

アラブエジプト共和国  
繊維研究開発協力事業  
事業評価調査団報告書

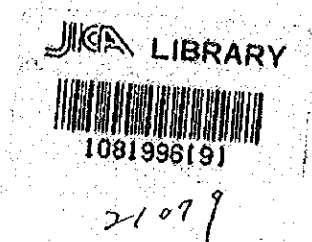
平成元年12月

国際協力事業団

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21079

## 序 文

エジプト繊維研究開発協力事業は、同国政府の要請により昭和55年11月7日、「日」・「エ」間の技術協力実施に関する合意議事録（R/D）の署名交換に基づき開始された。

わが国からのエジプト国立研究センター（NRC：National Research Center）繊維部門に対する紡績、織布、ニットの3分野に関するパイロットプラント運転を通じた生産技術等の技術移転により、エジプト国内繊維産業の発展に貢献することをねらいとしたものである。

当初、協力期間は昭和60年11月までの5年計画であったが、「エ」側の財政事情、資材高騰等による建屋工事遅延等のため、一時中断のほか、2回の協力期間延長（第一回延長60年11月7日～62年3月31日、第二回延長62年4月1日～平成2年3月31日）を行ない、9年余の協力期間となった。

この間、「エ」側の建屋建設、組織整備、「日」側の機材供与、専門家派遣、研修生の受入れ等、それぞれ逐次の努力がつけられ、特に昭和63年後半から技術移転が順調に進捗するに至った。

このため、国際協力事業団は、協力期間半年弱を残す時点で「日」・「エ」合同により、これまでの協力実績、及び残りの期間における見通しについて評価を行い、協力終了に係わる方針を検討することを目的として、当プロジェクト事業評価調査団を派遣することとした。派遣期間は平成元年11月19日～27日である。

現地における合同評価の結果、「日」・「エ」双方、所期の技術移転がプロジェクトの協力期間内に成功裡に完了することを確認し、両国政府に対して「1990年（平成2年）3月31日をもって本プロジェクトは終了する」ことを提言することに合意した。

本報告書はこれら合同事業評価の内容を取りまとめたものである。

最初のR/D署名から途中の中断を含め9年余に亘ったものの、「エ」側独自予算による建物完成、組織の整備、それに基本技術の移転終了と、本プロジェクトは真に両国の協力の賜物であると思われる。

これまでの間、本プロジェクト実施のため御協力いただいた両国関係諸機関、各位の御尽力に深甚の謝意を表するとともに、今後同センターが本プロジェクト成果を自立的に利用展開し、自国繊維産業の発展に貢献していくことを切に願うものである。

平成元年12月

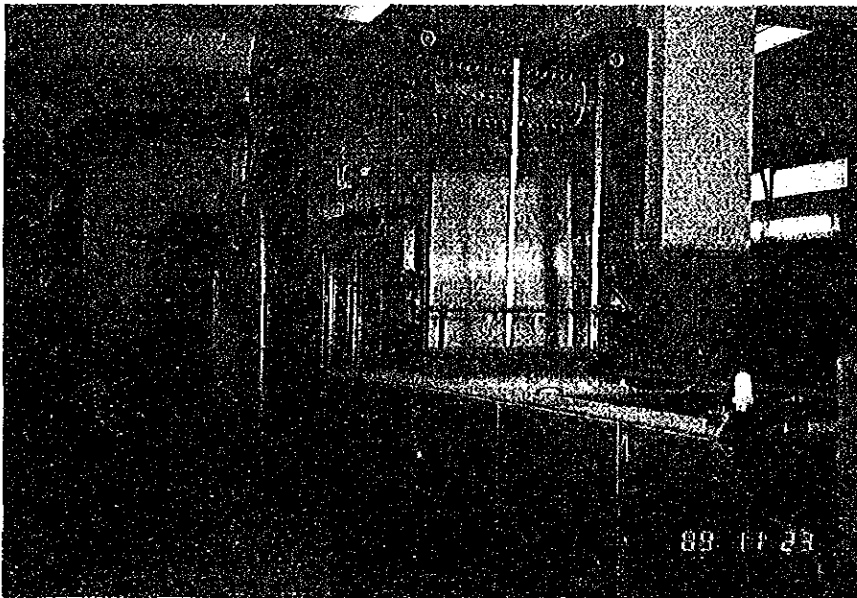
国際協力事業団

理事 古閑俊彦

写 真 (I)



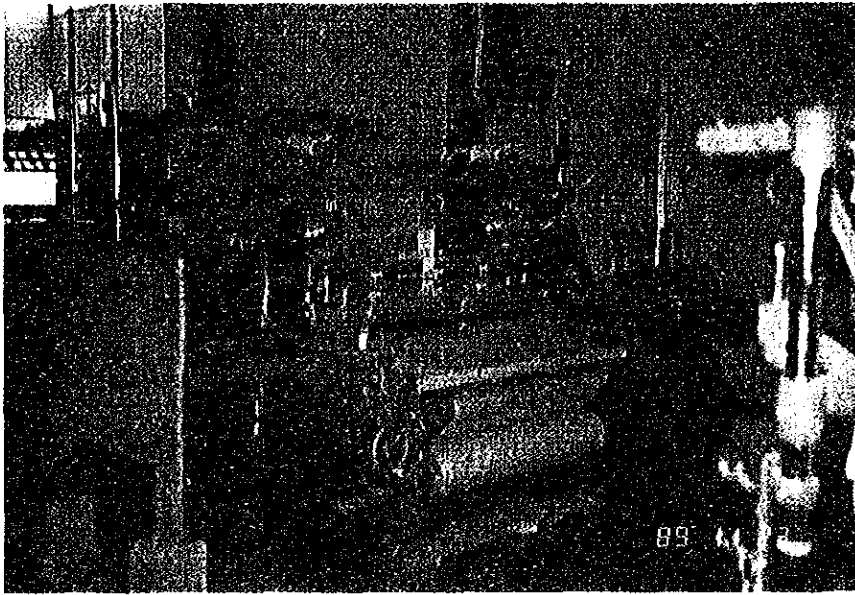
討議々事録署名 (山崎団長 NRC 総裁)



混打綿機



写 真 (2)



シャトル織機



ニット編機

# 目 次

序 文 .....	
1. プロジェクトの概要 .....	1
1-1 概 要 .....	1
1-2 経 緯 .....	2
2. エバリュエーション調査団の派遣 .....	3
2-1 調査団派遣の経緯と目的 .....	3
2-2 調査団の構成 .....	3
2-3 調査団の日程 .....	3
2-4 主要面談者 .....	4
3. 要 約 .....	5
4. プロジェクトの当初計画 .....	6
4-1 相手国の要請とわが国の対応 .....	6
4-2 プロジェクトの成立 .....	6
4-3 技術協力の内容 .....	6
5. プロジェクトの実績 .....	8
5-1 調査団派遣実績 .....	8
5-2 専門家派遣実績 .....	9
5-3 研修員受入実績 .....	11
5-4 機材供与実績 .....	11
6. プロジェクトの評価 .....	13
6-1 建屋建設関係 .....	13
6-2 技術移転関係 .....	13
a. 紡績部門 .....	13
b. 織布部門 .....	14
c. ニット部門 .....	14

d. 試験機器 .....	14
e. 外部工場指導 .....	14
f. 研究開発手法の指導 .....	14
7. 総 括 .....	17
8. プロジェクト終了後の課題 .....	18
付 属 資 料 .....	19



## 1. プロジェクトの概要

### 1-1 概要

A. プロジェクト名：エジプト繊維研究開発センター事業 ( Technical Cooperation on the Establishment of Pilotplant and uparading the Textile Research and Development Division of the National Research Center in the Arab Republic of Egypt )

B. 協力期間：( R/D ) 昭和55年( 1980 ) 11月7日～昭和60年( 1985 ) 11月 6日

( 第一回延長 ) 昭和60年( 1985 ) 11月7日～昭和62年( 1987 ) 3月31日

( 第二回延長 ) 昭和62年( 1987 ) 4月1日～平成 2年( 1990 ) 3月31日

C. 相手国協力機関：国立研究センター ( National Research Center 略称：NRC )

D. プロジェクトサイト：カイロ市ドッキ ( Dokki , Cairo )

E. プロジェクトの目的と内容

(1) 目的：紡績、織布及びニットの3分野でエジプトの関係者に理論的・実地的訓練を与えること、工場へ技術アドバイスサービスを展開すること及び研究開発業務を指導することをもって、エジプト国の繊維産業の発展に貢献する。

(2) 内容：①生産技術の移転 ( ポリエステル／綿の混紡技術と綿短繊維の利用技術 )

②生産技術の研究開発方法の指導

③パイロットプラントの運転を通じての管理技術の指導

F. 協力要請の背景

(1) エジプト政府は1977年に発表した新5カ年計画 ( 1978～1982年 ) において、経済の急速な開発を進める方向を打ち出した。

エジプト経済を支えているのは農業および繊維産業ならびに石油産業である。とくに繊維産業では40万～50万人の労働者を雇用しており、その重要性は今後も変わらないと思われる。しかし、繊維産業では、各種原料繊維の有効利用、新技術の開発、生産・品質管理技術の改善及び中堅技術者の育成等新しく取り組むべき課題が多い。この課題の解決がエジプトの繊維産業にとって急務である。

(2) エジプト国立研究センター ( NRC ) の繊維研究部門においては、研究開発の分野ではポリエステル綿混の紡績技術の開発やオープンエンド紡績 ( 空気精紡 ) の導入、染色新技術の開発など多くの研究テーマを抱えており、他方企業の中堅技術者の指導育成も緊急な課題となっている。しかし、同部門には、一部を除き生産技術開発・研究用の機器設備が極めて少なく、研究活動に支障をきたしている。一方、同部門の研究者の人材は豊富である。従って、生産技術開発・研究用の機器の設置を通じて、研究開発及び中

堅技術者の指導・育成の発展が期待される。

## 1-2 経 緯

- A. 本プロジェクトは、1980年11月7日にR/Dが署名され、日本側の協力が開始された。しかしながら「エ」側のその後の財政事情の悪化による予算の大幅削減、加えて建設資材の高騰も相次いだため、「エ」側による建屋工事が遅延した。このため、1983年4月に巡回指導調査団を派遣し「エ」側と協議した結果、建物等の整備を「日」側が確認するまで専門家の引き揚げを行い、協力を一時見合わせることで合意した。
- B. その後「エ」側から建屋建設が進んでいるという連絡があったこと、協力期限の終了日が迫ったことから、1985年10月に計画打合せ調査団を派遣した。調査団は「エ」側と協議の末、建屋の早期完工を条件に協力期間を1987年3月まで約1年半、延長をすることで合意した。1986年3月には長期専門家の派遣も実施した。
- C. 1987年3月に計画打合せ調査団を派遣し、今後の協力方針につき再度「エ」側と協議した。その結果、大幅に建屋の完成が遅れてはいるものの、「エ」側なりに少ない予算を果敢に確保していることからR/Dをさらに3年間、1990年3月31日まで再延長をする議事録に署名した。
- D. 1988年12月から実施した機材据付の一連の短期専門家派遣により織機の一部（エアージェット）を除いて機材は1989年3月までにほぼ、その据付を完了した。（エアージェットは1989年6月に据付終了。）
- E. 1989年7月に追加機材として供与した混打綿機は同年9月に据付を終了、また空調設備も同月から運転可能となった。

## 2. エバリュエーション調査団の派遣

### 2-1 調査団派遣の経緯と目的

昭和63年(1988年)後半から順次供与機材を使用しての技術移転が順調に行なわれて来たことからエジプト側と合同で技術移転に関する評価を実施し、協力期間の終了に係わる方針を検討する目的をもって調査団は派遣された。

### 2-2 調査団の構成

調査団は次に示す4名により構成された。

団 長 山 崎 宗 重  
国際協力事業団鉱工業開発協力部部長

団 員(技術協力計画) 山 田 英 司  
通産省通商産業政策局技術協力課課長補佐

団 員(繊維技術計画) 市 川 浩 二  
東洋紡エンジニアリング(株)プラント事業部部長

団 員(計画評価) 山 口 公 章  
国際協力事業団鉱工業開発協力部鉱工業開発技術課  
課長代理

### 2-3 調査団の日程

調査団の日程は次のとおりである。

日 順	月 日	曜 日	行 程	内 容
1	11/19	日	東京	移 動
2	20	月	カイロ	" 調整員と打合せ
3	21	火	カイロ	大使館表敬, JICA事務所・NRCと打合せ
4	22	水	"	NRCと協議
5	23	木	"	" Minutes署名
6	24	金	"	専門家と打合せ
7	25	土	カイロ	移 動
8	26	日		"
9	27	月	東京	"

## 2-4 主要面談者

主な面談者は次のとおりである。

### 「エジプト側」

Dr. Hissain Samir Salama	国立研究所 (NRC) 総裁
Dr. Moma Kamel	NRC 繊維部部長
Dr. Abdel. A. Kantouch	NRC 繊維部顧問
Dr. Sami Mansour	NRC 繊維研究所所長
Dr. Mohamad, A. Saad	NRC 繊維研究所主任
Dr. Professor Ali, A. Hebeish	NRC 顧問

### 「日本側」

山 田 順 三 氏	在エジプト日本国大使館公使
井 上 進 氏	“ 一等書記官
飯 村 圭 司 氏	国際協力事業団エジプト事務所長
岡 本 茂 氏	“ 担当職員

### 3. 要 約

日本側およびエジプト側の合同評価の結果双方は下記につき合意した。

- (1) R/Dに記載されたJICA供与の機材は全て掘付、試運転を終了し、「エ」側カウンターパート自身の手により通常運転ができるようになった。
- (2) 上述の機材の通常保守、調整作業はほぼ技術移転された。一部残っている部分的な調整は、1990年3月31日まで、日本人専門家により移転を完了することとなる。
- (3) R/Dに記載された技術移転計画による基礎技術の移転は、紡績部門、織布部門については完了した。ニット部門について若干未了部分があるが、これも日本人専門家とエジプト人C/Dの努力により協力期間内に終了することができる。
- (4) 上記の現情から「日」「エ」双方は、本プロジェクトの協力期間内に、成功裡に技術移転が完了することを確認し、両国政府に対して「1990年3月31日をもって本プロジェクトは終了する」ことを提言することに合意した。

## 4. プロジェクトの当初計画

### 4-1 相手国の要請とわが国の対応

#### (1) 技術協力の要請

昭和52年5月9日付外務公信第484号により、エジプト・アラブ共和国政府により、我が国に対し、同国国立研究センター繊維部R&D機関の整備について、正式に技術協力要請がなされた。

#### (2) 事前調査団の派遣

昭和53年8月に23日間にわたり、事前調査団が派遣された。上記協力要請の詳細な内容の確認、背景としてのエジプト繊維産業の実情把握、国立研究センターの機能、活動状況等の調査を通じて協力要請機関としての適格性の判定、プロジェクトの妥当性の判断等を行い、その結果、本件技術協力をプロジェクト方式（専門家派遣、研修員受入れ、機材供与の三位一体）により実施することが実施された。

#### (3) 短期専門家の派遣

昭和54年2月に3名の短期専門家が派遣された。事前調査団の報告をふまえ、具体的なプロジェクトの実施計画について、エジプト側と討議が行われた。また、協力の大きな柱となるパイロットプラントの設置場所及びプラント機材の仕様について技術的調査が実施された。その結果、技術協力の範囲を紡績、織布、ニットに限定することになった。

### 4-2 プロジェクトの成立

昭和55年11月に、本件技術協力に関する合意すべき事項について討議を行い、合意議事録（R/D）を交換する目的で実施協議チームが派遣された。その結果、昭和60年11月まで5年間にわたって技術協力を行うことで合意し、その協力内容を合意議事録（R/D）として取りまとめ、国立研究センター総裁との間で署名交換が行われた。また、プロジェクトの暫定実施スケジュール（TSI）についてエジプト側と協議の上、取りまとめられた。

### 4-3 技術協力の内容

#### 1) 生産技術の移転と生産技術の研究開発

##### ① 紡績、織布、ニットの定型的生産技術の移転

綿短繊維の利用、混紡を中心とした紡績、織布、ニットの生産技術を移転する。

Phase 1. パイロット・プラントの基礎確立において、企業の実態の詳細調査とパイロット・プラントの整備指導および企業に対する技術指導を行う。

Phase 2. 定型的生産技術の移転において、オープン・エンド精紡機による綿短繊維の

紡績生産技術、ポリエステル／綿混紡（カードー練糸ー精紡）を中心とした生産技術を移転する。

また、綿短繊維、紡績糸の織布、ニットの生産技術および、ポリエステル／綿混紡糸の織布、ニットの生産技術を移転する。

㊦ 紡績、織布、ニットの生産技術の研究開発

紡績、織布、ニットに関する綿繊維固有の生産技術の研究開発手法の指導を行う。

Phase 3. 生産技術の研究開発手法の移転に於て、混綿、混紡の生産技術の研究開発（繊維長ー紡出番手、調整条件ー糸むら、歩留向上ー調整条件）の手法を指導する。

2) パイロット・プラントの整備と管理技術の指導

㊧ パイロット・プラントの運転、調整、保全技術を移転する。

Phase 2.において、紡績、織布、ニット機械の運転、調整、保全技術を指導する。

㊨ 管理技術の指導

Phase 3.に於て、製品（糸、織物、ニット）の品質改善のため品質管理技術を指導する。

3) 中堅技術者養成に対する指導

㊩ 紡績、織布、ニットの生産技術実習の指導

㊪ 工程管理技術の指導



## 5. プロジェクトの実績

### 5-1 調査団の派遣実績

調査団派遣の実績は次のとおりである。

#### 派 遣 調 査 団 一 覧

No.	年度	調査団名	派遣期間	構 成		
				氏 名	現 職	業 務
1	78	事前	78/8/4~ 23 23	小澤敏男	東洋紡績㈱ 染色事業部 調査役	総括・染色仕上
				中村尚三	MITI 生活産業局 原料紡績課長補佐	企画
				関口英夫	㈱日本紡績検査協会 技術部 第1課長	試験検査
				武藤 資	カネボウ綿糸㈱ 技術部 紡績技術課長付	紡績・織布
				佐藤 順之助	JICA 欽工業開発協力部 欽工業開発技術課長代理	業務調整
2	80	実施	80/10/25~ 11/5	鈴木三男	(財)日本産業技術振興会 専務理事	総括
				中村 信	JICA 欽工業開発協力部 欽工業開発技術課長	企画
				高橋潤吉	日本設計事務所 建築第3設計部 主任技師	建築設計
				早川万寿男	㈱豊田自動織機製作所	繊維機械
				大久保 宏明	JICA 欽工業開発協力部 欽工業開発技術課	業務調整
3	81	計画	82/3/6~ 20	赤見 仁	MITI 工業技術院 繊維高分子材料研究所 第4部 システム研究室長	総括
				北野 武	MITI 工業技術院 繊維高分子材料研究所 第3部 材料工学研究室	繊維技術
				木下正文	JICA 欽工業開発協力部 欽工業開発技術課	業務調整
4	83	巡回	83/4/18~ 27	久留義雄	JICA 理事	総括
				赤見 仁	MITI 工業技術院 繊維高分子材料研究所 第4部 システム研究室長	繊維技術
				中村 信	JICA 欽工業開発協力部 欽工業開発技術課長	技術協力
5	85	計画	85/10/24~ 11/2	飯村圭司	JICA 欽工業開発協力部 欽工業開発技術課長	総括
				村田隆一	JICA 欽工業開発協力部 欽工業開発技術課長代理	業務調整
6	85	計画	86/4/8~ 19	星山 全	JICA 欽工業開発協力部 特別嘱託	総括
				高橋潤吉	日本設計事務所 建築設計部 主任技師	建築
				片山力極	大気社 国際部 課長	空調
				村田隆一	JICA 欽工業開発協力部 欽工業開発技術課長代理	業務調整

№	年度	調査 団名	派遣期間	構 成		
				氏 名	現 職	業 務
7	86	計画	87/3/14~	飯村 圭司	JICA 鈦工業開発協力部 鈦工業開発技術課長	総括
				奥村 喜代治	MITI 検査所 商品テスト部 繊維業務課長	協働協力計画
				市川 浩二	東洋紡エンジニアリング㈱ 繊維加工プラント輸出 技術部長	繊維生産技術
				志賀 忠夫	JICA 鈦工業開発協力部部付	業務調整
8	87	計画	88/4/8~ 15	村田 隆一	JICA 鈦工業開発協力部 鈦工業開発技術課長代理	総括
				西部 健二	MITI 通商政策局 経済協力部 技術協力課	技術協力計画
				市川 浩二	東洋紡エンジニアリング㈱ 繊維加工プラント輸出 技術部長	繊維生産技術
				赤見 仁	MITI 工業技術院 繊維高分子材料研究所 第4部 システム研究室長	繊維技術
志賀 忠夫	JICA 鈦工業開発協力部部付	業務調整				
9	88	計画	89/2/20~ 3/3	角野 祥三	JICA 鈦工業開発協力部長	総括
				山田 英司	MITI 通商政策局 経済協力部 技術協力課長補佐	技術協力計画
				市川 浩二	東洋紡エンジニアリング㈱ プラント事業部長	繊維生産技術
				山口 公章	JICA 鈦工業開発協力部 鈦工業開発技術課長代理	技術協力
10	89	評価	89/11/19~ 27	山崎 宗重	JICA 鈦工業開発協力部長	総括
				山田 英司	MITI 技術協力課長補佐	技術協力計画
				市川 浩二	東洋紡エンジニアリング㈱ プラント事業部長	繊維生産技術
				山口 公章	JICA 鈦工業開発協力部 鈦工業開発技術課長代理	技術協力

## 5-2 専門家派遣実績

### 長期専門家

№	氏 名	担当分野	派遣期間
1	大西 秀男	チーフアドバイザー 紡績	(1981) 56.5.30~58.5.29
2	星 山 全	" 織布	(1985) (1989) 61.10.14~64.10.13
3	山田 昭夫	紡績	(1987) 62.11.11~64.11.10
4	小林 敏英	ニット	(1985) 63.1.27~64.2.28
5	清水 勝男	業務調整	1.7.1~2.6.3

短期専門家

NO.	氏名	担当分野	派遣期間	
1	坪井弘司	総括	(1979) 54. 2. 2~54. 2.23	} 長期調査
2	岸田五郎	繊維機械	"	
3	大久保宏明	業務調整	"	
4	高橋潤吉	建築設計	(1981) 56. 6. 1~56. 6.14	(日本設計)
5	中村山人	空調設備	"	(大気社)
6	芦川祐二	空調機据付	(1987) 62. 3.11~62. 6. 7	( " )
7	磯部良二	綿用, 合繊用カード据付	62.1.11~62.1.227	(豊和工業)
8	芦川祐二	空調機据付	62.1.11~63. 1. 7	(大気社)
9	寺本安志	ウスター試験器据付	62.12. 9~62.1.227	(ツェルベガーウスター社)
10	吉川慶治	織布準備機据付	(1988) 63. 2.10~63. 3.11	(馬場産業)
11	森田日出男	紡績機据付	63. 2.10~63. 3.25	(宮下工業)
12	鈴木智之	"	" ~63. 3.11	(豊田自動織機)
13	奥井康治	繊維機械据付(部分整経機)	63. 3. 2~63. 3.13	(奥井鉄工)
14	加瀬和憲	"	(1988) 63.12. 7~63.1.225	(東久)
15	吉川慶治	" (棚付機)	63.1.2.10~63.1.2.22	(馬場産業)
16	奥井康治	" (部分整経機)	63.1.2.12~63.1.2.23	(奥井鉄工)
17	山田明	" (ニット)	(1989) 1. 1. 7~ 1. 1.27	(西尾機械)
18	中村国男	"	1. 3. 3~ 1. 3.29	(津田駒)
19	国重俊三	機械据付(スチームセッター)	(1989) 1. 3. 8~ 1. 3.27	(日空工業)
20	伊佐実	" (エアージェット)	1. 6.13~ 1. 6.20	(津田駒)
21	小林未博	" (混打綿)	1. 8.25~ 1. 9.29	(小原鉄工)
22	山本茂	織布	1. 9.30~ 2. 3.31	(無職)
23	塚原靖皓	研究開発手法	1. 9.30~ 1.10.19	(三河繊維技術センター)
24	三輪元宣	紡績	1.1.1.15~ 2. 3.31	(東洋紡エンジニアリング)

5-3 研修員受入実績

1.	Dr. M. Kamel	1981. 5.6. 9.15 ~ 5.6. 9.29
2.	Dr. A. Kantouch	"
3.	Dr. A. Shakawy	"
4.	Dr. A. Sharrouf	57. 7.15 ~ 58. 1.14
5.	Mr. I. Hanafy	57. 1.30 ~ 58. 7.30
6.	Mr. H. Bebery	58. 3.17 ~ 58. 5.27
7.	Dr. M. Saad	61.1.29 ~ 62. 1.27
8.	"	62.1. 9 ~ 63. 2.22
9.	Dr. S. Mansour	62. 9.20 ~ 62.10. 4
10.	Dr. A. Kantouch	" ~ "
11.	Mr. A. Shehafa	64. 2. 1 ~ 64. 2.28
12.	Mr. T. Sharky	" ~ "
13.	Mr. M. Afifi	" ~ "
(以下予定)		
14.	Prof. Dr. M. Kamel	H2. 1.15 ~ H2. 1.30
15.	" Dr. A. Heboish	"
16.	" Dr. M. Knalil	"

5-4 機材供与実績

本プロジェクトにかかる機材供与リスト(300万円以上のみ)

エジプト繊維研究開発プロジェクトにかかる  
機材(購入価格300万円以上)供与リスト

	機材名	メーカー	金額 (千円)	船積 年月	現地 到着 年月	据付年月	機材分野
56	高速粗紡機	豊田自動織機	8,416	57.3	57.4	63.2~3	紡績
56	リング精紡機	豊田自動織機	4,310	57.3	57.4		紡績
56	オープンエンド精紡機	豊田自動織機	12,109	57.4	57.5		紡績
56	リング捻糸機	豊田自動織機	5,336	57.4	57.5		紡績
56	エアウォッシャー式空調機	大気社	3,100	57.4	57.5	62.3~6, 62.11~63.1.19	その他
56	空冷式冷凍機(屋外置型)	大気社	11,200	57.4	57.5		その他

	機 材 名	メ-カ-	金 額 (千 円)	船積 年月	現地 到着 年月	据 付 年 月	機材分野
61	High Speed Drawing Frame, Model DYH2	豊田自動織機	4,845	62.3	62.4	63.2~3	紡績
61	High Speed Drawing Frame, Model DYH2P	豊田自動織機	6,555	62.3	62.4		紡績
61	Sliver lap former, Model SK4A with air compressor	豊田自動織機	6,900	62.3	62.4		紡績
61	High Production Comber, Model CM10	豊田自動織機	8,009	62.3	62.4		紡績
61	部分整経式経糸糊付機	馬場産業	24,595	62.6	62.7	63.2~3	織布
61	部分整経機	奥井鉄工	5,250	62.3	62.4	63.3	織布
61	自動シャトルチェンジ織布	津田駒産業	3,916	62.7	62.8		織布
61	レビア式織布	津田駒産業	7,568	62.7	62.8	1.6	織布
61	エアジェット織布	津田駒産業	9,005	62.7	62.8		織布
61	平編用丸編機	西尾機械	7,727	62.7	62.8	63.1	ニット
61	両面編用丸編機	西尾機械	6,632	62.7	62.8		ニット
62	糸毛羽測定機	糸毛織測定器	3,399	62.3	62.4	62.11~12	紡績
61	梳綿機(綿用)	豊和工業	6,350	62.3	62.4		紡績
61	梳綿機	豊和工業	6,780	62.3	62.4		紡績
61	巻糸機	村田機械	3,486	62.3	62.4		紡績
61	合糸機	村田機械	3,107	62.3	62.4	63.2~3	紡績
61	サーモセッター	日空工業	6,729	62.3	62.4		紡績
61	ゴムコット研磨機	八尾機械	4,212	62.3	62.4		紡績
61	糸むら試験機		9,986	62.3	62.4		紡績
61	糸欠点自動分類装置		4,871	62.3	62.4	62.12	紡績
61	Uster Tensorapid	ツエルベガー ウスター	12,776	62.5	62.6		紡績
61	SPINLAB DIGITAL FIBROGRAPH	ツエルベガー ウスター	7,632	62.5	62.6		紡績
62	空調動力制御盤	大気社	5,500	62.7	62.8	1.9	紡績
63	混打綿機	小原鉄工所	45,800	1.3	1.4	1.9	紡績

## 6. プロジェクトの評価

### 6-1 建屋建設関係

「エ」側は、1978年の用地取得以来、1989年11月現在までに下記に示す総額3,017,000 エジプトポンドを支出して建屋建設に努力して来た。

1. land price in 1978	1,180,000	— pound
2. calculate irons, analysis and design	15,000	—
3. foundations	170,000	—
4. canstruction (constractor)	1,400,000	—
5. consultation	32,000	—
6. preparafions	80,000	—
7. ceramics	15,000	—
8. outdoor works	100,000	—
9. transporting machineries from Alex. to Cairo	10,000	—
10. Other general expendifures	15,000	—
Total	3,017,000	—

建屋はほぼ完成し、供与機材も全て据付られ、順調に稼動している。建屋の壁の仕上げ塗装、外壁の塗装が残っているが、これも1990年3月までには終了する。(エジプトサイドでは、プロジェクトの終了と時を同じくして、担当大臣を招待しての完成式典を計画している。)

### 6-2 技術移転関係

#### a. 紡績部門

a-1 「エ」側カウンターパートは供与機材に係る操作及び日常点検について全てマスターした。

a-2 各機についてのセッティングと調整に若干の熟練が必要である。

a-3 紡績工程に関して、エジプト綿を使用しての高品質の紡績糸ができるようになった。大量生産も可能となりNRCにての将来の各種研究に有益であろう。

a-4 各種の紡績糸を紡績するのに必要なスベアパーツ、ギア等は既に供与済である。

b. 織布部門

b-1 シリーズのセミナーが専門家によって実施され、既存外部工場の直面する問題点について解決法等を指導した。

b-2 織布技術の基礎的なものは移転された。

b-3 シャトル、レピア及びエアージェット織機を使用しての一般的製織布地については、「エ」側カウンターパートだけで生産可能となった。

b-4 今後、試協力期間において「エ」国内に一般的には見られない織物の生産を試みることにする。

c. ニット部門

供与機械を使用してのニット編技術については移転を終了した。

本分野については、機械の調整を兼ねて、協力終了までに応用技術について移転することとする。

d. 試験機器

48種の試験・研究用機器を供与したが、エジプト人カウンターパートはこの使用法をマスターした。現在、これら機器を使用して、品質改善のためのデータ収集を行なっている。

e. 外部工場指導

E I - Nasr Wool & Selected Textile Co, (在アレキサンドリア)。E I - Nasr for Spinning, Weaving & Tricot (シャルバギ), Misr/Ikhlwan Spinning & Weaving Co, (在カイロ)。Misr-Iran Textile Co, (在スエズ)等に対し技術指導を行ない直面する問題解決の指導を実施した。

f. 研究開発手法の指導

本分野については、愛知県三河繊維技術センター、加工技術部長 塚原靖皓氏の協力を得、「エ」側カウンターパートのうち、研究開発にたずさわる Researcher クラスの研究者を対象として、

- ① 研究開発の進め方
- ② 糸の特性及び最近の紡績技術
- ③ 組織分解と織物の企画、設計
- ④ 織物の企画、設計
- ⑤ 試験機器の取扱実習
- ⑥ 製織準備技術

等についてセミナー及び実習形式で技術移転を実施した。

上述の技術移転状況につき項目別に合同評価した結果は次表のとおりである。



部門別技術移転評価表

	I Operation by C/P	II Operation Frequency	III Machine Condition
Spinning			
Blow room machine	B	C	A
High production card, for cotton	B	B	B
for polyester	B	B	B
High speed drawing frame, for open-end spinning.	B	B	B
for ring spinning	B	B	B
Super lap former,	B	B	B
High production comber,	B	B	A
Simplex fly frame,	B	B	A
Ring spinning machine,	A	A	B
Open-end spinning machine,	C	C	A
High speed cone winder,	B	B	B
High speed double winder,	B	B	B
Ring twisting machine,	B	B	B
Steam setter,	A	C	A
Weaving,			
Sectional warp sizing machine,	B	C	A
Warp beaming machine,	B	C	A
Automatic pirn winder,	A	A	A
Shuttle loom	A	A	A
Rapier loom	A	A	A
Air-jet loom,	A	A	A

**Knitting.**

Flat knitting machine.	A	A	B
Single Jersey knitting machine.	B	C	B
Double jersey knitting machine.	B	C	B

**Remarks.**

I. A: Very Good.

B: Good.

C: Fair.

II. A: Frequently used.

B: Seldom used,

C: To be used in case of need.

Frequency of operation of the machine depends on situation in series of operation. Therefore, above remarks show only guideline.

III. A: Very Good.

B: Good.

C: Poor.

## 第7章 総括

本プロジェクトは、研究者自らが機材を使用して、データ収集を行なうことは非常に少ないという途上国特有の社会慣習の中でも特にこの傾向の強いアラブ圏への技術移転を目的とするものであり、目的達成には非常に困難を供なった。しかしながら、長・短専門家の並々ならぬ努力の結果、これまでに述べて来たように、供与機材を使用しての基本的な技術移転は終了することができた。

基本的技術から応用技術へと残された4ヶ月間、専門家には具体的移転計画を作成し、実行していただくこととなった。

最初のR/D署名から途中の中断も含め9年余を要したものの「エ」側独自予算による建屋完成、組織の整備、そして基本的技術の移転の終了と、本プロジェクトは真に両国協力の賜物といえよう。

## 8. プロジェクト終了後の課題

### 8-1 組織づくりについて

本協力期間中に移転された技術をさらに向上させて行く為には、テクニシャン（技能工）達が、さらに供与機材の運転訓練を行ない熟練度合を増す必要があることはもちろんであるが、彼らを指揮するエンジニア・リサーチャー（研究者）の「研究開発」に対する姿勢が重要な要素となる。市場の動向、将来予測をふまえて、研究者－技能工が一体となって研究テーマに対応するという組織づくりが望まれる。

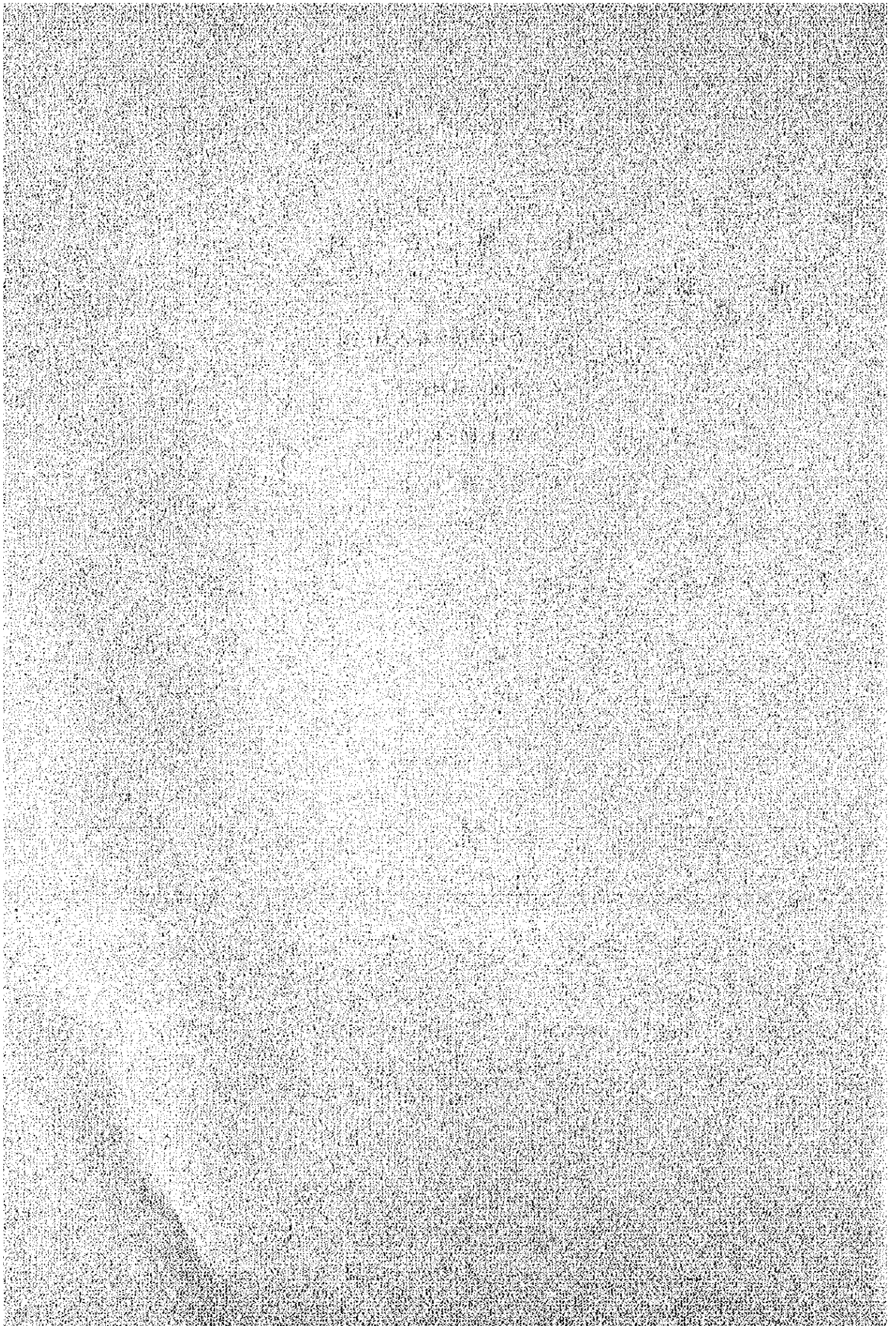
### 8-2 自主運営について

エジプト側の乏しい予算の中で、本研究所を運営して行くのは非常な努力がいることである。NRC総裁から最後に、今までの日本側の協力に対し最大級の謝辞が述べられるとともに、自助努力はもちろん自分の責任においてして行くが協力終了後、数年の後にぜひとも機材の修理、さらにレベルの高い技術の移転の為のアフターケア協力をして欲しい旨、要請された。エジプトの繊維産業界のリーダー的存在として同研究所が存在を続けるにも、供与機材の良好なる維持管理は不可欠である。

## 付 属 資 料

1. 合同評価に係るM/M
2. 合同評価報告書
3. 第1回 R/D
4. 第2回 R/D





**THE MINUTES OF DISCUSSIONS BETWEEN THE JAPANESE  
EVALUATION TEAM AND THE AUTHORITIES CONCERNED OF THE GOVERNMENT  
OF THE ARAB REPUBLIC OF EGYPT ON THE JAPANESE TECHNICAL  
COOPERATION FOR ESTABLISHMENT OF PILOT PLANT AND UPGRADING THE  
TEXTILE RESEARCH AND DEVELOPMENT DIVISION OF THE  
NATIONAL RESEARCH CENTRE**

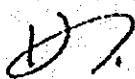
The Japanese Evaluation Team (hereinafter referred to as "The Team") organized by the Japan International Cooperation Agency, headed by Mr. Muneshige Yamazaki visited the Arab Republic of Egypt from November 21, to 25, 1989, exchanged views and had a series of discussions with the Egyptian authorities concerned for the purpose of evaluating the achievements of Japanese technical cooperation for the establishment of Pilot Plant and Upgrading the Textile Research and Development Division of the National Research Centre.

As a result of the joint evaluation work and discussions, both sides worked out the evaluation report and reached the following conclusion:

- (1) Both sides confirmed the following items to be implemented by the end of March 1990
  - a) Dispatch of Japanese expert in knitting field.
  - b) Acceptance of three (3) counterpart personnel in Japan.
  - c) Provision of textbooks and periodicals.
  - d) Provision of testing instruments.
  - e) Supply of some amount of raw materials for research and development purpose.
  
- (2) Egyptian side requested the provision of needed accessories, spareparts and manuals for some machinery and equipment.

Japanese side answered that they will study the provision of those items, within the budget, based on the list prepared by mutual consultation between Japanese experts and Egyptian side.
  
- (3) Both sides have decided to exert more effort to achieve successfully technology transfer, regular maintenance and adjustment of machines by the end of March 1990.
  
- (4) Egyptian side in addition requested for conducting After-Care cooperation of this project at any rate for further development of the Textile Research and Development Division of the National Research Centre.

The Team replied that they strongly supported the request according to the observation of the Team throughout each section of the project and will convey the request without fail to the Japanese authorities concerned.

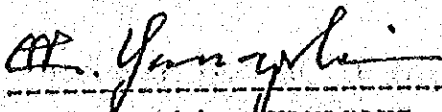
4. 



For realization of After-Care cooperation, the Team emphasized that satisfactory management of the Textile Research and Development Division to operate the project will be the important and essential prerequisite.

Egyptian side would like to express warm and sincere thanks, appreciation and gratitude to JICA for the Establishment of Pilot Plant and Upgrading the Textile Research and Development Division of the National Research Centre. Egyptian and Japanese sides are also looking forward for further fruitful cooperation.

Cairo, November 23, 1989



Mr. Muneshige YAMAZAKI,  
Head,  
Japanese Evaluation Team  
Japan International  
Cooperation Agency



Prof. Dr. Hussien Samir Salama  
President,  
National Research Centre  
Arab Republic of Egypt

**JOINT EVALUATION REPORT**

**ON**

**THE JAPANESE TECHNICAL COOPERATION**

**FOR THE PROJECT**

**ON**

**ESTABLISHMENT OF PILOT PLANT AND UPGRADING THE TEXTILE RESEARCH**

**AND**

**DEVELOPMENT DIVISION OF NATIONAL RESEARCH CENTRE**

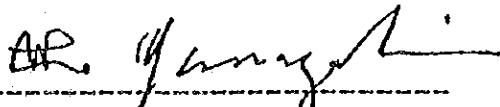
**NOVEMBER, 1989, CAIRO. EGYPT**

Mutually attested and submitted

to all concerned

Cairo, The Arab Republic of Egypt

November 23, 1989



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Mr. Muneshige YAMAZAKI,  
Head,  
Japanese Evaluation Team  
J I C A



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Prof. Dr. Hussien Samir Salama  
President,  
National Research Centre  
Arab Republic of Egypt

## I. INTRODUCTION

### 1. Objectives

The Japanese Evaluation Team (hereinafter referred to as the Team) organized by Japan International Cooperation Agency (JICA), and headed by Mr. Muneshige YAMAZAKI visited the Arab Republic of Egypt from November 21 to 25, 1989 in order to jointly evaluate with the Egyptian authorities concerned the past achievement of the Japanese Technical Cooperation for the Project on the Establishment of Pilot Plant and Upgrading the Textile Research and Development Division of the National Research Centre (hereinafter referred to as the Project) on the basis of the Record of Discussions signed on November 7, 1980 between Implementation Survey Team and the authorities concerned of the Arab Republic of Egypt. (Refer to ANNEX I).

The Team also referred to another two Record of Discussions for the extension of the Project which were signed on October 31, 1985 and March 19, 1987. (Refer to ANNEX II).

The Team discussed and studied with the Egyptian counterpart personnel and Japanese experts on the aspects about the past performance, the achievement and the activities of the said project.

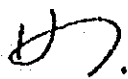
Through careful studies and discussion, both parties summarized their findings and observations as described in the following chapters.

### 2. Brief History of the Project

The summarized record of the implementation of the Technical Cooperation programme is described below.

#### Chronological Review of the Project.

Year	Month	Description
1977	May	Acceptance of the request for the Technical Cooperation.
1978	August	Dispatch of the Preliminary Survey Team
1979	February	Dispatch of the short-term surveyors.
1980	October	Dispatch of the Implementation Survey Team.



	November	Signing of the Record of Discussions and the Tentative Schedule of Implementation.
1981	May	Dispatch of the short-term experts
	"	Dispatch of the long-term expert, as a chief advisor and spinning expert.
	September	Acceptance of senior staff of NRC in Japan.
1982	January	Acceptance of the counterpart personnel for training in Japan.
	March	Dispatch of the Technical Consultation Team
	April	The first shipment of the equipment.
	June	The second shipment of the equipment.
	July	Acceptance of counterpart personnel for training in Japan
1982	July	The third shipment of the equipment.
1983	March	The acceptance of counterpart personnel for training in Japan
	April	Dispatch of the Technical Consultation Team.
1985	October	Dispatch of the Technical Consultation Team.
	"	Signing of the Record of Discussions for extension of the Project.
1986	April	Dispatch of the Technical Consultation Team.
	October	Dispatch of long-term expert, as a Chief Advisor and weaving expert.
	November	Acceptance of the counterpart personnel for training in Japan.
1987	March	Dispatch of the Technical Consultation Team.
	"	Signing of the Record of Discussions for extension of the Project.
	May	Forth shipment of the equipment.
	August	Fifth shipment of the equipment.

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	September	Acceptance of the counterpart personnel for training in Japan.
	November	Dispatch of long-term expert of spinning, Acceptance of the counterpart personnel for training in Japan.
1988	January	Dispatch of long-term expert of knitting.
	April	Dispatch of the Technical Consultation Team.
1989	March	Dispatch of the Technical Consultation Team.
	July	Dispatch of the long-term expert as a coordinator.
	August	Dispatch of short-term expert.
	October	Dispatch of short-term experts.
	November	Dispatch of short-term experts.
	,,	Dispatch of the Evaluation Team.

### 3. Background of the Project

In May 1977 through the official letter of the Ministry of Foreign Affairs No.484, the Government of the Arab Republic of Egypt made an official request to the Government of Japan for the purpose of the technical cooperation to the Establishment of pilot plant and upgrading the textile research and development division of NRC. In compliance with the request, the Government of Japan through JICA dispatched the Preliminary Survey Team to the Arab Republic of Egypt from August 4 to 23, 1978. The Preliminary Survey Team conducted surveys, studies and discussions on the details of the Project with the authorities concerned of the Arab Republic of Egypt. On the basis of the report and recommendation of the Preliminary Survey Team and other Implementation Survey Team, the Government of Japan decided to extend technical cooperation to Egypt in the field of the textile research and development.

On November 7, 1980, the Record of Discussions was concluded between JICA and NRC and the construction of the building was commenced in the city of Cairo at the expense of the Government of the Arab Republic of Egypt.

*Y. H.*

Besides, through the mutual discussion, the Record of Discussions was extended two times on October 31, 1985 and March 19, 1987.

Meanwhile, Japanese Technical Consultation Team organized by JICA visited Egypt nine times for the purpose of working out the details of Technical Cooperation Programme for the Project, as previously mentioned.

## II. METHODOLOGY OF EVALUATION

1. In order to evaluate past performance and achievement both qualitatively and quantitatively, the following items are applied as reference.

- (1) The Record of Discussions signed on November 7, 1980. Record of Discussions for extension signed on October 31, 1985 and March 19, 1987.
- (2) The official request made by the Government of the Arab Republic of Egypt with respect to the dispatch of expert, training of the counterpart personnel in Japan and provision of the equipment through A-1, A-2,3 and A-4 form, respectively.
- (3) Minutes of Discussion and Annual Work Plans agreed or accepted in the course of implementation of the project.
- (4) Result of discussion with Egyptian counterpart in every field respecting the past performance of each side.

2. For the purpose of evaluation both parties discussed various aspects of the project and observed the equipment and facilities if they are properly kept and in good condition.

## III. RESULT OF EVALUATION

1. Building and Facilities.

After the Record of Discussions was concluded between JICA and NRC the construction was commenced by the Egyptian side at its own expense in November 1981 and the necessary facilities began to be prepared.

Since 1981, under the difficult financial situation, Egyptian side tried to make an effort to construct the building step by step and arranged the facilities for the project.

Also, it should be added that the construction of the building for the blow room machine started and now the construction is almost completed.



(Remarks)

- 1) The expenses which were borne by Egyptian side in the construction until now amount to LE 3,017,000.
- 2) As a whole, the construction of the building for the Project is nearing the stage of completion, in spite of difficulty in allocation of budget.
- 3) Budget for management amounts to LE300,000.-

2. Staffing

At present, a total of thirty eight (38) counterpart personnel has been assigned to the Project for the effective implementation and successful transfer of technology.

The number of the staffs has been increased recently to meet the requirement of the Project. (Refer to ANNEX III)

(Remarks)

- 1) The Egyptian staffs and the Japanese experts are trying to create close relationship in point of the technical transfer.
- 2) As a result, the technology has been transferred smoothly to the Egyptian staffs.

3. Management and Administration

All administrative and managerial services for the Project activities are being provided by the existing staffs of the NRC.

The joint committee consisting of the chairman of NRC, the director of the Textile Division, the Japanese Team and the experts was held for the purpose of the effective implementation of the Project.

Both Egyptian staffs and Japanese experts in time of necessity had meeting and/or discussions with each other.

The organization chart is shown in ANNEX IV.

(Remarks)

- 1) On the occasion of the visit of the Technical Consultation Team the joint meeting was held between JICA and NRC with the aim of working out Annual Work Plan and Schedule of Implementation as well as taking necessary measures for hitting the target of the Project.

*Y. H.*

#### 4. Equipment

Between February, 1982 and November, 1989, machinery and equipment being worth FOB Y336,788,775.- have been donated by the Japanese Government. (Refer to ANNEX V) Machinery and equipment so far provided have been installed and put into practical operation under the guidance of the experts and in close cooperation between Japanese experts and Egyptian engineers.

In addition to the machinery and equipment already shipped and installed some supplementary equipment will be provided in FY1989.

#### (Remarks)

1) As far as the financial problem regarding the installation is concerned, not only Japanese side but also Egyptian side tried to make as much effort as they could to complete installation work in spite of the limited budget for the Project.

2) Egyptian counterpart personnel has learned the daily maintenance procedure such as lubrication etc. and all machinery and equipment are kept in good operating condition.

3) Egyptian technicians are able to operate most of machinery without difficulty.

4) The spare parts and accessories for most of the machinery and equipment already provided by JICA are ready to be used at any time in case of need (for 2-3 years).

5) Air conditioning system is completed and now operated daily.

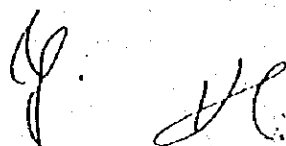
#### 5. Japanese Expert

JICA has already dispatched five (5) long term experts and sixteen (16) short term experts since 1981. (Refer to ANNEX VI)

Besides, JICA dispatched five (5) experts in 1978 as a Preliminary Survey Team. In addition, nine (9) Teams were dispatched for the implementation of the Project (Refer to ANNEX VII)

#### (Remarks)

1) In general, all the experts tried to work closely with Egyptian counterpart personnel for the purpose of the effective technical transfer.



2) Egyptian counterpart personnel cooperated with Japanese experts for the technical cooperation of the Project.

6. Training of the counterpart personnel in Japan.

A total of nine (9) persons consisting of one (1) senior official, two (2) officials and six (6) engineers studied in Japan for training purpose. (Refer to ANNEX VIII)

(Remarks)

1) Training course or observation tour organized by JICA has been supported by Institute of High Polymer Fibre Material, Toyobo Co, Toyoda Automatic Loom Works, etc. and each training course was evaluated to be satisfactory and fruitful for every participants.

7. Budget.

A summary of the Project expenses borne by NRC is mentioned in ANNEX IX.

(Remarks)

1) In spite of the limited national budget of the Government of the Arab Republic of Egypt, the effort made by NRC was highly appreciated.

2) Within a limited budget for the Project JICA tried to make as much effort as it could by means of appropriating the temporary local expenses to the installation work and so on.

8. Project Accomplishment.

Based on the Record of Discussions, Minutes of Discussions and other pertinent papers respecting the Project, herewith we summarize the past achievement, performance and activities regarding the project as in the following.

In general, as to the technical cooperation programme stipulated in the Record of Discussions basic technology has been transferred by Japanese experts to Egyptian counterpart personnel. (Refer to ANNEX X)

8a. Spinning

The Project had already received the essential machinery for coarse and medium yarn production. The machinery ranges from the blow room machine to the steam

*Y. H.*

setter. Every machine has been installed and put into practical operation in close cooperation between Japanese experts and Egyptian staff.

(Remarks)

1) Egyptian counterpart personnel has already studied how to operate machinery and learned the daily procedure of maintenance.

2) The Egyptian Counterparts are in need of training to adjust and make different changes and settings of the different machines.

3) As to the ring spinning process we achieved success in mass production of high quality yarn (60's Ne) with use of Egyptian combed cotton. The mass production process was recorded and result can be used as reference when NRC carries out various test in future.

4) The various supplementary parts such as change gear, accessories required for trial operation of various kind of yarn were provided.

#### 8b. Weaving

The Project received and installed already machinery and equipment needed for its weaving and weaving preparation. The engineers and technicians are now able to operate, adjust and maintain machinery as a good result of close cooperation between JICA experts and NRC counterpart personnel.

A series of Seminars was held by JICA weaving expert regarding weaving and its preparation to clarify problems of production with which outside weaving factories are facing.

(Remarks)

1) The Egyptian counterpart personnel already studied the basic method of production.

It is advisable that Egyptian counterpart personnel study another application of the technology in weaving to produce new fabrics in cooperation with the experts.

#### 8c. Knitting

The Project has already received necessary machinery for knitting and the machinery can be operated by Egyptian counterpart personnel as a result of close cooperation between Japanese experts and Egyptian counterpart personnel. Egyptian counterpart personnel has studied the basic technology about knitting and its machinery.

(Remarks)

1) It is advisable that the counterpart personnel tries to investigate every possibility of applying the existing machines to various knitting method.

8.d. Testing Laboratory.

The Project has received various testing instruments of forty eight kind and these instruments and apparatus are now being used for obtaining data to improve the quality of product, find out the cause of defects and so on.

(Remarks)

1) The Egyptian counterpart personnel can use the testing instruments in full extent as a result of cooperation with each other.

2) These testing instruments will find wider and more effective application by an effort of Egyptian counterpart personnel.

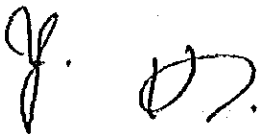
8e. Technical services for the local factory.

During the term of the Project the technical guidance was conducted to some local textile factories such as El-Nasr Wool & Selected Textile Co., in Alexandria, El-Nasr for Spinning, Weaving & Tricot (Chourbagui), Misr/Helwan Spinning & Weaving Co., in Cairo and Misr-Iran Textile Co. in Suez, in order to solve the problems with which they were facing.

(Remarks)

1) In cooperation between Japanese experts and Egyptian counterpart personnel the Project achieved considerable success in technical guidance to the local factories.

2) As to the technical services for the local factory, it is advisable that the Textile Division of NRC play a leading role in the textile industry and sincerely tackle this subject. The activities of this kind is effective to the propagation purpose at the same time. To do so, the Egyptian staff has to raise their technical standard to be able to train industry staff.



## CONCLUSION AND RECOMMENDATION

As a result of the joint evaluation and discussions, both sides concluded that great part of the activities about technical cooperation stipulated in the Record of Discussions and other pertinent papers have been implemented and the Project is near to its final stage of technical cooperation on the ground that

(1) Most of the equipment and machines stipulated in the Record of Discussions and provided by JICA has been installed.

(2) As a result of close cooperation between the Japanese experts and Egyptian counterpart personnel, most of the machinery and equipment can be operated by Egyptian counterpart personnel.

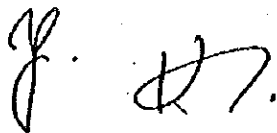
(3) The regular maintenance system as well as adjustment of setting different machinery has not yet been completely established in some section. However, this system will be completed by the Egyptian counterparts with the guidance and assistance of the Japanese experts by March 31, 1990.

(4) According to the conception of the technical cooperation programme stipulated in the Record of Discussions the basic technology has been transferred in both spinning and weaving sections, and more effort is needed in knitting section so as to complete the technology transfer by both the Egyptian counterparts and the Japanese experts.

In accordance with the above observation, both side recognized that the technology transfer through the Project has to be completed successfully within the term of the current cooperation period.

So, both sides agreed to recommend to their respective Governments to terminate the Project on March 31, 1990 in accordance with the latest Record of Discussions signed on March 19, 1987.

The Team expects that the Textile Division of NRC is to manage the Project properly, including good maintenance of the equipment and others for the purpose of further development of the Project.



Discussion meeting was held between the Team of Japan International Cooperation Agency (JICA) and the authorities concerned of the Arab Republic of Egypt on the evaluation of the Japanese Technical Cooperation on the Project as per the schedule mentioned below.

Date : November 23, 1989

Place: National Research Center

Attendants :

Japanese Panel.

Team

Mr. Muneshige YAMAZAKI,

Managing Director,

Mining & Industrial Development Cooperation Dept.

J I C A

Mr. Eiji YAMADA

Deputy Director,

Technical Cooperation Div.,

International Trade Policy Bureau,

Ministry of International Trade and Industry

Mr. Kooji ICHIKAWA

Director,

TOYOCO Engineering Co. Ltd.

Mr. Kimiaki YAMAGUCHI,

Deputy, Technical Cooperation Div.

Mining & Industrial Development Cooperation Dept.

J I C A

Coordinator of the Project

Mr. Katsuo SHIMIZU

JICA Egypt Office

Mr. Keiji IIMURA

Resident Representative

Mr. Shigeru OKAMOTO

Deputy Resident Representative

Egyptian Panel.

Prof. Dr. Abdel Aziz Kantouch

Prof. Dr. Mona Kamel

Prof. Dr. Sami Mansour

Dr. Mohamed Saad

*Y.*      *Dr.*

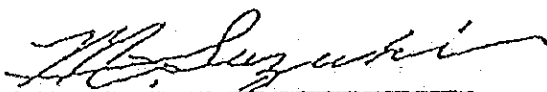
THE RECORD OF DISCUSSIONS  
 BETWEEN THE JAPANESE IMPLEMENTATION SURVEY TEAM  
 AND THE AUTHORITIES CONCERNED OF THE GOVERNMENT  
 OF THE ARAB REPUBLIC OF EGYPT  
 ON THE JAPANESE TECHNICAL COOPERATION  
 FOR THE ESTABLISHMENT OF PILOT PLANT AND  
 UPGRADING THE TEXTILE RESEARCH  
 AND DEVELOPMENT DIVISION OF THE NATIONAL RESEARCH CENTRE

The Japanese Implementation Survey Team (hereinafter referred to as "The Team") organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Dr. Mitsuo Suzuki, Senior Executive Director of Japan Industrial Technology Association, visited the Arab Republic of Egypt from October 25th, 1980, to November 9th, 1980, for the purpose of working out the details of the technical cooperation programme concerning the Project on the Establishment of Pilot Plant and Upgrading the Textile Research and Development Division of the National Research Centre in the Arab Republic of Egypt.

During its stay in the Arab Republic of Egypt, the Team exchanged views and had a series of discussions with the Egyptian authorities concerned in respect of the desirable measures to be taken by both Governments for the successful implementation of the above-mentioned Project.

As a result of the discussions, the Team and the Egyptian authorities concerned agreed to recommend to their respective Governments the referred to in the document attached hereto.

Cairo, November, 7th, 1980



Dr. Mitsuo Suzuki  
 Head,  
 Japanese Implementation Survey Team,  
 Japan International Cooperation Agency,  
 Japan



Dr. Mohamed Kamel  
 President,  
 National Research Centre,  
 The Arab Republic of Egypt



THE ATTACHED DOCUMENT

(I) COOPERATION BETWEEN BOTH GOVERNMENTS.

1. The Government of Japan and the Government of the Arab Republic of Egypt will cooperate with each other in implementing the Project on the Establishment of Pilot Plant and Upgrading the Textile Research and Development Division of the National Research Centre (hereinafter referred to as "the Project") for the purpose of providing the theoretical and practical training, extending technical advisory services to the industry and conducting research and development works in the fields of spinning, weaving and knitting, thereby contributing to the promotion of the textile industry in the Arab Republic of Egypt.
2. The Project will be implemented in accordance with the Master Plan which is given in Annex I.

(II) DISPATCH OF JAPANESE EXPERTS

1. In accordance with the laws and regulations in force in Japan, the Government of Japan will take necessary measures through JICA to provide at its own expense the services of the Japanese experts as listed in Annex II through the normal procedures under the Technical Cooperation Scheme of Japan.
2. The Japanese experts referred to in 1. above and their families will be granted in the Arab Republic of Egypt the privileges, exemptions and benefits as listed in Annex III and will be granted privileges, exemptions and benefits no less favourable than those granted to experts of third countries.

(III) PROVISION OF MACHINERY AND EQUIPMENT

1. In accordance with the laws and regulations in force in Japan, the Government of Japan will take necessary measures through JICA to provide at its own expense such machinery, equipment and other materials necessary for the implementation of the Project as listed in Annex IV through the normal procedures under the Technical Cooperation Scheme of Japan.

2. The articles referred to in 1. above will become the property of the Government of the Arab Republic of Egypt upon being delivered c.i.f. to the Egyptian authorities concerned at the ports and/or airports of disembarkation, and will be utilized exclusively for the implementation of the Project in consultation with the Japanese experts referred to in Annex II.

#### IV. TRAINING OF EGYPTIAN PERSONNEL IN JAPAN.

1. In accordance with the laws and regulations in force in Japan, the Government of Japan will take necessary measures through JICA to receive at its own expense the Egyptian personnel connected with the Project for technical training in Japan as listed in Annex V through the normal procedures under the Technical Cooperation Scheme of Japan.
2. The Government of the Arab Republic of Egypt will take necessary measures to ensure that the knowledge and experience acquired by the Egyptian personnel from technical training in Japan will be utilized effectively for the implementation of the Project.

#### V. MEASURES TO BE TAKEN BY THE GOVERNMENT OF THE ARAB REPUBLIC OF EGYPT

1. In accordance with the laws and regulations in force in the Arab Republic of Egypt, the Government of the Arab Republic of Egypt will take necessary measures to provide at its own expense:
  - (1) Services of the Egyptian counterpart personnel and administrative personnel as listed in Annex V;
  - (2) Land, buildings and facilities as listed in Annex VII;
  - (3) Supply or replacement of machinery, equipment, instrument, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than those provided through JICA under III.1. above;
  - (4) Transportation facilities and travel allowance for the Japanese experts for the official travel within the Arab Republic of Egypt;
  - (5) Suitably furnished accommodation for the Japanese experts and their families.

2. In accordance with the laws and regulations in force in the Arab Republic of Egypt, the Government of the Arab Republic of Egypt will take necessary measures to meet:

- (1) Expenses necessary for the transportation within the Arab Republic of Egypt of the articles referred to in III.1. above as well as for the installation, operation and maintenance thereof;
- (2) Customs duties, internal taxes and any other charges, imposed in the Arab Republic of Egypt on the articles referred to in III.1. above;
- (3) All running expenses necessary for the implementation of the Project.

#### VI. ADMINISTRATION OF THE PROJECT

1. The President of the National Research Centre (hereinafter referred to as "NRC") will bear overall responsibility for the implementation of the Project, and the person nominated by the President of the NRC will be responsible for the administrative and managerial matters of the implementation of the Project.
2. The Japanese Chief Advisor and other experts will give recommendation and advice to the President of the NRC, Head of Spinning and Weaving Department NRC and other Egyptian personnel concerned on the technical matters concerning the implementation of the Project.
3. For the effective and successful implementation of the Project, a Joint Committee (hereinafter referred to as "the Committee") will be established with the members as listed in Annex VIII. The Committee will have the functions to prepare the Annual Work Plan and to consult any other related matters arising from the implementation of the Project, and will be held when necessity arises.

#### VII. CLAIMS AGAINST JAPANESE EXPERTS

The Government of the Arab Republic of Egypt undertakes to bear claims, if any arises, against the Japanese experts engaged in the Project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in the Arab Republic of Egypt except for those arising from the willful misconduct or gross negligence of the Japanese experts.

VIII. MUTUAL CONSULTATION

There will be mutual consultation between the two Governments on any major issues arising from, or in connection with this Attached Document.

IX. TERM OF COOPERATION

The duration of the technical cooperation for the Project under this Attached Document will be 5 years from November 7th, 1980.

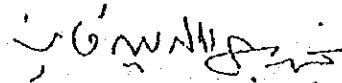
RECORD OF DISCUSSIONS  
 CONCERNING EXTENSION OF THE PERIOD OF TECHNICAL COOPERATION  
 PROGRAM FOR THE ESTABLISHMENT OF THE PILOT PLANT AND UPGRADING  
 THE TEXTILE RESEARCH AND DEVELOPMENT DIVISION OF THE  
 NATIONAL RESEARCH CENTRE

Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a consultation team to the Arab Republic of Egypt from 26 October to 31 October, 1985.

During its stay in the Arab Republic of Egypt, the team exchanged views and had a series of discussions with the authorities concerned of the Government of the Arab Republic of Egypt on the technical cooperation program and its future direction.

As a result of the discussions, JICA and the Egyptian authorities concerned agreed to recommend to their respective Governments that the period of the above mentioned technical cooperation referred to in the Record of Discussions signed on 7 November, 1980 should be extended from 7 November, 1985 to 31 March, 1987.

Cairo, October 31, 1985.





飯村 圭一

Mr. Keiji IIMURA  
 Head,  
 Japanese Consultation Team,  
 Japan International Cooperation  
 Agency

Dr. M. Bahaa El Din Fayed,  
 Chairman,  
 National Research Centre,  
 The Arab Republic of  
 Egypt

THE MINUTES OF DISCUSSIONS  
BETWEEN THE JAPANESE CONSULTATION TEAM AND  
THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF  
THE ARAB REPUBLIC OF EGYPT  
CONCERNING THE JAPANESE TECHNICAL COOPERATION FOR  
THE TEXTILE RESEARCH AND DEVELOPMENT DIVISION  
OF THE NATIONAL RESEARCH CENTRE

The Japanese Consultation Team (hereinafter referred to as "The Team") organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Keiji YIMURA, JICA, visited Arab Republic of Egypt from October 26 to October 31, 1985 and had a series of discussions with the Egyptian authorities concerned in respect of extending the technical cooperation for the above mentioned project with reference to the Record of Discussions signed on October 31, 1985.

As a result of discussions, both sides agreed as follows:

1. The term of cooperation shall be extended from November 7, 1985 to March 31, 1987.
2. The construction of the facilities necessary for the implementation of the project should be completed within the term of cooperation by the Egyptian side.
3. The progress of construction schedule of the facilities should be informed to JICA Office periodically.
4. This implies two phases of construction: the First Phase consists of completion of the ground floor in the manner that makes it fully ready for the installation and operation of the pilot plant machinery. The Second Phase consists of initiation of the construction work in the first floor in the manner that leads to its completion as the resources become fully available.
5. Japanese experts will be despatched after completion of facilities i.e., first phase indicated above, in order to make confirmation for implementation of technical cooperation.
6. After the confirmation of the above, a Japanese consultation team will be despatched as soon as possible to discuss the term and the scope of technical cooperation including the schedule of delivery and installation of machineries and equipment, despatch of experts and acceptance of counterparts in Japan.

7. In consideration of result of the discussions above, expert(s) will be despatched as soon as possible for installation of the machineries and equipment which were already delivered.
8. The equipment for the Project supplied by JICA will be stored and maintained properly under the responsibility of the National Research Centre so that these equipment can be of use without defect for the implementation of technical cooperation.
9. In case the construction of the facilities, as stipulated under para 4 (above), is not completed until March 31, 1987, the two sides will consult with each other (on) the manner in which future cooperation will be conducted.

Cairo, Oct.31, 1985

飯村 圭司

Keiji IIMURA  
Leader  
Japanese Consultation Team  
Japan International Cooperation  
Agency

Dr. M. Bahaa El-Din Fayed  
Chairman  
National Research Centre  
The Arab Republic of Egypt

RECORD OF DISCUSSIONS  
CONCERNING EXTENSION OF THE PERIOD OF TECHNICAL COOPERATION  
PROGRAM FOR THE ESTABLISHMENT OF THE PILOT PLANT AND UPGRADING  
THE TEXTILE RESEARCH AND DEVELOPMENT DIVISION OF THE  
NATIONAL RESEARCH CENTRE

Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Consultation Team (hereinafter referred to as "the Team") to the Arab Republic of Egypt from March 14 to March 25, 1987.

During its stay in the Arab Republic of Egypt, the team exchanged views and had a series of discussions with the authorities concerned of the Government of the Arab Republic of Egypt on the technical program and its future direction.

As a result of discussions, JICA and the Egyptian authorities concerned agreed to recommend to their respective Governments that the period of the above mentioned technical cooperation referred to in the Record of Discussions signed on October 31, 1985 should be extended from April 1, 1987 to March 31, 1990

Cairo, March 19, 1987

飯村 圭 三

Mr. Keiji IIMURA,  
Leader,  
Japanese Consultation Team,  
Japan International Cooperation  
Agency

Yehia Fahmy

Dr. Yehia Abdel Latif Fahmy  
Chairman,  
National Research Centre  
The Arab Republic of Egypt



MINUTES OF DISCUSSIONS  
BETWEEN THE JAPANESE CONSULTATION TEAM  
AND THE AUTHORITIES CONCERNED OF THE GOVERNMENT  
OF THE ARAB REPUBLIC OF EGYPT CONCERNING THE JAPANESE  
TECHNICAL COOPERATION FOR THE TEXTILE RESEARCH AND  
DEVELOPMENT DIVISION OF THE NATIONAL RESEARCH CENTRE

The Japanese Consultation Team (hereinafter referred to as "The Team") organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Keiji YIMURA visited the Arab Republic of Egypt from March 14, 1987 to March 25, 1987 and had a series of discussions with the Egyptian authorities concerned in respect of the extension of the period of technical cooperation for the above mentioned project with reference to the Record of Discussions signed on March 19, 1987.

I. As a result of discussions, both sides agreed to take necessary measures as follows;

Scope of Technical Cooperation Program, Tentative  
Schedule of Implementation and Annual Work Plan are in the  
attached sheets, (ANNEX 1,2,3)

1. Japanese side

- 1) To dispatch two (2) long-term experts respectively in the field of spinning and knitting and one (1) or two (2) short term expert(s) respectively in line with Tentative Schedule of Implementation, (ANNEX 2)
- 2) To dispatch necessary number of installation experts on short-term basis at the time of the installation of spinning, weaving and knitting machines.
- 3) To provide necessary machinery in the field of spinning, weaving and knitting as stipulated in Annex IV (List of the Articles), Record of Discussions signed on November 7, 1980.
- 4) To consider further provision of supplementary equipment and spare parts as main articles of equipment are to be provided within Fiscal 1987 - 1989.
- 5) To accept 2 - 3 counterpart personnels every year within cooperation period. Duration is to be decided depending on the subject of counterpart personnels.

## 2. Egyptian side

- 1) To provide necessary number of workers at the time of the installation of machinery and equipment supervised by Japanese expert.

In case installation work for air conditioning equipment remains unfinished within 3 months due to insufficient number of workers provided by Egyptian side, the remaining work is to be completed under the responsibility of Egyptian side as maximum duration of the expert for installation is not more than 3 months due to expert's circumstances.

- 2) To provide working schedule of the construction of the First Floor.
- 3) To prepare staff and budget necessary for the operation and management of the Project.
- 4) To prepare necessary number of counterpart personnels for the implementation of the Project before Japanese experts are dispatched.
- 5) To notify the names of counterparts personnels in the field of spinning, weaving and knitting.
- 6) To provide suitable offices for Japanese experts before their arrival.

II. A proposal for the provision of equipment concerning Tentative Outline of R & D Plan for Future Activities of the Textile Pilot Unit was submitted by Egyptian side.

Japanese side is not in a position to meet with the proposal at the present time due to financial difficulties.

Cairo, March 19, 1987

伊藤 健二  
Mr. Keiji IYIMURA  
Leader,  
Japanese Consultation Team,  
Japan International Cooperation  
Agency

Yehia Fahmy  
Dr. Yehia Abdel Latif Fahmy  
Chairman,  
National Research Centre  
The Arab Republic of Egypt

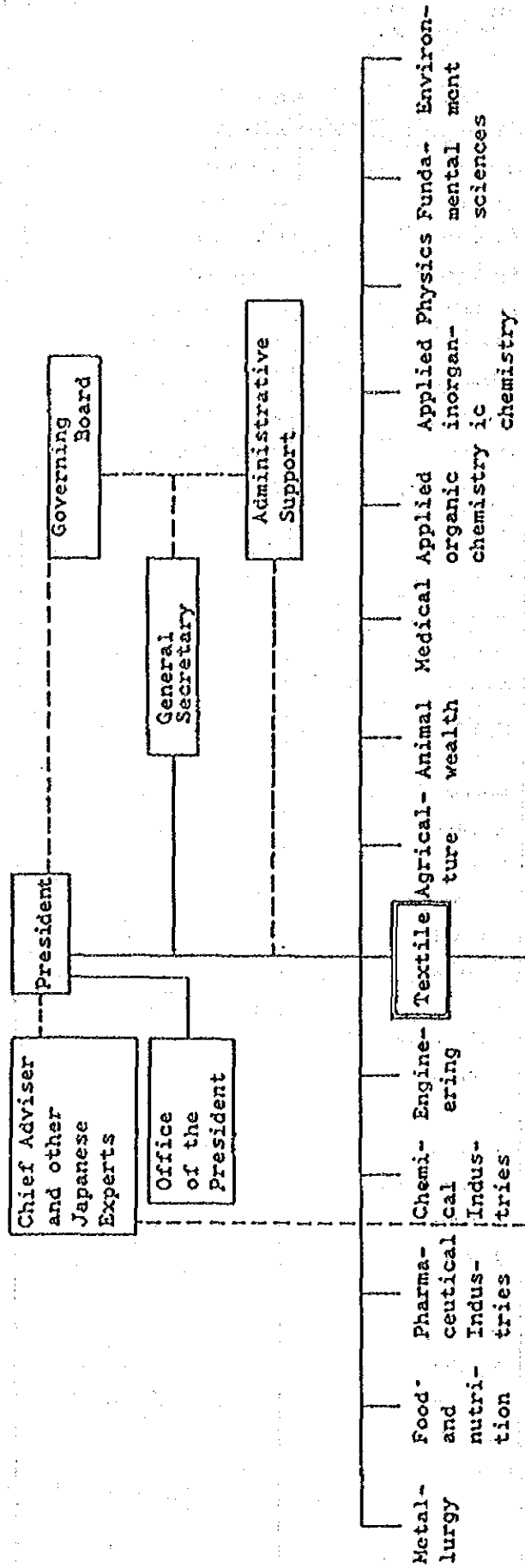
Egyptian Staff of the  
Textile Dept.

ANNEX III

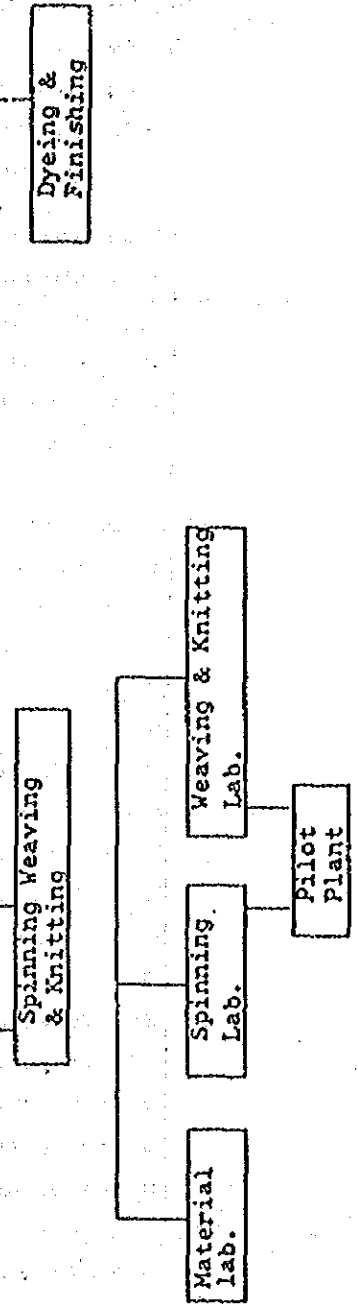
No	Name	Job	Degree
1	Dr. Saad Mansour.	Head of the textile dept	Professor
2	Dr. Mohamed Saad	Spinning.	Researcher.
3	Dr. Abdel Aziz Sharaf	Spinning.	Researcher.
4	Eng. Atafel Sorsavy	Spinning.	B.Sc. 1963
5	Eng. Ebrahim Hanafy	Spinning.	Assist. lecturer.
6	Eng. Naha Kamel	Weaving.	Assist. lecturer
7	Eng. Mohamed Kasem	Weaving	Research Assistant.
8	Eng. Mona Salem	Spinning.	Technical Specialist.
9	Eng. Sherif Temraz	Weaving.	Research Assisi.
10	Eng. Tarek AboSere	Knitting.	Technical Specialist.
11	Eng. Mohamedel Kudr	Testing. Physics & Control	Research Assisi.
12	Eng. Gamal El Nobl		" "
13	Eng. N. Elshakankiri	Weaving	" "
14	Eng. Abdel Rehim	Weaving	" "
15	Eng. Nehsi El Gonder	Knitting	" "
16	Eng. Mohamed Ezzal	Knitting	" "
17	Eng. Mohamed Mourad	Weaving	" "
18	Mr. Ahmed Shehata	Weaving	Technician Head.
19	Mr. Talalateel Sharkaw	Spinning.	3rd Technician.
20	Mr. Mohamed Afifi	Weaving	" "
21	Mr. Habib Hassan	Weaving	" "
22	Mr. Husni Deheri	Spinning	" "
23	Mr. Rafal Hassan	Knitting	" "
24	Mrs. Zainab Kenavy	Knitting	4th Technician
25	Mr. Emad Abdelhamid	Conditioning	" "
26	Mrs. Nabila Yosef	Ready made (sewing)	" "
27	Mr. Sheref Hafeez	Weaving	" "
28	Miss. Magda Mostafa	Knitting	" "
29	Miss. Afaf Hafeez	Ready made (sewing)	" "
30	Mr. Sayed Kenavy	Workshop	" "
31	Mr. Nagdy Aboelhaded	Blow room	" "
32	Mr. Ahmed Mousalaw	Blow room	" "
33	Mr. Mohamed El Kishk	Spinning	" "
34	Mr. Mohsen Hamed	Spinning	" "
35	Mrs. Nabila Abelhade	Typeset.	
36	Mr. Ibrahim Naga.	Labour.	
37	Mr. Mohamed Helal	"	
38	Mr. Mustafa Salama	"	

Organization of Implementation of the Project

(1) Organization of NRC



(2) Organization Chart of the Textile Research and Development Division



## ANNEX V

## PROVISION OF EQUIPMENT

Date	B/L	Main equipment	Amount
1. April 13. '82	YHAL-0019	Air-conditioning set	FOB Y25,530,000 CIF Y30,437,452
2. June 5. '82	19 - 002	Open-end spinning machine, etc.	FOB Y34,253,000 CIF Y36,998,562
3. July 17. '82		Various machine tools	FOB Y 2,947,000 CIF Y 3,201,880
4. April 11. '87	1002	Weaving machine, etc.	FOBY102,100,000 CIF Y109,156,963
5. April 22. '87	KBAL-0003	Uster Tensorapid	FOB Y21,299,475 CIF Y21,646,062
6. April 23. '87	KBAL-0004	Sectional warping machine, etc.	FOB Y27,911,250 CIF Y29,408,832
7. July 7. '87	YHAL-0001	Various spare parts	FOB Y 5,110,000 CIF Y 6,016,136
8. July 10. '87	KBAL-0504	Various testing apparatus, etc.	FOB Y29,189,550 CIF Y31,313,792
9. July 29. '87	YHAL-0006	Air compressor, etc.	FOB Y 5,500,000 CIF Y 6,197,754
10. August 4. '87	KBAL-0004	Shuttle change automatic loom, etc.	FOB Y35,598,500 CIF Y39,475,294
11. March 31. '89	KA - 17	Blow room machinery	FOB Y45,800,000 CIF Y57,461,376
12. April 3. '89	077-1563	Change gears, etc.	FOB Y 1,550,000

1566

ANNEX VI

The list of the Japanese experts.

The long term experts

Mr. Hideo Ohnishi	Team Leader and Weaving May 30, 1981 - May 29, 1983
Mr. Tamotsu Hoshiyama	Team Leader and Weaving October 15, 1986 - October 14, 1989
Mr. Akio Yamada	Spinning. November 11, 1987 - November 10, 1989
Mr. Toshihide Kobayashi	Knitting. January 27, 1988 - March 1, 1989
Mr. Katsuo Shimizu	Coordinator July 1, 1989 - June 30, 1990.

The short term experts.

Mr. Yamato Nakamura	Air conditioning system June 1 - 14, 1981
Mr. Junkichi Takahashi	Construction June 1 - 14, 1981
Mr. Yuji Ashikawa	Air conditioning system Mar. 11 - June 7, 1987
Mr. Yasuji Teramoto	Air conditioning Dec. 7 - 27, 1987
Mr. Keiji Yoshikawa	Installation of warper. Feb. 10 - March 11, 1988 (1st time) Dec. 10 - 22, 1988 (2nd time)
Mr. Akira Yamada	Installation of knitting machine January 7 - 27, 1989

<b>Mr. Hideo Morita</b>	<b>Spinnig &amp; Weaving machine</b> <b>Feb.10 - March 25, 1988</b>
<b>Mr. Tomoyuki Suzuki</b>	<b>Spinning &amp; Weaving machine</b> <b>Feb.10 - March 11, 1988</b>
<b>Mr. Koji Okui</b>	<b>Installation of sectional warper.</b> <b>March 2 - 13, 1988 (1st time)</b> <b>December 12 - 23, 1988 (2nd time)</b>
<b>Mr. Kazunori Kase</b>	<b>Installation of spinning machine.</b> <b>December 7 - 25, 1988</b>
<b>Mr. Suehiro Kobayashi</b>	<b>Blow room machine installation.</b> <b>August 25. - September 29,1989</b>
<b>Mr. Yasuhiro Tsukahara</b>	<b>Research and Testing.</b> <b>October 1 - 16, 1989</b>
<b>Mr. Shigeru Yamamoto</b>	<b>Weaving</b> <b>October 1,1989 - March 31,1990</b>
<b>Mr. Tomonobu Miwa</b>	<b>Spinning</b> <b>November 15,1989 - March 31,1990</b>

Dispatch of the Implementation Survey Team and  
Technical Consultation Team.

1. Preliminary Survey Team. August 4 - 23, 1978

Mr. Toshio Ozawa	Team Leader	Toyobo Co.
Mr. Shouzo Nakamura	Member	Spinning sec. MITI
Mr. Hideo Sekiguchi	"	Japan Spinning Inspection Assoc.
Mr. Sousuke Muto	"	Spinning Technology Sec..Kanebo
Mr. Junnosuke Sato		JICA

2. Implementation Survey Team. October 25 - November 9, 1980

Mr. Mitsuo Suzuki	Team Leader	Nihon Sangyo gijutsu Shinkokai
Mr. Makoto Nakamura	Member	JICA
Mr. Junkichi Takahashi	"	Nihon Sekkei Jimusho
Mr. Masuo Hayakawa	"	Toyoda Automatic Loom Works.
Mr. Hiroaki Ohkubo	"	JICA

3. Technical Consultation Team. March 3 - 20, 1981

Mr. Hitoshi Akami	Team Leader	Agency of Industrial Science and Technology. MITI
Mr. Takeshi Kitano	Member	- ditto -
Mr. Masafumi Kinoshita	"	JICA

4. Technical Consultation Team. April 18 - 27, 1983

Mr. Yoshio Hisatome	Team Leader	JICA
Mr. Hitoshi Akami	Member	Agency of Industrial Science and Technology. MITI
Mr. Makoto Nakamura	"	JICA



5. Technical Consultation Team. October 24 - November 2, 1985
- |                    |             |      |
|--------------------|-------------|------|
| Mr. Keiiji Iimura  | Team Leader | JICA |
| Mr. Ryuichi Murata | Member      | "    |
6. Technical Consultation Team. April 9 - 17, 1986
- |                        |             |                       |
|------------------------|-------------|-----------------------|
| Mr. Tamotsu Hoshiyama  | Team Leader | JICA                  |
| Mr. Junkichi Takahashi | Member      | Nihon Sekkei Jimusho. |
| Mr. Rikimasa Katayama  | "           | Taikisha              |
| Mr. Ryuichi Murata     | "           | JICA                  |
7. Technical Consultation Team. March 14 - 25, 1987
- |                    |             |                              |
|--------------------|-------------|------------------------------|
| Mr. Keiiji Iimura  | Team Leader | JICA                         |
| Mr. Kiyoji Okumura | Member      | MITI                         |
| Mr. Koji Ichikawa  | "           | Toyobo Engineering Co., Ltd. |
| Mr. Tadao Shiga    | "           | JICA                         |
8. Technical Consultation Team. April 8 - 16, 1988
- |                    |             |   |
|--------------------|-------------|---|
| Mr. Ryuichi Murata | Team Leader | JICA  |
| Mr. Kenji Nishibe  | Member      | MITI  |
| Mr. Koji Ichikawa  | "           | Toyobo Engineering Co., Ltd.                          |
| Mr. Mitoshi Akami  | "           | Agency of Industrial Science<br>and Technology. MITI. |
| Mr. Tadao Shiga    | "           | JICA  |
9. Technical Consultation Team. February 20 - March 3, 1989
- |                       |             |                              |
|-----------------------|-------------|------------------------------|
| Mr. Shouzo Kakuno     | Team Leader | JICA                         |
| Mr. Eiji Yamada       | Member      | MITI                         |
| Mr. Koji Ichikawa     | "           | Toyobo Engineering Co., Ltd. |
| Mr. Kimiaki Yamaguchi | "           | JICA                         |

The list of the counterpart personnels who were trained in  
JAPAN.

Name.	Period.
Dr. Mohamed Kamel, ex-chairman, NRC	September 15 - 29, 1981
Dr. Abdel Aziz Kantouch	- ditto -
Dr. Ahamad F. El-Shakawy	- ditto -
Mr. Ibrahim Hanafy	January 30 - Sept. 30, '82
Mr. Abdel Aziz M. Sharrouf	July 15, '82 - Jan. 14, '83
Mr. Hosny Abdel H. Behery	March 17 - May 27, 1983
Dr. Mohamed Saad	Nov. 29, '86 - Jan. 27, '87
Dr. Sami Mansour	Sept. 20 - Oct. 4, 1987
Dr. Abdel Aziz Kantouch	- ditto -
Dr. Mohamed Saad	Nov. 9, '87 - Feb. 22, 1988

## ANNEX IX

	Egyptian pounds
- land price in 1978 "	1 / 140 ,000
- Calculations , Analysis	
- and Design "	15 ,000
- Foundations "	170 , 000
- Construction ( Contractor ) "	1 ,400 ,000
- Consultation "	32 ,000
--Preparations "	80 ,000
- Ceramics "	15 ,000
- Outdoor works "	100 ,000
- Transporting Machineryes	
fom Alex . to Cairo "	10 ,000
- Other general expenditures "	15 ,000
	-----
Total	3 , 017 ,000

## ANNEX X

(Annex X)

	I	II	III
	Operation	Operation	Machine
Spinning.	by C/P	Frequency	Condition
Blow room machine	B	C	A
High production card.			
for cotton	B	B	B
for polyester	B	B	B
High speed drawing frame.			
for open-end spinning.	B	B	B
for ring spinning.	B	B	B
Super lap former.	B	B	B
High production comber.	B	B	A
Simplex fly frame.	B	B	A
Ring spinning machine.	A	A	B
Open-end spinning machine.	C	C	A
High speed cone winder.	B	B	B
High speed double winder.	B	B	B
Ring twisting machine.	B	B	B
Steam setter.	A	C	A
Weaving.			
Sectional warp sizing machine.	B	C	A
Warp beaming machine.	B	C	A
Automatic pirn winder.	A	A	A
Shuttle loom	A	A	A
Rapier loom	A	A	A
Air-jet loom.	A	A	A
Knitting.			

Flat knitting machine.	A	A	B
Single Jersey knitting machine.	B	C	B
Double Jersey knitting machine.	B	C	B

Remarks.

I. A: Very Good.

B: Good.

C: Fair.

II.A: Frequently used.

B: Seldom used.

C: To be used in case of need.

- Frequency of operation of the machine depends on situation in series of operation. Therefore, above remarks show only guideline.

III.A: Very Good.

B: Good.

C: Poor.

JICA