build up the applied-research side until it becomes the main activity of the TDC.

The applied research side is being gradually increased but the main emphasis at the present is on training since the mills are so short of properly trained personnel at all levels.

s) Continue the present applied research programme.

Work has been done on 38 of the 60 above mentioned topics which were identified during the first part of the project. 46 research reports have been issued (see Annex 18).

t) Introduce new topics from the list prepared by the Experts and Consultants at the diseretion of the Technical Committee.

The applied research activities are followed up by the Technical Committee at their montly meetings and the work programme is reviewed and up-dated by them annually. A copy of the programme for 1983-1985 is attached as Annex 15.

u) All experimental work should be properly planned, executed and reported.

A progress report on work in hand should be made, in writing, every month by the head of each department to the General Manager. Each topic should be reviewed every two months to decide whether to continue, extend, or terminate.

Each researcher should compile a monthly report on work done for submission to the Head of Department.

A review of progress on each topic should be presented every six months by the head of each department to the Technical Committee.

An annual report should be prepared and circulated by the General Manager.

Project planning and reporting is mostly done verbally which may be acceptable while the number of projects is not too great but it will be unsatisfactory when the work programme expands, because a great deal of vital information will be lost. The staff should therefore be trained to discipline themselves in this matter before too much pressure builds up. This is one of the most important areas where it was intended that UNIDO would assist during the project extension, until the budget was curtailed as explained in sections 1 and 2.

v) Consideration should be given to the possibility of charging fees to the mills for consultancy and/or research projects.

The services of the TDC are still provided on a free of charge basis. This policy should be re-considered as it should be possible for the Centre to generate a considerable income in both local and foreign currency.

w) In view of the shortage of skilled technicians training is extremely important. The TDC staff should repeat the training courses started by the experts and consultants for the benefit of others in industry.

This is being done in many areas. A list of the short courses offered by the Textile Centre is given in Annex 21.

x) The TDC should offer training in garment manufacturing assist small-scale producers.

A training course in basic garment manufacture of duration 3 months has been run 4 times to an average of 25 trainees. It is based on the work of one of the UNIDO experts and is now given by the national staff. However, the course needs to be up-graded for effectively contributing to the development of the national garment industry.

Short training courses in 49 topics are offered by the Centre according to demand. Some topics are covered at advanced level. The course in machine maintenance, a subject which is so often neglected in Developing Countries, is well presented and of adequate level.

y) The Training School

Organise regular training courses for mill weaving technicians and mechanics on the two looms installed at the TDC for this purpose.
Extend the training school to cover other sections,e.g. carding, spinning and garments.

A completely new Vocational Training School for young people is being opened within the TDC in September as explained in item (f) above and Section 4 of this report.

z) Safety

Formal instruction on the use of each machine should be given to staff members by an experienced person and a list of individual machines and staff qualified to use them compiled and kept up to date. Only staff qualified on particular machines should be allowed to operate them.

This is being done and the safety record of the TDC is very good.

EQUIPMENT INSTALLED IN THE TDC FROM NON-UN SOURCES

Spinning

1 Lap regularity tester with Uster 'Varimeter'.
1 Cotton card with lap feed and autoleveller.
1 Schlafhorst GK-WP cone winder with 10 spindles and electronic slub-catchers.
1 Two-for-one twister with 24 spindles, Hamel 4-01DD.
1 Mettler RKE cone winder with 12 spindles, electronic slub-catchers and 'classifault'.

Weaving

1 SACM 185-MAV-S-PpC 6 colour rapier loom.
1 Picanol 'President' CMC-P loom.
1 Picanol 'Diplomat' CCST-P loom.

Knitting

1 Wildt Mellor Bromley interlock machine, 12" diameter.
1 Foster knitting machine, 4" diameter.
1 Lawson fibre analysis knitter with latch needles.
1 Fukuhara 16" gauge circular knitting machine.
1 Dubied 12" gauge flat knitting machine.

Dyeing and Finishing

1 Atlap Launderometer.
1 EEL Colourimeter for solutions.
1 Zeiss Microscope.
1 Pye pH meter.
1 CDB H.T. sample dyeing bath.
1 CDB programmable sample dyeing machine.
1 CDB sample doyer.
1 Kwis fabric cutting machine.
1 Ideal automatic washing machine.
1 Ideal refrigerator.
1 Singer sewing machine.

1 Olympic electric water heater (50 litres).
1 Texas Instruments mini-computer.
1 12" colour TV set.
2 Mettler electronic balances, PC 2000.
2 Smith stop watches.
1 Colour difference meter (From DP/EGY/69/562).
1 Humidity cabinet (From DP/EGY/69/562).

Vocational Training Centre

Spinning

1 Rieter cotton card with lap feed.
2 Rieter drawframes, 4 deliveries each.
1 Rieter 40-spindle slubber frame.
1 Rieter 40-spindle roving frame.
1 Platt 100-spindle ring frame.
1 Investa 40-spindle open end spinning frame.
1 Schweiter 12-spindle cone winder.
1 Textima 80-spindle ring twister.

Garments

2 Production lines for pyjamas (2x8 machines).
1 Production line for skirts (10 machines).
1 Pattern-making department.
1 Cutting-out department (4 machines).
1 Garment finishing department (4 tables).
1 Laying-up and cutting table.

N.B. Training in weaving and dyeing and finishing will be carried out on the UNDP/UNIDO provided equipment.

SHORT TRAINING COURSES AVAILABLE AT THE TEXTILE DEVELOPMENT CENTRE

Short training courses are now available at the Textile Development Centre for mill engineers and technicians on the following topics. The duration is either one or 2 weeks and the courses are given when these is sufficient demand. Full details are provided in the TCF brochure "Technical Training Courses" while is available from the Textile Information Centre.

Title of Course	No of Trainees 1983-84	1984-85
I. SPINNING:		
1. Spinning Technology	17	13
2. Open-End Spinning Technology	12	26
3. Advanced Spinning	-	19
4. Irregularity on Spinning Processes.	19	23
5. Polyester Processing	17	17
II. WEAVING:		
6. Weaving Preparation	16	17
7. Fabric Structure	-	-
8. Weaving Technology	-	20
9. Advanced Weaving	-	-
10. Loom Mechanisms	13	17
III. KNITTING:		
11. Weft Knitting Technology	-	5
12. Warp Knitting Technology	-	-
13. Flat Knitting Technology	-	-
IV. DYEING & FINISHING:		
14. Textile Dyeing Technology	16	23
15. Textile Printing Technology	-	15
16. Textile Finishing Technology	14	20

Title of Course	No of Trainees 1983-84	1984-85
V. GARMENT MANUFACTURE:		
17. Garment Manufacturing Technology	14	-
18. Textile Fundamental for Apparel Manufacture.	-	-
19. Pattern Making	13	-
20. Sewing and Finishing Operations	-	-
VI. TEXTILE TESTING:		
21. Fibre Identification	-	-
22. Fibre Testing	12	-
23. Yarn Testing	19	17
24. Woven Fabrics Testing	-	20
25. Knitted Products Testing	-	-
26. Dyeing and Finishing Testing	13	-
27. Knitting Defects	9	-
28. Weaving Defects	27	20
29. Yarn Faults	25	17
VII. TEXTILE QUALITY CONTROL:		
30. Quality Control on Spinning	27	15
31. Quality Control on Weaving	-	-
32. Quality Control on Knitting	-	-
33. Quality Control on Dyeing & Finishing.	13	-
34. Specification of Textile Products	8	-
35. Waste Control	9	13
VIII. STATISTICS:		
36. Statistics in Textile Quality control.	11	-
37. Advanced Statistics in Textile Quality Control.	-	-

Title of Course	No of Trainees 1983-84	1984-85
IX. GENERAL:		
38. Dust Measurement in Textile Mills.	-	-
39. Noise Control in Textile Mills	-	-
40. Energy Conservation in Textile Mills.	-	-
41. Water Conservation in the Textile Industry.	-	6
42. The Application of Colour Measurement.	19	10
43. Oil-Staih Damage in Textile Processing.	-	-
44. Storage and Handling of Dyes and Chenicals.	-	-
45. Maintenance and Calibration of Textile Testing Equipment.	11	24
46. Textile Costing	-	-
47. Motion and Time Study	-	-
48. Textile Machinery Maintenance	13	13*
49. Electronics in Textiles	6	6*
Totals	373	376

* Estimate since these courses have not taken place.

GARMENT MANUFACTURE TRAINING PROGRAM

I. Types of Raw Material for the Manufacture of Ready-Made Garments

II. Pattern Technology

- (A) Design
- (B) Grading
- (C) Marking
- (D) Perforating

III. Cutting Department Technology

- (A) Piece Goods
- (B) Laying-up
- (C) Witting Bandknife
- (D) Electrical Scissors

IV. Sewing Department

- (A) Basic Machine Knowledge
- (B) Learning to Operate Different Type of Machine.
- (C) Sewing all Operations.

V. Finishing Department

- (A) Pressing Machinery
- (B) Press Operation
- (C) Folding of Garments
- (D) Inspection and Packing

VI. Visits to Mills.

CO-OPERATION WITH OTHER EGYPTIAN INSTITUTIONS

The TDC co-operates with other Egyptian textile institutions, as follows:-

National Research Centre

The President of the NRC is on the TDC Board. Joint Research Projects.

University of Alexandria

The Head of the Textile Department is a member of the Board and the Technical Committee of the TDC.

The 4th year textile students spend one day a week at the TDC to study the equipment and carry out practical assignments under the supervision of the national staff of the TDC.

Research students have access to the TDC library and equipment.

Universities of Cairo, Mansoura and Helwan

Research students carry out practical work at the TDC.

Cotton Research Centre, Ministry of Agriculture

The CRC is represented on the TDC Board and the TDC is represented on the CRC Board.

Cotton Arbitration and Testing General Organisation (CATGO)

CATGO is represented on the TDC Board and the TDC is represented on the CATGO Board.

The Project Manager of the TDC helped CATGO to get a UN Project.

General Organisation for Standardisation

The TDC is a member.

National Institute for Callibration, Academy of Scientific Research and Technology

Staff have access to TDC equipment for experimental work.

The TDC also co-operates with Egyptian manufacturers of fibres, dyestuffs, textile auxiliaries, etc.

CONNECTIONS WITH FOREIGN INSTITUTIONS

The TDC has established co-operation with the following foreign institutions :-

- UNIDO
- American Society for Testing and Materials (ASTM), USA.
- United States Departmet of Agriculture (USDA), USA.
- International Institute for Cotton (IIC), Holland.
- International Textile Manufacturers Federation (ITMF), Switzerland.
- Faser Institut Bremen, W. Germany.
- Textile Institute, UK.
- ACTIM, France.
- British Textile Machinery Association (BTMA), UK.
- Manchester University (UMIST), UK.
- Huddersfield Polytechnic, UK.
- N.C. State University, USA.
- Clemson University, USA.
- Platt Saco Lowell Research Centre, UK.
- Textile Organisation for Standardisation, GDR.
- POLCARGO, Poland.
- Shirly Institute, UK.
- Zellweger Uster, Switzerland.
- Inernational Institute for Cotton, UK.
- International Wool Secretariat, UK.

CONNECTIONS WITH FOREIGN INSTITUTIONS (CONTINUED)

- Textile Machinery Suppliers in general.
- Manufacturers of Dyestiffs, Textile auxiliaries, etc.

TECHNICAL CO-OPERATION AMONG DEVELOPING COUNTRIES (TCDC)

The Project Manager & Co-Manager assisted the Government of the Sudan with a number of textile projects especially the planning of a Textile Quality Control Centre.

Two TDC Engineers are former UN Experts.

The Centre offers training courses in all the textile industry branches including medium level training courses in Textile Testing and Quality Control for the mill technicians (in Arabic) and high level courses in English for engineers & chemists occupying positions of responsibility in the textile mills.

The Centre extends its technical facilities to students of universities and research institutes of other developing countries as well as the information available in the Textile Documentation and Information Centre.

Over 200 foreign trainees and student have benifitted from those facilities.

The TDC has received and trained UNIDO fellowship students and study tours from Namibia, Sudan, Bangladesh, Sri Lanka and Iraq.

Special training courses are organised for African and Arab countries. The most recent was a 2 months course for group of 30 engineers and chemists from Iraq. This is going to be repeated.